COMMUNITY REGION BOUNDARIES

EL DORADO COUNTY COMMUNITY DEVELOPMENT AGENCY
LONG RANGE PLANNING DIVISION

BOARD OF SUPERVISORS

February 24, 2015

INTRODUCTION

- Proposed Project Background
- Origin of Community Regions
- Project Analysis and Environmental Review Matters to Consider
- Funding Options
- Recommended Board Action

BACKGROUND

Board Hearings and Actions Related to the Camino/Pollock Pines Community Region

2009:

The Board discussed changing the Camino-Pollock Pines area from a Community Region to a Rural Center; Planning Commission held a public workshop on the proposed amendments; BOS adopted ROI 110-2009 with intent to remove the CR boundary and convert to 2-3 Rural Centers without land use changes

2011:

The BOS directed staff to integrate the previous ROI for the Camino/Pollock Pines Community Region into the TGPA-ZOU Project ROI.

2012:

The BOS authorized review via TGPA-ZOU to create 3 Rural Centers of Camino, Cedar Grove and Pollock Pines.

2013:

The BOS directed staff to continue processing the proposed CR changes under the TGPA-ZOU Project.

Board Hearings and Actions Related to the Shingle Springs and El Dorado Hills Community Regions

2013:

Board directed staff to:

Prepare Community Region White Paper. Based on the White Paper the Board:

Directed staff to return with a work plan pertaining to costs, and

Next steps and options for moving the Shingle Springs and El Dorado Hills Community Region boundary lines

2014:

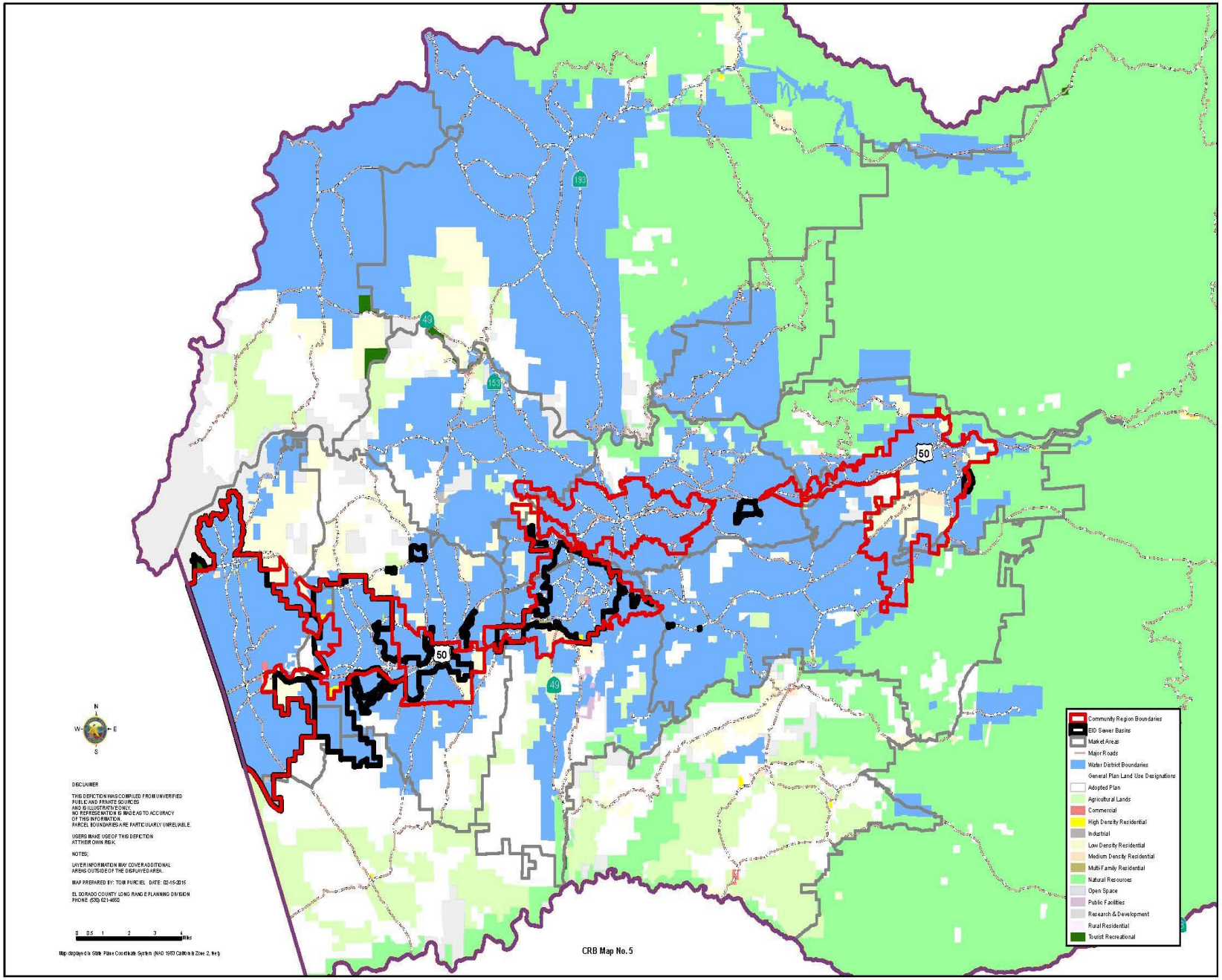
The Board directed staff to prepare a ROI to contract the Community Regions of Shingle Springs and the Green Valley corridor and to prepare prioritization and funding options to implement the above ROI.

ORIGIN OF COMMUNITY REGIONS

Community Regions were first designated and adopted in the 1996 General Plan.

- Community Region boundaries guide growth to areas with:
  - adequate infrastructure;
  - adequate public services;
  - access to major transportation corridors

  (Policies 2.1.1.2 and 2.1.1.7)
- Community Region boundaries provide opportunities for continued population growth and economic expansion where adequate infrastructure and services are available;
- Community Regions allow for a mix of uses that promote alternate transportation systems.


Community Region Boundaries
EID Sewer Basins
Market Areas
Major Roads
Water District Boundaries
General Plan Land Use Designations
Adopted Plan
Agricultural Lands
Commercial
High Density Residential
Industrial
Low Density Residential
Medium Density Residential
Multi-Family Residential
Natural Resources
Open Space
Public Facilities
Research & Development
Rural Residential
Tourist Recreational
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NOTES:
LAYER INFORMATION MAY COVER ADDITIONAL AREAS OUTSIDE OF THE DISPLAYED AREA.
MAP PREPARED BY: TOM PURCIEL DATE: 02-15-2015
EL DORADO COUNTY LONG RANGE PLANNING DIVISION
PHONE (530) 621-4650
Miles
Map displayed in State Plane Coordinate System (NAD 1983 California Zone 2, feet)
CRB Map No. 5

PROJECT ANALYSIS/ENVIRONMENTAL REVIEW MATTERS TO CONSIDER

- 2004 General Plan EIR and Findings
  - Land availability to meet housing and job growth projections
  - Change of growth patterns
  - Limits on infill opportunities (e.g. new development in areas already served by infrastructure and public services)
  - Fiscal, safety and other effects including changing roadway Level of Service ("LOS") standards from E to D and reducing required response times for fire districts, sheriff, & ambulances
  - Cost of housing and infrastructure
  - Economic development and business attraction

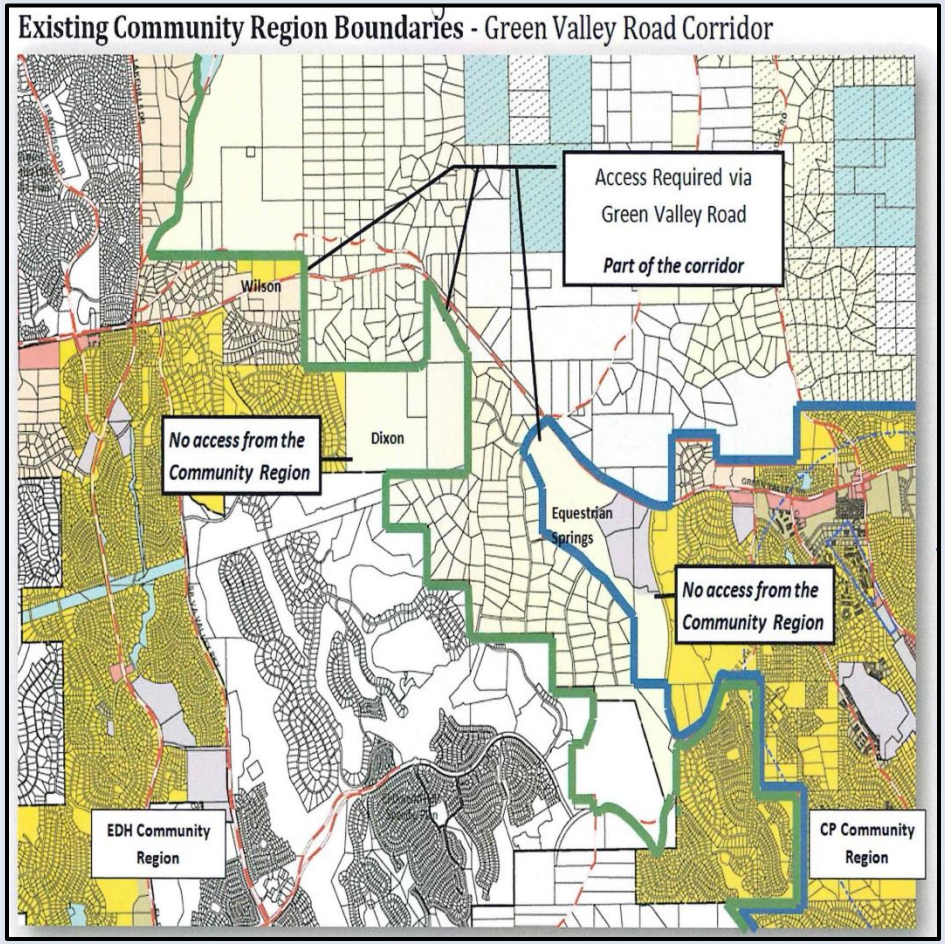
2035 GROWTH PROJECTIONS

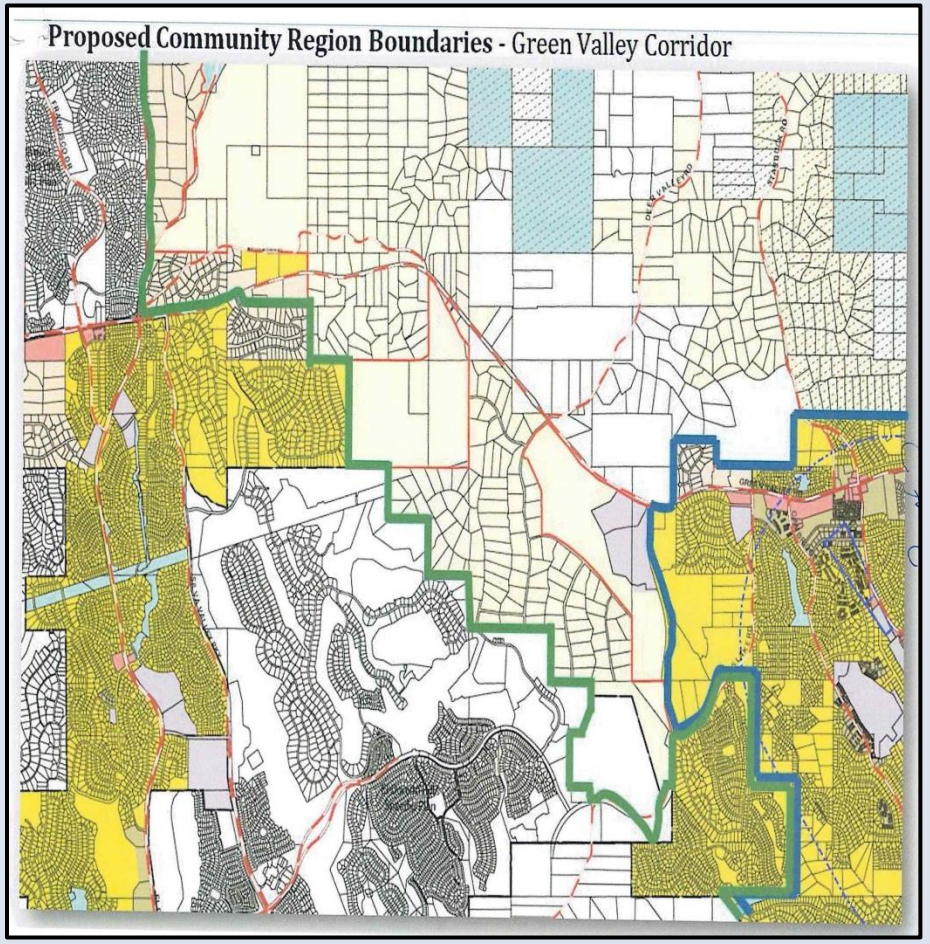
Approximately 17,500 new units over 20 years

75% Community Region* (Within EID Service Area)		25% Rural Center and Rural Region (EID, GDPUD, Other purveyors or private wells)		Total
Single Family Existing or Entitled	8,000	Single Family Existing or Entitled	4,200	**12,200**
Single Family Remaining	3,000	Single Family Remaining	0	**3,000**
Multi Family**	2,100	Multi Family**	200	**2,300**
Total CRs	13,100	**Total RC and RR**	4,400	**17,500**

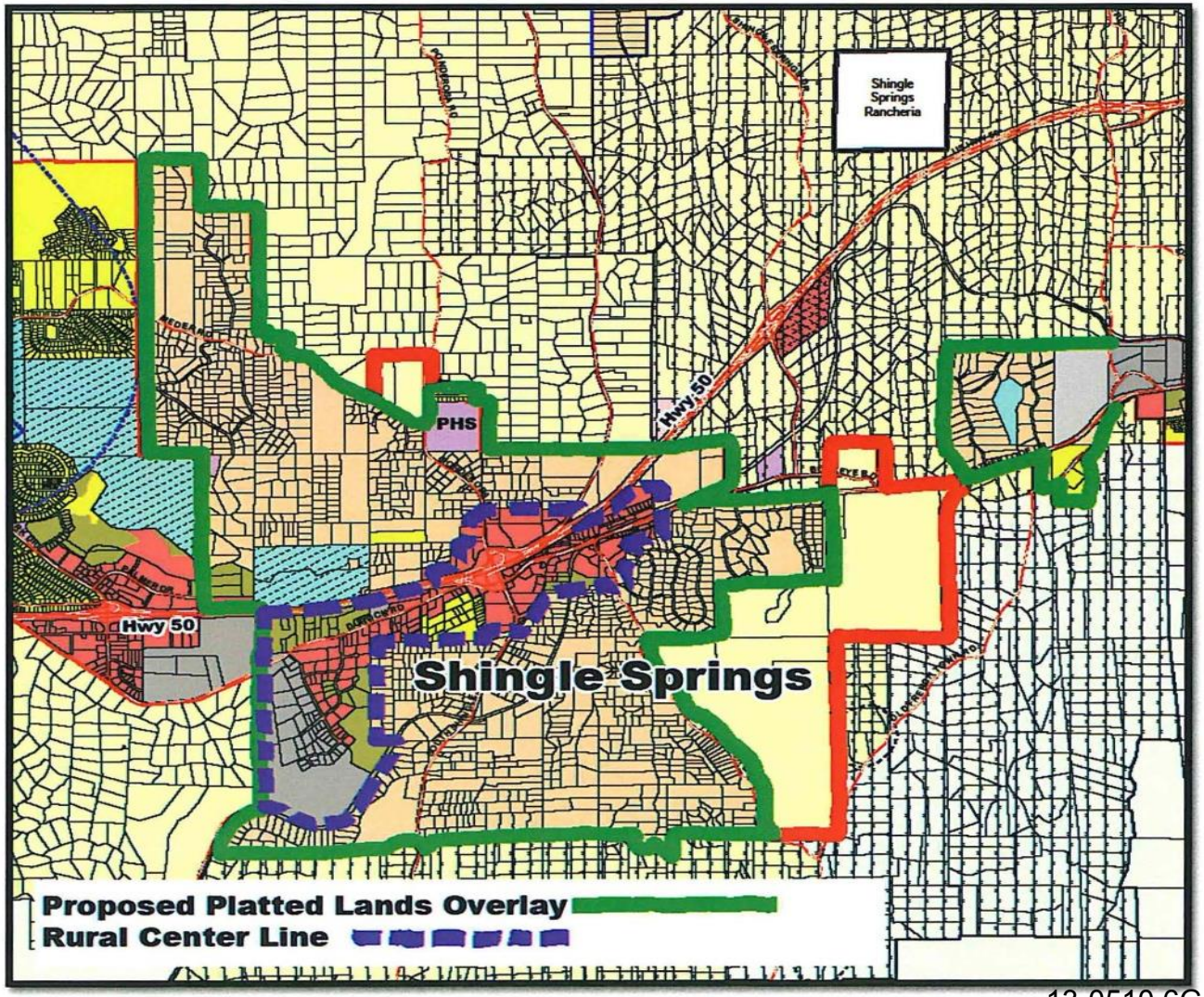
Note: All numbers are rounded
*Assumes Camino/Pollock Pines is changed to 3 Rural Centers
**Multi Family units based on 2013-2021 RHNA allocation. This number is subject to change in 2021 at next Housing Element Update

EL DORADO HILLS AND CAMERON PARK MAP





SHINGLE SPRINGS MAP



PROJECT ANALYSIS/ENVIRONMENTAL REVIEW MATTERS TO CONSIDER CONT.

- 2004 General Plan Consistency
- Housing Element
  - The County must identify, analyze and reduce or eliminate impediments to the development of housing for all income levels
  - The County must accommodate it's fare share of housing
  - 2013 Housing Element - *The State of California has declared the lack of housing is a critical problem that threatens the economic, environmental, and social quality of life in California. Any action that conflicts with the ability of the County to meet the goals of this General Plan and California Law, including but not limited to Housing Element Law, Government Code Section 65585, would be found inconsistent with State and local regulations.*
  - Possible indirect effect on parcels adjacent to Platted Lands

FUNDING OPTIONS

- CEQA costs could range from $10-20,000 in staff time to prepare a Negative Declaration, or up to $150,000 in consultant costs if an EIR is necessary
- Initial Study prepared by staff will determine ND vs EIR; analysis to date indicates an EIR may be necessary
- Three options if EIR is needed:
  - Allocate money from the General Fund contingency
  - Use General Fund money budgeted for outside legal costs that would otherwise be returned to General Fund this FY
  - Discuss funding as part of the FY 2015/16 budget (Staff's recommendation)

PROJECT PRIORITIZATION

Staff has been generally prioritizing projects based on the following:

Draft Project Prioritization Matrix

Major County-Initiated Land Use and Transportation Projects Managed by Long Range Planning Division (LRP)

		Priority: Get things done by finishing what we've started	**Priority:** Economic development	**Priority:** Set strong countywide foundation	**Priority:** Address requirements	
		Intent: Prioritize projects already initiated by Board and currently underway	Intent: Prioritize projects that directly improve economic development	Intent: Prioritize projects that address key issues affecting entire county	Intent: Prioritize projects required by General Plan, law, or other mandates	
LRP's Major County-Initiated Land Use and Transportation Projects	**Timeframe**	**Question:** Is the project currently in process?	**Question:** Does the project directly improve Economic Development?	**Question:** Does the project address an issue affecting the entire county?	**Question:** Is the project required by policy, law or other mandates?	Recommended Project Prioritization
TGPA/ZOU	Complete in June 2015	Yes	Yes	Yes	Yes	1.A
Major CIP and TIM Fee Update	Complete in early 2016	Yes	Yes	Yes	Yes	1.A
Annual CIP Update	Ongoing; next update due June 2015	Yes	Maybe	Yes	Yes	1.B
Biological Resource Policies Update	Complete in mid 2016	Yes	Yes	Yes	Maybe	1.B
Sign Ordinance Update	Complete in May 2015	Yes	Yes	Yes	No	1.B
Mid-Year CIP Update	Ongoing; next update due March 2015	Yes	Maybe	Yes	No	2
Meyers Area Plan	TBD	Yes	Yes	No	Maybe	2
General Plan 5 Year Review	Ongoing; work will begin mid 2015	Yes	Maybe	Yes	Yes	2
General Plan Implementation - Key Projects						
Update Design Improvement Standards Manual (aka Land Development Manual)	TBD	Yes	Maybe	Yes	Yes	2
Infill Ordinance	TBD	No	Maybe	Yes	Yes	3
Scenic Corridor Ordinance	TBD	No	No	Yes	Yes	3
Community Planning	TBD	No	Maybe	Maybe	Yes	3
Cultural Resource Preservation Ordinance	TBD	No	No	Yes	Yes	3
General Plan Amendment to Contract Community Region Boundary Lines	TBD	Maybe	No	Maybe	No	4
MC&FP Phase II	TBD	Maybe	Yes	No	Maybe	4

RECOMMENDED BOARD ACTION

- Endorse a final matrix or list that prioritizes all County-initiated land use and transportation projects managed by LRP and direct staff to return to the Board every six months to provide an update;
- Adopt the draft Resolution of Intention;
- Discuss funding for processing this project as part of the FY 2015/16 budget, and;
- Determine Project's priority and preferred method processing based on staff and funding availability.

Small Water System Program

The Small Water System Program is involved with the permitting, inspection, and monitoring of 175 small public water systems. The County is the Local Primacy Agency, under contract with the State Department of Health Services, to perform the program requirements that are specified in State and Federal Regulations. The purpose of the program is to ensure that small water systems deliver safe, adequate, and dependable potable water. Environmental Health reviews new applications and changes of ownership to verify that the system will be able to meet technical, managerial, and financial capabilities.

Declaration of Small Water Systems Status

Definitions for Small Water Systems

Sampling Requirements:

- Community Water Systems using a Groundwater Source
- Community Water Systems using a Surface Water
- Non-Transient / Non-Community Water Systems Using a Groundwater Source
- Non-Community Water Systems Using a Groundwater Source
- Non-Community Water Systems Using a Surface Water Source

Instructions for Taking Water Samples

Laboratories Approved for Drinking Water Analysis

Operating Requirements:

- Bacteriological Sample Siting Plan Requirements
- Bacteriological Sample Siting Plan
- Annual Consumer Confidence Reports
  - State guidelines and templates/forms
- Water Quality Emergency Notification Plan for Small Water Systems

Fee Schedule

Coliform Bacteria Contamination-"What is coliform bacteria and why is it harmful?"

Water Quality Frequently Asked Questions

Chapter 3

Existing Water Supply and Policy

3.1 INTRODUCTION

This chapter presents an overview of existing water supplies, rights and permits, and contracts available to El Dorado County's water purveyors and others. Details were obtained from available reports and interviews with water purveyor and County personnel. This chapter also describes the various state and federal policies that regulate the use of these water sources.

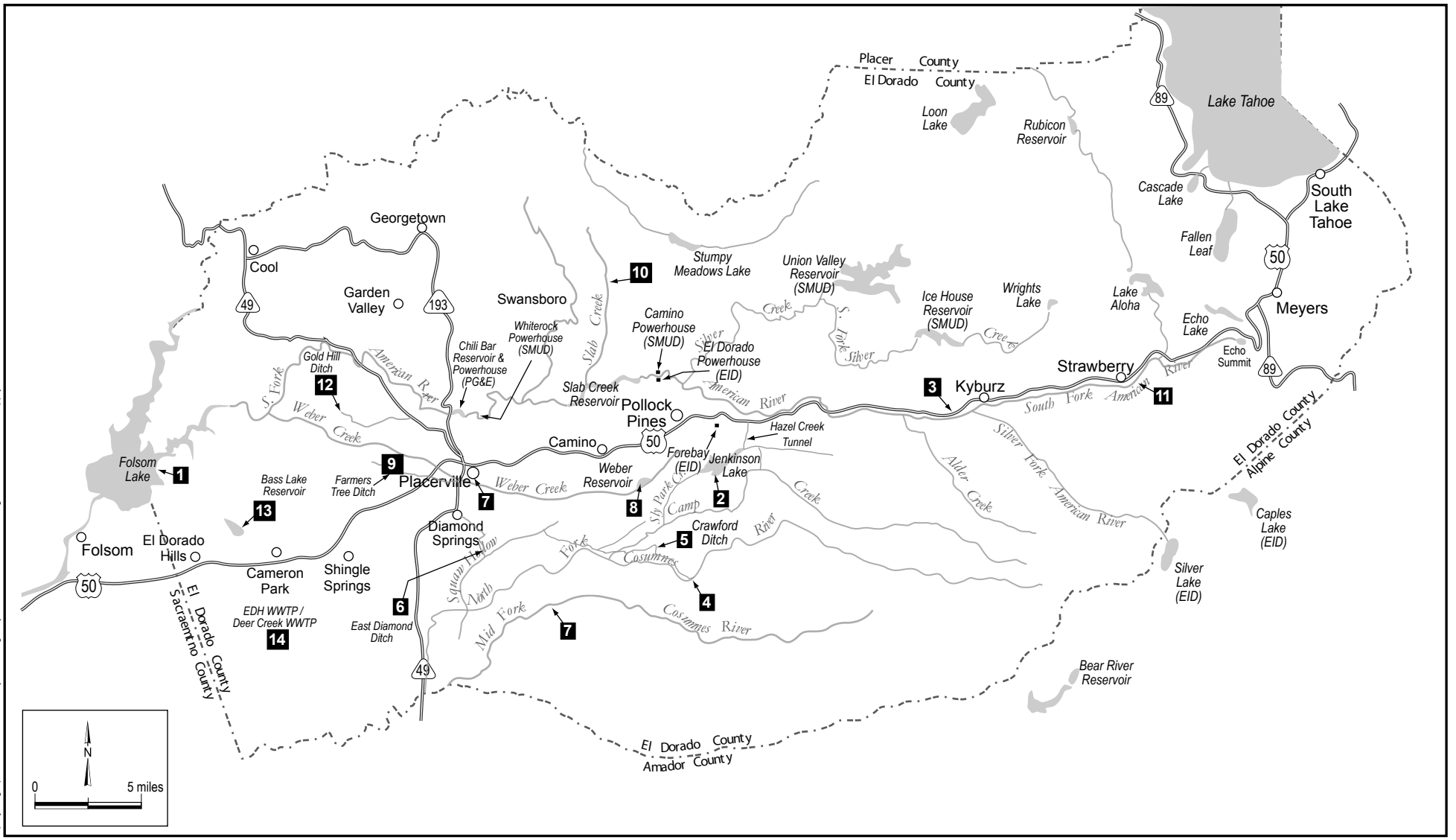
3.2 EL DORADO COUNTY WATER AGENCY

The Water Agency holds no water entitlements at this time. The Agency is working with the U.S. Bureau of Reclamation (USBR) to secure 15,000 acre-feet of water from Folsom Lake as authorized under Public Law (PL) 101-514 and then will transfer that water through contracts with El Dorado Irrigation District (EID) and Georgetown Divide Public Utility District (GDPUD). The Water Agency, in its role with the El Dorado Water and Power Authority (EDWPA), has also taken the lead in negotiating the SMUD Cooperation Agreement, which allows use of SMUD's Upper American River Project to develop a water supply of up to 40,000 AF and is currently pursuing water rights in association with this project. These supplies will be discussed in more detail in Chapter 5.

3.3 EL DORADO IRRIGATION DISTRICT

The EID water supply is by far the most complex of the systems in El Dorado County and comes from a variety of sources. The following general descriptions of these sources and the accompanying figures and tables are taken primarily from the District's draft *Water Supply Master Plan*[1] but have been reviewed and updated by EID staff for purposes of this report. The approximate location of each source is shown in **Figure 3-1**, and diversion rates, storage amounts, and other water rights information are summarized in **Table 3-1**.

1 See Appendix A (Bibliography), No. 1



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1. Folsom Lake
2. Jenkinson Lake / Camp, Park, & Hazel Creeks
3. South Fork American River / Kyburz
4. North Fork Cosumnes River / North Fork Extension
5. Clear Creek / Crawford Ditch
6. Squaw Hollow Creek / East Diamond Ditch
7. Middle Fork Cosumnes River / Outingdale
8. Weber Reservoir / Weber Dam
9. Weber Creek / Farmer's Free Ditch
10. Slab Creek / Summerfield Ditch
11. South Fork American River / Strawberry
12. Hangtown Creek / Gold Hill Dtich
13. Bass Lake Reservoir
14. Recycled Water / EDH and Deer Creek WWTPs

Figure 3-1
Location of Existing Water Supply Sources

Table 3-1
Existing EID Water Sources

Source No.	Water Source	Facility Name or Location	Contract / Agreement or Appropriator	Water Right Application Number	Water Right Permit Number	Water Right License Number	Maximum Diversion Rate	Entitlement or Storage	Notes
1	Folsom Lake	EID Raw Water Pump Station	USBR / EID Contract 14-06-200-1375A (El Dorado Hills)	13370, 13371 USBR	11315 & 6 USBR	USBR	19.5 mgd (30.2 cfs)	7,500 af/yr	a
1	Folsom Lake	EID Raw Water Pump Station	USBR / EID Contract	Included above with El Dorado Hills	Included above with El Dorado Hills	USBR	Included above	50 af/yr	a
2	Jenkinson Lake (Camp Creek, Hazel Creek, Sly Park Creek)	Sly Park Reservoir and Dam	EID 23,000 af of average annual yield	13707 & 8 5645A, 2270	10473 & 4 12258, 2631	11835 11836	500 cfs Inlet (Camp Creek and 125 cfs Outlet)	EID water right of 33,400 af/yr	b, c
2	Camp Creek	Jenkinson Lake	EID	Pre-1914	N/A	N/A	12.5 cfs	None	c
3	South Fork American River at Kyburz and Project 184 Reservoir	El Dorado Forebay Diversion to EID Main Ditch	EID	Pre-1914	N/A	N/A	40 cfs	15,080 af/yr	d
3	South Fork American River at Folsom	Project 184	EID	A005645B	Permit 21112		156 cfs up to 17,000 af/yr	Folsom Reservoir	m
4	North Fork Cosumnes River	North Fork Cosumnes Extension	EID	Pre-1914	N/A	N/A	15 cfs	5,000 af/yr	e
5	Clear Creek	Crawford Ditch	EID	Pre-1914	N/A	N/A	15 cfs	5,000 af/yr	f
6	Squaw Hollow Creek	East Diamond Ditch	EID	Pre-1914	N/A	N/A	Natural Flow	None	g
7	Middle Fork Cosumnes River	Outingdale Subdivision	EID	7478	4071	Pending	0.26 cfs	104 af/yr	
8	Weber Reservoir	Weber Dam	EID	1692	1053	2184	Natural Flow	(1,145 af/yr)	
9	Weber Creek	Farmer's Free Ditch	Missouri Flat Ditch Association & EID 1930 Agreement	Pre-1914	N/A	N/A	7 cfs	None	h
10	Slab Creek	Summerfield Ditch	EID	Pre-1914	N/A	N/A	10 cfs	None	i
11	South Fork American River	Strawberry	EID	Prescriptive Statement 10717	N/A	N/A	0.222 cfs	50 af/yr (200,000 gal storage tank)	j
11	Unnamed Spring	Strawberry	EID	15140	9467	11401	0.011 cfs	Included above with strawberry	j

Table 3-1
Existing EID Water Sources

Source No.	Water Source	Facility Name or Location	Contract / Agreement or Appropriator	Water Right Application Number	Water Right Permit Number	Water Right License Number	Maximum Diversion Rate	Entitlement or Storage	Notes
11	Unnamed Stream	Strawberry	EID	11675	6999	11400	0.026 cfs	Included above with strawberry	j
12	Hangtown Creek	Gold Hill Ditch	EID	Pre-1914	N/A	N/A	Natural Flow	None	k
13	Bass Lake Watershed	Bass Lake	EID	Statement 009304	N/A	N/A	Natural Flow	700 af existing capacity	l
14	Recycled Water	El Dorado Hills and Deer Creek Reclamation Plants	EID	N/A	N/A	N/A	EDH plant 3.0 mgd; DC plant 3.6 mgd	192 af storage at EDHWWTP	

N/A Not Applicable

[a] The combined supply of 7,550 acre-feet per year is diverted by pump from Folsom Lake to the El Dorado Hills water treatment plant with a current capacity of 19.5 mgd. This water is then treated and distributed in the El Dorado Hills service area.

[b] Reservoir capacity at full pool is 41,000 acre-feet, including dead storage of 480 acre-feet and an allowance of 1,000 acre-feet for sedimentation. The reservoir is operated as two years of storage, with treated water released through the Camino Conduit to Reservoirs 2, and through the Pleasant Oak Main to Reservoir A.

[c] In addition to the 500 cfs Camp Creek diversion, EID has rights to 12.5 cfs based upon pre-1914 water rights for diversions from Camp Creek at the Camp Creek segment of the Crawford Ditch. When Sly Park Dam was constructed, the point of diversion for these rights was moved upstream from the Camp Creek Ditch, to the diversion dam at the inlet to the Camp Creek tunnel to Jenkinson Lake.

[d] In October of 1999, the Pacific Gas & Electric Company transferred the water rights for both power generation and consumptive uses to EID for the FERC Project 184. This project includes reservoirs and associated dams, canals, a powerhouse and other facilities. The original water rights claim is dated 1856.

[e] Diversions are made between April and November each year to meet customer demands on the North Fork Extension and Camp Creek segment of the Crawford Ditch. Tail water flows can also be used to supplement the Clear Creek segment of the Crawford Ditch when available.

[f] Diversions are made year round into the Crawford Ditch from Clear Creek when available. Supplemental water is also released from Jenkinson Lake into Clear Creek for aesthetic flow purposes (by agreement with homeowners), which are recaptured at Clear Creek diversion dam to meet Crawford Ditch irrigation demands. A 0.5 cfs bypass flow below the diversion dam is now maintained as of 2005.

[g] Water is released into Squaw Hollow Creek from the end of the Crawford Ditch to supplement natural creek flows diverted to the East Diamond Ditch to serve irrigation customers.

[h] The natural flows of Weber Creek are rediverted at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to pre-1914 rights.

[i] EID historically made direct diversions from Slab Creek to the Summerfield Ditch to supply irrigation customers. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to pre-1914 rights. ,

[j] EID makes direct diversions from the South Fork American River by pump. Upgraded water treatment facilities and a 200,000-gallon water storage tank were installed in 1994 to improve water quality and supply reliability. Direct diversions are no longer made from the unnamed spring and stream because of the unreliability of the water supply and water quality.

[k] Direct diversions were historically made from Hangtown Creek into the Gold Hill Ditch at the west end of Placerville. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to pre-1914 rights.

[l] The Bass Lake storage is used to supplement the recycled water system during peak summertime demands. Potable water from EID's nearby piped system is used to fill Bass Lake as needed, but is normally scheduled when Jenkinson Lake is full and spilling.

[m] In 2001, EID received consumptive water right for 17,000 acre-feet of FERC Project 184 water to be taken at Folsom Reservoir.

- **Folsom Lake.** This water supply is based on 1968 El Dorado Hills and 1958 Lake Hills contractual entitlements with the USBR. Through current water service contracts with the USBR for Folsom water, EID is entitled to 7,550 acre-feet per year.

- **Jenkinson Lake (Sly Park Unit of the Central Valley Project)**. This project is based on a 1953 USBR contractual entitlement (Water right application numbers 13707 and 13708). EID and the USBR renewed this contract for the purchase of water from Jenkinson Lake. In late 2003, EID completed the transfer of the Sly Park Unit and acquired Jenkinson Lake from the USBR. Federal legislation authorizing the transfer was signed into law in October of 2000 by President Clinton. EID is no longer bound by the USBR contractual limits on operation of the facility and now holds the water rights.

- **South Fork American River and Project 184 Reservoirs.** These sources supply the existing FERC 184 Water Project. This supply is delivered by the El Dorado Canal and Forebay for diversion into the EID Main Ditch for subsequent treatment at the Forebay Water Treatment Plant. The water was formerly purchased under a contract with Pacific Gas & Electric (PG&E) and its predecessor Western States Gas and Electric Co. In 1999, PG&E transferred the water rights for both power generation and consumptive uses to EID.

- **North Fork Cosumnes River, Clear Creek and Squaw Hollow Creek.** EID retains pre-1914 water rights for direct diversion from North Fork Cosumnes River, Clear Creek and Squaw Hollow Creek for serving the Crawford Ditch System.

- **Middle Fork Cosumnes River**. EID holds a 1933 appropriative water right for direct diversion from the Middle Fork Cosumnes River serving the Outingdale Subdivision.

- **Weber Reservoir**. EID holds a 1920 appropriative water right for storage in Weber Reservoir.

- **Weber Creek.** EID retains a pre-1914 water right for direct diversion from Weber Creek. Since 2003, EID has rediverted this water at Folsom Lake through a temporary Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to the pre-1914 right.

- **Slab Creek**. EID retains a pre-1914 water right for direct diversion from Slab Creek. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to the pre-1914 right.

- **South Fork American River and Unnamed Spring and Stream.** EID retains prescriptive and riparian rights for direct diversion by pump from South Fork American River, as well as a 1947 appropriative water right for direct diversions from an unnamed stream and an unnamed spring.

- **Hangtown Creek**. EID retains a pre-1914 water right for direct diversion, first used by a predecessor to EID during the 1850s. Since 2003, EID has rediverted this water at Folsom Lake through a Warren Act Contract with the USBR for use in El Dorado Hills, pursuant to the pre-1914 right.

- **Bass Lake Reservoir.** EID retains a pre-1914 water right for collection of the surrounding watershed, tributary to Bass Lake. Water was first used at this site in 1866.

- **Recycled Water.** Recycled water from the El Dorado Hills reclamation plant has been used for industrial purposes and golf course irrigation since 1979. Recycled water has been used from the Deer Creek reclamation plant for golf course, landscape, and road median irrigation since 1994. A noteworthy accomplishment has been the use of recycled water for residential landscape irrigation in both front and backyards in El Dorado Hills since 1998. Currently, EID supplies over 3,000 acre-feet of recycled water and plans to provide approximately 7,000 acre-feet by 2020.

- **South Fork American River and Project 184 Reservoirs**. In 1991, EID and the El Dorado County Water Agency jointly submitted an application for diversion and consumptive use of 17,000 acre-feet of water from Project 184. In 2001, EID received Water Right Permit No. 21112 allowing additional water to be diverted from Folsom Lake for consumptive purposes, subject to certain terms and conditions. In 2006, an Appellate Court affirmed a lower court decision in favor of EID, ruling that Term 91 could not be applied to restrict the use of the 17,000 acre-feet. The USBR has not yet executed a long term Warren Act Contract to allow EID to access this water.

Actual water availability is not equal to the sum of all water entitlements. Several factors influence water availability from EID's entitlements such as use history, infrastructure constraints, and seasonal diversion and storage policies. Firm yield for EID's water supply has been established through computer modeling and is defined as the yield that the integrated supply system can reliably deliver in 95 percent of the years, while incurring shortages in no more than 5 percent of the years. In 2006 EID adopted a supply based system firm yield of 60,550 acre-feet per year. The infrastructure constrained firm yield is 47,000 acre-feet. Safe yield is estimated by this Water Resource Plan at 58,753 acre-feet per year.

3.4 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD's source of water is the Stumpy Meadows project. The reservoir, built in 1962, has a capacity of 20,000 acre-feet and a firm yield of 12,200 acre-feet. Safe yield is estimated at 10,500 acre-feet. Components of the Stumpy Meadows project include:

- **Pilot Creek** – GDPUD holds a Pre-1914 water right to divert and store water from Pilot Creek
- **Pilot Creek** – GDPUD retains a Post 1914 appropriative water right to divert and store water from Pilot Creek
- **Mutton Canyon** – GDPUD retains a Pre-1914 water right to divert water and store water from Mutton Canyon
- **Bacon Canyon** – GDPUD retains a Pre-1914 water right to divert water and store water from Bacon Canyon
- **Deep Canyon** – GDPUD retains a Pre-1914 water right to divert water and store water from Deep Canyon
- **Structure 2** –GDPUD holds a Pre-1914 water right to divert water and store water from an un-named tributary to Pilot Creek
- **Structures 3-7** – GDPUD holds a Post 1914 permit to divert water from five un-named tributaries to Pilot Creek
- **Otter Creek** – GDPUD holds a Post 1914 permit to divert water from Otter Creek
- **Onion Creek** – GDPUD holds a Post 1914 permit to divert water from Onion Creek

Firm yield for the GDPUD water supply was established through modeling and is defined as the yield that the integrated supply system can reliably deliver in 95 percent of the years, while incurring shortages of no more than 10 percent annually for domestic service and 50 percent for untreated water in 5 percent of the years. GDPUD has adopted a system firm yield of 12,200 acre-feet per year. Safe yield is estimated to be 10,500 acre-feet per year.

3.5 GRIZZLY FLAT COMMUNITY SERVICES DISTRICT

GFCSD's current water supply comes from Big Canyon and North Canyon, two surface water tributaries in the North Fork Cosumnes River Basin. Use of this water is allowed under a pre-1914 water right for the direct diversion of available flows from these two streams, at two points of diversions into the Eagle Ditch. The two streams are fed by seasonal rainfall and snowmelt and are also part of a spring-fed system.

At the head of the supply system, below the confluence of North Canyon and an unnamed tributary a diversion conveys water into the upper reach of GFCSD's Eagle Ditch. At the tail end of the upper reach, flow from Big Canyon is diverted into the system and the combined flow is conveyed through the lower reach of the Eagle Ditch to the District's raw water storage reservoir. An adjacent water treatment plant treats the water and releases it into the distribution system for the Grizzly Park subdivision.[3]

The firm yield of the direct diversions which could be conveyed to the water treatment plant was calculated by estimating the quantity of direct diversion, through hydraulic analysis, available to Grizzly Flats CSD, including the reservoir seepage loss, the monthly water use distribution, and evaporation loss. Based on this analysis in the 1998 Borcalli report[3], the safe yield of direct diversions conveyed to the water treatment plant was calculated to 143.5 acre-feet per year.

The District was issued two permits by the State Water Resources Control Board (SWRCB) on August 18, 1989 (Permit 20357 and Permit 20358). Permit 20357 authorizes the District to divert water from an unnamed tributary to the Steely Fork of the Cosumnes River, the total not to exceed 3 acre-feet per year from November 1 through June 15. According to the Borcalli Report (1998), this water flows from Grizzly Creek into Porters Pond for fire suppression purposes. Questions have been raised regarding contamination of this water from septic systems located near the pond. There are currently no facilities to treat this water.

Georgetown Divide Public Utility District

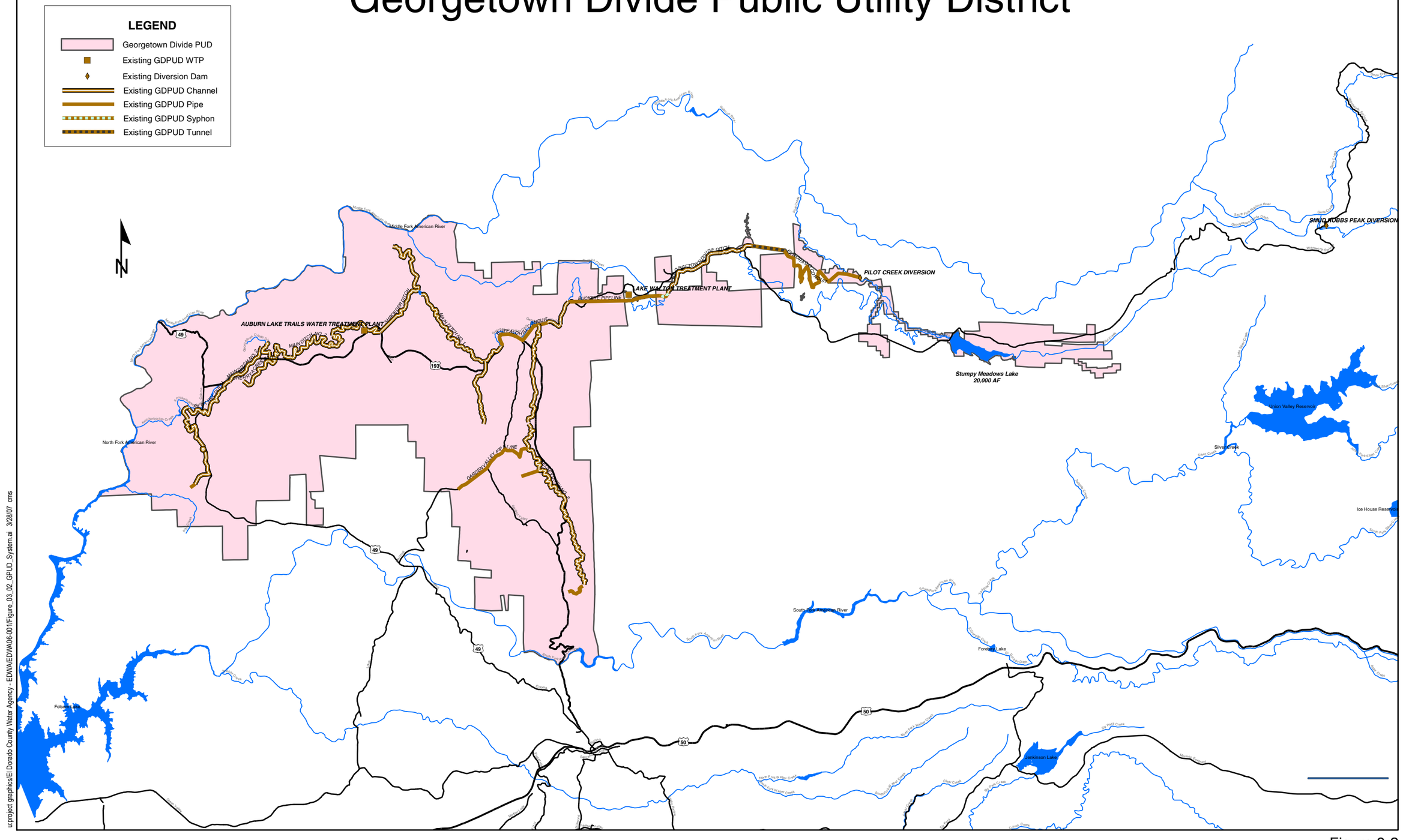

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Figure 3-2

Georgetown Divide Public Utility District System Water Supply

Grizzly Flats Community Services District

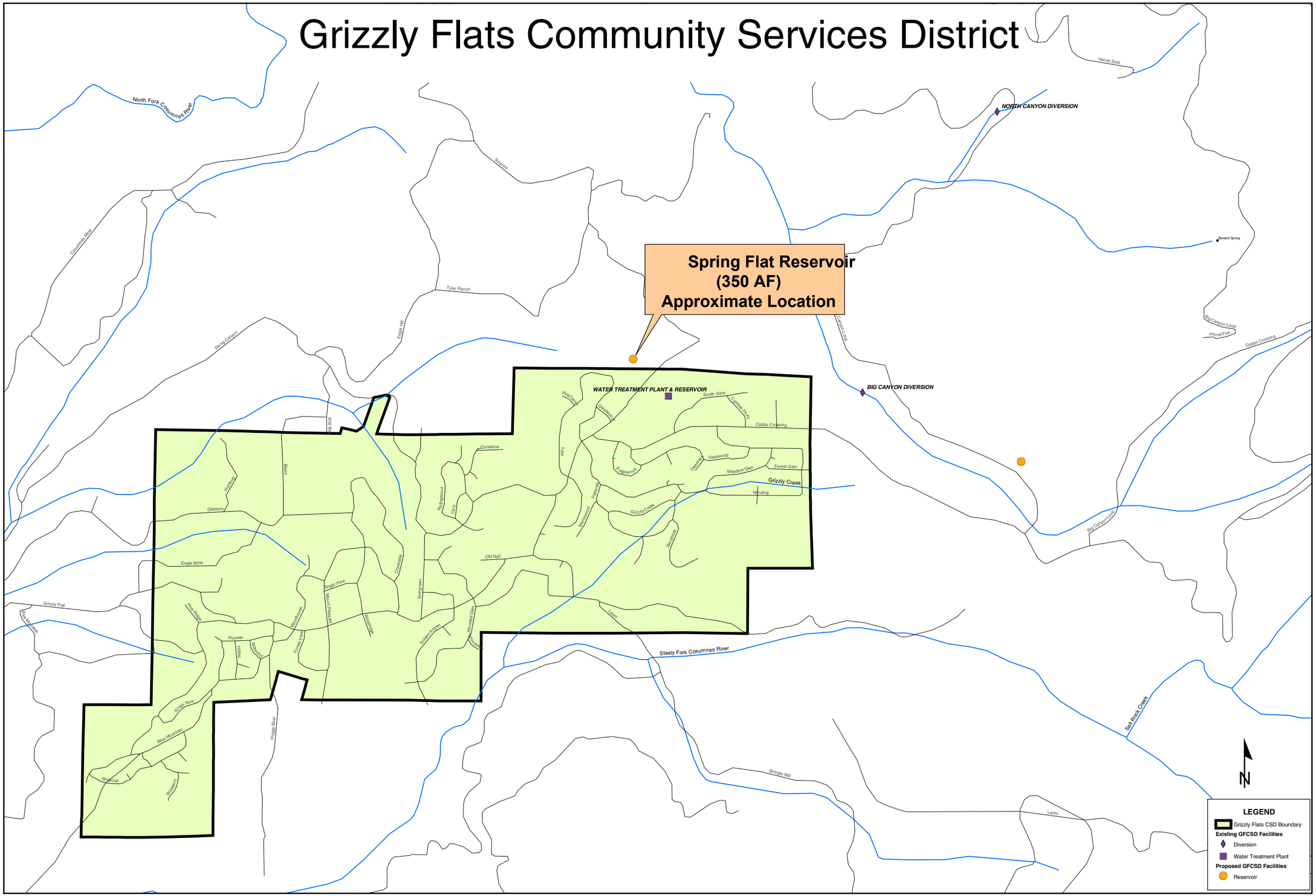

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Figure 3-3

Grizzly Flats Community Services District, Water Supply Projects

Permit 20358 authorizes GFCSD to divert water to storage from North Canyon and Big Canyon. The water appropriated under this permit is not to exceed 31 acre-feet per year and is to be collected between November 1 and June 15. This permit is understood to be for diversion to storage rather than for consumption and, therefore, is more than adequate to allow for seasonal storage in the existing raw water reservoir with its active capacity of about 15 acre-feet.

3.6 SOUTH TAHOE PUBLIC UTILITY DISTRICT

STPUD relies solely on groundwater for its water supply. Starting in 1996, the District detected methyl tertiary butyl ether (MTBE) in one of its wells. Since then, the District has removed 13 wells from service or drastically reduced their pumping rates because of numerous MTBE plumes. Litigation with various petroleum suppliers over the groundwater contamination issue was settled in the District's favor in 2002. As of 2006 the District operates 17 active wells with a nominal capacity of 13,742 gallons per minute (gpm) or 19.79 million gallons per day (mgd). The District's system includes 22 storage tanks with an operational storage capacity of 9 million gallons and 11 booster pump stations with a total maximum pumping capacity of 7,019 gpm.

3.7 TAHOE CITY PUBLIC UTILITY DISTRICT

Until 1989, approximately 60 percent of the District's needs were supplied from Lake Tahoe. The U.S. Environmental Protection Agency (EPA) Surface Water Treatment Rule and other prospective surface water regulations and the attendant costs of their implementation prompted the District to convert their water supply to groundwater. The surface water intakes in the lake are maintained as a standby source in case of emergency.

The District is primarily located in Placer County with the Rubicon System serving the area between Meeks Bay and Bliss State Park in El Dorado County. The Rubicon System supply consists of three wells, a booster pump station, and three steel reservoirs. These facilities are reported to be generally in good condition[2] with some concern expressed for site security and potential fire danger from trees close to the facilities.

The District's Rubicon System facilities include three wells with a total operating capacity of 645 gpm (for two wells; the third is N/A), three storage tanks having a total capacity of 538,000 gallons, and two booster pumps with capacities of 185 gpm each.

2 See Appendix A (Bibliography)

3.8 AGRICULTURE

As stated in the previous chapter, virtually all the agricultural water use within El Dorado County occurs on the western slope, and virtually all of the surface water for agricultural use is supplied by EID and GDPUD and is included in those purveyors' water use figures. Agricultural water use outside of the purveyor service areas is generally supplied from individually owned springs, wells and ponds, and water production and use figures are not readily available.

3.9 OTHER USERS

Water for the non-public water purveyors operating in the portion of the Lake Tahoe area within El Dorado County is supplied by groundwater and all indications are that they will continue to do so in the future. Water production capability figures supplied by purveyors that provided information are as follows:

- **Lukens Water Company:** 2,000 gpm from three active wells,
- **Tahoe Keys Homeowners Association:** 5,000 gpm from three active wells, and
- **Tahoe Swiss Village Utility, Inc.:** 150 gpm from one well.

3.10 GROUNDWATER

Groundwater is the source of supply for the purveyors in the South and West Tahoe areas and indications are that groundwater will continue to provide an adequate supply of water to those areas. Settlement of litigation related to MTBE contamination in South Tahoe will likely provide sufficient funding to treat the contaminated groundwater supplies for domestic use.

On the western slope of El Dorado County, however, groundwater occurs primarily in hard rock. In the County, as in other parts of the Sierra Nevada foothills, alluvium consisting of unconsolidated deposits of clay, silt, sand, and gravel laid down by flowing water occurs only in small areas too thin to provide a significant amount of storage. Thus the amount of usable groundwater is limited. A cooperative study entitled Georgetown Divide Water Management Study prepared by the Department of Water Resources[8] describes water supply alternatives available to the Georgetown Divide area and includes a discussion of the groundwater situation on the western slope. The following is an example from that study.

Many wells are drilled in hard crystalline rock that lies at or near the ground surface or under the thin layers of alluvium. In rock formations, water moves through and is stored in fractures in the rock mass. The width of each fracture usually decreases with depth, causing diminished water flow and storage capacity. The amount of water that can be stored and transmitted in such fractures is generally small compared to the amount that can be held and conveyed in a porous alluvial aquifer.

During the drought of 1976 and 1977, El Dorado County Division of Environmental Health initiated a water well survey canvassing residents with wells in 15 county planning areas. **Table 3-2** lists median depth and estimated production rate for wells in 15 of the planning areas.

Table 3-2
Well Characteristics in El Dorado County

County Planning Area	Number of Wells Surveyed	Median Depth (Feet)	Median Rate (gpm)
Camino-Fruitridge	57	100	5
Cool	29	200	5
El Dorado/Diamond Springs	19	150	4
Finnon	37	150	10
Garden Valley	70	150	10
Gold Hill	2	---	5-10
Kelsey	45	125	4
Latrobe	23	200	5
Lotus-Coloma	66	<100	10
Pilot Hill	21	150	7
Pleasant Valley	199	100	6
Rescue	120	125	10
Shingle Springs	42	125	4
Somerset/Fairplay/Mt. Aukum	---	---	10
Pollock Pines	10	---	8

Source:Calkins, Carla, *Water Well Survey Report*, June 1978

The survey showed that while many residential wells produced 4 to 10 gallons per minute, many had flow rates less than 1 gpm and some had gone dry. Other reports[6, 7] substantiate the limitation of groundwater as a dependable source of water for supplementing public water supply or augmenting surface water storage during droughts. In fact, the contrary may be true where users of groundwater may look to the Districts for service when their wells go dry during droughts. Surveys also indicate that groundwater quality, though satisfactory in most areas of the western slope, is often marginal. As future development occurs in areas beyond pipeline service, both quantity and quality of groundwater sources could be threatened.

3.11 CALIFORNIA WATER POLICY AND REGULATIONS

This section describes existing regional and statewide water programs being implemented by various water suppliers that are important to recognize in context of the EDCWA water supply plan. The Agency is mindful of these various programs and policies and takes these various programs into consideration when developing the water plan.

This section also presents information on the continuing regulation of both drinking water and wastewater and how these new laws affect or could potentially affect water supply planning.

3.11.1 ASSOCIATION OF CALIFORNIA WATER AGENCIES – THE ACWA BLUEPRINT

ACWA is a statewide non-profit association whose 440 public agency members are responsible for about 90 percent of the water deliveries in California. ACWA is a powerful lobbying organization for the California water community and regularly comments on bills and legislation that could potentially impact their members. ACWA's mission is to assist its members in promoting the development, management and reasonable beneficial use of good quality water at the lowest practical cost in an environmentally balanced manner. The ACWA Blueprint, published in 2005, is an informational document to further educate Californians and elected officials on priority actions needed to sustain the state water supply and economy. The three goals of the ACWA Blueprint are to:

- Find common ground among the diverse voices in the water community and to identify their biggest challenges and agree on actions needed to resolve them;
- Collectively develop a forward-looking action plan for meeting California's future water needs; and
- Create a policy-oriented document that would encourage leaders at the state and federal level to re-engage in water issues and also provide a roadmap for investing California's water future.

The ACWA Blueprint contains 12 primary action plans that their member agencies believe will ensure a safe and reliable water supply for the State. The 12 action plans are:

- Action 1: Improve existing Delta water conveyance system to increase flexibility and enhance water supply, water quality, levee stability and environmental protection in the near term,
- Action 2: Evaluate long-term threats to the Delta levee and conveyance system and pursue actions to reduce risks to the state's water supply and the environment,
- Action 3: Ensure delivery of adequate Colorado River water supplies for Southern California and defend California's water rights on the river,
- Action 4: Implement and fund the Sacramento Valley Water Management Program,
- Action 5: Develop additional groundwater and surface water storage, including proposed surface storage projects that are now under study or are determined to be feasible,
- Action 6: Support and fund efforts to expand recycled water use and implement best management practices for urban and agricultural water use efficiency,
- Action 7: Improve the quality of California's drinking water supplies to safeguard public health and enhance water quality for agriculture and the environment,
- Action 8: Work with local agencies to overcome constraints to developing seawater and brackish groundwater desalination,
- Action 9: Modernize the federal Endangered Species Act,
- Action 10: Expedite Approval Process for voluntary water transfers,
- Action 11: Clarify and expand the state's role in flood control and promote multi-benefit flood control agencies, and
- Action 12: Support Integrated Regional Planning.

EDCWA is a member agency of ACWA and seeks to promote these issues when necessary and appropriate at local and regional levels. Specifically, EDCWA and EDC purveyors are actively engaged in several action steps identified in the ACWA Blueprint. For example:

- This plan identifies new storage reservoirs and water supplies being considered in El Dorado County that will ensure a safe and reliable water supply for residents of the County,
- The El Dorado Irrigation District has supplied recycled water since the 1970's. In the 1990's, the system was expanded to residential irrigation and currently the construction of a seasonal storage reservoir is being studied,
- El Dorado County water purveyors employ various best management practices for urban uses. EID and EDCWA both provide irrigation management systems for the County, and
- EDCWA is currently participating in a Proposition 50 Regional Planning Water Grant with the Cosumnes, American, Bear and Yuba River group (CABY).

3.11.2 INTEGRATED REGIONAL WATER SUPPLY PLANNING

California Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act passed by the California voters in 2002 approved the issuance of a bond to add, among other things, $500 million for Integrated Resource Water Management. An IRWM plan is a planning document that identifies broadly-supported goals, objectives, strategies, actions and projects within the region. The intent of the IRWM Grant Program is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality and improve local water security by reducing dependence on imported water[38]. The IRWM Grant Program is administered through the DWR and SWRCB. EDCWA is working jointly with other county water suppliers and non-governmental organizations in the CABY Region to submit an implementation grant application to the IRWM grant program.

EDCWA is a participant and a supporter of the CABY IRWMP, which will provide an integrated approach to water management across the region's four watersheds which include the Consumes, American, Bear, and Yuba, to address long-term water supply needs, protection of water quality, and enhancement of environmental and habitat resources. Based on technical knowledge and endorsed

by a united community, the resulting CABY IRWMP actions and projects have significant opportunities to attract local, state and federal grants and other financial support. The CABY group used the Stockholm Environment Institute's Water Evaluation and Planning System (WEAP) model in the preparation of their regional plan. The WEAP framework analyzes climate scenarios, rather than relying upon historical hydrological patterns.

The CABY implementation proposal includes a total of 26 projects that address specific water supply, water quality, groundwater and environmental habitat issues identified in the CABY planning grant application. This proposal signifies the monumental effort of the stakeholders to bring together diverse interests within the region and integrate the individual efforts of organizations that were planning to submit separate Proposition 50 implementation applications. The IRWMP effort was funded by a Proposition 50 planning grant awarded by Department of Water Resources in January 2006 to EID, who administered the $500,000 grant for the region. The Plan was completed in 2006 and will be updated on a regular basis as additional technical analysis is completed and projects are added. This Water Resources Development and Management Plan significantly contributes to the IRWMP process in that it provides a thorough analysis of the water supply gap in El Dorado County which was addressed on a regional basis in the CABY IRWMP.

CABY Projects in El Dorado County

The CABY Implementation Proposal includes several projects in El Dorado County. These projects involve capital improvements, education and outreach programs, water efficiency/conservation studies, and environmental restoration and preservation. The projects are described below:

El Dorado Irrigation District

Junior High School Water Efficient Landscape Education Program – This program will involve students in 6th through 9th grades in water efficient landscape design through installations at their school site;

Caples Spillway Channel Stabilization - The purpose of this program is to stabilize Caples Spillway Channel and protect environmental and watershed resources. Stabilization will indirectly enhance habitat by minimizing erosion and downstream sediment deposits;

Conservation and Increased Agricultural Water Use Efficiency – The purpose of this project is to expand EID's irrigation scheduling system for commercial agriculture throughout the CABY region. By monitoring evapotranspiration rates, soil types, and moisture levels, an appropriate irrigation schedule will be developed for each grower;

Evapotranspiration Rates measured in the Cosumnes, American, Bear, and Yuba River Watersheds – This project will establish a weather station that will measure evapotranspiration rates throughout the CABY region. These rates then can be used to develop individual irrigation schedules;

Esmerelda Creek Restoration– This project proposes to restore the lower portion of Esmerelda Creek below the El Dorado Canal diversion, making the creek more hospitable for native riparian species;

Recycled Water Infrastructure Expansion – This project will expand EID's current recycled water system to meet current and future community landscape water demands. Expanding the recycled water system will enable EID to preserve more potable water;

Outingdale Water System Improvements Project – The purpose of this project is to correct a deficient water system consisting of an unreliable and damaged diversion dam, unreliable raw water intake, inadequate treatment capacity, inadequate water storage capacity, lack of emergency power, and other system deficiencies. In a joint effort with the EDCWA, this project may also analyze the feasibility of bringing a raw surface water source to the South County for agricultural purposes; and

Regional Wastewater/Recycled Water Development Project - This project involves connecting three wastewater systems (Placerville WWTP, Camino Heights WWTP, and Deer Creek WWTP) for the development of a reclaimed water supply. This project would potentially allow a recycled water supply for the City of Folsom.

El Dorado County Water Agency

Regional Water System Reliability and Conservation Project – This project involves improvements in regional ditch conveyance systems, thereby improving raw water conveyance reliability, eliminating seepage, and minimizing evaporation. Ditches within EID, GDPUD, Nevada Irrigation District and Placer County Water Agency have been identified for improvement. The project also includes lining of the GFCSD raw water reservoir and monitoring within the distribution system, and

Groundwater Response to Climate Variation – This study will explore the effect of climate variation on groundwater and private wells within the CABY region. The project will include a review of similar studies in the Sierra Nevada foothills, and a long term well monitoring program. This information will also provide a better understanding of the potential for well contamination from leach fields in the CABY region.

Georgetown Divide Resource Conservation District

Finnon Lake Dam Reconstruction Project – This project entails restoring Finnon Lake, which is in a degraded state, to 350 acre-feet. Reconstruction will enhance fish and wildlife habitat and recreational uses.

3.11.3 CALIFORNIA WATER PLAN (CWP)

The California Department of Water Resources is responsible for statewide water supply planning, prepares the State Water plan, and operates and maintains the California Water Project. The CWP provides a framework for water managers, legislators and the public to consider options and make decisions regarding California's water future. The plan, which is updated every five years, presents basic data and information on California's water resources including water supply evaluation and assessments of agricultural, urban and environmental water uses to quantify the gap between water supplies and uses. The plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects aimed at addressing the State's water needs. The goal of the CWP is to meet State Water Code requirements, develop broad support among those participating in California's water resource planning, and provide useful information for the public, water planners throughout the state, legislators and other decision-makers [39].

The EDCWA is part of the Sacramento River Region in the CWP.

3.11.4 CALFED PROGRAM

The CALFED Bay-Delta Program is a unique collaboration among 25 state and federal agencies whose mission is to improve water supplies in California and the health of the San Francisco Bay/Sacramento-San Joaquin River Delta. In 2000, CALFED drafted a 30-year plan described in its programmatic Record of Decision that set forth general goals and laid out a science-based planning process through which they are able to make better, more informed decisions on future projects and programs within their purview. Two years later, the California Bay-Delta Authority was created to oversee the program's implementation and Congress adopted the plan in 2004. CALFED emerged from the water crisis of the 1990s and was shaped by funding crises in the early 2000s. It was seen as an alternative to the costly and time-consuming legal wrangling amongst Delta interests and a way to solve conflicts in the Delta to benefit the system. CALFED has always embodied the most important ideals of government: interagency coordination, collaborative problem solving, and public involvement leading to open and transparent decision-making and accountability.

The California Bay-Delta Authority oversees the implementation of the CALFED Bay-Delta Program for the 25 state and federal agencies working cooperatively to improve the quality and reliability of California's water supplies while restoring the Bay-Delta ecosystem. The California Bay-Delta Act of 2003 established the Authority as the new governance structure and charged it with providing accountability, ensuring balanced implementation, tracking and assessing Program progress, using sound science, assuring public involvement and outreach, and coordinating and integrating related government programs.

The Bay-Delta Plan is a balanced, comprehensive approach to reduce conflicts over limited water supplies and to address the Program's four objectives through 11 major program elements:

- Water Management
- Water Storage
- Water Conveyance
- Water Use Efficiency
- Water Transfers
- Environmental Water Account
- Watershed Management
- Water Quality
- Ecosystem Restoration
- Science
- Levee Integrity

Of the many program elements, Water Storage, Conveyance, Use Efficiency and Water Management are of primary relevance with regard to EDCWA and El Dorado County western slope purveyors plans. Water Storage and Conveyance are discussed in the Project Water Supply Needs chapter of this report. Additional information on Water Use Efficiency and Water Management on the state level is provided in the following sections. Information specific to water use efficiency and management programs in El Dorado County is provided in the Chapter 9, Water Efficiency.

3.11.5 WATER USE EFFICIENCY

Through competitive processes that will fast-track water conservation and recycling projects, the CALFED Bay-Delta Program aims to generate significant water supply, water quality and ecosystem benefits in the short term by:

- Reducing water demand through "real water" conservation;
- Improving water quality by altering volume, concentration, timing and location of return flows; and
- Improving ecosystem health by increasing in-stream flows where necessary to achieve targeted benefits.

Some of the accomplishments of the program include:

- $13.3 million in water conservation grants and loans for 65 projects in 2001—including 37 urban and 28 agricultural projects. These projects were geographically diverse and were matched with over $9.1 million in local funding.
  - Urban projects range from a voucher incentive program for clothes washers to more efficient landscape water programs
  - Agricultural projects range from canal lining to buried drip irrigation

  Funded projects will collectively save 30,000 acre-feet of water, improve water quality, and save energy. These projects include:

- Two water recycling grants;

- Establishment of 60 out of 200 quantifiable objectives for agricultural water use efficiency actions (on track to develop 30 more by 2003);
- Assembly of an Independent Review Panel to assist in developing a definition of appropriate water measurement;
- Successful negotiation of a cooperative agreement with the Agricultural Water Management Council, U.S. Bureau of Reclamation and California Department of Water Resources to support locally cost-effective agricultural water conservation;
- Creation of a foundation for establishing a Water Use Efficiency Public Advisory Committee, an approach to WUE monitoring, and Urban BMP Certification;
- Development of a draft agricultural WUE milestones as part of overall assurances framework; and
- Initiation of an effective water use efficiency team with key CALFED agencies.

El Dorado County Irrigation District has received numerous grants for water efficiency projects and programs. These grants include $175,000 in USBR grant funding support for 36 water use efficiency projects between 1995 through 2006; $230,000 in DWR funding support for four (4) water use efficiency grant projects 2002 through 2006 including Prop 13 funds for a Low- Income Toilet Voucher/Rebate Project and a Large Landscape Incentive Program and Prop 50 funds for IRWMP and CII/Multi-Family Sub-metering and ET Controller Project; $128,000 in NRCW funded support for one agricultural soil moisture monitoring project; $6,000 in EDCWA funding support for two projects.

3.11.6 WATER MANAGEMENT PROGRAM

The CALFED Program encompasses an array of projects and approaches to expand water supplies and ensure efficient use of the resource. The Program has identified actions that could increase California water supplies by nearly three million acre-feet over the next 10 years, which is enough water to meet the needs of 6 million families annually. The primary goals of the program are to:

- Maximize use of available water supplies through conservation, water recycling, and water quality improvements;

- Increase the flexibility of water systems at the state, federal and local level through improvements in conveyance, storage and water project operations; and
- Develop groundwater and surface water storage projects to boost flexibility and provide additional supplies for agriculture, urban and environmental use.

3.11.7 URBAN WATER MANAGEMENT PLANNING

El Dorado County water purveyors are engaged in many activities that support the State's overall Water Management Plan goals. Conservation water recycling and conveyance improvements are discussed in Chapter 9 and surface water storage projects are discussed in the Water Supply Needs chapter of this report. In large urban areas, the California Department of Water Resources requires each water provider to prepare an Urban Water Management Plan (UWMP), which describes programs and policies to ensure a reliable water supply for their service area. All urban water suppliers in the State of California are required to prepare an UWMP and complete updates every five years on or before December 31. As defined by California Water Code Section 10631, an urban water supplier is defined as a provider that is either privately or publicly-owned, that serves at least 3,000 customers or supplies more than 3,000 acre-feet of water annual on a wholesale or retail basis. Urban water management programs typically require the following elements: description of the water supply, water supply reliability, water demand management measures, water shortage contingency plans, and water recycling and water service reliability. The UWMP includes a variety of nonstructural measures to improve operations and water use efficiency. EID, GDPUD, TCPUD, STPUD and the City of Placerville are required to prepare UWMPs. Additional information regarding El Dorado County purveyors' urban water management planning is provided in Chapter 9, Water Efficiency.

3.11.8 WATER QUALITY REGULATIONS

The Clean Water Act and Safe Drinking Water Act are the primary laws governing the use and treatment of water and wastewater. The Clean Water Act regulates the discharge of wastewaters to waters of the US to ensure protection of the biological and chemical integrity of the nation's water supplies. In California, the Porter-Cologne Water Quality Control Act is the primary regulation protecting groundwater from discharge of wastes. The Safe Drinking Water Act, enacted in 1974, sets standards for acceptable levels of constituents in finished drinking water. As such, the programs and regulations from these laws can have direct impacts on water resources managers throughout the county. This section provides brief overviews of these important laws.

Clean Water Act

Waters of the United States are regulated by the Clean Water Act (33 USC 1344). Generally, the Clean Water Act provides the basis for regulations of pollutant discharge to waters of the U.S., and established the National Pollutant Elimination System (NPDES). Specifically, it prohibits the discharge of any waste into surface waters without a permit, requires the establishment of water quality standards for contaminants, and grants authority to the U.S. Environmental Protection Agency (EPA) to implement pollution control programs. The EPA has delegated the authority to administer and enforce the Clean Water Act and the NPDES to the State of California.

Porter Cologne Water Quality Control Act

The State of California established the State Water Resources Control Board (SWRCB), under which there are nine Regional Water Quality Control Boards, through the Porter-Cologne Water Quality Control Act (Porter-Cologne). Through the enforcement of the Clean Water and Porter Cologne acts, the SWRCB determines the beneficial uses of the waters (surface and groundwater) of the state, establishes narrative and/or numerical water quality standards, and initiates policies relating to water quality. The SWRCB and more specifically, the RWQCB is authorized to prescribe Waste Discharge Requirements (WDRs) for the discharge of waste, which may impact the waters of the State. Furthermore, the development of water quality control plans, or Basin Plans, are required by Porter-Cologne to protect water quality.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) authorizes the U.S. Environmental protection (EPA) to protect the nation's drinking water supplies using three methods: (1) developing and enforcing

national primary and secondary drinking water regulations; (2) promulgating underground injection regulations to protect sources of drinking water; and (3) developing groundwater protection grant programs. The SDWA permits these activities to be implemented by the states. In California, the California Department of Health Services is the state agency empowered to oversee SDWA requirements. It is important to note that the SDWA does not regulate discharges of pollutants into surface water even though these activities might eventually affect drinking water supplies. These activities are regulated by the Clean Water Act, which was previously discussed. In order to implement National Primary Standards, the EPA established Maximum Contaminant Levels or (MCLs) for each chemicals of concern. These MCLs are the maximum concentration of a chemical allowed in a public drinking water system.

3.12. EXISTING AND FUTURE REGULATORY/ INSTITUTIONAL ISSUES

3.12.1 EXISTING WATER SUPPLY PLANNING REQUIREMENTS (SENATE BILLS 610 AND 221)

SB 610 and 221 were passed to ensure land use planning agencies evaluate water supply availability when approving major urban development projects in California.

SB 610 made changes to the Urban Water Management Planning Act to require additional information in Urban Water Management Plans if groundwater is identified as a source available to the supplier. The information required includes a copy of any groundwater management plan adopted by the supplier, a copy of the adjudication order or decree for adjudicated basins, and if non-adjudicated, whether the basin has been identified as being overdrafted or projected to be overdrafted in the most current California Department of Water Resources (DWR) publication on that basin. If the basin is in overdraft, that plan must include current efforts to eliminate any long-term overdraft. A key provision in SB 610 requires that any project subject to the California Environmental Quality Act supplied with water from a public water system provide a specified water supply assessment, except as specified in the law.

SB 221 prohibits approval of subdivisions consisting of more than 500 dwelling units unless there is verification of sufficient water supplies for the project from the applicable water supplier(s). This requirement also applies to increases of 10 percent or more of service connections for public water systems with less than 500 service connections. The law defines criteria for determining "sufficient water supply" such as using normal, single-dry, and multiple-dry year hydrology and identifying the

amount of water that the supplier can reasonably rely on to meet existing and future planned uses. If used for the project, rights to extract additional groundwater must be substantiated.

3.12.2 EL DORADO COUNTY LAFCO MUNICIPAL SERVICE REVIEW

The El Dorado County LAFCO is currently preparing a municipal services review for water supply, wastewater and power as required by state law. Before the Commission can update its sphere of influence, state law requires municipal service reviews for all service agencies in the county. There are over 25 different types of services in the County and LAFCO has completed and adopted one review and has a second out for public review. The intent is to ensure that county residents have reliable service from water, power and other services in the county prior to expanding their SOI.

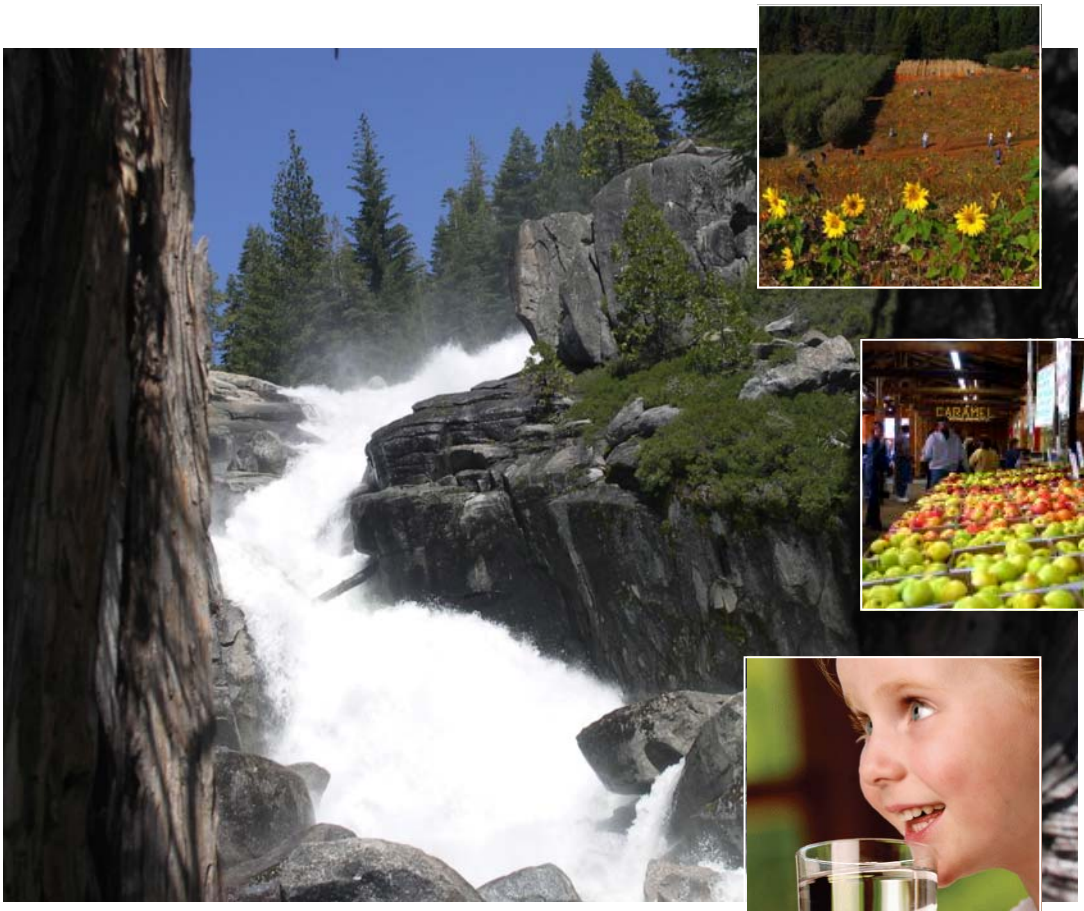
3.12.3 FUTURE STATE AND FEDERAL REGULATIONS

History has shown that state and federal regulations related to safe drinking water, protecting the environment and water quality continue to evolve and have generally become more complex and protective over time. New drinking water standards for protection of public health may require additional treatment processes by the water suppliers. New research in the wastewater field may create the basis for regulation of new compounds such as pharmaceuticals, personal care products and others that are not currently regulated today that will add to the complexity of reuse and recycling of treated wastewater that is an integral part of the water supply solution. It is reasonable to assume that new regulations or revised regulations with more stringent requirement or standards will continue to be implemented and enforced that will impact all water purveyors. As such, the plan of actions proposed in the water plan will need to adjust accordingly to address the new future regulations

2014 West Slope Update

Water Resources Development and Management Plan (December 2007)

El Dorado County Water Agency



Prepared by

El Dorado County Water Agency

with support from

Atkins North America, Inc.

and

Maddaus Water Management, Inc.

November 2014

EL DORADO COUNTY WATER AGENCY

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MADDAUS WATER MANAGEMENT

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Figures

Tables

October 2014 Acronyms/Abbreviations

Acronym/Abbreviation	*Definition*
acre-feet/hh	acre-feet per household
Act	El Dorado County Water Agency Act (Stats. 1959, c. 2139, p. 5084)
BMP	Best Maintenance Practices
CABY	Cosumnes, American, Bear & Yuba
CDS	Community Disposal System
CII	Commercial/Industrial Buildings
CNRA	California Natural Resources Agency
County	El Dorado County
CUWCC	California Urban Water Conservation Council
DMM	Demand Management Measures
DOF	California Department of Finance
DWR	(California) Department of Water Resources
EDCDAWM	El Dorado County Department of Agriculture Weights and Measures
EDCWA	El Dorado County Water Agency
EDH	El Dorado Hills, CA
EDWPA	El Dorado Water and Power Authority, a joint powers authority
EID	El Dorado Irrigation District
ELL	Economic Level of Leakage
EPS	Economic & Planning Systems, Inc.
Favorable Areas	Areas of the OCA that are favorable for annexation
FAR	floor-area ratio
GDPUD	Georgetown Divide Public Utility District
GFCSD	Grizzly Flat Community Services District
GPCD	gallons per capita per day
IMS	Irrigation Management Systems
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
IWRMP	EID's Integrated Water Resources Management Plan
LAFCO	El Dorado County Local Agency Formation Commission
M&I	municipal and industrial
MWELO	DWR's Model Water Efficient Landscape Ordinance
OCA	Other County Areas (outside Service Areas)
OWE	Office of Water Efficiency
PSUE	Public Service & Utilities Element

Acronym/Abbreviation	*Definition*
R&D	research and development
ROI	Resolution of Intention
RWA	Regional Water Authority
SACOG	Sacramento Area Council of Governments
SB	Senate Bill
SEI	Stockholm Environment Institute
Service Area	A water purveyor's water service area
sf	square feet
STPUD	South Tahoe Public Utility District
Targeted Update	Targeted General Plan Update
TAZ	Traffic Analysis Zone
UWMP	Urban Water Management Plan
Water Agency	El Dorado County Water Agency
WRDMP	Water Resources Development and Management
WRSRR	Water Resources and Service Reliability Report
WSDU	Water Supply & Demand Update
WUCA	Water Used Conservation Analysis
WWTP	Waste Water Treatment Plant
2004 General Plan	El Dorado County 2004 adopted and voter approved General Plan

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Acknowledgements

The authors of this document wish to thank the organizations and local water purveyors that provided practical assistance in the preparation of this update including the El Dorado Irrigation District, Grizzly Flats Community Services District, Georgetown Divide Public Utility District, the County of El Dorado and agricultural interests within the county.

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Kirk Taylor, Irrigation Management Consultant and local farmer

Executive Summary

The El Dorado County Water Agency Act [Stats. 1959, c. 2139, p. 5084, and codified as Chapter 96 of the California Water Code Appendices] (Act) created the El Dorado County Water Agency (EDCWA and/or Water Agency) in 1959. Section 96-11 of the Act authorizes the Water Agency to do "…any and every lawful act necessary in order that sufficient water may be available for any present or future beneficial use or uses of the lands or inhabitants" of El Dorado County (County). To enable the Water Agency to discharge this responsibility, Section 96-17 of the Act authorizes the Water Agency to make technical and other necessary investigations, measurements, data collection and make studies and analyses pertaining to water supply and uses of water in the County.

With the adoption of the voter approved 2004 General Plan following two decades of rapid growth in the county, the Water Agency began the preparation of its 2007 Water Resources Development and Management Plan (2007 WRDMP). The 2007 WRDMP examined and summarized the adequacy of existing and planned future public water supplies of the County, including its West Slope region, to meet projected future demand, based on the land use densities (also known as "build out" conditions) in the 2004 General Plan. A stated goal of the 2007 WRDMP was to coordinate water planning activities within the West Slope and to provide a blueprint for actions and facilities that could be needed to meet those projected future water needs.

Since completion of the 2007 WRDMP, new information has become available, including:

- Recent water demand and supply reports
- Changes in recent development patterns
- Changes in future proposed land use
- Recent and proposed General Plan amendments
- Changes in actual and planned water purveyor service area (Service Area) boundaries
- Ongoing conservation efforts
- Two recent severe drought events (2007-2009 and 2012-present)
- A severe recession that temporarily depressed water use
- Further findings of climate change occurring within the Sierra Nevada watersheds of the American and Cosumnes Rivers

In addition, the State has adopted:

- New water conservation requirements for urban retail water suppliers (e.g., SB X7-7)
- New codes and regulations (i.e. CalGreen Building Codes)
- Guidance provided by California Department of Water Resources and other state agencies on planning for impacts due to climate change (http://www.climatechange.ca.gov/).

These requirements and the availability of new information provide a timely opportunity to update the water demand projections in the 2007 WRDMP. Also, the potential effects of climate change

warrant consideration, including important public policy issues for long-range water resources planning, and the potential for substantive impacts to water demand and supply.

ES-1 REPORT ORGANIZATION AND ASSUMPTIONS

This report, the 2014 Update, is organized by the following chapters:

- Chapter 1: Background on the 2007 Water Resources Development Master Plan
- Chapter 2: New Information Developed Since the 2007 WRDMP
- Chapter 3: Assumptions for Water Demand Projections
- Chapter 4: Demand Projections
- Chapter 5: Water Use Efficiency
- Chapter 6: Water Supply Need
- Chapter 7: Conclusions
- Chapter 8: References
- Appendices with supplemental technical information

This 2014 Update includes projections of future water demand for West Slope water purveyors, for the year 2030 and build-out conditions, which were estimated for low, medium, and high growth rate scenarios. The 2030 timeframe is used to be consistent with other contemporaneous studies and reports, such as urban water management plans, which may be compared with the projections in this analysis. Build-out conditions, in which the maximum density of land uses permitted under the 2004 General Plan have been achieved, are also included. This update does not include a new land use analysis. Projections are based on 2004 General Plan and 2007 Floor Area Ratio (FAR) General Plan Amendment housing and employee/jobs projections (included in Appendix B and Appendix C) used for the 2007 WRDMP. Urban water demand factors are from recent studies prepared by each purveyor for its service area with appropriate adjustments to account for increased economic activity allowed under the General Plan.

This 2014 Update also includes a discussion of current and potential future water conservation measures that could be implemented to further reduce projected demand. Finally, a summary of each purveyor's water supply portfolio, which vary based on water year type, and a comparison with estimated future demand is presented to identify the potential need for additional water supplies.

As a foundation for the analysis of supplies and demands, a discussion of historic population growth rates, residential and commercial development levels, agricultural water use, groundwater reliability and water use efficiency is included to provide context for the assumptions made in this 2014 Update. Specifically: (1) long term historical growth rates support future growth rate assumptions; (2) projected increases in economic activity in the County may result in higher water use per capita at buildout conditions; (3) changing agricultural crop mix will affect agricultural water use; (4) ground water reliability will influence how development outside public water supply areas will occur; and (4) additional water use efficiency could reduce the long term, new water supply needs in the County .

ES 1.1 Growth Rates

Figure ES-1 provides historical population growth within El Dorado County as compared to average statewide growth. West Slope population growth compared to the county as a whole is also provided in **Figure ES-2.** As shown in Figure ES-1, El Dorado County has grown faster than the state average since 1980. For the 1980 to 2010 period El Dorado County population growth of 2.4% outpaced the California growth rate of 1.5% while the West Slope experienced higher average annual growth of 2.6% compared to the County as a whole. Higher West Slope growth rates can be attributed to governmental limits on the construction of new homes and gaming industry job losses in the Tahoe Basin, which is included in the El Dorado County total.

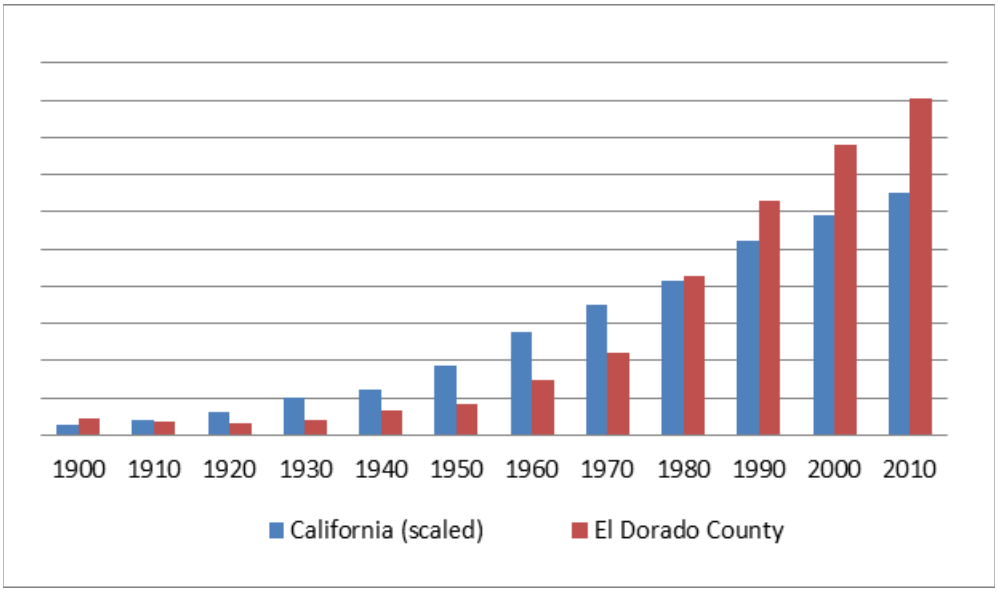

Figure ES-1 El Dorado County and California Population Growth
SOURCE: 2010 US Census (http://www.city-data.com/county/El_Dorado_County-CA.html)

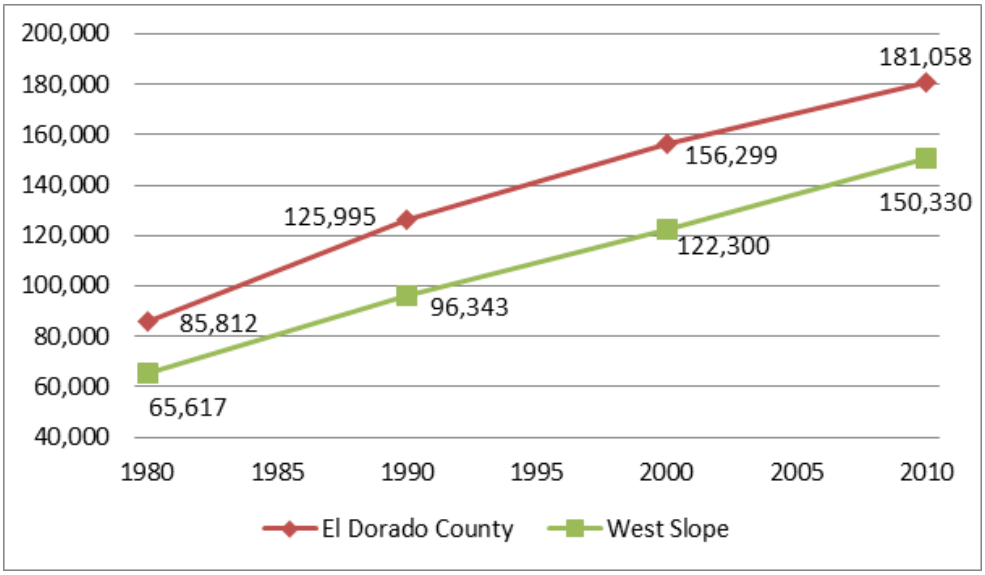

Figure ES-2 West Slope and El Dorado County Population Growth (1980-2010)
SOURCE: US Census (http://www.census.gov/population/cencounts/ca190090.txt)
West slope growth estimate: EDC (2014) bae worksheets, per Tracey Eden-Bishop, personal communication with N. Porter with El Dorado County (November 25, 2013) and EDC (2002) Land Use Forecast for Draft General Plan, Figure 4

ES 1.2 Economic Activity

According to the 2004 El Dorado County General Plan and 2007 Floor Area Ratio General Plan Amendment, more economic growth, as a percentage of residential growth, is projected under buildout conditions. Even though residential development has outpaced planned commercial development on the West Slope of the County over the past decade.

- **Baseline versus Buildout Potential:** Figure ES-3 shows the ratio of West Slope residential ("households") and commercial ("jobs") land uses in 1999 (2004 General Plan baseline year) and residential and potential commercial land uses allowed under the 2004 General Plan and the FAR General Plan Amendment at buildout. Figure ES-3 illustrates the shifting service area dynamics as water purveyors will be requested to serve more commercial water demand based on planned future development.

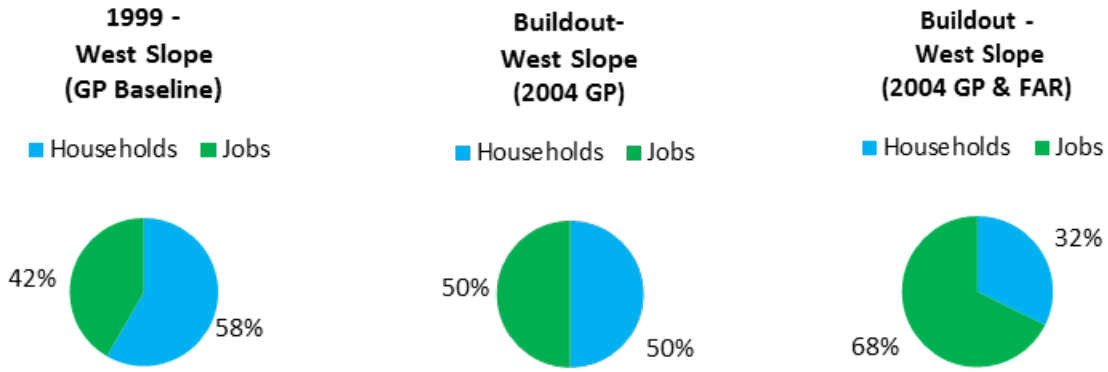

Figure ES-3 West Slope Baseline and Buildout Households versus Jobs

- **2010 versus Buildout Potential:** Estimated development levels in 2010 are represented in Figure ES-4. According to 2010 Census data and Sacramento Area Council of Governments (SACOG) 2010 housing and jobs data, West Slope housing was approximately 55% built-out in 2010 compared to 2004 General Plan buildout household projections. Commercial uses were approximately 32% built-out compared to the 2004 General Plan employee/jobs projections and 15% compared to the 2004 General Plan together with the 2007 FAR General Plan Amendment jobs projections.

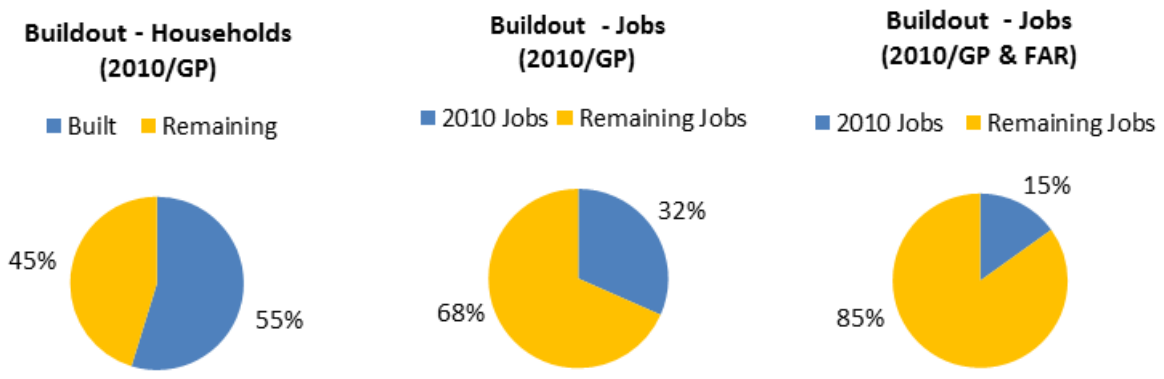

Figure ES-4 West Slope 2010 and Buildout Households and Potential Jobs
SOURCE: EDC (2014) bae March 14,2013 memorandum and worksheets, per Tracey Eden-Bishop personal communication with N. Porter with El Dorado County (November 25, 2013) and EDC (2002) Land Use Forecast for Draft General Plan, Figure 4

It is important to understand relative levels of household and commercial development over time because the State is using per capita water use as a metric in determining compliance with its SB X7-7 water conservation requirements. Urban per capita unit demand factors, a.k.a. gallons per day per capita (GPCD), are calculated by dividing gross water production (including distribution system water losses and all residential, commercial, industrial and institutional (CII) demand) by the total population over multiple years. While the urban water suppliers on the West Slope have plans in place to achieve their conservation goals in the short term (2020), GPCD will necessarily increase slowly over time as more planned economic activity develops within the County. The converse is also true. From Figures ES-3 and ES-4, between 1999 (the 2004 General Plan baseline and the approximate midpoint of the historic period used by EID and GDPUD to calculate GPCD) and 2010, residential development outpaced economic development. While other factors influenced reported water demand reductions during this period (i.e. recession, dry year conditions, rate increases, and rate restructuring), it should be noted that underlying shifts in residential and commercial land uses had the effect of adding more population, relative to jobs, in the near term.

It should be noted, the goal of SB X7-7 was not to curtail economic activity. The codification of the legislation captures the intent to allow for adjustments in GPCD. Water Code §10608.24(d)(1) specifically addresses increases in economic activity in the following manner.

> *"When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:…*
>
> *(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period."*

ES- 1.3 Agricultural Water Use

Agricultural land and water use in El Dorado County has varied over the last century based on crop mix, water availability and irrigation efficiency. Cultivated acreage in El Dorado County has long been supported with surface water supplies through both ditch systems paid for on a "miner's inch"

basis and piped/ metered potable water systems. Ground water has been used to a less extent. Historically, irrigated acreage has been as high as 9,300 acres in 1975, and today there is approximately 5,300 acres under cultivation (up from 4,826 acres in 2000). The decline from 1975 is primarily a result of a decline in irrigated pasture.

El Dorado County was a major grape growing center from 1849 to 1904, with production of 60,000 gallons of wine reported in 1890. The 1890 economic depression, Prohibition, the Great Depression, and a phylloxera pest invasion in the 1930's drastically reduced vineyard acreage, with only a single vineyard reported in 1936. By 1948 there was almost 5,000 acres of deciduous orchard (primarily pears) under cultivation. After pear blight swept through the County, pear production dropped from 52,000 tons to 8,500 tons by 1965. In 1964, Apple Hill was conceived by local agricultural leaders to preserve agricultural lands from conversion to other land uses and a change in plantings to grapes and apples was set in motion. Grapes dominate the crop mix today. A shift away from grapes, however, may be underway as the effects of a new viral disease (red blotch) takes hold in the County. This outbreak could drastically reduce wine grape production, which in turn may result in a return to crops that require more potable water.

Figure ES-5 illustrates the change in County-wide crop mix since the turn of the twentieth century. Year 2000 crop mix is included because it is the baseline year for the 2004 General Plan inventory of cultivated land by water purveyor service area boundary and "Other County Areas" (OCA), which is the basis of this update.

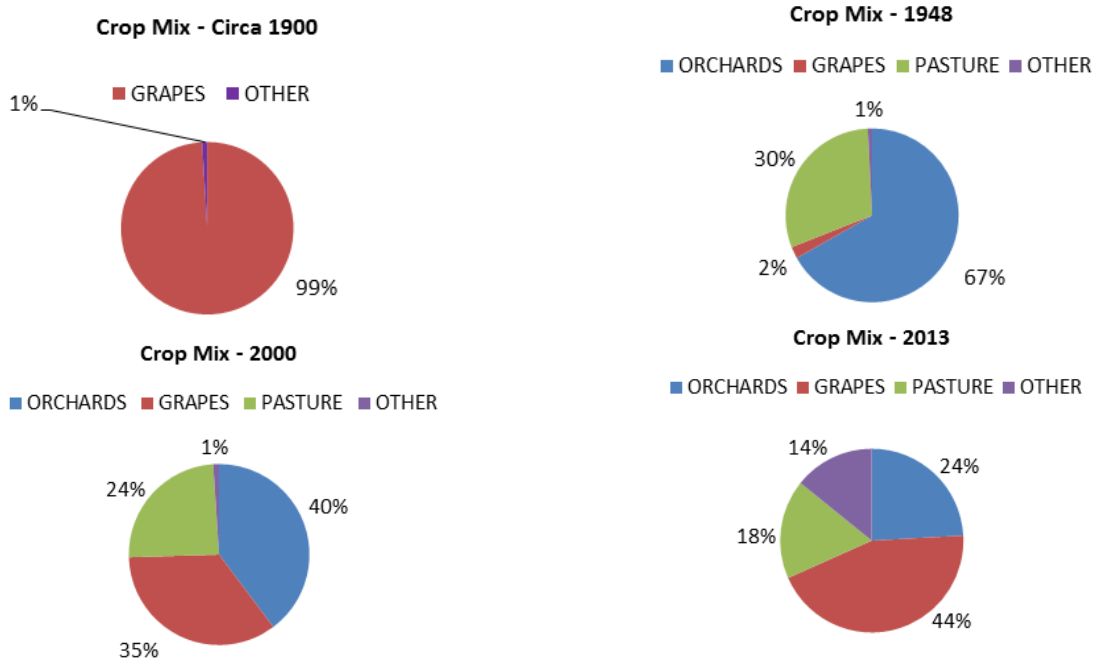

Figure ES-5 El Dorado County Crop Mix – Percent by Acreage
SOURCE: EDC (1948-2013) Agricultural Crop and Livestock Report
Costa (2010) History of Wine Making in El Dorado County
USDI (2008)

These dynamics make projecting future agricultural water demand challenging, since water use varies widely by crop type. To demonstrate the effect of crop type on agricultural water requirements, Figure ES-6 presents three crop mix scenarios for acreage under cultivation in 2000 (baseline) and at buildout: 1) Year 2000 (baseline) crop mix; 2) 100% vineyard with no change in

pasture irrigation; and 3) 100% deciduous orchard with no change in pasture irrigation. Water requirements are based on 1.3 acre-feet per acre for grapes, 2.8 acre-feet per acre for orchard and no change in pasture irrigation total from the baseline year.

Assuming 100% vineyard would tend to underestimate agricultural demand while assuming 100% deciduous orchard would overestimate demand. From ES-4, the Year 2000 (baseline) crop mix represents a balance between grapes with a lower water requirement and deciduous orchard with a higher water requirement. For this analysis, therefore, the baseline year crop mix is assumed in projecting future agricultural water demand, except that acreage in pasture irrigation is assumed to stay constant. A similar analysis is presented in Chapter 4 for each area/purveyor.

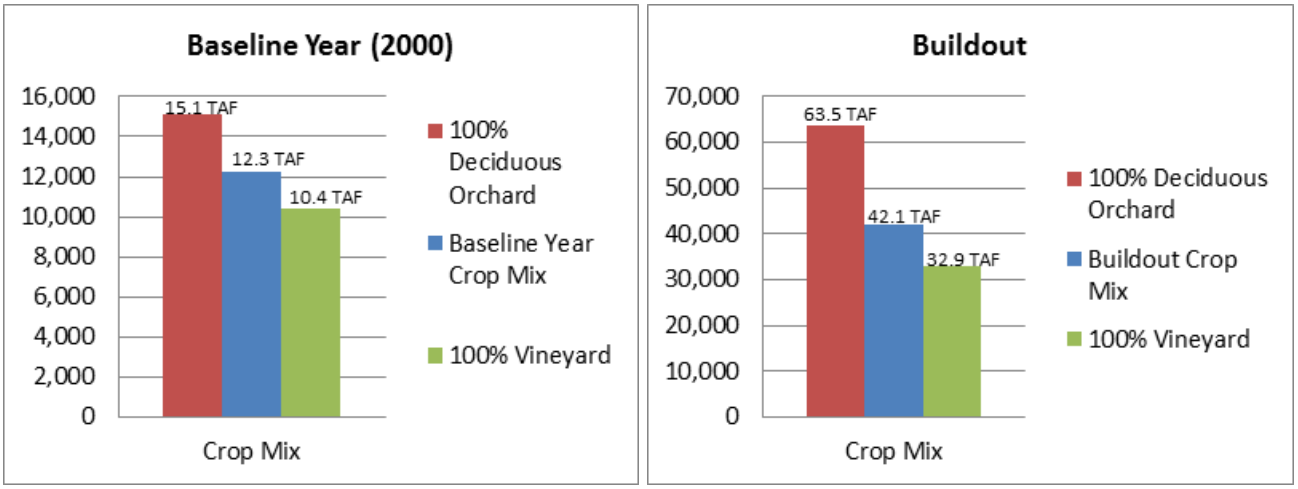

Figure ES-6 Crop Mix Water Requirement for Baseline Year and Buildout

SOURCE: EDC (2004) Appendix E (EPS 2003 and Wood Rogers 2003)
EDCWA WRDMP (2007) Table 4-7

Note: Water requirements do not include system losses, which vary by area/purveyor.

Adaptation to adverse conditions by agricultural growers in the County speaks to the region's favorable agricultural characteristics and resilience through severe economic downturns and pest and disease outbreaks. This adaptability and the following factors contribute to the potential for expanded agriculture land uses in the County:

- General Plan policies that are protective of agriculture and allow ranch marketing by right;
- High price of agricultural land elsewhere makes the County more attractive to producers;
- Crop diversification in the "Apple Hill" area, including apples, cherries, wine grapes, peaches, nectarines and Christmas trees drive ranch marketing operations that draw more than 35,000 visitors to the County each year;
- Total 2013 crop production value in El Dorado County was $57 million, representing a 20% increase from 2012 and up from $53 million in 2000. (EDCDAWM, 2000/12/13); and
- Agriculture and related activities contributed approximately $441 million to the County economy in 2013, of which ranch marketing and value-added products contributed about $222 million, up from $159 million in 2012 and the wine industry $179, up from $169 million in 2012 (EDCDAWM, 2013,2014).

Ensuring adequate water supply for agriculture is critical to a growing vibrant County economy, not only for current levels of cultivation and potential crop mix changes but for expansion of agricultural land use and a crop mix that can adapt to changing agricultural markets and biologically induced declines. El Dorado County's agricultural tourism brings visitors from the Sacramento region and from all over the state. This reflects a broader statewide benefit to supporting Apple Hill and other growers in El Dorado County with a reliable water supply.

ES-1.3 Groundwater Reliability

Groundwater is a vital source of supply for a significant portion of El Dorado County residents and growers within and outside public water purveyor service area boundaries. The Department of Water Resources' 2003 Bulletin 118 characterizes groundwater in the foothills as follows:

> *"Groundwater development in the fractured rocks of the foothills of the southern Cascades and Sierra Nevada is fraught with uncertainty. Groundwater supplies from fractured rock sources are highly variable in terms of water quantity and water quality and are an uncertain source for large-scale residential development."*

Persistent drought and climate change will continue to impact the reliability of foothill groundwater supplies. This is expected to increase demands on public water purveyors supplies through annexations of lands into public water supplier service areas, extensions of service to areas where well production is declining or where wells have failed and through transport of water by truck to existing residents that cannot economically connect to a public water supply system. Each of these scenarios is addressed in the 2014 Update.

ES-1.4 Water Use Efficiency

Water conservation has been and remains an important component of water resources management in the County. Although it is the area of origin for a significant volume of water used in the greater Sacramento region and other areas of the state, El Dorado County itself has limited developed water supplies. As a result, conservation efforts (including metering) have been a high priority since the 1976-77 drought and remain an important component of water resource management in the County. Many areas have been metered since the 1970s and water service on the West Slope of the County is metered today with very few exceptions. Irrigation management services (IMS) have been offered by EID since 1977; the program has substantially reduced agricultural water use and is responsible for saving over 2,000 acre-feet of water each year. EDCWA has been providing IMS for the remainder of the West Slope of the County since 2001. Local urban water suppliers are committed to achieving state mandated conservation and it is assumed the savings will be sustained except for increases resulting from higher levels of economic activity. Given the need for new water supplies to meet the County's needs, EDCWA is investigating options that would decrease demand even beyond State mandated conservation levels. A DWR Integrated Regional Water Management program grant has recently been approved for a County-wide Conservation Plan to identify and evaluate options for further conservation and water use efficiency.

ES-2 2014 UPDATE RESULTS

The updated analysis results in a projected total buildout demand of 149,000 AFY for the Western Slope of El Dorado County. This replaces the 2007 WRDMP projection of 182,000 AFY. The

reduction is primarily due to State mandated urban water conservation and reduced agricultural demand projections. The plan to meet the SB X7-7 GPCD reduction requirements includes both implementation of water efficiency Best Management Practices (BMPs), that will reduce demand, and capital improvements that will reduce system losses. The plan to reduce urban demand to meet SB X7-7 requirements is discussed further in Chapter 5, Water Use Efficiency.

Reduced agricultural demand projections result from a reduction in the land area (to only those lands within Agricultural Districts) used to calculate future agricultural water use. Since growers in El Dorado County have already adopted efficient irrigation practices and irrigation management service programs have already been implemented, no additional water conservation is included in the agricultural water use factors used for this update.

Various metrics can be used in assessing water supply availability and adequacy. One standard, **safe yield**, defines the maximum amount of water that can be made available in any year, including the driest year(s) of record. It differs from **firm yield**, which takes into account imposed deficiencies, based on adopted policy, during periods of drought and, therefore, defines an annual quantity that can be met in most, but not all years. Based on these differences, safe yield and firm yield are typically used in water management projections for differing purposes. Safe yield, as the maximum amount of water conceivably available based on all water year types, is more commonly used in long range water supply planning as it is based primarily on water rights, physical constraints, and watershed hydrology. Alternatively, firm yield is used for shorter-term water supply management decision-making. Both are presented below. For this analysis a climate change scenario has also been prepared that suggests that firm yield could look very different in the future and could decrease to near historic hydrologic safe yield levels, confirming that safe yield should be used for long range planning purposes. Results of the climate change analysis are provided in Chapter 6.

The “Medium Growth Rate” scenario projection is used to estimate both intermediate and long term supply needs, and indicates a long term need for additional water supplies. The precise timing of that need will depend on the future West Slope growth rate. An estimated 75 percent of the urban demands in Other County Areas (OCA) not reallocated to El Dorado Irrigation District (EID) or Georgetown Divide Public Utility District (GDPUD) are assumed to be satisfied with individual wells and therefore are not considered in determining water supply need. An estimated 25 percent of that demand is assumed to require access to a public water supply at some time in the future. Agricultural demands, however, are reflected in new water supply need, as meeting this level of water demand may not be possible or sustainable with fractured rock groundwater supplies. The following tables provide an overall summary of the water supply needs based on current and projected demands including urban conservation. Table ES-1 focuses on ***short term water supply management using firm yield*** and generally indicates that all West Slope purveyors have adequate supplies to meet near term projected demand under historic hydrologic conditions and current firm yield policies. At full build-out of the 2004 General Plan, however, approximately 58,000 acre-feet per year (AFY) of additional water supplies could be needed to meet projected demand on the West Slope when considering firm yield supplies. Existing supplies, in ES-1 and ES-2, for EID include 5,600 acre-feet of recycled water (projected to be available before 2035), resulting in a reduction in the need for new surface water supplies by the same amount. Buildout wastewater treatment plant discharges of 6,800 acre-feet are projected to return to the Cosumnes River watershed for downstream uses.

Table ES-2 focuses on ***long term planning using safe yield*** and indicates new supplies are needed for all purveyors at buildout of the 2004 General Plan, with up to 69,000 AFY of additional water supply needed for the entire West Slope.

Table ES-1 West Slope Additional Surface Water Supply Need with State Mandated Urban Conservation - Considering Firm Yield Supply (acre-feet)

	Firm Yield Supply	***Urban***			***Agricultural***			***Total Demand***			***Additional Water Supply Need***	
		2012	***2030***	***Build-Out***	***2012***	***2030***	***Build-Out***	***2012***	***2030***	***Build-Out***	***2030***	***Build-Out***
El Dorado Irrigation District	69,100	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	—	29,434
Georgetown Divide PUD	12,200	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	—	7,730
Grizzly Flat CSD Total	184	153	187	313	—	—	—	153	187	313	3	129
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	***—***	***—***	***—***	***101,546***	***—***	***—***	***47,043***	***—***	***—***	***148,590***	***3***	***57,854***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.
Notes: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Table ES-2 West Slope Additional Surface Water Supply Need with State Mandated Urban Conservation - Considering Safe Yield Supply (acre-feet)

	Safe Yield Supply	Urban			Agricultural			Total Demand			Additional Water Supply Need	
		2012	2030	Build-Out	2012	2030	Build-Out	2012	2030	Build-Out	2030	Build-Out
El Dorado Irrigation District	59,955	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	964	38,579
Georgetown Divide PUD	10,541	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	1,200	9,389
Grizzly Flat CSD Total	165	153	187	313	—	—	—	153	187	313	22	148
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***101,546***	**—**	**—**	***47,043***	**—**	**—**	***148,590***	***2,187***	***68,677***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.
Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

The analyses in this report are based on projections of both demand and supply based on a variety of assumptions. This report was completed during a time of substantial uncertainty due to severe drought conditions and an unprecedented curtailment of water rights by the State Water Resources Control Board. In addition, the U.S. Bureau of Reclamation recently imposed severe cutbacks on its water service contracts and record cutbacks to its water right settlement contractors (which were subsequently restored to specific contract limits following late winter rains). There are also significant uncertainties with regard to the specific impacts of climate change to water supply and demand within the County given its reliance on direct runoff and diversions from the American and Cosumnes River watersheds with documented long term declines in Sierra snowpack and more variability in runoff (Department of Water Resources, 2005 California Water Plan). It also appears likely that regulatory mandates will require increased flows entering the Sacramento-San Joaquin Delta, which could impact the reliability of upstream water supplies.

These uncertainties together with the County's reliance on costly pumped supplies from Folsom Reservoir, extremely limited access to groundwater, and limited upstream storage make it imperative to consider all options for increasing water use efficiency and augmenting future water supplies for the West Slope. It is particularly important to explore opportunities to improve the reliability of water supply conditions during prolonged drought.

There are three additional considerations for the future addressed in this 2014 Update. The first is the potential for future, additional water conservation. Urban utilities throughout California are focusing their efforts on meeting the urban water conservation mandates in SB X7-7 by 2020. Conservation efforts are not likely to stop at that point, however, and it is likely that additional conservation efforts will be considered in El Dorado County in the future. Chapter 5 sets forth a

number of potential programs, noting that the implementation of any of these programs will be subject to a range of feasibility measures including cost-effectiveness.

A second consideration for the future reflects that the 2014 Update is a significant update to forecasted water demands on the West Slope and that there is value in revisiting data and key assumptions in future updates as more information becomes available (for example, from upcoming updates to urban water management plans which are due July, 2016) and the impacts of future growth are experienced. We are in a time of substantial change, recognizing the emerging concerns related to climate change, the remarkable disruption of the recent prolonged economic recession which followed a time of unprecedented growth, and continued changes in State water policy.

Finally, while not a purpose of this 2014 Update, Chapter 6 notes that there may be value in a specific climate change vulnerability assessment – of both supplies and demands – for the American River Basin supported by all water users reliant on such supplies. This includes all downstream water users (including environmental uses). It is clear that there is a statewide interest in water supplies generated within the American River watershed. As noted in the 2007 report on climate change vulnerability by the California Urban Water Agencies, the combined effects of decreasing water supplies and increasing water demands are serious challenges for the future.

ES-3 KEY FINDINGS

In summary, the key findings of this Update are listed below.

- Under short term water supply management policies, all West Slope purveyors have adequate supplies to meet near term demand under historic hydrologic conditions and current firm yield policies.
- Under long term safe yield planning assumptions, new supplies are needed for all West Slope purveyors at buildout of the 2004 General Plan, with approximately 69,000 AFY of additional water supply needed for the entire West Slope.
- The climate change hydrologic regime scenario confirms safe yield is the appropriate metric for assessing long term water supply need.
- Considering unprecedented water rights curtailment in 2014 and prolonged drought conditions, it is prudent for EDCWA and West Slope purveyors to consider all options for augmenting future water supplies and achieving greater water conservation for the West Slope.
- An American River Basin climate change vulnerability assessment supported by all water users reliant on such supplies may be valuable to understanding potential basin specific impacts.
- An EDCWA Office of Water Efficiency would provide needed leadership and funding to assist water purveyors in meeting existing and potential future State mandated water use efficiency.

This report was prepared by engineering staff of the EDCWA, with support from Atkins North America, Inc. and Maddaus Water Management, Inc. The development of this report was coordinated with the primary West Slope water purveyors, El Dorado County Planning and

agricultural interests. Thank you to the individuals listed in the acknowledgement section of this report whom provided various levels of peer review and/or input.

EDCWA envisions that this report will be updated in the future as additional new information becomes available, which may include any of the following:

- Urban Water Management Plans completed by July, 2016 by GDPUD and EID.
- Monitoring of conservation program progress in meeting SB X7-7 targets.
- Ability to further expand the recycled water system with seasonal storage beyond current plans.
- Additional annexations beyond what was assumed as “favorable areas” within this study.
- Changes in planned versus actual development patterns over time.
- Refined assessment of water supply reliability of existing supplies.

EDCWA and water purveyors’ web sites provide relevant reference planning documents cited in this report or made available through EDCWA along with new information over time. There is not a definitive timetable for any future update and the content of this report is based on current best available information.

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Chapter 1. Background on the 2007 Water Resources Development Master Plan

The Water Agency, as the countywide water resources planning agency, has the responsibility to insure adequate water supplies for existing and future uses in accordance with the Act and the 2004 General Plan. The 2007 WRDMP was prepared to analyze the need for and to coordinate water-planning activities within the County to meet the County's water supply needs into the future.

The 2007 WRDMP was developed in consultation with the El Dorado Irrigation District (EID), Georgetown Divide Public Utility District (GDPUD), and Grizzly Flat Community Services District (GFCSD) and incorporated the land use and housing projections developed by the County for the 2004 General Plan.

Water supply information described in the 2007 WRDMP was based on historic watershed hydrologic conditions and included information for both the "firm yield" and "safe yield" approaches, based on the following definitions:

- **Firm yield** is the annual quantity of water that can be made available in most years while imposing water deficiencies during hydrologic drought conditions.
- **Safe yield** is the maximum amount of water that can be made available in any year, including the driest year(s) of record.

Typically, West Slope water purveyors utilize a firm yield approach to short term water supply management and have adopted requirements for customers to reduce their water consumption during short term drought periods. For long range water supply planning, it is common to also consider a safe yield, which bases the maximum annual yield on water rights and watershed hydrologic conditions, including a repeat of the driest year(s) of record.

Water demand projections for residential and commercial land uses in the County were developed by Economic & Planning Systems, Inc. (EPS) in 2003 for four land use alternatives for the West Slope of the County (excluding the Tahoe Basin) that were being considered for the adoption of a 2004 update of the County General Plan. EPS also developed water demand forecasts for the Tahoe Basin based on land use data provided by the Tahoe Regional Planning Agency. In 2006, ECO:LOGIC prepared an update of the water demand forecasts for the West Slope, based on the 2004 County General Plan and the methodology described in Chapter 4 and in Appendix E of the 2007 WRDMP.

The 2007 WRDMP addressed the water supply needs of the West Slope, including areas that are outside existing public water purveyor service boundaries, where water is supplied by individual property owner wells and small privately-owned water providers from wells and springs. In the 2007 WRDMP, areas not serviced by the three West Slope water purveyors were collectively referred to as "Other County Areas" (OCA). Over time, it was anticipated that water demand within some portion of the OCA would be provided with a public water supply via annexation into the Service Area of one of these three water purveyors, which has and continues to occur. Accordingly, future water demand within some portions of the OCA was reallocated (or reassigned) to EID and GDPUD. These areas are identified as "Favorable Areas." Potential commercial demands associated with the 2007 Floor Area Ratio (FAR) General Plan Amendment are also included. Detailed information on

Favorable Areas and the FAR General Plan Amendment is provided in Sections 3.2 and 2.4, respectively.

The growth rates utilized in the 2007 WRDMP are presented in **Table 1-1**. For reference, housing and employee forecasts and projected water demands from the 2004 General Plan (used in the 2007 WRDMP) are included in Appendix B. Actual growth rates are also included in Table 1-1 and were higher than projected in areas with a public water supply.

Table 1-1 Residential Growth Rates in the 2007 WRDMP

	OCA	***EID***	***GFCSD***	***GDPUD***	***West Slope***
Projected	2.44%	2.12%	1.69%	0.99%	2.12%
2000-2010 (actual)	not available	2.44%	2.63%	1.8%	2.09%
SOURCE: EDCWA (2007), Table 4-2. (See Table 2-7 of this report for actuals)					

As part of the 2004 General Plan Update, preliminary estimates of future agricultural water demand were developed by Wood Rogers in 2003, based on mapping of all “Important Farmland” on the western slope below 3,000 feet in elevation. This preliminary analysis raised some concerns because it included farmland within urbanized areas and parcels less than 10 acres (where the viability of commercial agricultural pursuits on such small acreage was questioned). To address those concerns, the 2004 General Plan included an alternative estimate of agricultural demand developed by EPS, based on information provided by the West Slope water purveyors. Because of the considerable differences between those two demand estimates, the 2007 WRDMP included the results of a mapping exercise conducted by ECO:LOGIC that refined the extent of agricultural lands included in the preliminary analysis conducted by Wood Rogers in 2003.

The 2007 WRDMP also provided a summary of past water efficiency efforts by the water purveyors. The summary graphics showing historical water savings are presented in Chapter 5 of this update to that report.

The 2007 WRDMP estimated the additional water supply need for the West Slope at buildout to be as much as 103,518 acre-feet/year (AFY) in a critically dry year (safe yield), as shown in **Table 1-2**, and recommended that several water supply projects be initiated to assure sufficient supplies would be available to meet projected demand, even during drought periods. That estimate did not include later State mandated urban water conservation requirements, which are considered in this update.

Table 1-2 EDCWA 2007 WRDMP Additional Supply Need at Build-Out

	Safe Yield Supply (acre-feet)	*Urban Demand (acre-feet)*	*Agricultural Demand[a] (acre-feet)*	*Total Demand (acre-feet)*	*Additional Supply Need (acre-feet)*
El Dorado Irrigation District	58,753	72,831	28,324	101,155	42,402
Favorable Areas		11,040		11,040	11,040
FAR GP Amendment		12,621		12,621	12,621
EID Total		***96,492***	***28,324***	***124,816***	***66,063***
Georgetown Divide PUD	10,500	11,495	16,911	28,406	17,906
Favorable Areas		1,318		1,318	1,318
FAR GP Amendment		1,009		1,009	1,009
GDPUD Total		***13,822***	***16,911***	***30,733***	***20,233***
Grizzly Flat CSD Total	**143**	**1,066**		**1066**	**923**
Other County Areas	9,411	24,845	12,984	37,829	28,418
Less Reallocated Favorable Areas		(12,358)		(12,358)	(12,358)
FAR GP Amendment		239		239	239
Other County Areas Total		***12,726***	***12,984***	***25,710***	***16,299***
Western Slope Total	***78,807***	***124,106***	***58,219***	***182,325***	***103,518***

SOURCE: EDCWA (2007), Table ES-1

a. Values represent Year 2050 projection, not build-out

b. Further analysis of actual land use within the GFCSD boundary indicates a build-out demand of 504 acre-feet, which would result in 361 acre-feet of additional water supply need at build-out.

Note: Urban demands do not include State mandated urban water conservation considered in 2014 update.

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Chapter 2. New Information Developed Since the 2007 WRDMP

2.1 WATER CONSERVATION LEGISLATION

Senate Bill X7-7 (SB X7-7), the Water Conservation Act of 2009, set an overall goal of reducing statewide per capita urban water use by 20% by December 31, 2020 (with an interim goal of at least 10% by December 31, 2015). To measure progress, the legislation requires that urban retail water suppliers (defined by California Water Code Section 10608.12(p) as "a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.") determine their urban baseline" per capita water use (for residential, commercial and industrial uses) based on average demand for a recent 5 or 10 year period, expressed in gallons per capita per day (GPCD). In addition, a water reduction "target" demand (as expressed in GPCD) must be estimated using one of four specified methods:

1. 80% of baseline use
2. Sum of specified performance standards
3. 95% of DWR Hydrologic Region target from the draft 20X2020 Plan
4. A flexible alternative designed to adjust to local circumstances

In their respective 2010 Urban Water Management Plans (UWMP), EID declared it will implement Alternative 1 and GDPUD will implement Alternative 3 to comply with SB X7-7.

As part of their UWMP, urban water suppliers must include a potable water use reduction plan to demonstrate how they will achieve the per capita water demand target for their urban customers. Accordingly, future estimates of water demand should account for the reduction in per capita urban water use from the baseline established by the water purveyors. For the purposes of this analysis, both the per capita baseline and target are included for information purposes.

SB X7-7 also requires agricultural water suppliers (providing service to 10,000 or more irrigated acres) to implement certain efficient water management practices (including volumetric measurement and pricing), and must prepare, adopt and periodically revise agricultural water management plans. Notably, none of the West Slope water purveyors that serve agricultural water meet the identified threshold and are not subject to the related requirements.

Because per capita demand is required and monitored by urban water suppliers subject to SB X7-7, this new metric provides an opportunity to gauge water use via a single calculated value, rather than as the sum of various water use categories (e.g., residential, commercial and industrial). This update projects future water demand for the urban water suppliers on the West Slope of the County (EID and GDPUD) based on per capita water use (with adjustments for increased economic activity), including demand from the Favorable Areas of the OCA, which is reallocated to those two water purveyors. GFCSD, with less than 3,000 retail water connections, is not subject to the requirements of SB X7-7.

2.2 RECENT WATER SUPPLY AND DEMAND REPORTS

Since development of the 2007 WRDMP, several new water supply and demand reports have been developed by West Slope water purveyors, as summarized below. These include master plans and 2010 Urban Water Management Plans (UWMP), which are required for urban water suppliers in accordance with the Urban Water Management Act (codified in the California Water Code, Division 6, Part 2.6, and §10610 through §10656). The analysis of this report incorporates information from those reports or, where different methodologies are employed, augments that information as appropriate.

2.2.1 EID 2010 Urban Water Management Plan

EID's Service Area encompasses approximately 220 square miles on the western slope of the Sierra Nevada Mountains in El Dorado County. The Service Area is bounded by Sacramento County to the west, with a small area in Sacramento County just south of Highway 50 and the Pollock Pines/Sly Park area to the east, with elevation ranges from 500 feet to more than 4,000 feet. The City of Placerville, located in the central part of the District, receives water from the District as a wholesale customer. The District also operates two satellite water systems in the Strawberry and Outingdale communities. EID's Service Area is primarily located in two major watersheds, the South Fork American River in the north and the North Fork of the Cosumnes River in the south, and is hydrologically split by the Placerville Ridge and Highway 50.

For the 2010 UWMP, water consumption data was compiled from annual consumption reports for the following EID-defined user categories:

- Single family = single-family residential and single-family dual potable (recycled water for irrigation)
- Multifamily = multifamily residential
- Commercial/Industrial = commercial/industrial
- Landscape = recreational turf (dedicated irrigation)
- Agriculture = agricultural metered irrigation, domestic irrigation, and small farm irrigation (potable water)
- Other authorized uses (metered) = ditches, City of Placerville, potable billed and unbilled, and raw water billed
- Other authorized uses (not metered) = Main ditch and potable billed ditches (potable and raw water)

Total water use was calculated as the cumulative total of system deliveries (which is driven by water demand), sales to other water agencies (e.g., the City of Placerville), and system losses, as summarized in **Table 2-1**.

Table 2-1 EID 2010 UWMP Projected Water Use (acre-feet)

Total Projected Water Use (AFY)	*2010*	*2015*	*2020*	*2025*	*2030*
Total water deliveries	27,761	42,829	45,825	52,750	61,328
Sales to other water agencies	1,155	1,200	1,215	1,275	1,330
System losses	4,764	4,892	5,227	6,003	6,962
Total	***33,680***	***48,921***	***52,267***	***60,028***	***69,620***
SOURCE: UWMP EID (2011), Table 3-9.					

2.2.2 GDPUD 2010 Urban Water Management Plan

GDPUD is located on the western slope of the Sierra Nevada foothills, approximately 45 miles northeast of Sacramento, California. It straddles a ridge that separates the drainage basin of the Middle Fork American River and the Rubicon River (tributary to the American River) on the north from that of the South Fork American River on the south. The GDPUD existing Service Area encompasses approximately 75,000 acres (112 square miles) with approximately 30,000 acres currently having some form of water service available. GDPUD water supplies originate from the Pilot Creek Watershed above Stumpy Meadows Reservoir. Stumpy Meadows Reservoir is GDPUD's sole source of supply.

GDPUD presently provides domestic water service to the unincorporated communities of Georgetown, Buckeye, Garden Valley, Kelsey, Spanish Dry Diggins, Greenwood, Cool, and Pilot Hill. Through separate facilities, portions of these same communities also receive untreated water for irrigation purposes.

Elevations in GDPUD's Service Area vary from 500 feet at the southwestern boundary to 6,100 feet at Silver Hill on the eastern boundary. The relief varies from rolling foothills in the west to steep slopes and deep canyons in the upper elevations. The community of Georgetown is located at the top of the Georgetown Divide at an elevation of 2,650 feet.

Projected total water use within the GDPUD Service Area is summarized in **Table 2-2**.

Table 2-2 GDPUD 2010 UWMP Projected Water Use (acre-feet)

Total Projected Water Use (AFY)	*2010*	*2015*	*2020*	*2025*	*2030*
Single-family	1,380.2	1,684.4	1,696.8	1,836.0	1,987.6
Multifamily	16.6	23.3	23.4	25.4	27.5
Commercial	243.7	301.7	303.3	320.8	347.3
Industrial	—	—	—	—	—
Institutional/Governmental	15.1	17.1	15.7	—	—
Landscape	—	—	—	—	—
Agriculture (untreated)[a,b]	4,280.3	5,493.7	6,707.1	7,920.5	9,133.3
Other	43.4	94.5	97.5	130.9	141.7
Total (treated & untreated)	***5,979.4***	***7,614.7***	***8,843.8***	***10,233.6***	***11,637.4***

Table 2-2 GDPUD 2010 UWMP Projected Water Use (acre-feet)

Total Projected Water Use (AFY)	*2010*	*2015*	*2020*	*2025*	*2030*

SOURCE: UWMP GDPUD (2011), Tables 10, 11, 12, and 13.

a. Agricultural (untreated) water is metered using a subsurface orifice and sold by the miner's inch.

b. Agricultural (untreated) water demand does not include carriage and ditch losses. Losses are included for the treated water. Latent demand is included in the future projected demands.

2.2.3 GFCSD Water Supply and Demand Update (2012)

Grizzly Flats Community Service District's Service Area covers approximately 1,115 acres and includes the Grizzly Park subdivisions and several larger perimeter parcels. In 2012, there were 607 metered connections in the system, down slightly from 611 connections reported in 2009. The District estimates that approximately 1,252 parcels could require water within the Service Area at future build-out of the community.

From the 2012 GFCSD Water Supply and Demand Update (WSDU), the current safe yield evaluation of the water supply indicates that approximately 165 acre-feet of water would be available for the critical dry year based on the hydrological record. Using a demand factor of 0.25 acre-feet per DU per year from the 2012 WSDU, approximately 660 meters could be served with currently available water supplies. At projected build-out, approximately 313 acre-feet of water would be required to service a total of 1,252 dwellings. To meet the safe yield criteria for the system, if additional wells are not developed, an off-stream reservoir with a minimum active storage capacity of 150 acre-feet was recommended.

The GFCSD Service Area is at approximately 50% of buildout in terms of existing parcels but is more than 90% of builtout in terms of currently available supply.

2.2.4 EID Integrated Water Resources Master Plan (2013)

EID developed the 2013 Integrated Water Resources Master Plan (2013 IWRMP) to provide a plan that optimizes the use of EID's water resources and provides a roadmap for cost effective development of future infrastructure and maintenance of existing facilities. This goal, combined with current economic conditions, limited water supply, environmental constraints, and climate change, necessitates the need for a unified project vision, which was articulated as follows (EID 2013, p. 5):

> Similar to many water agencies in California, the El Dorado Irrigation District (District) desires to maintain its current level of service while preparing for future growth in an environmentally and fiscally responsible manner, while also considering the impacts of aging infrastructure systems and the uncertainties of climate change. The District sees the Integrated Water Resources Master Plan and Wastewater Facilities Master Plan Project as being the mechanism to address future water supply, infrastructure, and replacement needs in an integrated fashion.

For the 2013 IWRMP, EID developed water use factors for land uses included in the 2004 General Plan, based on historical water demand within the District's service zones (EID 2013, p. 87). Single-family residential land uses, including high-, medium-, and low-density, and rural residential, were

assigned density factors, which represent the average density for each land use category, respectively, as described in the 2004 General Plan.

Water use factors were based on EID's design standard household unit use and reflect the different demands for each of the three supply regions (eastern, western, and El Dorado Hills). EID design standards are based on historic averages with imbedded water conservation. Historic water use efficiency is discussed in detail in Chapter 5. In the higher elevation eastern region, dwelling unit water use is the lowest, while in the lower elevation El Dorado Hills region, per capita water use is the highest. This difference is primarily attributed to a longer growing season and higher evapotranspiration rates at lower elevations and more extensive landscaping for commercial land uses in the more urbanized El Dorado Hills region. This variation in demand is illustrated by the different residential water use factors for each service region, which are summarized in **Table 2-3**. For other land use types (e.g., commercial, industrial, and multifamily residential), data from EID's 2006 Consumption Report was used in combination with existing parcel data to generate use factors for each service zone.

Table 2-3 Residential Unit Demand Factors by EID Service Region

Land Use Type	*Unit Demand per Dwelling Unit (AFA)*		
	Eastern	*Western*	*El Dorado Hills*
High Density Residential	0.4	0.67	0.72
Medium Density Residential	0.45	0.95	1.53
Low Density Residential	0.99	1.35	1.07
Rural Residential	0.99	1.03	1.03
SOURCE: EID (2013), Table 4-1.			

Note: Unit demand factors do not include State mandated water conservation

The 2013 IWRMP provided growth rate estimates for each of the three different service regions, as presented in **Table 2-4**.

Table 2-4 EID Projected Growth Rates by Region

Period	*EID Service Region*		
	Eastern	*Western*[a]	*El Dorado Hills*[b]
2009–2015	0.15%	0.82%	1.19%
2016–2020	0.30%	1.65%	2.38%
Beyond 2020	0.61%	3.29%	4.75%
SOURCE: EID (2013), Table 9-2. a. Includes EID water service zones 1, 4, 5, 6, and 7. b. Includes EID water service zone 2.			

The 2013 IWRMP also provided a low- and high-growth scenario. The high-growth scenario starts with a baseline year of 2008 and reflects pre-recession demand levels. The low-growth scenario is described (EID 2013, p. 243) as follows:

> The low growth scenario was developed in consultation with District staff and considers the recent economic downturn and the impact on development in the District's service area. This lower growth scenario starts with the 2012 maximum day demand and was developed with the expectation that growth throughout the service area will be slow for two to three more years while the economy continues to recover. Then growth will ramp up in the El Dorado Hills Region as already planned and approved developments build out. Following that, the growth rate in the El Dorado Hills Region will decrease as the remaining land may be more difficult to develop (e.g., further away from the urban area and existing infrastructure). Growth in the Western Region is expected to increase in the coming years as new developments are planned, approved and constructed south of the Highway 50 corridor initially and then throughout the Western Region. Growth in the Eastern Region is expected to remain low throughout the planning period.

Projected future water demand for the entire EID Service Area is presented in **Table 2-5** for both the low-growth and high-growth scenarios. These are current projections, which may be revisited in the future as significant growth occurs.

Table 2-5 Projected Water Demand within EID Service Area

Year	*Total Water Demand (AFY)*	
	Low Growth Scenario	*High Growth Scenario*
2015	43,398	48,863
2020	45,639	52,092
2025	50,345	59,465
2030	55,136	68,375
2035	61,262	77,315
Build-Out	88,144	88,144
SOURCE: EID (2013), Table 9-1		

Note: The baseline year for the high-growth scenario is 2008 (pre-recession) and for 2012 (post- recession) for the low-growth scenario. Build-out demand is the same for both scenarios.

2.3 RECENT WATER PURVEYOR TRENDS

All the purveyors in the County experienced similar water use trends influenced by economic conditions and dry year connections.

2.3.1 El Dorado Irrigation District

As demonstrated in **Figure 2-1**, EID's service area population and number of accounts have risen

steadily over the last two decades, with a slight reduction in the population growth rate in more recent years during the severe economic recession from 2008-2011. The early 2000's drought does

not seem to have affected water supply delivered; however, the dry year water conditions from 2007-2009 and 2011-2012 economic recession did combine to markedly reduce water supplied. Chart values and trends are not weather normalized. It is important to note the reduction in water production also can be attributed to conservation activities by EID.

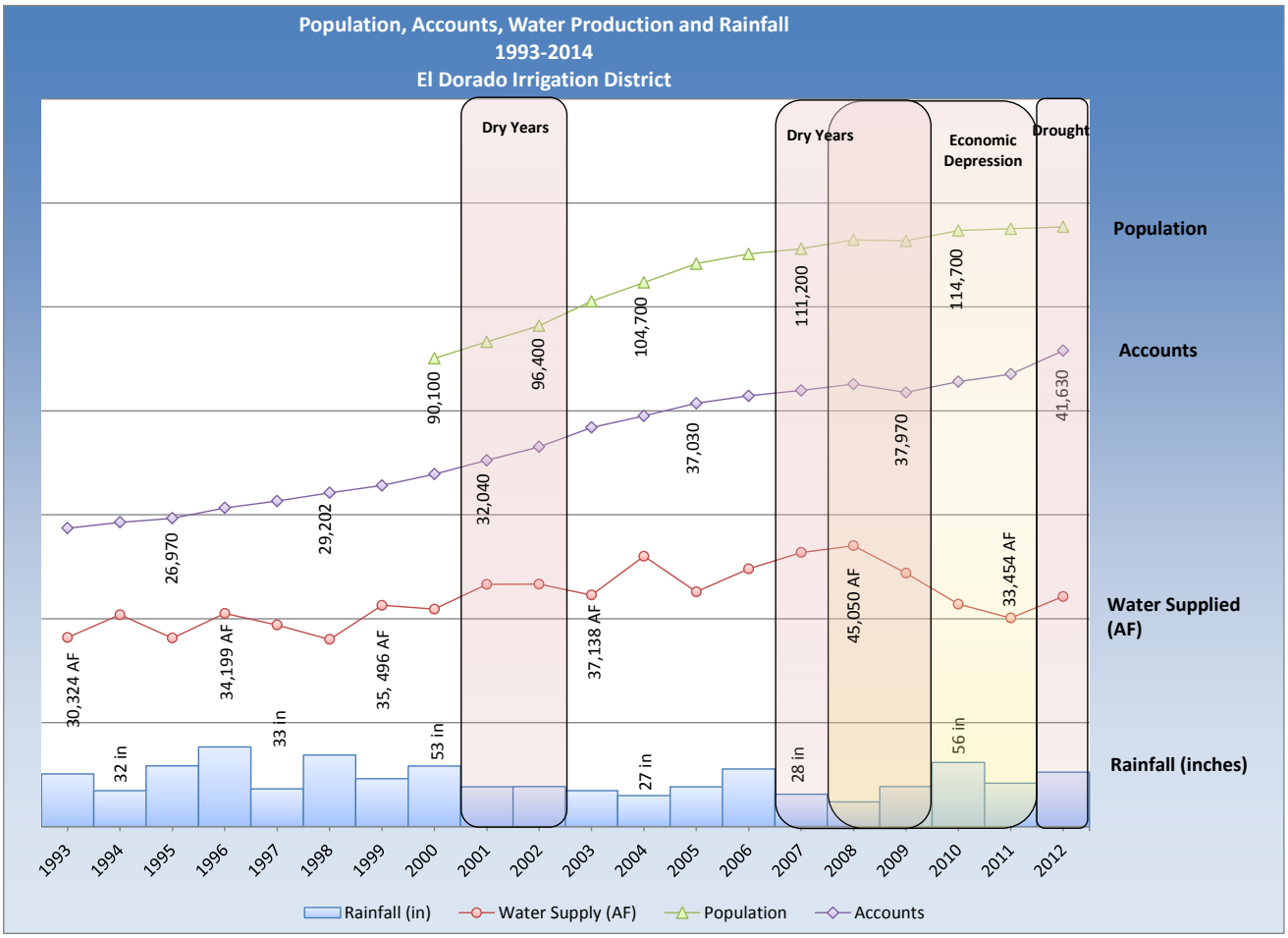

Figure 2-1 El Dorado Irrigation District Historical Water Use Trends

Source: EID (1999,2008, 2013) Comprehensive Annual Financial Report
EID (1993-2012) Diversion Reports
a. Water supplied/diverted includes agricultural demand connected to the potable water system

2.3.2 Georgetown Divide Public Utility District

As shown in **Figure 2-2**, GDPUD's service area population and number of accounts have risen steadily over the last two decades, with a slight reduction in the population growth rate in more recent years during the economic recession from 2008-2011 similar to EID's service area. The early 2000's drought does not seem to have affected water production. However, the dry year water conditions from 2007-2009 and the recent economic recession did combine to markedly reduce water production. Chart values and trends are not normalized for weather. It is important to note the reduction in water production also can be attributed to conservation activities in the GDPUD service area.

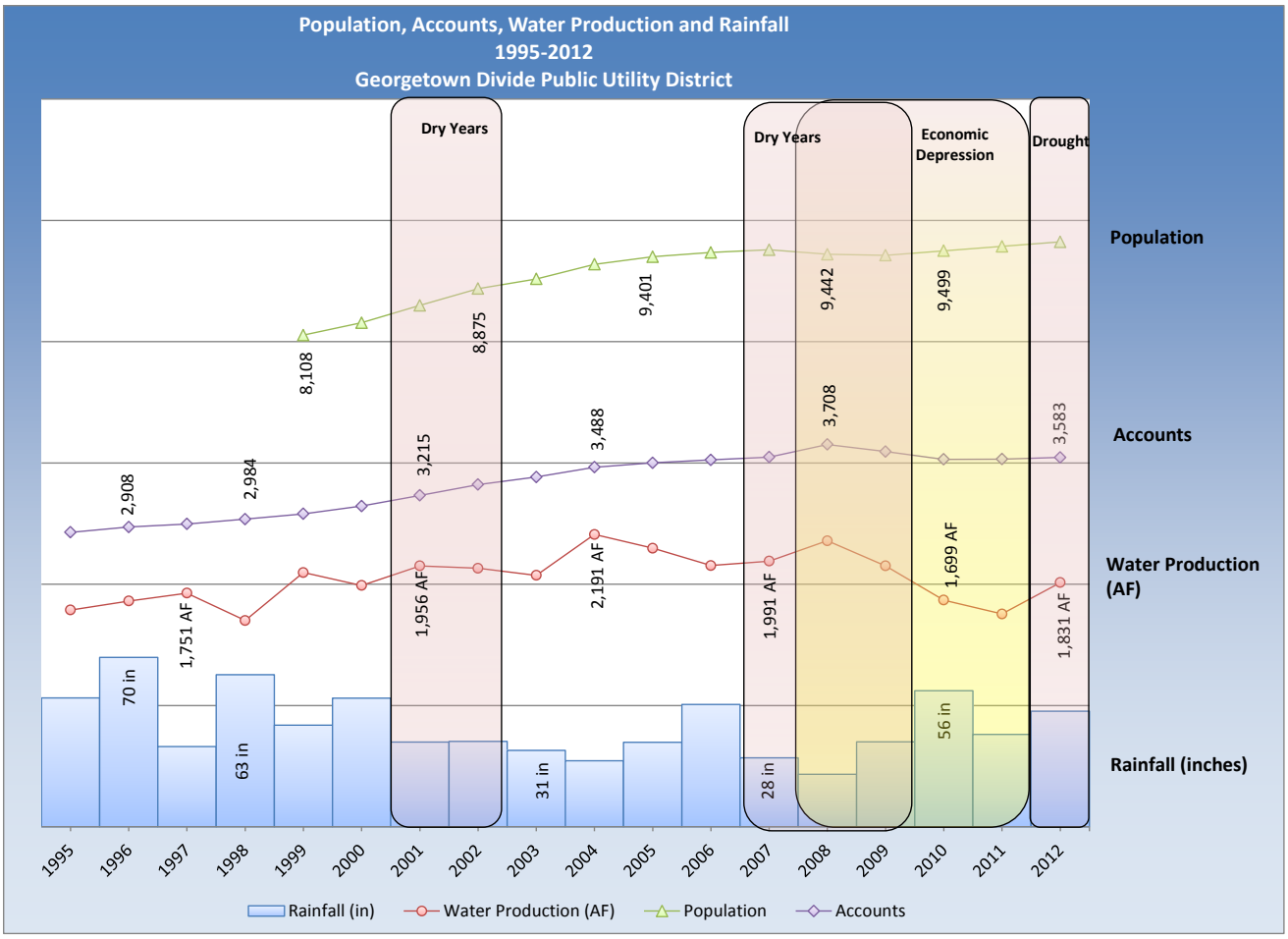

Figure 2-2 Georgetown Divide Public Utility District Historical Water Use Trends
SOURCE: GDPUD Water Supply and Demand Summaries

2.4 CHANGES IN LAND USE

The 2007 WRDMP based urban water demand estimates upon allowable land uses in the West Slope in accordance with the 2004 General Plan. Water demand estimates for the 2007 WRDMP/2004 General Plan were based on the projected number of 2004 General Plan residential dwelling units and employee projections (which were derived from the projected increase in residential population, using the region's current jobs/housing ratio). Additional potential water demand associated with the FAR General Plan Amendment was also included. Changes in land use that increase the number of dwelling units and/or the number of employees would increase water demand.

2.4.1 Economic Activity

According to the 2004 General Plan and 2007 FAR General Plan Amendment, more economic growth as a percentage of residential growth is possible under buildout conditions. In **Table 2-6**, 2004 General Plan West Slope housing and employment projections are provided for 1999, 2010 (estimated) and buildout. **Figure 2-3** presents the data in terms of percentage of households and jobs.

Table 2-6 West Slope General Plan Housing and Employee/Jobs Projections (acre-feet)

	Households	*Employees/Jobs*
2004 General Plan Baseline Condition (1999)	42,579	30,434
2010	64,209	37,027
Buildout - 2004 General Plan	117,262	117,122

SOURCE: EDC (2004) Appendix E
bae (2013) Page 4
SACOG (2012)

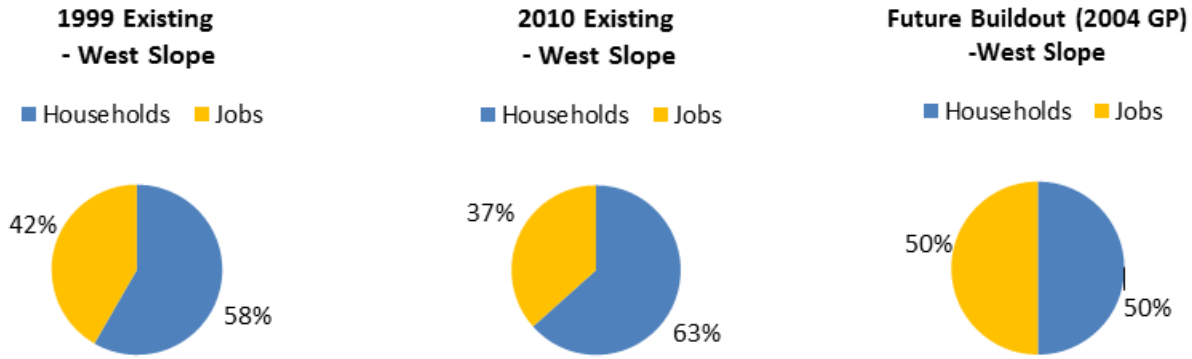

Figure 2-3 West Slope Baseline, 2010, and Buildout Households versus Jobs

In 2007, the County adopted an increase in the allowable floor-area ratio (FAR) for commercial and industrial uses from 0.25 to 0.85, and for research and development (R&D) uses from 0.25 to 0.50. FAR expresses the maximum allowable square footage of development as a percentage of lot size and thereby regulates the size (in square feet) of such development within the unincorporated portions of the County. The adopted increase in the FAR allows an increase in the size of commercial, industrial and R&D buildings than was previously allowed under the 2004 General Plan. With the potential for larger commercial, industrial and R&D buildings, future commercial development (or redevelopment) could result in more employees in the County, which would result in additional water demand.

The December, 2006 Final Environmental Impact Report (State Clearinghouse #2006052029) for the General Plan FAR Amendment (#A06-0002) estimated that an additional 13,869 acre-feet of water demand would result from the amendment under buildout conditions, within the EID and GDPUD Service Areas. Accordingly, water demands need to be adjusted to account for the subsequent increase in the FAR. **Table 2-7** is from the FAR Amendment Draft Supplemental Environmental Impact Report. **Figure 2-4** presents the data in terms of percentage of households and jobs.

The FAR General Plan Amendment more than doubles the jobs projection for the County from approximately one job to two jobs per household. This ratio is higher than surrounding communities and may not be fully achieved in the County. The unit water demand of 0.108 acre-feet per job/employee in Table 2-7 for the FAR General Plan Amendment is derived from the total water

demand divided by the number of jobs from the 2004 General Plan. The total demand from the 2004 General Plan was calculated with differential unit demand factors as high as 0.22 acre-feet in the western down slope areas of EID and as low as 0.07 in the eastern upslope areas of EID. For the GDPUD Service Area, 0.18 acre-feet per job/employee was used. It is likely a majority of the higher density commercial development contemplated under the FAR General Plan Amendment will occur in the western portion of the County where unit demand is much higher than 0.108 acre-feet per employee used to calculate demand for the FAR General Plan Amendment. Although the number of jobs contemplated under the FAR General Plan might be ambitious, because low unit water demand factors were used in calculating total demand, the full amount of potential water demand identified is included in this update.

Table 2-7 West Slope Floor Area Ratio General Plan Amendment Potential Employees and Water Demand (acre-feet)

	2004 General Plan	***Water to Employee Ratio***	***General Plan FAR Amendment***
Total Employees	117,122	0.108 acre-ft/yr/employee	245,543
Total Employee Water Demand	12,649		26,518
SOURCE: EDC (2006b) Table 5.4-5			

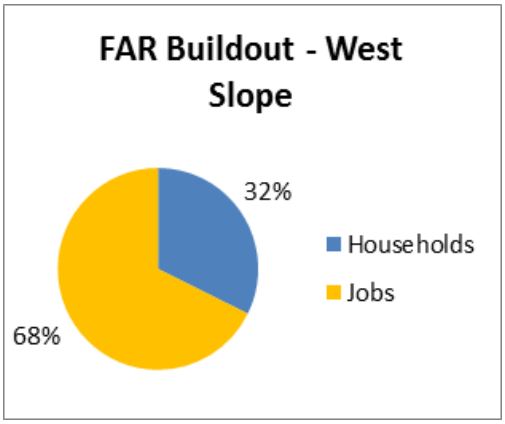

Figure 2-4 West Slope Buildout w/ FAR General Plan Amendment Households versus Jobs

The El Dorado County Planning Commission in approving the FAR General Plan Amendment Supplemental Environmental Impact Report cited the following benefits of the amendment:

- Local retention of sales tax revenue;
- FAR levels more in keeping with surrounding jurisdictions will allow the County to compete for regional employment centers;

- Increased revenue from increased property values;
- Promotes infill/compact development together with mixed use that include more transit choices; and
- Supports a jobs/housing balance and diversifies the County economic base.

2.4.2 Targeted General Plan Amendment

The County is currently working on a Targeted General Plan Update (or Targeted Update), which is proposed to include minor revisions to the land use map and General Plan policies, which are proposed to meet the following goals and objectives (El Dorado County 2013c):

a. Increases employment opportunities within El Dorado County;
b. Promotes the development of housing affordable to moderate income households;
c. Provides additional opportunities to retain retail sales and sales tax revenues within El Dorado County;
d. Protects and enhances the agricultural and natural resource industries; and
e. Is necessary to comply with changes in State or federal law.

On November 14, 2011, the County Board of Supervisors adopted a Resolution of Intention (ROI 182-2011) for a Targeted General Plan Amendment that identifies potential revisions to the General Plan, including:

- Amending Policy 2.1.1.3 to consider increasing the allowable residential density and increasing residential use as part of a mixed-use development from 16 units per acre to 20 units per acre to achieve CEQA streamlining benefits.
- Consider amending General Plan Table 2-1 and Policy 2.2.1.2 for Commercial and Industrial to allow for commercial and industrial uses in the Rural Regions.
- Consider increasing density for multifamily housing from 24 to 30 units per acre (to comply with California Government Code section 65583.2(c)(iv) and (e).

Although the Targeted Update is still a proposal, the increase in residential density for mixed use developments and multifamily housing could increase water demand associated with those uses. However, for purposes of this analysis, no increase in water demand is included for those proposed elements of the Targeted Update.

The Targeted Update is also proposed to include 21 separate amendments which have been identified (El Dorado County 2012) as promoting agricultural uses in the County, including the expansion of Agriculture District boundaries for Garden Valley-Georgetown, Coloma, Camino-Fruitridge, Gold Hill, Oak Hill, Pleasant Valley, and Fair Play-Somerset, as shown on **Figure 2-5** (Potential Expansion of El Dorado County Agricultural Districts).

Agri-tourism has continued to grow in the County over the past three decades. For example:

Apple Hill, a successful apple growers' organization located in El Dorado County, was formed over 36 years ago. It was motivated by the search for a sustainable economic use of the land, but its proximate stimulus was a visit to Oak Glen in Southern California by one of the growers, Gene Bolster. The concept of combining tourism and direct marketing was introduced. Bethell, Bolster and Ed Delfino (former El Dorado County Agricultural Commissioner) worked assiduously to promote the new marketing concept and to develop the organization…. The Apple Hill Growers Association has grown from the original 16 ranches to about 45 currently [2012], if we include Christmas tree growers and vineyards. (Source: Department of Agricultural Economics, University of California, Davis; University of California Cooperative Extension Yolo County, 2012)

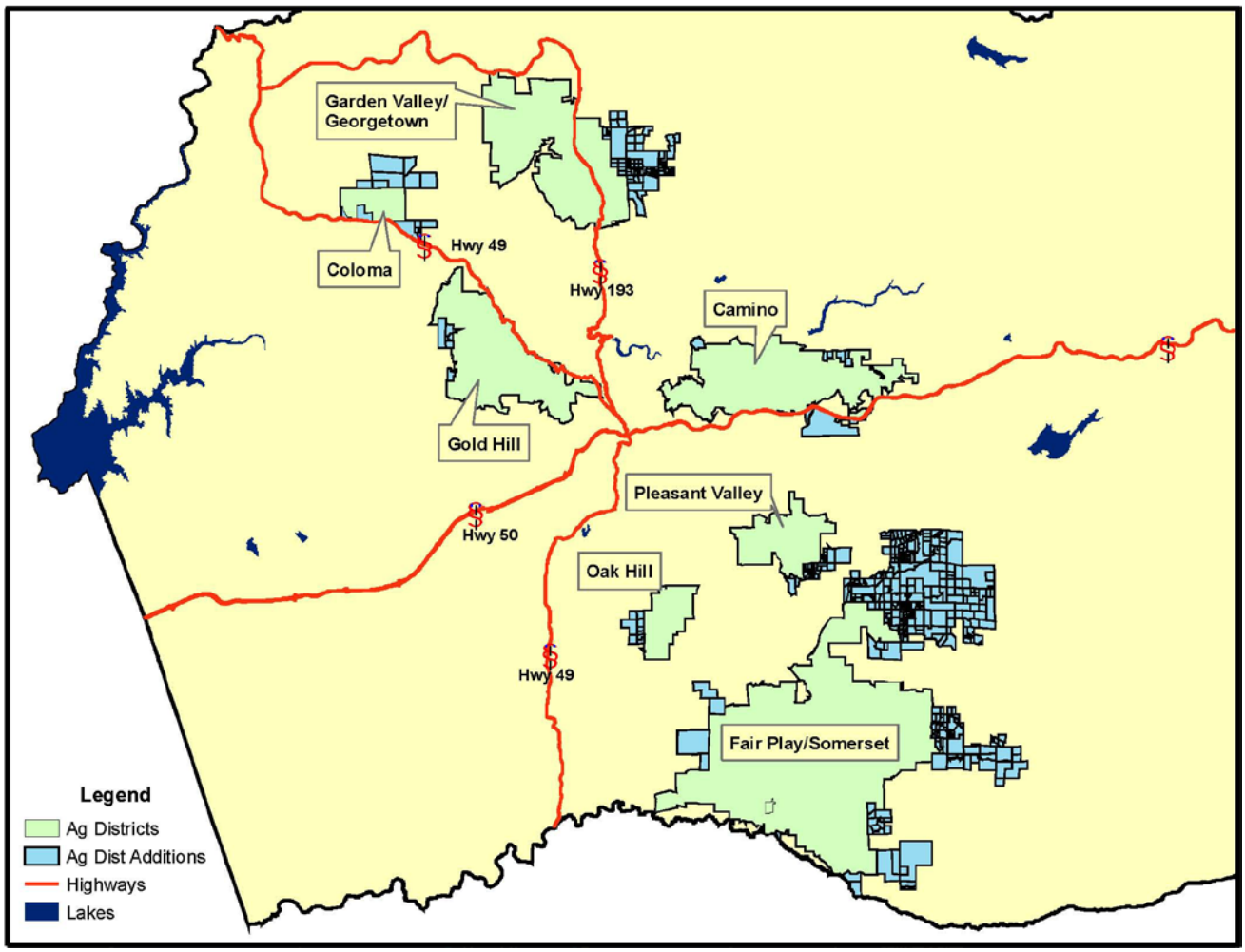

Figure 2-5 Potential Expansion of El Dorado County Agricultural Districts

The importance of Agricultural Districts to the County is explained in Policy 8.1.1.1 of the 2004 General Plan:

> Agricultural Districts are intended to be created and maintained for the purposes of conserving, protecting, and encouraging the agricultural use of important agricultural lands and associated activities throughout the County; maintaining viable agricultural-based communities; and encouraging the expansion of agricultural activities and production.

In addition to many existing policies that are protective of agricultural uses, the proposal to expand Agricultural Districts underscores the County's intent to support and enhance agricultural uses, which could contribute to increased water demand from agricultural land uses. Section 3.4 provides a detailed discussion of agriculture in the County.

2.4.3 General Plan Amendments

Updates to this 2014 Report will reflect all future approved land use developments. .

2.5 MODIFICATION OF SERVICE AREA BOUNDARIES

The 2007 WRDMP purveyor water demand projections were based on purveyor Service Area boundaries that existed in 1999, which was the baseline year for the 2004 General Plan. Since 1999, the El Dorado County Local Agency Formation Commission (LAFCO) has approved 40 annexations to water purveyor's Service Areas to provide water service to an area of approximately 5,000 acres with approximately 2,900 equivalent dwelling units (EDU) (based on currently allowed land uses). A majority of these annexations have occurred in the El Dorado Hills area within the EID Service Area. Assuming the current EDU demand in El Dorado Hills of 0.77 acre-feet per EDU (EID 2013b), these annexations could generate as much as 2,200 acre-feet of demand. These annexations occurred in the Favorable Areas of the OCA. All but one of the annexations has been into the EID Service Area. A list of completed annexations with associated acreage, equivalent dwelling units and proposed land uses is provided in Appendix A to this Report.

2.6 HISTORIC GROWTH AND RECENT GROWTH PROJECTIONS

To identify an appropriate growth rate to estimate future water demand, recent growth rate projections from several sources have been reviewed and are summarized in Table 2-9. These forecasts illustrate the variability in available growth rate projections, the different time periods used for the various forecasts, and the different areas covered (Countywide, purveyor Service Area, and West Slope only). In addition, the growth rates in **Table 2-8** reflect a general decline from projections made in the previous decade (not included in the table), which reflect the national economic downturn that began in 2008. Historic 2000-2010 growth rates for areas with public water supplies (e.g. EID, GDPUD, and GFCSD) are greater than the County as a whole. Growth rates have been even higher for areas with close access to Highway 50 such as the EID Service Area. This trend is expected to continue and is reflected in the future growth rates used by the water purveyors in their planning documents.

Table 2-8 Comparison of Recent Growth Projections for El Dorado County or West Slope

Year	*Title*	*2000–2010*[a]	*2015*	*2020*	*2025*	*2030*	*2035*
2011	EID 2010 Urban Water Management Plan[b,d]	2.44%	0.40%	1.71%	1.57%	1.55%	
2011	GDPUD 2010 Urban Water Management Plan[b]	1.8%		1.97%		1.65%	
2012	GFCSD Water Supply and Demand Update[b,c]	2.63%	2.7%	2.68%	2.25%	2.03%	1.48%
2013	State of California Department of Finance (County-wide)						1.28%
2013	EID Integrated Water Resources Master Plan[b]	2.44%[d]	0.63%	1.29%	2.68%	2.83%	2.49
2013	2013 El Dorado County Housing Element Update (County-wide)	1.34%		1.16%	1.65%		
2013	El Dorado County Targeted Update (West Slope)	2.09%[e]					1.03%

SOURCES: bae urban economics (2013), Table 2;
EID (2011), derived from Tables 3-1 to 3-5 and Tracey Eden-Bishop, personal communication with S. Fraser (February 27, 2012);
EID (2013), forecasted growth for the entire EID service region derived from Table 9 in Appendix C;
El Dorado County (2013), Table HO-2;
GDPUD (2011), derived from Table 5;
GFCSD (2012), Table 2 and Figure 2;
CDOF (2013).

a. Estimates of historical growth included for comparative purposes where available.
b. Growth within the purveyor's Service Area.
c. Growth projection data from 1998 Borcalli and Associates report, not updated in 2012 report.
d. Based on EID data worksheets used for GPCD development (supplemented with data for 2006 to 2010) and Tracey Eden-Bishop personal communication with S. Fraser (February 27, 2012).
e. West slope growth estimate from BAE worksheets, per Tracey Eden-Bishop, personal communication with N. Porter with El Dorado County (November 25, 2013).

For the 2013 Targeted Update, growth projections to 2035 were developed by bae urban economics, which considered three potential growth rates from 2010 to 2035: *(a)* 1.28%, based on a projection from the California Department of Finance (DOF), *(b)* 0.72%, based on a projection of growth in households from the Sacramento Area Council of Governments (SACOG) (not included in Table 2-8); and *(c)* 1.03%, based on an analysis of the historic growth rate of West Slope households prepared for the County's 5-year update as required by the General Plan. The rate of 1.03% is proposed to be used for the Targeted Update, which will only include land use changes for the West Slope area. In recommending this rate, it was noted:

> As this estimate falls in the middle of the range between the DOF and SACOG residential growth rates, this growth trend has been deemed a reasonable basis to project residential growth through 2035. [bae urban economics 2013, p. 5]

Although the growth rates used in County-wide planning documents and those used in water planning reports vary considerably, the differences are consistent with historical trends. For

example, in the GDPUD Service Area, average annual growth was approximately 3.1% from 1990 to 2000 (GDPUD 2011, p. 11) and 1.8% from 2000 to 2010 (per the 2010 UWMP), while a growth rate of 2.5% was reported for the EID Service Area between 1988 and 1999 (EID 2006, p. 3-2) and 2.44% from 2000 to 2010 (refer to Table 2-8). This trend (of differential growth rates) is expected to continue, as growth will likely continue to be concentrated in more urbanized areas of the County due to the availability of commercial and utility services and ongoing improvements to the street and highway network. As noted in the EID 2013 IWRMP:

> [It] is expected that the average growth rate within the District's service area will be higher [than the Countywide rate in the 2008 Housing Element Update], particularly in the El Dorado Hills and Cameron Park areas, due to their proximity to Sacramento, as well as the population density and availability of water when compared to other, more remote areas in the County. [EID 2013, p. 93]

A more detailed discussion of the growth rates used for each purveyor and its Service Area is provided in Section 3.1.2.

2.7 CLIMATE CHANGE

In the past decade, the subject of climate change continues to be a source of much discussion for the water community in California, due to the potential implications for changes in hydrologic conditions, considerable uncertainty about how to identify specific impacts to the West Slope of the County or the Mountain Counties region, and the feasibility of strategies to mitigate any such effects. Despite the inherent uncertainty in projecting water supply conditions several decades in advance, it has become increasingly clear that water resource planning can no longer solely rely on calculated estimates of average or "normal" weather conditions from the past century.

Given the long range nature of this analysis, it is prudent to consider options that assure the water resource management systems that serve the West Slope are more resilient to extreme weather conditions and can provide sufficient water to serve the land uses identified in the adopted General Plan. As many long range climate predictions suggest an increased potential for more extreme weather events in this century, this analysis addresses the potential that more extreme or prolonged drought conditions will occur during the time period until buildout conditions would be realized on the West Slope.

In 2008, with respect to the generalized impacts of climate change on water demand, the California Natural Resources Agency (CNRA) and the California Department of Water Resources (DWR) concluded:

> *Warmer temperatures will likely increase evapotranspiration rates and extend growing seasons, thereby increasing the amount of water that is needed for the irrigation of many crops, urban landscaping and environmental water needs. Reduced soil moisture and surface flows will disproportionately affect the environment and other water users that rely only on annual rainfall such as non-irrigated agriculture, livestock grazing on non-irrigated rangeland and recreation. [CNRA and DWR 2008, p. 5]*

In 2013, with respect to the potential impacts of climate change on the hydrologic cycle in the Mountain Counties, the Draft 2013 Update of the California Water Plan suggests:

> *Projected warmer temperatures are likely to contribute to changes in the hydrologic cycle. Potential changes include reduced snow accumulation, higher snow elevations,*

> *change in runoff timing, more frequent rain-on-snow events, more frequent and higher peak flows, and lower summer stream flows and groundwater levels. [DWR 2013, p. MC-2]*

To address the potential effects of climate change, in the Mountain Counties Regional Report (and elsewhere in the 2013 draft update of the California Water Plan), DWR suggests that Integrated Regional Water Management (IRWM) planning:

> *…is a framework that allows water managers to address climate change on a smaller, more regional scale… IRWM regions must identify and prioritize their specific vulnerabilities, and identify adaptation strategies that are most appropriate for sub-regions. Planning strategies to address vulnerabilities and adaptation to climate change should be both proactive and flexible, starting with proven strategies that address the region today, and adding new strategies that will be resilient to the uncertainty of climate change. [DWR 2013, p. MC-36]*

Development of the Cosumnes, American, Bear and Yuba (CABY) Integrated Regional Water Management Plan (IRWMP) has provided, and likely will continue to provide, many benefits to the West Slope from the identification and implementation of strategies and multipurpose projects that can make the region more resilient to climate extremes. However, the CABY region shares many similar attributes, including geologic conditions that provide only limited opportunities for groundwater storage. As a result, the West Slope and the Mountain Counties have little opportunity to improve water supply reliability via conjunctive use programs directly within their regions, although several IRWM regions in the Sacramento River Valley have significant groundwater storage opportunities. To expand the benefits of IRWM planning, it may be necessary to seek inter-regional solutions that reach outside of the existing IRWM planning boundaries to enhance supply reliability. Further, although it is clear that the CABY IRWMP provides many useful examples of multi-benefit approaches to water supply enhancements, EDCWA has the continuing obligation to conduct long range water supply planning for the County as envisioned by its legislative Act.

As noted above, many predictions are possible that suggest shifts in hydrologic conditions during the planning horizon for this analysis. The combination of rising temperatures, a smaller snowpack, and more frequent and potentially longer droughts could reduce the availability of both surface and groundwater supplies, as more water runs off or evaporates and less infiltrates into the ground. Reduced infiltration could reduce the reliability of groundwater wells drilled in fractured rock, which are common on the West Slope.

Current systems will likely be impacted by the loss of natural snowpack storage and the resultant changes in runoff timing. The need to preserve flood storage space in multipurpose reservoirs could limit the availability of storage for water supply purposes, as variable weather patterns could make reservoir management more difficult, and in some years, such as in 2014 with challenges by USBR to provide full contract deliveries to EID, the result is and will continue to be insufficient storage to meet projected demands in dry years. If groundwater wells become less reliable, requests for annexations into the Service Areas could increase, which would make the West Slope even more dependent on surface storage.

These conditions suggest the potential for adverse impacts to water supply reliability on the West Slope over the long term. The potential combination of (1) increased water demand, (2) changes in runoff patterns, (3) reduced availability of both surface and groundwater supplies, and (4) increased frequency of drought conditions, could require major adjustments in the conservation and

management of water supplies in what could become a more extreme mix of wetter and drier water years.

The concept that future weather conditions could be more extreme must be tempered with the knowledge that even over the past century "normal" years are rare: variability in weather has always been the norm. Although planning for an average year will always be part of the task, more serious extremes must also be addressed to identify available options.

As suggested in the Mountain Counties Regional Report:

> Enough data exists currently to warrant the importance of contingency plans, mitigation (reduction) of [Greenhouse Gas] emissions, and incorporating adaptation strategies, methodologies and infrastructure improvements that benefit the region at present and into the future... Resilience to an uncertain future can be achieved by implementing adaptation measures sooner rather than later. [DWR 2013, p. MC-33]

A discussion of more specific impacts of Climate Change on water supplies is provided in Section 6.1.2, including an assumed reduction in surface water supplies and increased demands due to prolonged drought conditions.

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Chapter 3. Assumptions for Water Demand Projections

The foundation of EDCWA planning for sufficient water supplies to serve future growth in the County is based on adequate supplies and infrastructure. The basis for determining the amount of needed supplies relies on a detailed forecast of future water demand. This chapter describes the water demand projections based on four main elements:

- housing and jobs/employment forecasts for the Western Slope developed by the County of El Dorado for its 2004 General Plan and disaggregated by purveyor service area;
- reallocation of projected housing growth from portions of the OCA to adjacent water purveyors;
- application of per capita water use factors (EID and GDPUD) with adjustments for increased commercial activity and household water demand factors; and
- estimates of agricultural land use and crop water use.

Chapter 4 presents the water demand projections based on the assumptions outlined in this chapter.

3.1 HOUSING AND EMPLOYMENT FORECASTS

Urban water demand is typically based on estimates of current and projected future residential households and employment. Based on census data, the average number of persons in a household can be identified and used to convert housing units into a corresponding population estimate. These numbers are used here to project future water demand.

As discussed above, SB X7-7 set an overall goal of reducing statewide per capita urban water use by 20% by December 31, 2020. To measure progress, the legislation requires that urban retail water suppliers determine their baseline per capita water use otherwise referred to as gallons per capita day (GPCD), develop water use reduction targets (which reflect conservation), and articulate a plan to meet those targets. EID and GDPUD are both subject to the requirements of SB X7-7, and their respective UWMPs identify baseline per capita water use and the associated reduction targets. Target GPCD is used to forecast water demand for Year 2020, and Target GPCD with adjustments for increased economic activity projected in the 2004 General Plan is used to project buildout demand. Adjustments are based on the ratio of urban water demand per household projected in the 2007 WRDMP/2004 General Plan (Appendix B) for the baseline year of the 2004 General Plan and Buildout. This approach captures urban water conservation required by the State by starting with Target GPCD while also accounting for changes in land use over time by adjusting for increased economic activity.

For the GFCSD water Service Area and the portions of OCA that are not considered Favorable Areas (and are unlikely to receive water from an urban water supplier in the future), residential water and commercial demand is based on a housing and employee/jobs unit demand factor, which does not include any reductions in water demand (as those areas are not subject to the requirements of SB X7-7).

The County has estimated both current and future households and jobs in the 2004 General Plan (and those projections were incorporated into the 2007 WRDMP and are included in Appendix B). As the forecast was used for the 2007 WRDMP, and as that forecast is not proposed to be

substantially altered by the Targeted General Plan Amendment, the housing and jobs forecast from the 2004 General Plan is the basis for this analysis. Potential demands resulting from the FAR General Plan Amendment are also included as a separate component of the total water demand.

3.1.1 Identification of Potential Growth Rates for this Analysis

To estimate potential future water demand, typically a growth rate is applied to baseline conditions. Growth rate projections are available from several sources, including:

- Rates used in recent County planning documents
- Rates developed by the State of California Department of Finance
- Rates used in planning reports prepared by the major water purveyors

Alternatively, new growth rates can be developed for the purposes of this analysis.

El Dorado County Planning Documents

The 2013 Housing Element, which applies to the entire County, incorporated a variable growth rate, of 1.15% until 2020 and 1.68% for the period of 2020 to 2025. A growth rate of 1.03% for the West Slope is proposed to be used for the Targeted Update (EDC 2014), based on the historic trend of growth in the County.[1]

With respect to the proposed growth rate for the Targeted Update, bae urban economics noted:

> *… a number of issues… constrained the development pattern within the County during the first half of the 2000-2011 time period for which the historic trend data was analyzed. This included legal restrictions on development due to environmental issues relating to rare plant species. In addition, the alignment for the Diamond Springs Parkway was not resolved until 2011. [bae urban economics 2013, p. 7]*

In order to test for the possible effect of changes in the development pattern due to the lifting of these constraints, County staff provided bae urban economics with data on development application activity from 2006 through the early 2013, which indicated that:

> *… the trend [in development applications] since [2006] has shown even greater interest in developing within Market Areas 1 [El Dorado Hills] and 2 [Cameron Park/Shingle Springs] than indicated by the longer term historic trend. [bae urban economics 2013, p. 7]*

The population analysis included in the County General Plan 2013 Housing Element (adopted October 13, 2013) indicates that the countywide growth rate was 3.91% from 1990-2000, and 1.34% between 2000 and 2010 (refer to Table 2-8). In the GDPUD Service Area, the average annual growth was approximately 3.1% from 1990 to 2000 and 1.8% from 2000 to 2010 (GDPUD 2011, p. 11). Growth of 2.5% has been reported for the EID Service Area between 1988 and 1999 (EID 2006, p. 3-2) and 2.44% from 2000 to 2010 (refer to Table 2-8).

Given historical growth patterns, it is uncertain whether growth in the County will be limited to 1.03% annually until 2030. As portions of the County experience different rates of growth, with this growth

[1] Tracey Eden-Bishop, personal communication with N. Porter (November 25, 2013).

concentrated in those areas served by a major water purveyor particularly in the western portion of the County, the use of a single growth rate for the entire West Slope is not appropriate for this analysis, as this methodology would not capture the variability in water demand from different West Slope areas.

Differential growth rates can be derived by pro-rating future growth based on differences in historical growth patterns. For example, for the period of 2000 to 2010, an estimate of 2.09% for West Slope growth can be derived from census data (refer to Table 2-8), historically the EID and GDPUD growth rates of 2.44% and 1.8%, respectively were 17% higher and 14% lower than the West Slope rate. Thus, future growth rates for those service providers could be estimated by adjusting a West Slope growth rate proportionally, as presented in **Table 3-1**.

Table 3-1 Potential Residential Growth Rates Based on Proposed Targeted General Plan Update (West Slope)

	Through 2035
Projected West Slope Growth	1.03%
Pro-rated growth within EID Service Area[a]	1.21%
Pro-rated growth within GDPUD Service Area[b]	0.89%

SOURCE: EDC (2014) Targeted General Plan Amendment

a. Assuming growth within the EID Service Area is 17% higher than the west slope rate.

b. Assuming growth within the GDPUD Service Area is 14% lower than the West Slope rate.

State of California Department of Finance Projections

The State of California Department of Finance (DOF) periodically generates population forecasts that incorporate future growth rates. A recent forecast for El Dorado County was 1.28 % annual growth (refer to Table 2-8). Although this rate was considered for use in the County's Targeted Update, a lower rate of 1.03% was adopted by the County.

As noted above, a single growth rate will not capture historical variability in growth, which can be generated by pro-rating future growth based on historical differences in growth. Per Table 2-8, between 2000 and 2010 County-wide growth was 1.34%, while EID growth was 2.44% (approximately 82% higher) and GDPUD growth was 1.8% (approximately 34% higher). Therefore, based on this methodology, future growth rates for those service providers can be estimated by adjusting a County-wide growth rate proportionally. If future growth in water demand were based on the DOF population projection (of 1.28%), potential future growth rates for EID and GDPUD can be derived by increasing the DOF projection for countywide growth by 82% and 34%, respectively, as shown in **Table 3-2**.

Table 3-2 Potential Residential Growth Rates Based on Department of Finance Projections (County-wide)

	2030
Projected County-wide Growth	1.28%
Pro-rated growth within EID Service Area[a]	2.33%
Pro-rated growth within GDPUD Service Area[b]	1.72%

SOURCE: CDOF(2013)

a. Assuming growth within the EID Service Area is 82% higher than the County-wide rate.

b. Assuming growth within the GDPUD Service Area is 34% higher than the County-wide rate.

When compared to historical growth rates, the rates presented in Table 3-2 appear to be generally consistent. In the GDPUD Service Area, the average annual growth was approximately 3.1% from 1990 to 2000 (GDPUD 2011, p. 11) and 1.8% from 2000 to 2010 (per Table 2-8). For EID, a growth rate of 2.5% was reported between 1988 and 1999 (EID 2006, p. 3-2) and 2.44% from 2000 to 2010 (per Table 2-8). Despite the general consistency with historical growth patterns, given ongoing economic uncertainty, the growth rates presented in Table 2-8 for EID and GDPUD may be too high.

Growth rates used in recent water purveyor planning documents (included in Table 2-8) have ranged from 0.40% to 2.83% for EID, 1.69% to 1.97% for GDPUD, and 1.48% to 2.7% for GFCSD.

As noted above, a growth rate of 1.03% is substantially less than the historic rate of growth for EID's water Service Area and is also lower than the growth rates included in recent water planning reports prepared by EID. Further, the list of pending General Plan Amendments and Specific Plan applications presented in Table 2-7, which are all concentrated in the EID service region, suggests the potential for a sizeable increase in demand within EID's water Service Area. If all of the proposed development (in Table 2-7) were approved and built as planned, the number of residences in the EID Service Area could increase by 7,289 units. Assuming an average household size of 2.64 persons (United States Census Bureau n.d.), this represents an increase of 19,243 persons within the EID Service Area, or an approximate 17% increase above the estimated 2010 population of 110,000 (EID 2011, Table 2-2). For comparative purposes, a total of 4,185 residential units were permitted in the El Dorado Hills, Cameron Park/Shingle Springs, and Diamond Springs market areas from 2000–2011 (bae urban economics 2013, Appendix A).

As discussed above, the 2013 IWRMP included estimates of future water demand for both high-growth and low-growth scenarios (which were included in Table 2-5). **Table 3-3** adds the baseline (2008) for the high growth scenario so that the average growth rates used in the 2013 IWRMP can be calculated.

Table 3-3 Projected Growth in Water Demand within EID Service Area (acre-feet)

Year	*Total Water Demand (AFY)*	
	Low Growth Scenario	*High Growth Scenario* [a]
2008a		46,767
2015	43,398	48,863
2020	45,639	52,092
2025	50,345	59,465
2030	55,136	68,375
2035	61,262	77,315
Growth through 2030 [b]	**1.61%**	**1.74%**
Growth through 2035 [b]	**1.74%**	**1.88%**

SOURCE: EID (2013) IWRMP, Table 9-1.
a. Base year demand included per EID 2013 IWRMP, Table 4-6.
b. Growth rates are calculated averages based on reported projections

The high-growth scenario starts with a baseline year of 2008 and reflects pre-recession demand levels. The low-growth scenario starts with a lower single year demand in 2012, which reflects a similar reduction in water demand experienced by many water agencies during the economic downturn, as noted in Section 2.2.4. These growth rates are lower than used in previous EID planning reports (refer to Table 2-8) and appear to incorporate the effects of a slow economic recovery. The EID rates are consistent with the historic trend of differential growth for those areas where public water supplies are available.

3.1.2 Growth Rate Projections Utilized in this Update

For the purposes of this analysis, **Table 3-4** presents the growth rates adopted for a high-, medium-, and low-growth rate scenario for each of the purveyors and OCAs and is followed by a rationale for each.

Table 3-4 Residential Growth Rate Scenarios Adopted for 2014 Update

	Low	*Medium*	*High*
El Dorado Irrigation District [a]	1.21%	1.74%	2.33%
Georgetown Divide Public Utility District [a]	.89%	1.28%	1.72%
Grizzly Flat Community Services District [b]	N/A	1.03%	N/A
Other county Areas [b]	N/A	1.03%	N/A

a. Reference Table 3-1 and 3-2
b. Growth rate adopted by EDC for the Targeted General Plan Amendment

EID

The pro-rated growth rates for EID, with 1.21% derived from the Targeted Update (in Table 3-1) and 2.33% derived from the State of California DOF (in Table 3-2), are used in this analysis as the low and high range of growth that might occur within the EID water Service Area. For comparative purposes the midpoint of these two pro-rated rates would be 1.77%.

Table 3-3 provides growth rates (aggregated from supply region growth rates) for EID's IWRMP for low- and high-growth scenarios, which range from 1.61% to 1.88%, with a midpoint of 1.74% (essentially the same as the mid-point of the two pro-rated growth rates for EID noted in the previous paragraph). For comparative purposes, the rate of 1.74% is approximately 71% of the historic growth within the EID Service Area from 2000-2010. The rate of 1.74% is used in this analysis for a medium growth scenario for the EID water Service Area including those Favorable Areas reallocated to EID.

GDPUD

The pro-rated growth rates for GDPUD of 0.89% derived from the Targeted Update (in Table 3-1) and the growth rate of 1.72% derived from the State of California DOF projection (in Table 3-2) are used in this analysis to depict the high and low ranges of growth that might occur within the GDPUD Service Area.

To identify a medium growth rate, if future growth is approximately 71% of the previous decade's growth as it was for EID, and considering growth in the GDPUD Service Area was approximately 1.8% from 2000-2010 (refer to Table 2-8), then future growth in the GDPUD water Service Area would be approximately 1.28%. Therefore, the rate of 1.28% is used in this analysis to estimate a medium growth scenario for the GDPUD water Service Area, including those Favorable Areas reallocated to GDPUD.

GFCSD

Projected growth rates (averaging 2.23% through 2035) presented in Table 2-3 for GFCSD used in its 2012 Water Supply and Demand report are high considering an actual reduction in residential connections between 2009 and 2012. This reduction resulted from poor economic conditions and the community's relatively remote location (from Placerville and the Highway 50 Corridor). The Targeted Update West Slope growth rate of 1.03% therefore, is used in this analysis to project future water demand for GFCSD.

Other County Areas

The Targeted Update long term West Slope growth rate of 1.03% is used in this analysis to project future water demand for the OCA.

3.2 REALLOCATIONS OF PROJECTED GROWTH FROM OTHER COUNTY AREAS

The 2007 WRDMP addressed the water supply needs of the West Slope, including areas that are outside existing water service boundaries, collectively referred to as OCA, where water is typically

supplied by individual property owners and small privately-owned water providers from wells and springs.

Many factors will determine whether or not municipal water service will be provided to portions of the OCA that have appropriate land use or zoning designations that allow for development. From a water utility perspective, these factors include water supply availability, proximity and physical conditions to connect to an existing system, facility requirements to extend service, potential for improvements to the existing system to accommodate the added demand, and the total cost of providing service, including both capital and operating costs.

The extension of water service from a public water purveyor occurs via an annexation and such annexations are conditioned by the establishment of a "sphere of influence" for the public agency by the appropriate Local Agency Formation Commission (LAFCO). The "sphere of influence" is defined as "a plan for the probable physical boundaries and the service area of a local government agency."[2] Spheres of influence for public agencies within the County, including the major water purveyors, have been established by the El Dorado County LAFCO.

In the 2004 General Plan, using a GIS model, housing units and related water demand in the OCA were aggregated by Traffic Analysis Zones (TAZs) established for the traffic analysis for the Environmental Impact Report. Based on the assumption that the Service Area of the water purveyors would eventually expand to the "sphere of influence" for each agency, in the 2007 WRDMP, future water demand within portions of the OCA was reallocated to EID and GDPUD. These areas were identified as having "potential" for future annexation and were depicted on Figure 5.8 (of the 2007 WRDMP). Based on this reallocation of TAZs, the 2007 WRDMP identified the potential for up to 14,910 AFY in additional demand for EID and 2,162 AFY of additional demand for GDPUD. Of these amounts 11,040 AFY and 1,318 AFY for EID and GDPUD, respectively, were identified as being provided for by the purveyor at some time in the future. Note, the 2007 WRDMP estimates of reallocated water demand did not consider the vacancy rate, which was imbedded in the 2004 General Plan housing projections, nor did they account for system losses, and thus the projections in the 2007 WRDMP were somewhat understated.

For this update, an updated map of Favorable Areas has been developed (**Figure 3-1**). It depicts the ranges of aggregated water demand for each TAZ. TAZs with new demand of more than 250 AFY (at build-out) and "island areas" (currently unserved areas surrounded entirely by the water purveyor's existing Service Area boundary) are considered favorable for future water service from EID or GDPUD. Note that only the aggregated demand from vacant lands was included, even though additional demand could occur on already developed lands (e.g., due to failing or low-producing groundwater wells). In addition, a few adjustments were made to eliminate TAZs in the "favorable" category due to the absence of proximate water distribution facilities. A few TAZs with aggregate demand of less than 250 AFY were added as Favorable Areas, based on proximity to Highway 50, completed annexations, and TAZs where at least a portion falls within a designated Community Region (in the 2004 General Plan). Figure 3-1 also depicts areas that have been annexed into the EID and GDPUD Service Areas since 1999 (the base year for the General Plan projections). **Table 3-5** presents the number of new households that fall within the TAZs for which water demand is reallocated to EID and GDPUD based on "Favorable Area" criteria discussed above.

[2] California Government Code §56076.

Table 3-5 New Households Reallocated from Other County Areas

Estimated New Households[a] in the OCA	*New Households Reallocated to EID*	*New Households Reallocated to GDPUD*	*New Households Remaining in the OCA*
21,432	13,152	1,746	6,534
SOURCE: EDC (2004) Appendix E and GIS Model analysis.			

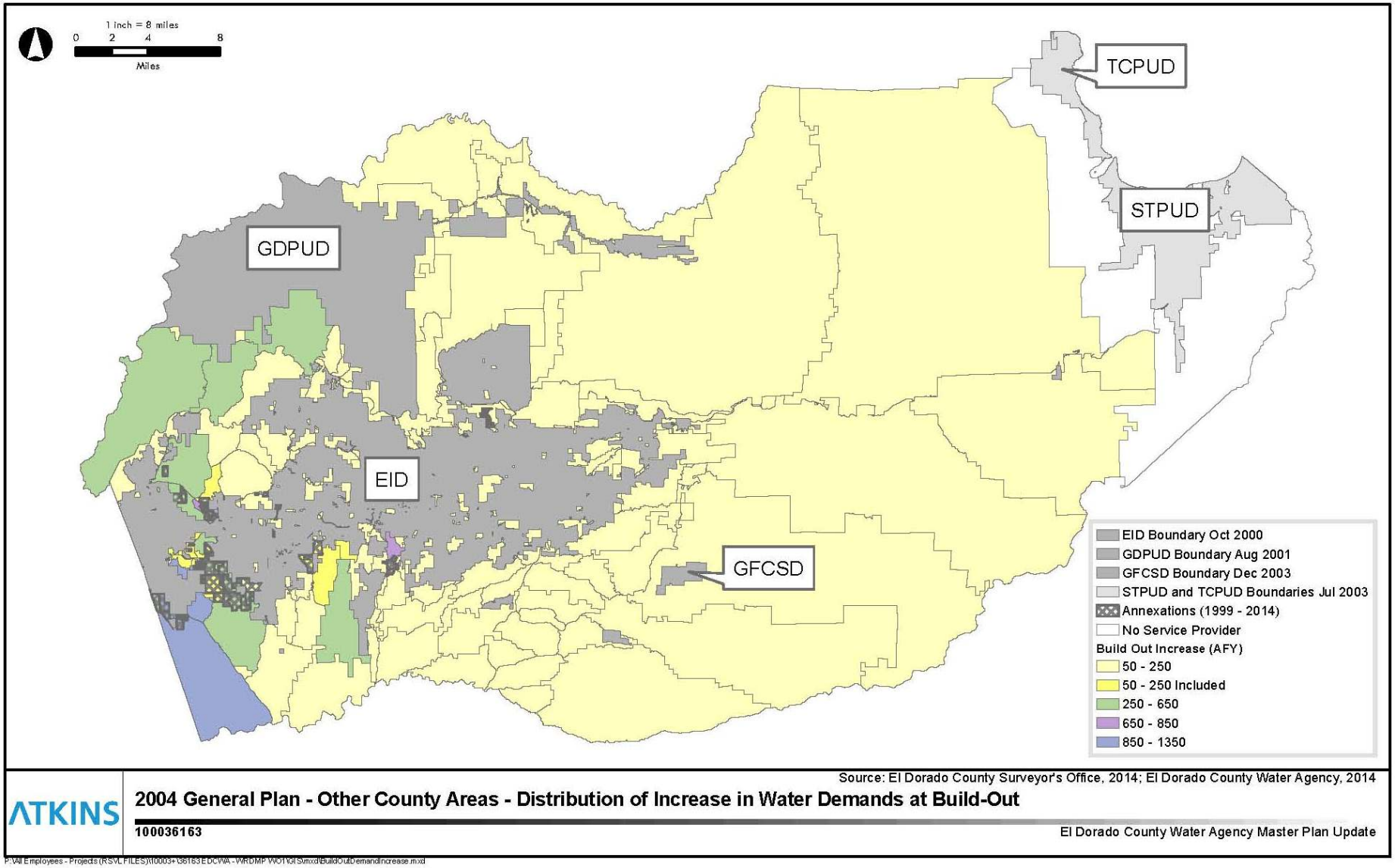


Figure 3-1 Update El Dorado County Favorable Areas

3.3 WATER DEMAND FACTORS

The water demand factors used in this analysis were based on data available from UWMPs, master plans and supplemental information from the water purveyors. In some cases, simplifying assumptions were made for purposes of this analysis and are detailed in the section for each purveyor. Purveyor specific water demand factors were used because each Service Area exhibits unique water demand and growth trends, thus making countywide water demand factors infeasible for use in this analysis.

General descriptions of the water demand categories included in this analysis are described below. The specific source and any variations from these general descriptions are noted below for the individual water purveyors.

Urban Demand: Urban demand is based on historic capita water use or GPCD determined in the 2010 UWMP for EID and GDPUD, and includes all residential, commercial and industrial water use. The capita water use factors identified in the respective UWMPs are applied to the population associated with the 2004 General Plan housing forecasts for each purveyor's Service Area and the Favorable Areas reallocated to the purveyors. Adjustments are made to the historic capita water demand factors to capture projected changes in land use (primarily increased economic activity) envisioned in the 2004 General Plan. This differs from the approach taken in the 2007 WRDMP where demand was calculated by applying residential and per-employee water demand factors to the number of households and employees projected to occur as a result of the 2004 General Plan.

For GFCSD, which is not an Urban Retail Water Supplier, household water use factors are used to estimate demand, consistent with the 2007 WRDMP.

Commercial, Office, and Industrial Demand: Unlike the 2007 WRDMP, separate commercial demand factors are not used for EID or GDPUD for this analysis. As described in the Urban Demand description above, commercial uses are captured in adjustments to the GPCD that are used to calculate urban demand. Adjustments are based on the ratio of urban water demand per household projected in the 2007 WRDMP/2004 General Plan (Appendix B) for the baseline year of the 2004 General Plan and for Buildout. This approach captures urban water conservation required by the State by starting with Target GPCD while also accounting for changes in land use over time by adjusting for increased economic activity. For GFCSD with few commercial uses within the Service Area, no demand factors for commercial uses are applied in this analysis. It is assumed that any demand associated with commercial activities is captured in residential demand. For OCA (not reallocated to the major water purveyors) employee unit demand factors are used, consistent with the 200 General Plan and 2007 WRDMP.

As discussed above, in 2007, the County adopted an increase in the allowable FAR for commercial and industrial uses from 0.25 to 0.85, and for R&D uses from 0.25 to 0.50. The adopted increase in the FAR allows an increase in the size of commercial, industrial and R&D buildings much greater than previously allowed under the 2004 General Plan. This could result in more employees in the County. As discussed in the FAR General Plan Final EIR, the projected increase in employees would generate additional water demand. The Final EIR for the General Plan Amendment A06-0002 (Dec 2006) indicates that:

> *… an additional 13,869 acre-feet of water demand at build out, occurring primarily within EID's service area, will result from the amendment.*

To the extent that water demand projections are based on the 2004 General Plan (without the 2007 FAR amendment), those commercial demands are adjusted in this analysis to account for the allowable increase in the FAR.

Other Authorized Uses and System Losses: System losses are water that is taken into the system from a purveyor's main sources, but "lost" due to leakage or used for authorized purposes but not delivered to the consumers. Authorized purposes include treatment plant and pump station operations and maintenance and sewer line flushing. Additionally, system losses may also be a result of "apparent" losses due to metering or billing system inaccuracies.

Latent Demand: Latent demand includes inactive meters and uninstalled meters, which potentially can generate immediate water demand (EPS 2003). In the 2007 WRDMP, residential water demands (actual) were projected for households and then a water factor for latent demand was added. Because the 2004 General Plan residential growth forecast is based on households rather than total residential dwelling units, latent demand is based on a standard vacancy factor of 5% (which is widely used as a standard assumption for residential vacancies). A decrease in residential vacancy rates would result in an increase in water demand. Thus, latent demand, as reflected by vacancy rates and other system requirements, must be accounted for given the water service is already committed and necessary for inclusion within potential future demand estimates. Other contractual commitments and/or operational requirements are also discussed below in the purveyor-specific discussion.

3.4 AGRICULTURAL LAND USE AND CROP WATER USE

As part of the 2004 General Plan, preliminary estimates of future agricultural water demand were developed by Wood Rogers in 2003, based on mapping of all "Important Farmland" on the western slope below 3000 feet in elevation. The 2004 General Plan included an alternative estimate of agricultural demand developed by EPS, based on information provided by the water purveyors. The 2007 WRDMP included the results of a mapping exercise conducted by ECO:LOGIC that refined the extent of agricultural lands included in the preliminary analysis conducted by Wood Rogers in 2003. Agricultural water demand projections presented in the 2007 WRDMP were based on the land use capacity of "Choice Farmland," as defined by the 2004 General Plan. These are within and outside Agricultural Districts, on parcels greater than 10 acres with a 10% allowance for roads and buildings, and outside urbanized areas and designated "Community Regions". They include a crop mix and growth rate developed in consultation with the El Dorado County Agricultural Commissioner. Note that several hundred acres of new plantings were anticipated at that time but did not materialize during the recent economic downturn.

For this update, agricultural land uses are limited to parcels greater than 10 acres within the Agricultural Districts designated in the 2004 General Plan, but not including the expansion of those Districts proposed in the Targeted General Plan Update. The exclusion of parcels as small as 1 acre from this analysis likely understates the potential for agricultural land development in the County, as currently there is considerable agricultural activity on parcels smaller than 10 acres. In addition, to be conservative, agricultural growth rate projections from the 2007 WRDMP have been reduced by half for this analysis.

Agricultural land use projections for EID, GDPUD, and OCAs are presented in **Table 3-6**. A current inventory of agricultural land use is not available, therefore, the 2004 General Plan base year of 2000 (for agricultural land uses) is used as the starting point, consistent with the 2007 WRDMP.

Table 3-6 El Dorado County Historical and Projected Future Irrigated Agricultural Land Use[d]

Location	*2000*	*2030*	*2050*	*Build-Out*
	Area (acre)	*Area (acre)*	*Area (acre)*	*Area (acre)*
El Dorado Irrigation District[a]	2,371	3,171	4,271	7,696
Georgetown Divide Public Utility District[b]	1,195	1,948	2,624	3,413
OCA: Outside Purveyor's Boundaries[c]	1,260	1,773	2,634	10,903
Total	***4,826***	***6,892***	***9,528***	***22,012[d]***

SOURCE: EDCWA (2007).

Acreage represents irrigated agriculture.

a. Assumed growth rate of approximately 2% per year for 2010-2030 and 1.5 % per year for 2030-2050 for EID.
b. Assumed growth rate of approximately 2% per year for 2000-2030; 1.5% per year for 2030-2050 for GDPUD.
c. Assumed growth rate of approximately 1.5% per year for 2000-2030; 2% per year for 2030-2050 for OCA.
d. Build-out acreage from 2007 WRDMP, Table 4-7.

The irrigation water to support the projected growth in agriculture is based upon the application of water duties (or average water use values) by crop category as presented in **Table 3-7**. These water duties are composite values based on DWR data and local agricultural community experience on properties utilizing Irrigation Management Services (IMS), initiated in 1977, operated for growers by EID and EDCWA. The IMS programs apply irrigation efficiencies for centralized irrigation systems that use soil moisture probes to monitor and manage irrigation and minimize water use. Therefore, these duties already reflect the efficiencies of agricultural irrigation best management practices such as drip irrigation. The EID and EDCWA IMS programs are discussed in more detail in Chapter 5.

Table 3-7 Agricultural Water Duties

Crop Category	*Water Use*
Deciduous orchards[a]	2.8 acre-feet/acre
Vineyards, Christmas trees, olive/citrus, and berries [a]	1.3 acre-feet/acre
Pasture Irrigation[b]	N/A
Alfalfa (Reference Crop) [c]	4.6 acre-feet/acre

SOURCE: UCDavis (2009)

a. Composite values based on DWR data and local agriculture community experience

b. Assumes no new growth in the Pasture Irrigation category.

c. Alfalfa water use provided for reference only UCDavis (2009)

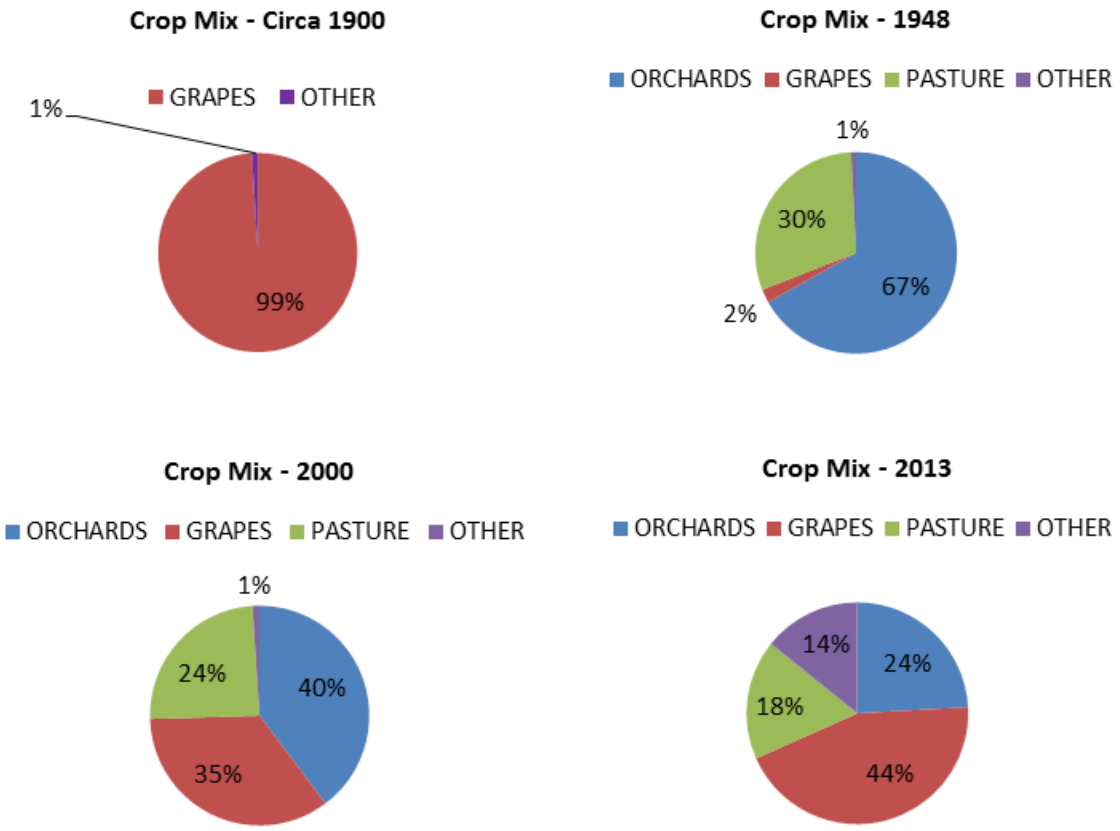
Agricultural land and water use in El Dorado County has varied over the last century based on crop mix, water availability, and irrigation efficiency. Cultivated acreage in El Dorado has been as high as 9,300 acres in 1975 and today there is approximately 5,300 acres under cultivation (up from 4,826 acres in 2000). The decline from 1975 is primarily a result of declining irrigated pasture.

Cropping patterns have been and continue to be dynamic in the County as supply and demand for certain crops and economic conditions change. For example, El Dorado County was a major grape growing center from 1849 to 1904, with production of 60,000 gallons of wine reported in 1890. But various events, including an economic depression in 1890, the Eighteenth Amendment to the US Constitution (which instituted Prohibition), the Great Depression, and a phylloxera pest invasion in the 1930's, drastically reduced vineyard acreage with only a single vineyard reported in 1936.

As grape production declined, growers in the County switched to other crops, most notably pears, with just under 5,000 acres of deciduous orchard reported under cultivation in 1948. Disease and extreme weather events, however, resulted in decline and/or loss of entire crops. For example, in 1958 the County produced approximately 52,000 tons of pears on 3,400 acres, but after pear blight swept through the County, production dropped to 8,500 tons by 1965 (Apple Hill® Growers Association 2013).

In 1964 the County Farm Advisory and Ag Commissioner met with local farmers to lay the groundwork for the formation of the Apple Hill Growers Association and the "ranch marketing" concept was born. The conversion of pear orchards to apple orchards and grapes has continued since then. In 2000, 451 acres of pears remained within the County, which further declined to 130 acres by 2010, while apple acreage remained essentially unchanged at about 840 acres. During the same period, grape production increased from 1,565 to 2,207 acres. However, a shift away from grapes may be underway as the effects of a new viral disease (red blotch) takes hold in the County. This outbreak could drastically reduce wine grape production, which in turn may result in a return to crops that require more water. These dynamics, unique to agriculture, make projecting future agricultural water demand challenging and warrant a conservative approach to ensuring there is adequate water for agriculture.

Figure 3-2 illustrates the change in countywide crop mix since the turn of the twentieth century. Year 2000 crop mix is included because it is the baseline year for the 2004 General Plan inventory of cultivated land by water purveyor service area and "Other County Areas" (OCA) which is the basis of this update.



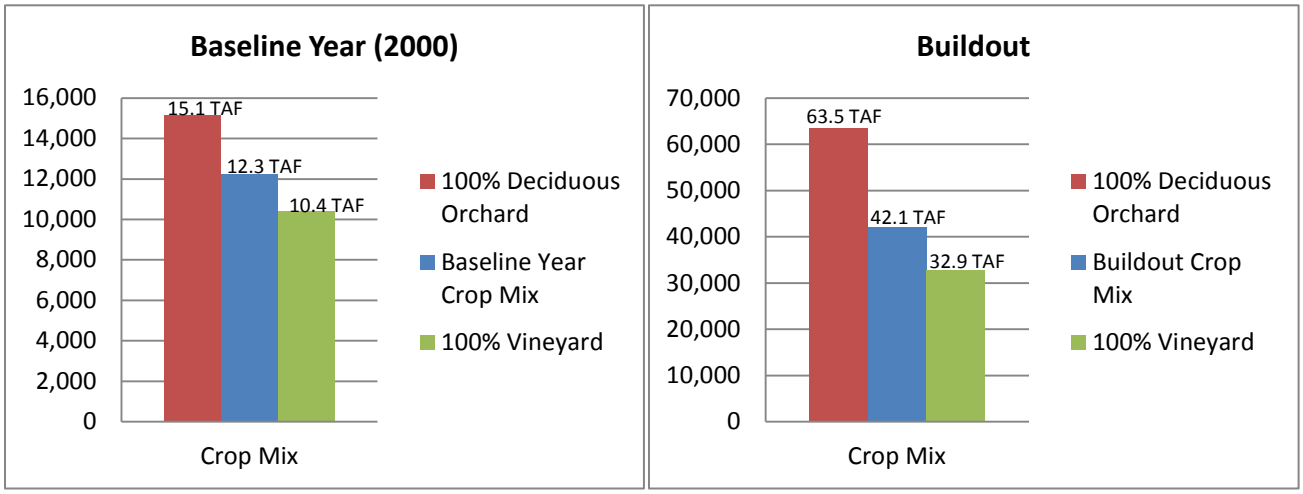
SOURCE: EDC (1948-2013) Agricultural Crop and Livestock Report
Costa (2010) A History of Wine Making in El Dorado County
USDI (2008)

Figure 3-2 El Dorado County Historical Crop Mix – Percent by Acreage

These dynamics make projecting future agricultural water demand challenging as water use varies widely by crop type. To demonstrate the effect of crop type on agricultural water requirements, Figure ES-5 presents three crop mix scenarios for acreage under cultivation in 2000 (baseline) and Buildout: 1) Year 2000 (baseline) crop mix; 2) 100% vineyard with no change in pasture irrigation; and 3) 100% deciduous orchard with no change in pasture irrigation. Water requirements are based on 1.3 acre-feet per acre for grapes, 2.8 acre-feet per acre for deciduous orchard, and no change in pasture irrigation total from the baseline year.

Assuming 100% grapes would tend to under estimate agricultural demand, and assuming 100% deciduous orchard would overestimate demand. From Figure 3-3, the Year 2000 (baseline) crop mix represents a balance between grapes with a lower water requirement and deciduous orchard with a higher water requirement. For this analysis the baseline year crop mix is assumed in

projecting future agricultural water demand, except that acreage in pasture irrigation is assumed to stay constant. A similar analysis is presented in Chapter 5 for each area/purveyor.



SOURCE: EDC (2004) Appendix E (EPS 2003 and Wood Rogers 2003)
EDCWA (2007) Table 4-7
Note: Water requirement does not include system losses, which vary by area/purveyor.

Figure 3-3 Crop Mix Water Requirement for Baseline Year and Buildout

Adaptation to adverse conditions by agricultural producers in the County speaks to the region's favorable agricultural characteristics. This adaptability and the following factors contribute to the potential for expanded agricultural land uses in the County:

- General Plan policies are protective of agricultural operations in terms of adjacent compatible uses and allow ranch marketing activities by right
- The high cost of agricultural land elsewhere will make the County more attractive to producers
- Crop diversification in the "Apple Hill" area, including apples, cherries, wine grapes, peaches, nectarines, and Christmas trees fuel ranch marketing operations that draw more than 35,000 visitors to the County each year.
- Total crop production value in El Dorado County was $57 million in 2013, representing a 20% increase from 2012 and up from $53 million in 2000. (EDCDAWM, 2000/12/13).
- The Agricultural Commissioner estimates that agriculture and related activities contributed approximately $441 million to the County economy in 2013, of which ranch marketing and value-added products contributed about $222 million, up from $159 million in 2012 and the wine industry $179, up from $169 million in 2012 (EDCDAWM, 2013,2014)

For this analysis, the crop mix in 2000 (the base year for the 2007 WRDMP/2004 General Plan) for each purveyor's Service Area and the OCA is used to partially capture a potential shift back to more water intensive crops. Water use projections for each purveyor and OCA are discussed in Chapter 4.

Refer also to the 2007 WRDMP (including Section 4.5 and Table 4-7) for a more detailed discussion of the criteria used in determining the land areas considered within the Agricultural Districts and water duties used in this analysis.

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Chapter 4. Demand Projections

4.1 INTRODUCTION

As noted above in Section 2.1, recently the State of California has required that Urban Water Management Plans include an estimate of "baseline" water demand (reflecting average per capita demand over a recent five-year period), an estimate of the "target" water demand (calculated via 1 of 4 methods), and a water use reduction plan to demonstrate how the per capita target demand will be achieved. For the purposes of this update, demand associated with both the baseline and target GPCD factors are included in this analysis.

As the development of per capita water demand factors has become more common, these factors are an increasingly useful tool for planning and comparative purposes. However, the use of per capita demand factors has some limitations for long range planning. They do not capture future land use, or cover agricultural water use (which is relevant to the West Slope purveyors). Comparisons to older studies and reports are difficult because they do not include per capita residential demand factors. In addition, EDCWA has traditionally based demand projections on the number of households and employees, which is consistent with the adopted 2004 General Plan.

Given the widespread use of per capita demand factors (largely for just residential growth forecasts, but also for combined forecasts), this analysis estimates "urban" water demand (including residential, commercial and industrial uses for EID and GDPUD) based on both the 20x2020 baseline and target per capita factors developed by those agencies. For EID and GDPUD, the baseline and target factors are adjusted for use in this analysis to reflect conditions specific to each. For GFCSD and water demand in the OCA, per capita demand factors are not available and therefore this analysis relies on more traditional methods to estimate urban demand. There are advantages and disadvantages to this approach. As implementation proceeds statewide in response to SB X7-7, a more uniform technical approach may become more common. This methodology is expected to be revisited at the next update.

This update includes a range of growth projections (low, medium and high) for the major water purveyors and a single growth rate for OCA and GFCSD. For EID and GDPUD, because both the baseline and target per capita water demand factors are included for the figures that illustrate future water demand projections, "baseline" demand is illustrated only for the medium growth rate scenario for reference. Baseline demand assumes that per capita water demand is unchanged from the historical average reported in the respective UWMPs. The use of the target demand factors reflect an assumption that the reductions in demand embedded in those factors will be achieved by the respective water purveyors. The demand charts illustrate all three growth scenarios (low, medium, and high), and quantify projected demand only for the medium growth scenario. This reflects another conservative assumption that the high growth rates experienced in recent years in some areas (e.g., El Dorado Hills) are not sustainable over the long term. While growth rates tend to average out due to economic cycles, such recent dramatic changes in growth rates are largely unprecedented in the region. This is another subject that is expected to be revisited at the next update.

As discussed above in Section 3.4, agricultural water demand is based on projections of irrigated acreage by crop type and water duties for those crop types.

4.2 EL DORADO IRRIGATION DISTRICT

For the 2010 UWMP and 2013 IWRMP, EID developed water use factors for land uses included in the 2004 General Plan, based on historical water demand within EID's service zones (EID 2013, p. 87). Single-family residential land uses, including high-, medium-, and low-density, and rural residential, were assigned density factors which represent the average density for each land use category, respectively, as described in the 2004 General Plan. The water use factors were based on EID's design standard household unit use and reflected the different demands for each of the three supply regions (eastern, western, and El Dorado Hills) in the EID water Service Area, where demand varies due to differences in elevation, growing season, and the extent of irrigated landscaping in commercial land uses. For other land use types (e.g., commercial, industrial, and multifamily residential), data from EID's 2006 Consumption Report was used in combination with existing parcel data to generate use factors for each service region. Table 2-8 presents the results of the 2013 IWRMP projections for the entire EID Service Area for a low- and high-growth scenario (based on growth rates developed by EID for the 2013 IWRMP).

For the purposes of this update, urban per capita water demand factors developed in EID's 2010 UWMP are used to calculate total demand from all residential, commercial and industrial uses in the EID Service Area including demand from Favorable Areas. As a result of annexations to EID's Service Area between 1999 (the baseline year for the 2004 General Plan) and 2008 (the baseline year for the 2010 UWMP), a portion of demand from the "Favorable Areas" is reflected within EID's demand projections. The effect of the 2007 FAR General Plan Amendment, however, is not included in the EID projections. Note that this is not a defect in EID's UWMP or IWRMP. Unlike the long range planning nature of EDCWA's work, EID's water plans are used for a shorter-term 20- to 25-year planning horizon for capital and infrastructure development. These plans are updated regularly and capture changing land use conditions in a timely manner for those purposes.

EDCWA's planning for the water supply needed for the County must look beyond the 20- to 25-year planning horizon to the total build-out capacity of the 2004 General Plan that will develop over many decades. Because this analysis is a "big picture" look at water demand, the projections presented herein are for the EID water Service Area (including Favorable Areas) using aggregated growth rates (instead of different rate for each EID service region) as discussed Section 3.1.2 of this report.

4.2.1 Existing Urban Demand

Urban per capita water demand factors for the EID Service Area from the 2010 UWMP are presented in **Table 4-1**. Urban per capita water demand includes residential, commercial, industrial and commercial irrigation (turf irrigation), authorized uses and system losses, and is divided by a population estimate to derive per capita water use. Table 4-1 includes a baseline, mid-term 2015 (which is required to reflect a 10% decline in demand), and a 2020 target that reflects a 20% reduction (from the baseline) as required by SB x7-7, Method 1.

Table 4-1 El Dorado Irrigation District Baseline and Target per Capita Water Use Factors

Historic Baseline (GPCD)	*2015 Target (GPCD)*	*2020 Target (GPCD)*
281	253	225
SOURCE: EID (2011).		

Per Capita Demand Adjustments

The adopted 2004 General Plan will permit an increase in commercial land uses, in terms of both acreage and intensity, within the EID water Service Area. In addition, the 2004 General Plan will also allow an increase in housing in the more western portions of the County that will shift the concentration of population within the EID water Service Area from the higher elevation eastern region (where GPCD is the lowest) to the lower El Dorado Hills regions (where GPCD is the highest). While water use in the western portion of the County is more intense, the housing mix will also change over time to more multi-family housing as a percentage of total housing which negates any increase in demand. Based on a comparison of the base year and buildout 2004 General Plan's housing and employment/jobs projections and associated water demand projections (Appendix A) presented in **Table 4-2**, GPCD is projected to increase by approximately 8% by buildout.

Table 4-2 Projected Change in Urban Water Use per Household at Buildout (acre-feet)

Households/Type of Demand	*Baseline Year*	*Buildout*		
		Service Area	*Favorable area*	*Total*
Residential Household	28,811	72,075	13,152	85,227
Residential Demand	18,934	46,023	9,606	55,629
Commercial Demand	2,637	11,566	1,805	13,371
Total Demand	21,571	57,589	11,411	69,000
Water use per household (af/hh)				
Residential water use per household	0.66			0.65
Change due to demographic/housing mix changes				-0.68%
Residential and commercial water use per household	0.75			0.81
Total change due to demographic/housing mix and increased commercial activity				8.13%

SOURCE: EDC(2002) El Dorado County Land Use Forecast for Draft General Plan.
Note: Reference Appendix B for 2004 General Plan baseline and buildout water use. Water use does not include system losses or latent demand.

As noted above, for the 2010 UWMP, EID used all active residential accounts, with and without water usage, to determine the population within their water Service Area. Thus, the baseline gallons per capita per day demand factor presented in the UWMP does not account for a residential vacancy factor of approximately 5%. The result is an understated GPCD baseline. While not critical for EID's shorter term planning horizon, for EDCWA's long range planning purposes it is important to capture all factors that may affect future demand.

To generate updated water demand projections for EID using per capita water factors, the changes in land use patterns and residential vacancy rates must be considered when determining the ultimate need for water. Based on these factors the adjusted target demand factor for EID is 237 for the 2020 demand projection and 255 GPCD for buildout as shown in **Table 4-3**. The adjustment for increased economic activity is phased in over the planning horizon for each growth rate scenario. For comparison purposes and methodology validation later in this section, Baseline GPCD with the same adjustments as presented in **Table 4-3** is carried through this analysis.

Table 4-3 El Dorado Irrigation District Water Use Adjustments for Increased Economic Activity

	2010 UWMP GPCD	***Adjustment for Residential Vacancies***	***Adjusted GPCD for 2020 Projection***	***Adjustment for Increased Economic Activity***	***Adjusted GPCD for Buildout Projection (gpcd)***
Target	225	5.14%	237	8.13%	255

Note: Baseline GPCD would be 318 with these adjustments and is noted here for comparison purposes and methodology validation use.

4.2.2 EID Population Projection

Total urban demand for EID can be derived by multiplying the adjusted (per capita) water demand (from Table 4-3) by total residential population within the existing EID Service Area and the Favorable Areas reallocated to EID. Population estimates are derived from the number of households projected to result from buildout of the 2004 General Plan and 2.64 persons per household, as shown in **Table 4-4**. (Note for EID, an additional 500 households is included to account for a small area in Sacramento County that is within the EID Service Area). In addition a portion of the "Favorable Areas" shown in **Table 4-4** has already been annexed into EID's water Service Area. As discussed in Section 2.4 approximately 5,000 acres or 2,900 equivalent dwelling units (or household equivalents) have been annexed to EID since 1999. Although a portion of the demand from these annexations may already be reflected in current water demands, annexations do not affect total demand at buildout (based on the 2004 General Plan).

Table 4-4 El Dorado Irrigation District Buildout Population Projections

	Households[a]	*Capita/Household*[b]	*Population*
Service Area	72,508	2.64	191,421
Favorable Areas	13,152	2.64	34,721
Total	***85,660***	***2.64***	***226,142***

SOURCE: EDC (2002) County Land Use Forecast for Draft General Plan
USCB (2014) US Census Quick Facts

a. Households based on the adopted 2004 General Plan with 500 households added for Sacramento County area within EID service area. Households equal 95 percent of total dwelling units. The additional dwelling units water use is captured by applying a latent demand factor when calculating total demand.

b. Capita/Household based on US Census Bureau Quick Facts 2014, El Dorado County.

Figure 4-1 provides a chart of population growth for the EID Service and Favorable Areas based on the low, medium and high growth rates discussed in Section 3.1.2. Note the population forecast does not have a constant slope due to the composite makeup of the curves. Prior to the inflection point, the curve is an aggregate of population growth within both the Service Area and the Favorable Areas (which are assumed to be annexed to EID). After the inflection point, residential land uses within the Service Area have reached buildout (to the maximum densities allowed in the 2004 General Plan) and additional growth would only occur within the Favorable Areas. Although development may not occur exactly in this manner, the estimated total population reflects the maximum growth allowed for the land uses and densities included in the 2004 General Plan.

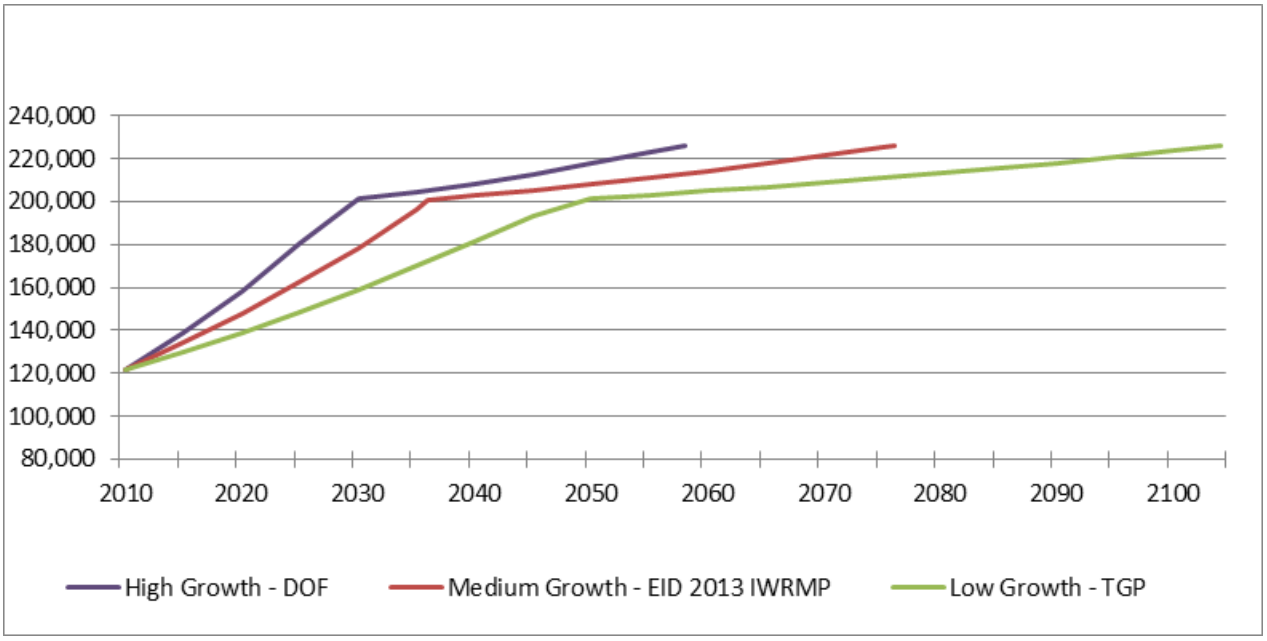


Figure 4-1 El Dorado Irrigation District Service Area and Favorable Area Population Forecast

4.2.3 EID Urban Demand Projection

In order to calculate demand associated with the population growth, the adjusted target GPCD factor from Table 4-3 are applied to population estimates to determine the Service Area and Favorable Area urban water demand shown in **Table 4-5**. The calculated Service and Favorable Areas projections have also been adjusted to include latent demand of 5%.

The Final EIR for the FAR General Plan Amendment identifies 12,621 acre-feet of additional water demand within the EID's Service Area and Favorable Areas to serve commercial needs. For this demand, system losses of 13% are included, consistent with the system loss percentage identified in the 2010 UWMP and 2013 IWRMP. For service and favorable area water demand, system losses are imbedded in the GPCD calculation.

Table 4-5 El Dorado Irrigation District Urban Buildout Demand Projections

	Baseline (acre-feet)	***Target (acre-feet)***
Service Area[a]	71,851	57,480
Favorable Areas[a]	13,033	10,426
FAR General Plan Amendment[b]	14,262	11,409
Total	***99,146***	***79,316***

a. Includes latent demand of 5%.

b. Includes 13% for system losses.

Note: Adjusted baseline GPCD (318) demand calculations are included for comparison and methodology validation purposes only.

Based on the population forecast scenarios presented in Figure 4-1, **Figure 4-2** provides the corresponding water demand projections for the high, medium and low growth scenarios discussed in Section 3.1.2. The starting point for the urban baseline demand is 42,750 acre-feet in 2010 and is shown for reference relative to the target demand. Only the medium growth scenario is shown for the baseline scenario. The starting point for the target demand scenarios is 2012 with the most current published demand information. The total (urban and ag) "potential" demand in 2012 was estimated to be 48,500 acre-feet and includes normalized active, latent and other demands as defined in the EID 2013 Water Resources and Service Reliability Report, Table 1 and

14. Urban demand for 2012 of 40,200 acre-feet is a prorated value based on relative 2012 urban and agriculture consumption data. Note that demands in 2012 are below normal as a result of the economic downturn as discussed in Section 2.3.1.

As for the population estimates, the demand forecasts do not have a constant slope, in part due to the composite makeup of the population projections (where population growth slows after build-out is reached within the Service Area). In addition, the underlying demand calculations assume gradual reductions in water demand between 2012 and 2020, as EID makes progress toward reaching its 20 percent conservation goal embodied in the target GPCD factor. In addition, the water demand estimates include a gradual increase in demand (over the entire time period needed to reach build-out conditions) associated with the increase in commercial space allowed by the FAR General Plan Amendment.

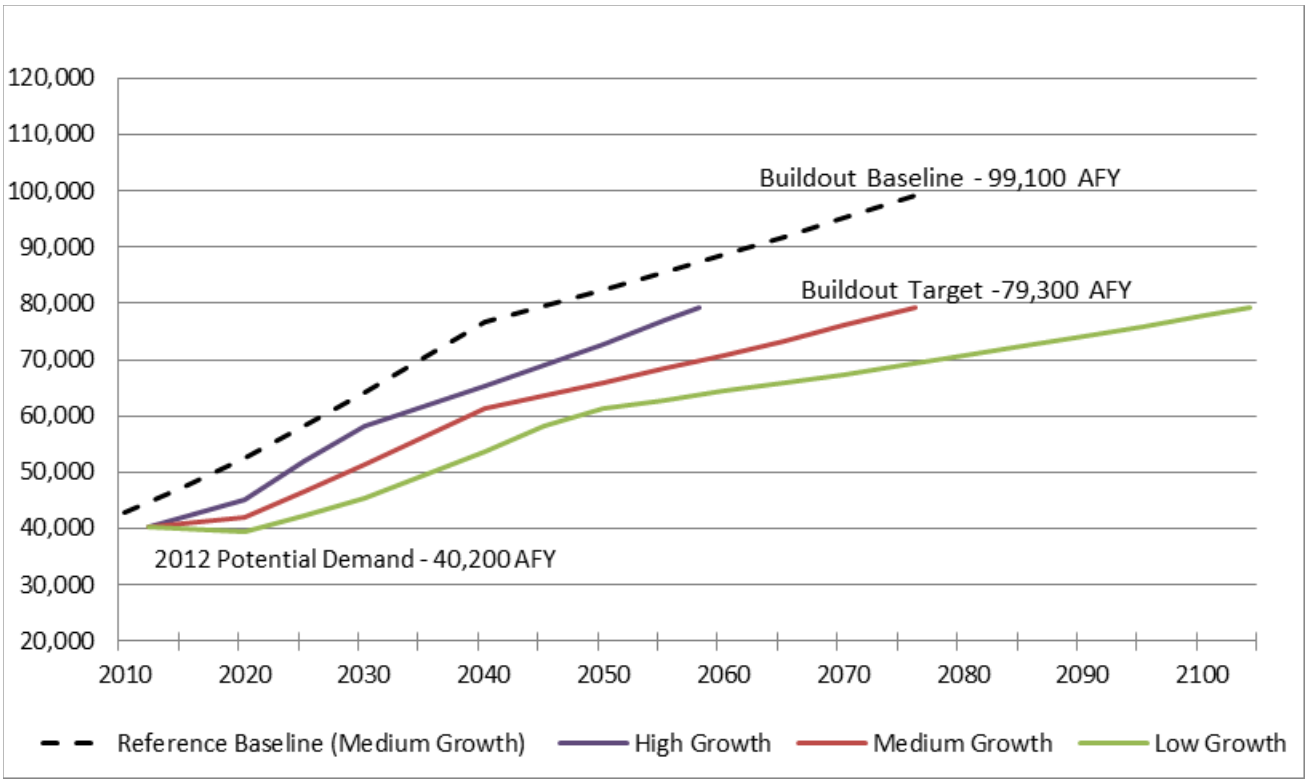


Figure 4-2 El Dorado Irrigation District Service and Favorable Area Urban Water Demand Projections (acre-feet)

4.2.4 EID Agricultural Demand Projection

For the 2007 WRDMP, agricultural demand projections were based on an expansion of agricultural uses and land use capacity of "Choice Farmland" as identified in the 2004 General Plan. For the EID 2013 IWRMP, agricultural water demand projections were based on historic land use and historic water duties, limited to those parcels that had existing agricultural uses. For this analysis, the 2007 WRDMP methodology is employed, but only lands located within the Agricultural Districts are included, as discussed in Section 3.5.

Table 4-6 provides an updated agricultural land and water use projection for the EID Service Area. The cultivated acreage for each crop category (from Table 3-6), and water use assumes water duties (presented in Table 3-7) and a crop mix similar to the base year of approximately 50% "Deciduous Orchard" category and 50% "Vineyard, Christmas Trees, Olive/Citrus, Berries" category with no increase in the "Pasture and Other" category. These water demands reflect the establishment of permanent crops with full utilization of best irrigation management practices, including soil moisture monitoring. For this category, very limited water supply cutbacks may be possible, but fallowing is not a feasible option.

Table 4-6 El Dorado Irrigation District Irrigable Land and Water Use Projection

	Cultivated Area (acre)	*Crop Water Use[a] (acre-feet)*	*Water Demand[b] (acre-feet)*
Deciduous Orchards	3,578	10,020	11,517
Vineyard, Christmas Trees, Olive/Citrus, Berries	3,578	4,652	5,244
Pasture and Other[c]	539	2,048	2,366
Total	***7,696***	***16,720***	***19,218***

a. Based on water duty of 1.3 acre-feet/acre for vineyards, Christmas trees, olive/citrus, berries and 2.8 acre-feet/acre for deciduous orchards.
b. Includes unaccounted water of 13% for system losses.
c. Assumes no net increase in this land use category.

To demonstrate the effect of cropping pattern on water requirements, Figure 4-3 presents baseline water demand (for the crop mix presented in Table 4-6) and estimated demand for 2 conceptual crop mix scenarios: (1) 100% vineyard, Christmas trees and olive/citrus; and (2) 100% deciduous orchard (with no change in pasture irrigation for either scenario). This suggests that the projected crop mix for the baseline year represents the approximate mid-point in the theoretical range of agricultural water demand.

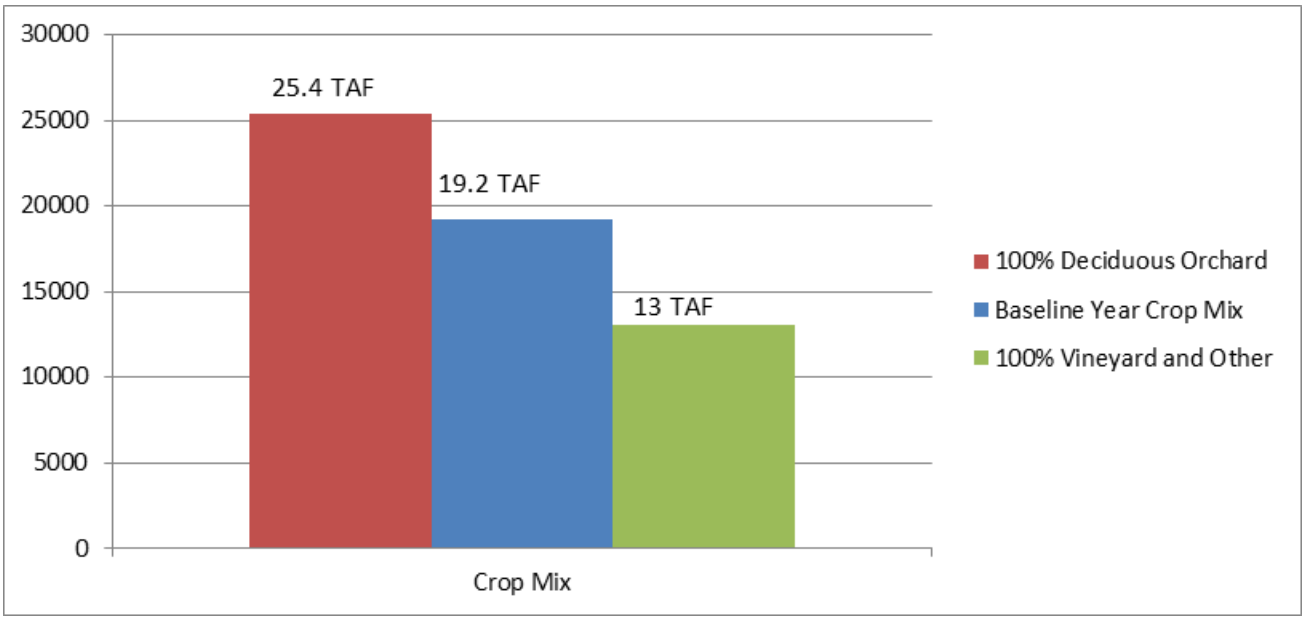


Figure 4-3 El Dorado Irrigation District Service Range of Potential Agricultural Demand (acre-feet)

4.2.5 EID Demand Projection Summary

Table 4-6 presents total estimated/potential water demand for EID for 2012, 2030 and buildout conditions, comprised of urban and agricultural demand, based on the adjusted target GPCD factor (from Table 4-2), the medium growth rate scenario, and agricultural demand based on the crop mix and water duties. Note that the total Service Area potential demand in **Table 4-7** is higher than the sum of actual 2012 raw water diversions (2012 Diversion Report) and recycled water production (2013 Water Resources Report) of 39,000 AFY. The difference is due to many factors, some concrete and others subjective including:

- use of historic averages in calculating potential demand;
- inclusion of latent demands in calculated potential demand;
- lingering effects of the economic downtown;
- recent restructuring and increase in EID water rates; and
- annual hydrologic variation affecting irrigation requirements.

Caution should be exercised in using only one year of data for long range planning purposes because of the variables that can affect demand in any given year. To demonstrate this variability, actual 2008 diversions and recycled water production totaled 48,500 AFY as compared to 39,000 AFY in 2012. For this reason, good water resources planning practice dictates the use of normalized demand values to dampen out the effects of hydrologic variation and other unusual events. In any case, the lower 2012 diversions, at least in part, reflect permanent progress made toward meeting the 20% conservation goal and the target projections in this update. Note 2012 agricultural demand does not include demand supplied from private groundwater or riparian sources.

Table 4-7 El Dorado Irrigation District Urban and Agricultural Water Demand Projection (Medium Growth Scenario) (acre-feet)

	Urban			***Agriculture***			***Total Demand***		
	2012	***2030***	***Buildout***	***2012***	***2030***	***Buildout***	***2012***	***2030***	***Buildout***
Service Area	40,237	49,438	57,480	7,977	9,515	19,218	48,214	58,953	76,699
Favorable Areas		1,966	10,426					1,966	10,426
FAR GP Amend.			11,409						11,409
Total	***40,237***	***51,404***	***79,315***	***7,977***	***9,515***	***19,218***	***48,214***	***60,919***	***98,534***

Note: 2012 agricultural demand does not include demand supplied from ground water or riparian sources.

Figure 4-4 illustrates the demand projections for EID based on the Target GPCD factor, for the low, medium and high growth rate scenarios, and the medium growth scenario for the Baseline GPCD factor for reference. Also shown are the total 2012 potential demand and the actual raw water diversions and recycled water production required to meet demand in 2012.

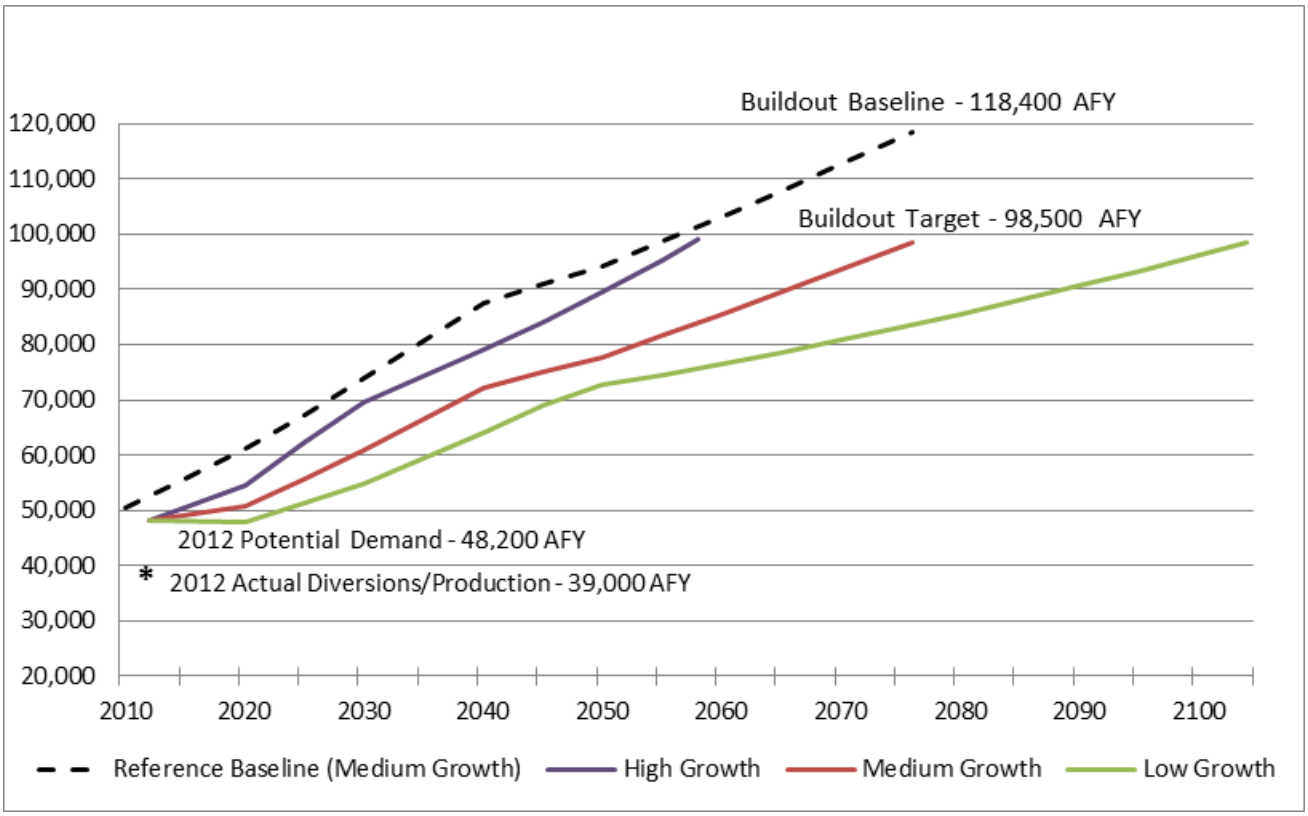


Figure 4-4 El Dorado Irrigation District Urban and Agricultural Water Demand Projections (acre-feet)

4.2.6 EID Demand Projection Comparison

Since completion of the 2007 WRDMP, updated master planning information has been prepared by EID and with the advent of SB X7-7 and the State's requirement to reduce statewide urban water demand 20% by 2020, a completely new methodology is used to project future water demands for this update. With these changes, a comparison of demand projections from these various sources and methodologies can be a useful exercise in validating the projections presented in this update. For comparison purposes, **Table 4-8** provides demand data for the EDCWA 2007 WRDMP, EDCWA Baseline and Target 20x2020 update developed for this update, and EID's 2013 IWRMP. **Figure 4-5** shows the same information in graphical format for ease of comparison. Note that the EID 2013 IRWMP does not include the Favorable Areas or the FAR General Plan Amendment.

Table 4-8 El Dorado Irrigation District Buildout Demand Projection Comparison Acre-feet)

Demand Element	*EDCWA*			*EID 2013 IWRMP*
	2007	*2014 WRDMP Update*		
	WRDMP	*20x2020 Baseline*	*20x2020 Target*	
Service Area	72,831	71,851	57,480	78,200
Favorable Areas	11,040	13,033	10,426	
FAR GP Amendment	12,621	14,262	11,409	
Subtotal Urban Demand	*96,492*	*99,146*	*79,316*	*78,200*
Agriculture	28,324	19,218	19,218	9,900
Total	***124,816***	***118,364***	***98,534***	***88,100***

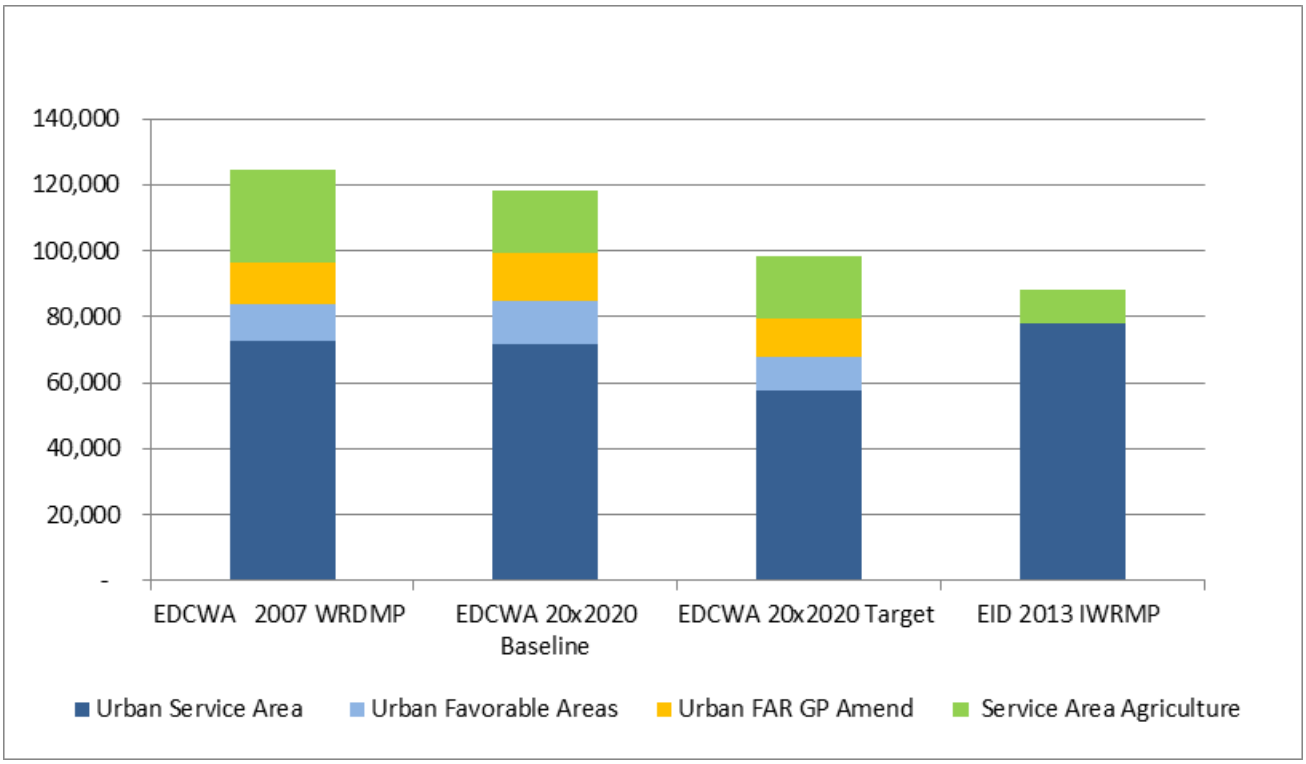


Figure 4-5 El Dorado Irrigation District Buildout Demand Projection Comparison (acre-feet)

4.2.7 Comparisons and Methodology Validation

Using per capita water demand factors to project long term water demand is a departure from the traditional approach, used by EDCWA, of applying separate household and employee unit use factors or water duties to various land use projected over time. There are weaknesses inherent in the per capita methodology that stem from two factors. The first is changes in relative residential and commercial land uses are not captured because per capita demand, as calculated for UWMPs, is based on an historic land use mix, not a future land use mix that may look different over time. In addition, the shift of population from low water use areas in the east to higher water use areas in the west cannot be captured in historic per capita demand factors.

Comparison of EDCWA Urban Demand Projections

In Table 4-2, an adjustment to the future per capita demand factors was made to compensate for these shortcomings. To validate the accuracy of the adjustment factors, a comparison can be made between the urban water demand projections from the 2007 WRDMP (which based demand on household and employment projections) and the estimates for EID developed for this update (based on population estimates and the adjusted Baseline GPCD demand factor). As ultimate buildout within the EID Service Area is based on achieving the land use densities permitted in the 2004 General Plan, demand projections for buildout conditions should be comparable (as buildout conditions are the same for each projection).

Since the 2007 WRDMP based water demand on historical use, a comparison to the water demand derived for the Baseline 20x2020 demand factor (also based on a historic average) are comparable. As shown in Table 4-7, the 2007 WRDMP estimated total urban demand at buildout for the EID Service Area to be 72,831 acre-feet, while the Baseline 20x2020 projection developed for this analysis estimates total buildout demand at 71,851 acre-feet, a difference of approximately 1%. As both projections are comparable, the adjustment of the 20x2020 per capita demand factors incorporated into this update appear reasonable and are validated for long range planning purposes.

Comparison of EDCWA and EID IWRMP Urban Demand Projections

The projections developed for this analysis and those provided in EID's 2013 IWRMP were based on different land use assumptions and unit water use factors and not surprisingly, resulted in different demands for both urban and agricultural uses. For instance, the 2007 WRDMP used 2004 General Plan housing forecasts that assumed the maximum allowable density (with a reduction in density for steep slopes). EID's 2013 IWRMP developed its own methodology based on average land use density, from which water use factors were derived for different land use types. Either method is reasonable for determining long term water needs but do not result in the same demand projections.

As can be seen in Table 4-4, the EID 2013 IWRMP projects significantly greater urban demand within its Service Area than the 2007 WRDMP. This difference can be attributed to the following factors:

- Land area assumptions – A portion of the Favorable Areas have been annexed into EID since 1999, the base year for the 2004 General Plan. Land area in Sacramento County within EID's Service Area is included in the 2013 IWRMP but was not in the 2004 General Plan housing forecast used for the 2007 WRDMP. These differences equate to approximately 3,400 equivalent dwelling units.
- Density assumptions – The 2004 General Plan housing forecast used the maximum density allowed for a specific land use designation with a slope limitation, while the 2013 IWRMP used the average density allowed within each land use designation.
- Unit demand factor assumptions – The 2007 WRDMP used one average household water use factor for each region for all single-family General Plan designations, while the 2013 IWRMP used more refined household water use factors for different single-family residential land uses (with water use per household going up as the allowable parcel size increases).

The combination of differing land area, density and household water use factors used to calculate water demand resulted in a higher "Urban Service Area" demand projection in the 2013 IWRMP.

When comparing the 2013 IWRMP "Urban Service Area" demand to the EDCWA Baseline derived demand projection, the difference is primarily due to the land area and density assumptions discussed above. When compared to the EDCWA Target Demand the difference can be attributed partially to the land use and density assumptions but to a greater extent the anticipated 20% reduction from historical per capita demand used to calculate the Target Demand.

In comparing total urban demand, the inclusion of demand associated with the 2007 FAR General Plan Amendment and Favorable Areas in the SB X7-7 update results in total urban demand being similar for the 2013 IWRMP (78,200 acre-feet) and EDCWA Target Demand (79,316 acre-feet) projections.

Agricultural Demand Comparison

Table 4-7 also shows differences in agricultural demand projections that are primarily due to land area considered. For the 2007 WRDMP, the demand forecast was based on the land use capacity of Choice Farmlands (designated by the 2004 General Plan), both within and outside of the Agricultural Districts (also designated by the 2004 General Plan). Choice Farmland was also used for this analysis, but only those lands within Agricultural Districts were included. For the 2013 IWRMP, a more limited land area was considered, which resulted in a substantially lower projection for agricultural demand. The updated agricultural water demand projection in this document generally represents a mid-point between the projections in the 2007 WRDMP and the 2013 IWRMP.

4.3 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

For the 2010 UWMP, GDPUD used interim and 2020 target per capita water use factors to develop projected urban water demand. For the purposes of this analysis, in order to comply with the requirements of the recent 20x2020 legislation, the 2010 UWMP urban per capita water demand factors are used to calculate total demand for all residential and commercial uses including demand from Favorable Areas (assumed to be annexed to GDPUD). The effect of the 2007 FAR General Plan Amendment, however, is not included in the GDPUD projections. This is not a defect in GDPUD's UWMP. Unlike the long range planning nature of EDCWA's work, GDPUD's UWMP is used for a shorter term 20-year planning horizon for:

> *… development of a capital improvement program to address system reliability that maximizes the availability water supply in the future. [GDPUD 2011, p. 26]*

The 2010 UWMP does, however, qualitatively address the longer term needs of the District and indicates that:

> *The District's ongoing management practices and conservation programs to reduce losses in the water conveyance system by lining ditches with gunite, replacing ditches with pipelines, and improving operations that affect losses, will have a value in increasing the life of the present water supply. The District estimates that operational losses in the ditch conveyance system account for up to 3,000 acre-feet of water per year. Improved water supply efficiency will decrease the amount of water required from any of the water supply projects under consideration. However, conservation alone will not be sufficient to meet the long-term projected demands within the District's service area, and eventually, implementation of an additional water supply supplemental to the Stumpy Meadows Project will be necessary. [GDPUD 2011, p. 26]*

EDCWA's water supply planning must look beyond the 20-year planning horizon to the total land use capacity of the 2004 General Plan for the GDPUD Service and Favorable Areas, which could require many decades to be realized.

4.3.1 Existing Urban Demand

Urban per capita water demand factors for the GDPUD Service Area from the 2010 UWMP are presented in **Table 4-9**. Urban per capita water demand includes residential, commercial, commercial irrigation, authorized uses and distribution system losses (excluding treatment plant losses and raw water losses). The total demand was divided by a population estimate to derive per capita water use. Table 4-9 includes a baseline, mid-term 2015, and as allowed by SB X7-7, Method 3, a 2020 target that reflects 95% of the Sacramento hydrologic region target of 176 GPCD.

Table 4-9 Georgetown Divide Public Utility District Baseline and Target per Capita Water Use Factors

Historic Baseline (GPCD)	*2015 Target (GPCD)*	*2020 Target (GPCD)*
197	182	167
SOURCE: GDPUD (2011).		

4.3.2 GDPUD Capita Demand Adjustments

The 2004 General Plan will permit an increase in commercial land uses within the GDPUD water Service Area. Based on a comparison of base year and buildout 2004 General Plan housing/jobs projections and associated water demand projections (Appendix A) presented in **Table 4-10**, increased economic activity is anticipated to increase GDPUD's per capita water use by over 8%.

Table 4-10 Projected Change in Urban Water Use per Household at Buildout (acre- feet)

Households/Type of Demand	*Baseline Year*[a,b]	*Buildout* [a,b]
Residential Households	3,272	11,142
Residential Demand	1,583	5,393
Commercial Demand	247	1,353
Total Demand	1,830	6,746
Water use per Household (acre-feet/hh)		
Residential water use per household	0.48	.48

Change due to demographic/housing mix changes		0%
Residential and commercial water use per household	0.56	.61
Total change due to demographic/housing mix and increased commercial activity		8.25%

SOURCE: EDC (2002) El Dorado County Land Use Forecast for Draft General Plan.
a. Reference Appendix A
b. Water use does not include system losses or latent demand

As noted above, for the 2010 UWMP, GDPUD used all active residential accounts, with and without water usage, to determine the population within its water Service Area. Thus, the baseline GPCD presented in the UWMP does not account for a residential vacancy factor. The result is an understated GPCD baseline. While not critical for GDPUD's shorter term planning horizon (2030), for EDCWA's long range planning purposes it is important to capture all factors that may affect future demand. GDPUD does not differentiate between inactive and active accounts in published reports; therefore it is assumed that the vacancy rate within the GDPUD Service Area is similar to the 5% used for the EID Service Area.

In order to update water demand projections using per capita water use, changing land use patterns and vacancies must be considered when determining the ultimate need for water. Based on these factors, the adjusted target demands is 180, shown in Table 4-11. For comparison purposes and methodology validation later in this section, baseline GPCD with the same adjustments as presented in **Table 4-11** is carried through this analysis. The adjusted baseline GPCD is 225.

Table 4-11 Georgetown Divide Public Utility District Water Use Adjustments for increased Economic Activity

	Demand (GPCD)	*Adjustment for Residential Vacancies*	*Adjusted GPCD for 2020 Projection*	*Adjusted for Increased Economic Activity*	*Adjusted GPCD for Buildout (GPCD)*
Target	158[a]	5.14%	166	8.25%	180

a. Adjusted target GPCD will be higher than 95% of the hydrologic region so target demand is reduced to 80% of the baseline GPCD 197 and then adjustment factors are applied.
b. Baseline GPCD would be 225 with these adjustments and is noted here for comparison purposes and methodology validation.

4.3.3 GDPUD Population Projection

Total urban demand for GDPUD can be derived by multiplying the adjusted per capita water demand (from Table 4-11) by total residential population within the existing GDPUD Service Area and the Favorable Areas reallocated to GDPUD. Population estimates are derived from the number of households projected to result from buildout of the 2004 General Plan and 2.64 persons per household, as shown in **Table 4-12**.

Table 4-12 Georgetown Divide Buildout Population Projections

	Households[a]	*Capita/Household*[b]	*Population*
Service Area	11,142	2.64	29,415
Favorable Areas	1,746	2.64	4,609
Total	***12,888***	***2.64***	***34,024***

SOURCE: EDC (2002) El Dorado County Land Use Forecast for Draft General Plan
USCB (2014) US Census Quick Facts

a. Households based adopted 2004 General Plan. Households equal 95 percent of total dwelling units. The additional dwelling units water use is captured by applying a latent demand factor when calculating total demand.
b. Capita/Household: US Census Bureau Quick Facts 2014, El Dorado County.

Figure 4-6 provides a graphical representation of population growth for the GDPUD Service Area and Favorable Areas based on the low, medium and high growth rates discussed in Section 3.1.2.

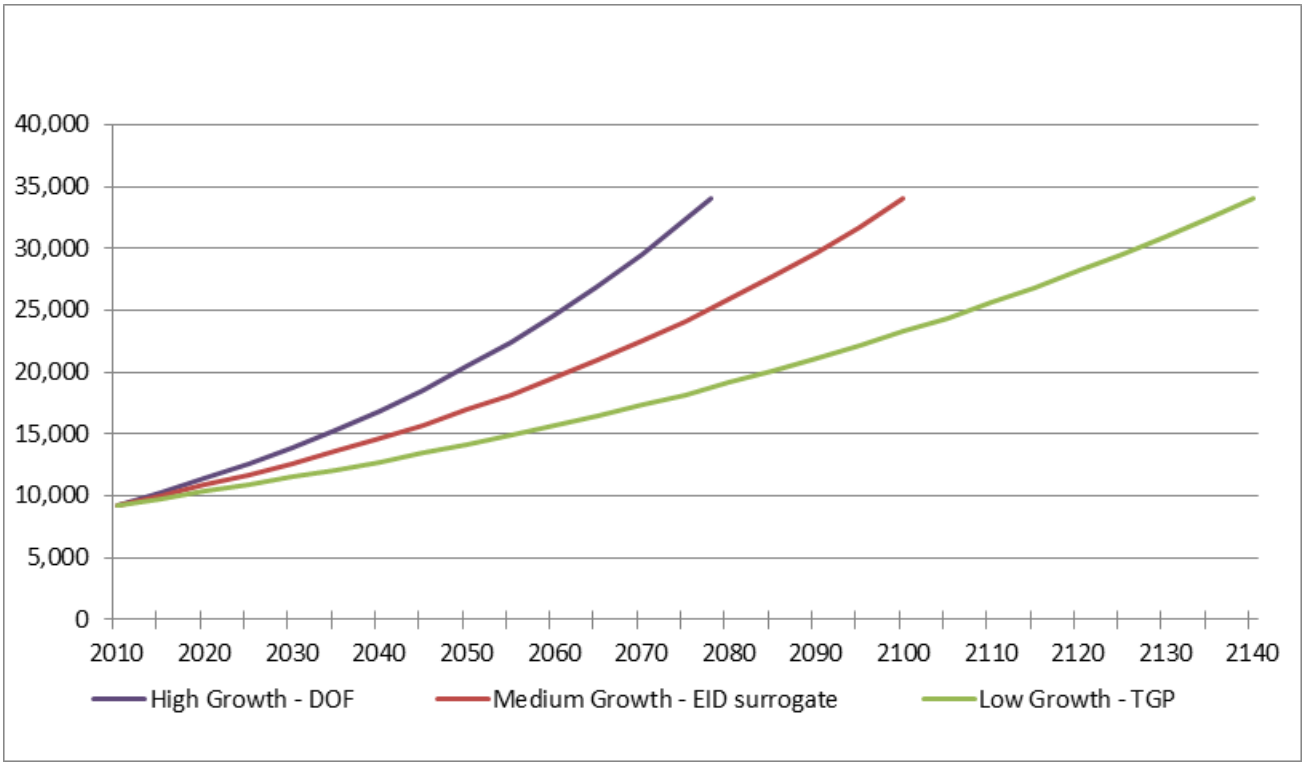


Figure 4-6 Georgetown Divide Public Utility District Service Area and Favorable Area Population Forecast

4.3.4 GDPUD Urban Demand Projections

In order to calculate demand associated with the population growth, adjusted target GPCD factor from **Table 4-10** are applied to the population to determine the Service Area and Favorable Area urban water demand shown in **Table 4-13**. The calculated Service and Favorable Areas projections presented also include factors for system losses and latent demand as defined below.

Service Area Demand

- Treatment process loss of 10% is not included in the 2010 UWMP per capita water use. The treatment process loss is identified in worksheets used to develop GDPUD's annual Water Supply and Demand Report.
- Latent demand of 5%
- Raw water system requirements and losses of 610 acre-feet. Raw water system operational requirement and loss is estimated in the 2009 GDPUD Options to Increase Water Supply report and includes water up, carriage and conveyance losses. Of the estimated 3,050 acre-feet, 20% (610 acre-feet) is attributed to the treated water system.

Favorable Area Demand

- Treatment process loss of 10%
- Latent demand of 5%

2007 FAR General Plan Amendment

The 2007 FAR General Plan Amendment identified the potential for 1,009 acre-feet of additional water demand within the GDPUD Service and Favorable Areas to serve commercial demands. For this demand system losses are also included.

- Treatment process loss of 10%
- Distribution system loss of 5.3 % (based on a 5 year average from worksheets used to develop GDPUD's annual Water Supply and Demand Report Summary reports).

Table 4-13 Georgetown Divide Public Utility District Urban Buildout Demand Projections

	Baseline Demand (AFY)		***Target Demand (AFY)***	
	Adjusted GPCD	***Adjusted GPCD w/system losses and latent demand***	***Adjusted GPCD***	***Adjusted GPCD w/system losses and latent demand***
Service Area[a]	7,408	9,274	5,926	7,542
Favorable Areas[b]	1,161	1,358	929	1,086
FAR General Plan Amendment[c]	1,009	1,192	807	953
Total		***11,824***		***9,581***

a. Includes water treatment process loss of 10%, latent demand of 5% and 610 acre-feet raw water system operational requirement and loss attributed to treated water system.

b. Includes water treatment process loss of 10% and latent demand of 5%.

c. Includes water treatment process loss of 10% and distribution system loss of 5.3%.

Note: Adjusted baseline GPCD (225) demand calculations are included for comparison and methodology validation purposes only.

Based on the population forecast scenarios presented in Figure 4-6, **Figure 4-7** provides corresponding water demand for the high, medium and low growth scenarios discussed in Section 3.1.2. The starting point for the baseline demand is 3,643 acre-feet in 2010 and is shown for reference relative to the target demand. Only the medium growth scenario is shown for the baseline

scenario. The starting point for the target demand scenarios is 2012 with the most current published demand information and in part reflects progress made toward meeting the 20 percent conservation goal. The total "potential" urban demand in 2012 was 3,000 acre-feet and includes active, latent and other demands as defined in the GDPUD 2012 Water Supply and Demand Summary supplemented with raw water system requirement and loss data from the Appendix 1 of the 2009 GDPUD Options to Increase Water Supply (GDPUD, 2009). Note that demand in 2012 is below normal as a result of the economic down turn as discussed in 2.3.2.

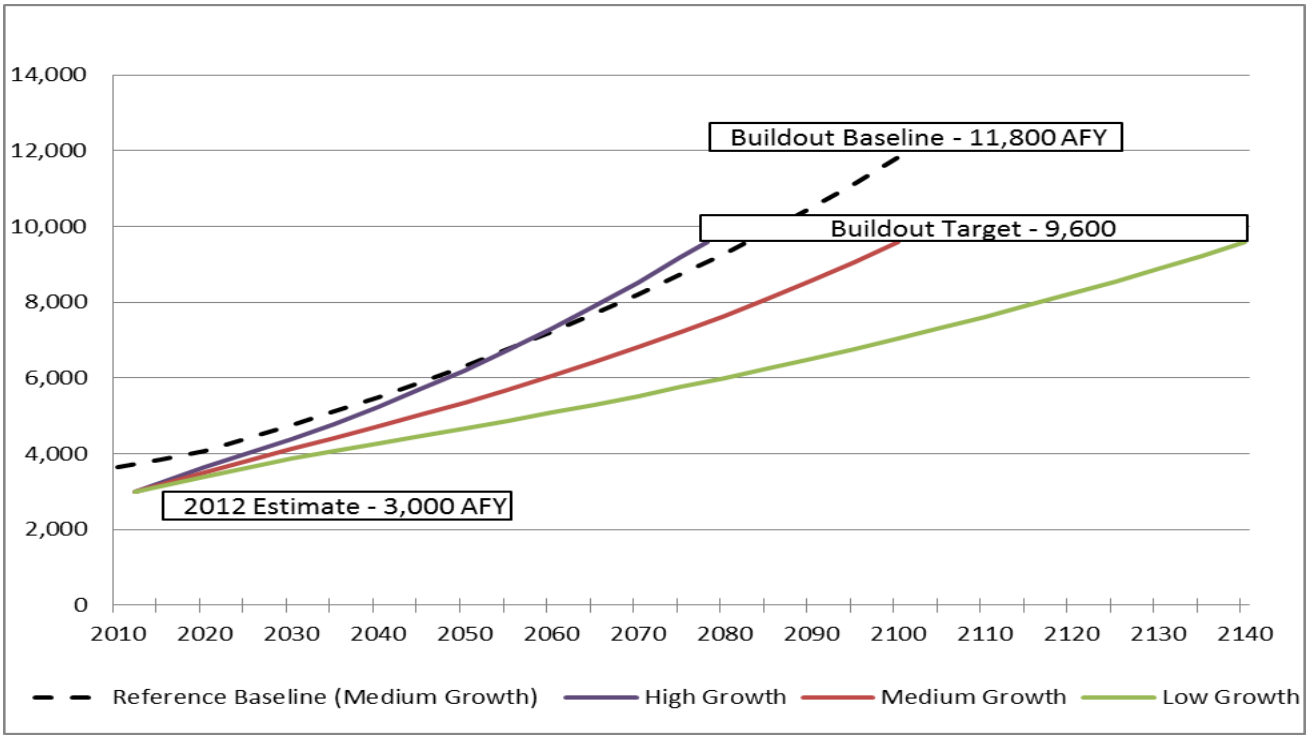


Figure 4-7 Georgetown Divide Public Utility District Service and Favorable Area Urban Water Demand Projections (acre-feet)

4.3.5 GDPUD Agricultural Demand Projection

For the 2007 WRDMP, agricultural demand projections are based on an expansion of agricultural uses and land use capacity of "Choice Farmland" as described in the 2004 General Plan. For this update the 2007 WRDMP methodology is employed but is limited to lands within the Agricultural Districts as discussed in Section 3.4.

Table 4-14 provides an updated agricultural land and water use projection for the GDPUD Service Area. The cultivated acreage in **Table 4-14** is from Table 3-6 and assumes a crop mix similar to the base year of approximately 20% Deciduous Orchard category and 80% Vineyard, Christmas Trees, Olive/Citrus, Berries category with no increase in the Pasture and Other category. The water demands associated with deciduous orchards and vineyards reflect the establishment of permanent crops for which very limited water supply cutbacks may be possible and fallowing is not feasible.

Table 4-14 Georgetown Divide Public Utility District Irrigable Land and Water Use Projection

	Area (acre)	*Crop Water Use[a] (acre-feet)*	*Demand[b] (acre-feet)*
Deciduous Orchards	362	1,012	1,342
Vineyard, Christmas Trees, Olive/Citrus Berries	2,049	2,663	3,531
Pasture and Other[c]	1,003	3,810	5,052
Total	***3,413***	***7,909***	***10,349***

a. Based on water duty of 1.3 acre-feet/acre for vineyards, Christmas trees, olive/citrus, berries and 2.8 acre-feet/acre for deciduous orchards
b. Includes 2,440 acre-feet raw water system operational requirement and loss prorated between crop categories
c. Assumes no net increase in this land use category.

4.3.6 GDPUD Demand Projection Summary

Table 4-15 provides the combined buildout urban target and agricultural demand projection with a 2030 demand projection based on the medium growth scenario. It should be noted that the economic downtown beginning in 2008 and a slow recovery resulted in a lower than historic average water demand in 2012. In addition, 2012 demand, representing only one year of data, does not capture the hydrologic variability of urban and agricultural irrigation demands like historic averages do. Note 2012 agricultural demand does not include demand supplied from private groundwater or riparian sources.

Table 4-15 Georgetown Divide Public Utility District Target Demand Buildout Projections (Medium Growth Scenario)

	Urban			*Agriculture*			*Total Demand*		
	2012	***2030***	***Build-Out***	***2012***	***2030***	***Build-Out***	***2012***	***2030***	***Build-Out***
Service Area	3,001	3,911	7,542	7,121	7,621	10,349	10,122	11,532	17,891
Favorable Areas		209	1,086					209	1,086
FAR GP Amendment			953						953
Total	***3,001***	***4,120***	***9,581***	***7,121***	***7621***	***10,349***	***10,122***	***11,741***	***19,930***

Note: 2012 agricultural demand do not include demand supplied from ground water or riparian sources.

Figure 4-8 provides the combined urban target and agricultural projection from Table 4-15 together with the high and low growth scenario. The baseline demand projection for the medium growth scenario is also included for reference.

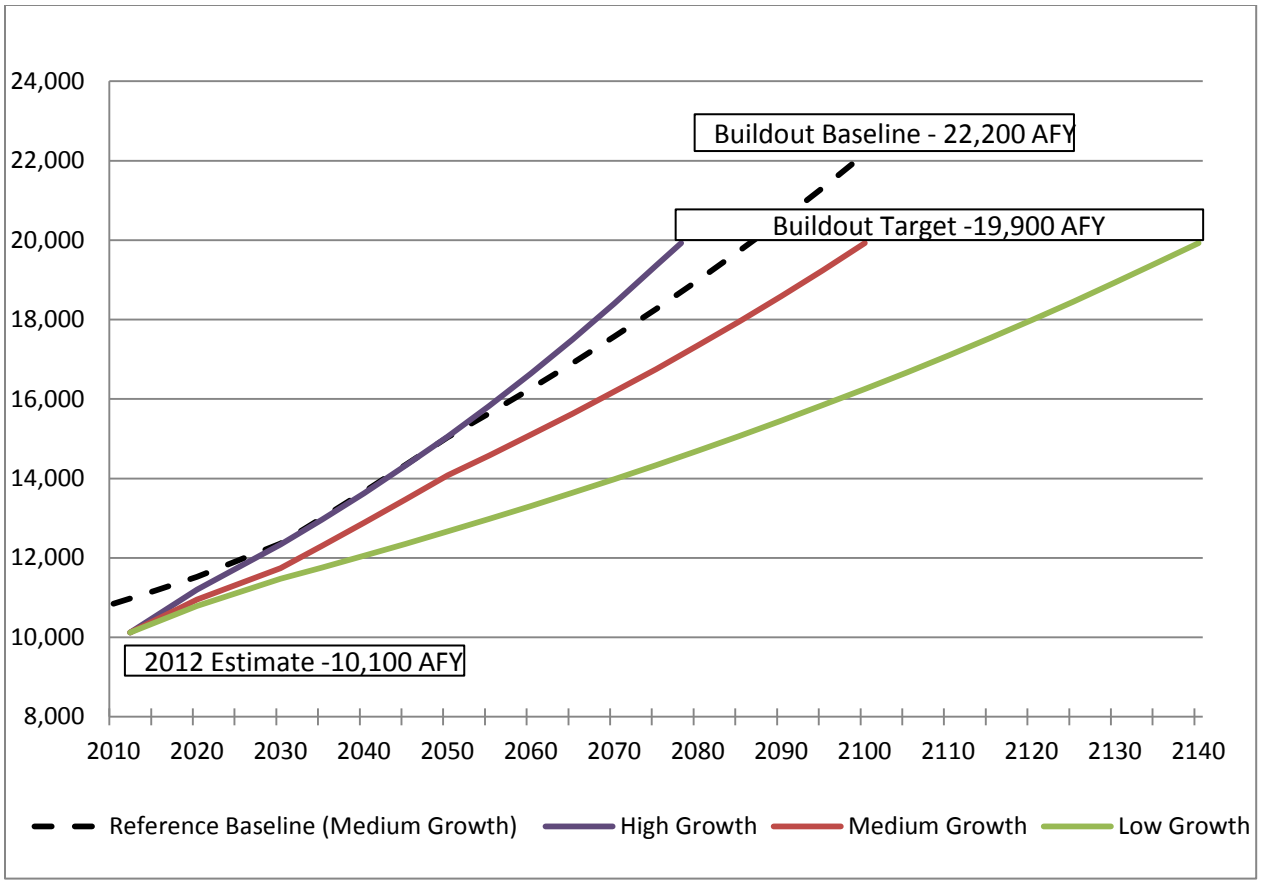


Figure 4-8 Georgetown Divide Public Utility District Service/Favorable Area Urban and Agricultural Water Demand Projections (acre-feet)

4.3.7 Comparison and Methodology Validation

Using per capita water demand factors to project long term water demand is a departure from the traditional approach, used by EDCWA, of applying separate household and employee unit use factors or water duties to various land uses projected over time. There are weaknesses inherent in the per capita methodology for projecting long term water demand for the GDPUD Service Area. The weakness stems from changes in relative residential and commercial land uses not being captured because per capita demand, as calculated for UWMPs, is based on an historic land use mix, not a future land use mix that may look different over time. With this change in methodology a comparison of demand projections from the 2007 WRDMP and this update can be a useful exercise in validating the projections presented in this update. For comparison purposes, **Table 4-16** provides demand data for the 2007 WRDMP and EDCWA's Baseline and Target 20x2020 update developed for this report. **Figure 4-9** shows the same information in graphical format for ease of comparison. Note the GDPUD 2010 UWMP does not include a buildout projection, so a comparison is not possible using that source.

Table 4-16 Georgetown Divide Public Utility District Demand Projection Comparison

	EDCWA 2007 WRDMP	*EDCWA 20x2020 Baseline*	*EDCWA 20x2020 Target*
Service Area	11,495	9,274	7,542
Favorable Areas	1,318	1,358	1,086
FAR GP Amendment	1,009	1,192	953
Subtotal Urban Demand	*12,504*	*11,824*	*9581*
Agriculture	16,911	10,349	10,349
Total	***30,733***	***22,173***	***19,930***

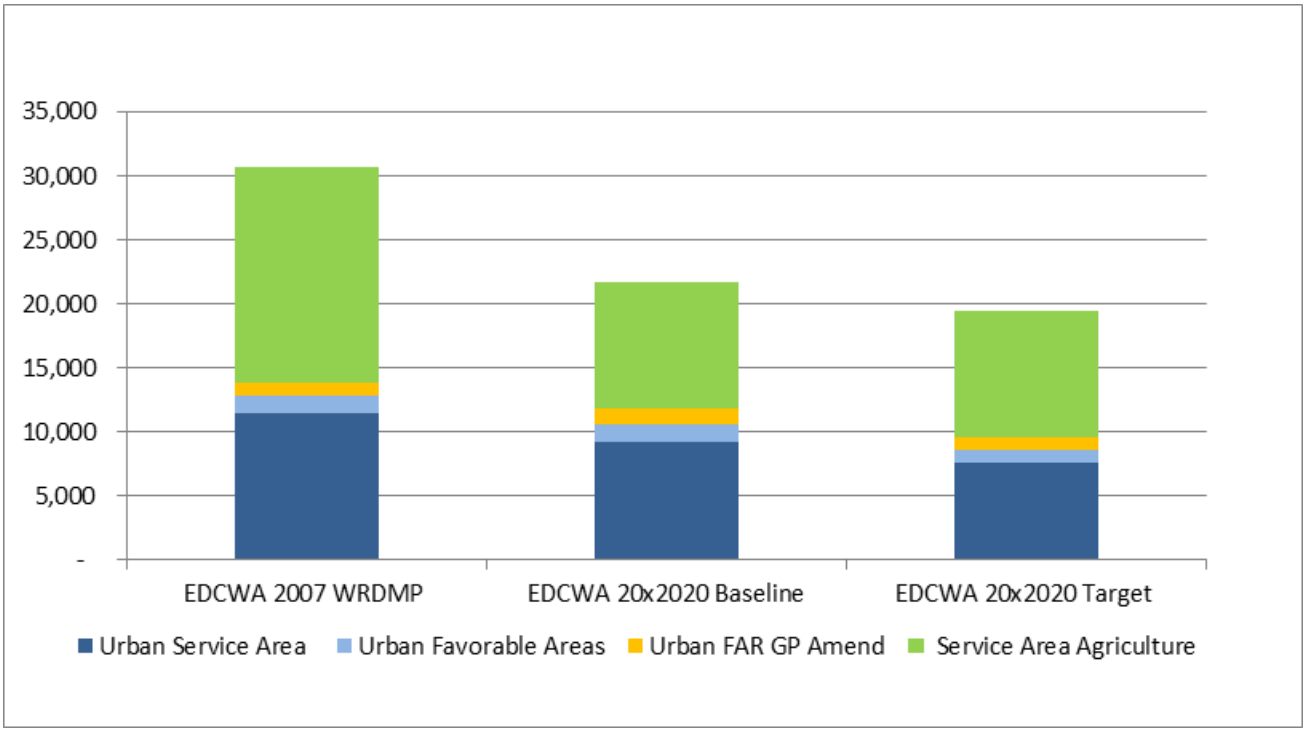


Figure 4-9 Georgetown Divide Public Utility District Demand Comparison (acre-feet)

GDPUD Urban Demand Comparison

Using per capita water demand factors to project long term water demand is a departure from the traditional approach, used by EDCWA, of applying separate household and employee unit use factors or water duties to various land uses projected over time. As noted above, there are weaknesses inherent in the per capita methodology. In the GDPUD case, changes in relative residential and commercial land uses are not captured because per capita demand, as developed for the UWMP, is based on an historic land use mix and not a future land use mix that may look very different over time.

In Table 4-11, an adjusted per capita use factor was developed to compensate for this shortcoming. To validate the accuracy of the adjustment factor, a comparison was made of the urban water demand projections from the 2007 WRDMP (based demand on household and employment projections) and the estimates for GDPUD developed for this analysis (based on population estimates and the adjusted Baseline GPCD demand factors). As ultimate buildout within the GDPUD

Service Area is based on achieving the land use densities permitted in the 2004 General Plan, demand projections for buildout conditions should be comparable (at buildout conditions are the same for each projection).

Since the 2007 WRDMP based water demand on historical use, a comparison to the water demand derived for the baseline 20x2020 demand factor (also based on a historic average) should be comparable since they are derived from the same baseline source data on historical water demand. As shown in Table 4-14, however, the Baseline 20x2020 urban projection of 9,274 acre-feet is significantly lower than the 2007 WRDMP projection of 11,495 acre-feet. Assumptions related to latent demand are partially responsible for the significant difference in the projections. Latent demand of 15% was used for the 2007 WRDMP compared to 5% used for this update. Also, a portion of the latent demand attributed to agricultural demands in the 2007 WRDMP were incorrectly assigned to urban uses. When considering the combination of these two changes/corrections (approximately 2,400 acre-feet), the projections are only slightly different, thus validating the methodology.

GDPUD Agricultural Demand Comparison

Table 4-15 shows differences in agricultural demand projections that are primarily due to land area considered. For the 2007 WRDMP, land use capacity of Choice Farmlands inside and outside Agricultural Districts is the basis. For this update only lands within Agricultural Districts were considered.

4.4 GRIZZLY FLATS COMMUNITY SERVICES DISTRICT

4.4.1 GFCSD Urban Demand Projection

For this analysis, the 2004 General Plan Housing Forecast was not used, because household projections are only available for the entire TAZ, which is inclusive of the GFCSD boundary. As the TAZ is substantially larger than the GFCSD Service Area, the estimate of housing units provided in the GFCSD 2012 Water Supply and Development Update (WSDU) are incorporated herein.

GFCSD is not an Urban Retail Water Supplier and is not subject to the SB x7-7 requirements, so household unit demand of 0.25 acre-feet/household (for 2010) identified in the 2012 WSDU is used in this analysis. The unit demand factor includes 10% unaccounted for water. There is essentially no commercial demand or agricultural demands within the GFCSD Service Area. **Table 4-17** presents total projected GFCSD households and calculated water demand from the 2012 WSDU.

Table 4-17 Grizzly Flats Community Service District Urban Buildout Demand Projections

Households[a]	*Unit Demand*[a,b] *(acre-feet/hh)*	*Demand (acre-feet)*
1,252	0.25	313

a. Households and unit demand factor from 2012 Water Supply.
b. Unit demand factor includes 10% unaccounted for water.

Table 4-18 provides demand projections for 2030 and buildout, based on the projected long term West Slope growth rate of 1.03% from the TGP Update as discussed in Section 3.1.2.

Table 4-18 Grizzly Flats Community Services District Demand Projection

	Urban Demand		
	2010	***2030***	***Buildout***
Service Area	153	187	313

4.5 OTHER COUNTY AREAS

4.5.1 Urban Water Demand

For Other County Areas (OCA) outside the purveyor boundaries, the 2004 General Plan housing forecast and unit household water use factors were used to determine potential water demand. **Table 4-19** presents the total OCA households, households reallocated to EID and GDPUD from Table 3-4, and the remaining OCA households.

Table 4-19 Households Remaining in Other County Areas

Total OCA Households[a]	***Households Reallocated to EID***	***Households Reallocated to GDPUD***	***Households Remaining in the OCA***
31,640	13,152	1,746	16,742
a. Total buildout households from GP Housing Forecast included in Appendix B.			

Within OCA there are no urban retail water agencies providing water service, and as a result SB X7-7 requirements do not apply. Household unit demand for OCA used in the 2007 WRDMP is 0.7 acre-feet/household. In **Table 4-20** this unit demand factor is applied to the households not reallocated to the EID and GDPUD Service Areas to calculate residential demand in OCA.

Table 4-20 Other County Areas Urban Buildout Demand Projection

Households Remaining in the OCA	***Unit Demand***[a] ***(acre-feet/hh)***	***Household Demand (acre-feet)***	***Total Demand***[b.c] ***(acre-feet)***
16,742	0.7	11,719	12,336
a. Unit demand factor used in 2004 General Plan/2007 WRDMP for OCA. b. Includes latent demand of 5%. c. Assumes all 2004 General Plan/2007 WRDMP projected commercial demand (578 acre-feet) is reallocated to EID and GDPUD.			

4.5.2 Agricultural Demand

Existing agricultural land uses in OCA are supported by private wells drilled in fractured rock. The wells are generally low producing and not capable of supporting large water intensive agricultural operations. While there are some deciduous orchard crops grown in the OCAs, most cultivation is wine grapes that have a relatively low water duty. Expansion of agricultural land use in OCA on the scale represented in Table 4-20 is likely not possible without the introduction of a public surface water supply. The projections developed for this analysis assume that water would largely be

conveyed through newly developed infrastructure to supply water to the land outside the EID and GDPUD Service Areas. The cultivated acreage in **Table 4-21** is from Table 3-6 and assumes a crop mix similar to the base year of approximately 20% Deciduous Orchard category and 80% Vineyard, Christmas Trees, Olive/Citrus, Berries category with no increase in the Pasture and Other category.

Table 4-21 Other County Areas Agricultural Buildout Demand Projection

	Area (acre)	***Crop Water Use[a,b] (acre-feet)***
Deciduous Orchards	2,178	6,098
Vineyard, Christmas Trees, Olive/Citrus Berries	8,711	11,325
Pasture and Other[c]	14	53
Total	***10,903***	***17,476***

a. Based on water duty of 1.3 acre-feet/acre for vineyards, Christmas trees, olive/citrus, berries and 2.8 acre-feet/acre for deciduous orchards.
b. Does not include conveyance system losses.
c. Assumes no net increase in this land use category.

4.5.3 Demand Projection Summary

Table 4-22 provides the combined urban and agricultural OCA demand projection at buildout. A 2012 estimate and 2030 projection are not made for OCA.

Table 4-22 Other County Area Demand Projection (acre-feet)

	Build-Out Demand
Urban	12,336
Agriculture	17,476
Total	***29,812***

Chapter 5. Water Use Efficiency

Water reuse, recycling, and conservation are increasingly important components of the state's overall water supply. These measures are a growing part of El Dorado County plans for providing reliable supplies for multiple benefits into the future. This chapter presents an update to the Water Efficiency Chapter of the 2007 WRDMP, describing: 1) West Slope urban retail water suppliers' past water conservation achievements; 2) water use efficiency strategies to optimize supply and meet the state mandated SB X7-7 conservation goals; and 3) potential new conservation and water use efficiency strategies that could reduce demand estimated in Chapter 4 beyond the SB X7-7 conservation goal.

5.1 WATER CONSERVATION AND OPERATIONAL STRATEGIES FOR WATER SUPPLY OPTIMIZATION

Water conservation has been and remains an important component of water resources management in the County. Although it is the area of origin for a significant volume of water used in the greater Sacramento region, El Dorado County itself has limited developed water supplies. As a result, conservation efforts (including metering) have been a high priority since the 1976-77 drought and remain an important component of water resource management in the County. Water conservation broadly defined, is the use of available raw and treated water resources in increasingly efficient ways in order to serve as many beneficial uses as possible. Many areas have been metered since the 1970s and water service in the County is metered today with very few exceptions. Irrigation management services (IMS) have been offered by EID since the early 1980s; the program has substantially reduced agricultural water use and is responsible for saving over 2,000 acre-feet of water each year. EDCWA has been providing IMS for the remainder of the West Slope of the County since 2001, with water savings between 6% and 38% depending on whether ground water or surface water is used. This section describes in more detail the various state/local policies and the water conservation programs being implemented by El Dorado County West Slope water purveyors and EDCWA.

Water conservation and efficient use are common goals and objectives shared by local/regional water purveyors and state agencies to accommodate planned growth and address drought contingencies. The State Department of Water Resources requires that each water provider prepare an Urban Water Management Plan (UWMP) that describes programs and policies that ensure a reliable water supply for their service area for the future. UWMPs must be updated every five years, with the next UWMPs due by the end of 2015 (although this deadline may be extended by a year or so). As defined by California Water Code Section 10631, an urban water supplier is a provider that is either private or publicly-owned that serves at least 3,000 customers or supplies more than 3,000 acre-feet of water annually on a wholesale or retail basis. Urban water management programs typically contain the following five elements: 1) water delivery and per capita water use data; 2) description of the water supply, water supply reliability, and water demand management measures; 3) water shortage contingency plans; 4) water recycling; and 5) water service reliability. UWMPs typically include measures to improve operations and water use efficiency that will achieve the agencies' conservation goals.

EID and GDPUD are the urban water purveyors on the West Slope of El Dorado County that are required to develop UWMPs. EID and GDPUD have adopted a number of urban and agricultural programs to conserve water. Each purveyor implements different water conservation programs to meet the needs of their respective service area customers. Details of measures being implemented

by these water suppliers in El Dorado County are described for each supplier in the following sections. The range of actions that have been taken varies with each water supplier, but generally includes the following:

- Reducing leakage and losses in raw water canals and conveyance systems
- Conducting water audits/surveys to assess potential illegal diversions/use
- Water and wastewater treatment plant backwash water recovery
- Leak management on both raw water and finished water distribution system
- Public education/outreach program implementation
- Tiered water rate structure implementation
- Residential and commercial/industrial (CII) plumbing retrofit program
- Rebate programs for high-efficiency clothes washers and toilets
- Rebate program for irrigation efficiency improvements
- Residential and CII water surveys and leak detection programs
- Individually metered landscape water use and sub-metering
- Implementing automated meter reading retrofits
- Tailwater controls and spill management

5.1.1 California Water Policy

In response to changing conditions and the costs associated with developing new sources of water supply, State water policy has become increasingly assertive in encouraging water use efficiency over the last decade. SB X7-7, the Water Conservation Act of 2009, set an overall requirement of reducing per capita urban water use by 20% by December 31, 2020 (with an interim goal of at least 10% by December 31, 2015) using one of the following methodologies.

1. 80% of baseline use
2. Sum of specified performance standards
3. 95% of DWR Hydrologic Region target from the draft 20X2020 Plan
4. A flexible alternative designed to adjust to local circumstances

As urban retail water suppliers, EID and GDPUD are subject to this legislation. Each has determined its “baseline” per capita water use (for residential, commercial and industrial uses) based on average demand for a recent 10 year period, expressed in GPCD. Their respective 2010 UWMPs also contain water reduction targets and water use reduction plans to demonstrate how they will achieve the per capita water demand target.

EID is expected to continue its conservation programs and expects to reduce per capita water consumption by 56 GPCD by 2020. Similarly, GDPUD is expected to reduce demand by 30 GPCD. The EID GPCD reduction is based on Method 1 and the GDPUD reduction is based on Method 3.

It should be noted that, with very limited exception, the 20x2020 legislation does not allow credit for reduced raw water losses in the calculation of target GPCD. Raw water losses for GDPUD represent the best opportunity for significant reduction system losses.

5.1.2 Factors Influencing Local Water Efficiency Programs and Cost Effectiveness

El Dorado County has unique opportunities to achieve water use efficiency. A significant amount of potable water is used to meet agricultural water demands due to the lack of groundwater availability in the fertile mountainous areas. Irrigation demands are higher than the more populated coastal regions of the state. As presented in **Figure 5-1**, most of the developed areas on the western slope of El Dorado County are in Climate Zones 13 and 14. Evapotranspiration rates on the West Slope are more than 40% higher, on average, than coastal regions such as San Francisco. As a result, the County has a strong emphasis on agricultural water efficiency and urban outdoor landscape water efficiency. In addition, in the western downslope section of the county, urban landscapes are served by metered recycled water instead of surface water to meet outdoor irrigation demands.

BMP implementation has historically been driven by local cost effectiveness and the availability of grant funds that make implementation cost effective. Cost effectiveness has been measured using industry standards like the American Water Works Association, Manual of Practice, M52, Water Conservation Program – A Planning Manual:

> *Water conservation planners often rely mostly on cost-effectiveness analysis to compare water conservation measures. This type of analysis is a systematic way to evaluate benefits and costs associated with measure implementation. A conservation measure is said to be cost-effective if the present value of the benefits [avoided cost of supply] exceeds the present value of the costs [to implement the conservation program]. (AWWA, 2006)*

Local costs of existing water supplies in El Dorado County are low when compared with other parts of California, since much of the source of supply is gravity feed which does not require costly pumping and requires less costly treatment due to more pristine water quality in the Sierra foothills. Consequently the avoided cost (or benefits) of saving water is significantly lower than in coastal regions of the state reliant on imported supplies. As El Dorado County looks to new supplies to meet its long term water needs, the cost of such supplies are expected to affect the cost effectiveness of a number of conservation measures. Fortunately there are a number of potential future water use efficiency measures that are possible. For example, recycled water use could be expanded. Further reductions in urban landscape use could be developed through various incentives and new technology.

The following sections address existing and continuing water conservation programs. Section 5.7 addresses the relative cost effectiveness of specific water use efficiency measures currently implemented or having future potential.

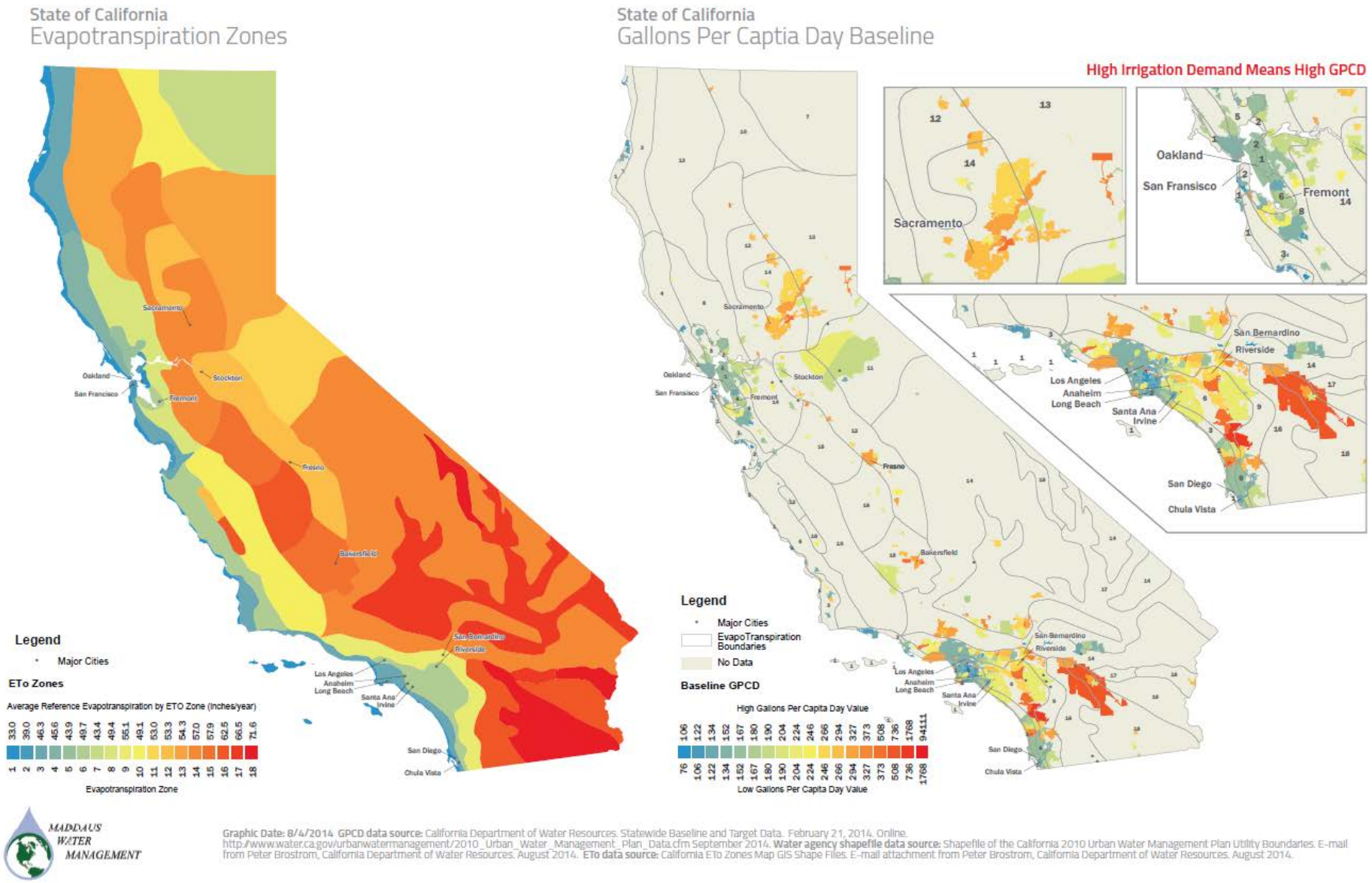


Figure 5-1 Climate Zones

5.2 EL DORADO IRRIGATION DISTRICT

EID has a long history as a leader in the region for progressive urban and agricultural water efficiency programs, and a statewide leader for the development of a recycled water program for front and backyard residential irrigation.

5.2.1 California Urban Water Conservation Council

The Council is a voluntary consensus-based organization created to promote efficient water use statewide through partnerships among urban water suppliers, public advocacy organizations, and other interested groups. The Council's goal is to integrate urban water conservation Best Management Practices (BMPs) into the planning and management of California's water resources through voluntary partnerships.

Members of the Council commit to developing and implementing Foundational and Programmatic BMPs for water conservation. The Foundational BMPs (Utility Operations and Education programs) consisting of operations practices (conservation coordinator and water waste prevention), water loss control, metering, conservation pricing, public information and school education programs. The Programmatic BMPs (residential, commercial, industrial, institutional and landscape categories) consist of water surveys, leak detection assistance, plumbing retrofits, incentives for high-efficiency clothes washers and toilets, and incentives to improve water efficiency through water budgets, and site specific technical assistance to sites over budget.

The initial California Urban Water Conservation Memorandum of Understanding (MOU) was signed by nearly 100 urban water agencies and environmental groups in December 1991. Since then the Council has grown to 400 members. Those signing the MOU have pledged to develop and implement urban water conservation practices to reduce the demand on urban water supplies. EID has been a member of the Council since 2003. As a Federal water supply contractor, EID annually reports its BMP activity to the Council. The Council issues bi-annual coverage reports for all members.

5.2.2 Best Management Practices (BMPs)

EID implements the Council's BMPs in all of its customer sectors for: (1) residential, (2) commercial, Industrial, and institutional (CII) and (3) agriculture. All existing and new water services within EID are metered and billed by volume-of-use and a tiered rate structure. EID has identified landscape irrigation as having the highest potential for water savings, and has focused significant resources in this area including water surveys and irrigation efficiency rebates. Indoor water efficiency has included rebates and complimentary plumbing retrofits as summarized below. Over $1.4 million in grant and EID funds have been invested in urban and agricultural water efficiency programs over the last decade. Areas of investment Include but are not limited to the following:

Urban BMP Investment

- Incentives for CII customers with mixed-use meters to install dedicated irrigation sub-meters
- Rebate incentive program for large landscape irrigation systems
- Rebates for smart controllers for residential and CII customers

- Water surveys and leak detection assistance for residential and CII customers
- Incentives for CII customers including waterless urinals and pre-rinse spray valves for commercial dishwashers.
- Rebates for high-efficiency clothes washers
- Rebates to replace high flush volume toilets with Ultra Low Flow and High Efficiency toilets (since 2009)
- Public information about water efficiency programs highlighted in EID's bi-monthly newsletter
- School education programs that promote water efficiency for grades K through 12.
- Partnerships with water agencies in the Sacramento area through membership in the Regional Water Authority's Water Efficiency Program (WEP)

Agricultural BMP Investment

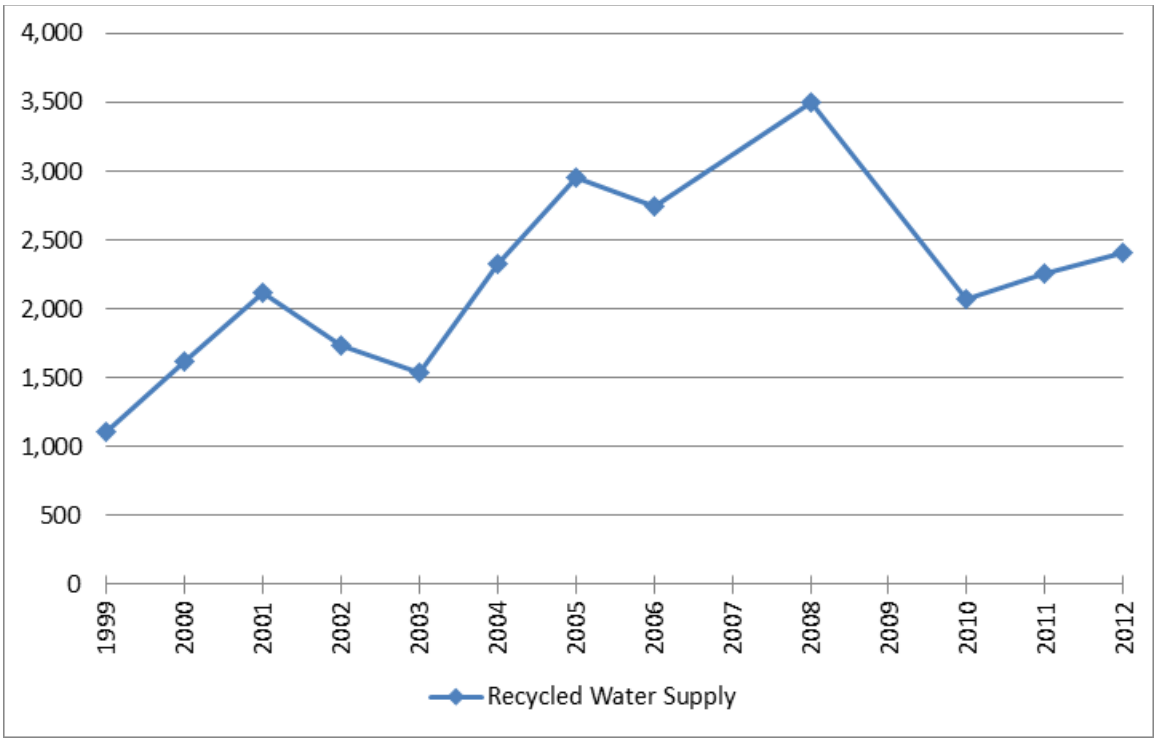
EID has implemented an Irrigation Management Services (IMS) Program since the late 1970s. This very successful program monitors soil conditions and provides irrigation recommendations to growers with five or more acres in production. EID currently monitors the soil moisture conditions at approximately 232 field sites that are read weekly during the irrigation season. Each grower receives individualized farm data the following day. The data indicates soil moisture status, predicts the next scheduled irrigation, and recommends the amount of water to apply to each field. The program also provides weather data from the California Irrigation Management Information Service (CIMIS) station #13 located in EID's service area near the community of Camino. The water savings realized by growers who participate in the IMS program has equaled more than 2000 acre-feet every year since inception. Irrigation efficiency has risen from less than 50 percent to nearly 80 percent for farms in the program from 1977 to today. Approximately 30% of growers within the EID service area participate in the program.

Recycled Water

EID has made a priority of using treated wastewater to meet non-potable needs within its service area beginning in 1979. In 1990, EID began tertiary treatment and reclamation for golf courses and road median irrigation. Over the next 10 years EID constructed transmission and distribution systems to serve local growth. EID has developed award-winning recycled water infrastructure that utilizes tertiary treated wastewater for public landscaping and residential irrigation demands. The Serrano master-planned community uses recycled water for its golf course and residential and public landscaping. The Town Center, Creekside Greens, Euer Ranch and West Valley developments also use recycled water for residential, park and/or street median landscape irrigation. Currently EID provides service to 4,600 residential and 170 commercial customers and all services are metered (EID 2013). Other future developments are also planned for use of recycled water. EID mandates use of recycled water through Board Policy 7010, wherever economically and physically feasible (EID 2010 UWMP).

EID's ability to expand its use of recycled water is limited by wastewater inflow to the WWTPs and limited storage at the El Dorado Hills WWTP. In order to meet the current recycled water demand, EID supplements its recycled water supply with potable water at recycled water tanks. Recycled water supply shown in **Figure 5-2** varies year to year based on plant influent and recycled water demand and has been as high as 3,400 acre-feet (2008). EID delivered a total of 2,400 acre-feet of recycled water in 2012 representing approximately 7% of total raw water diversions. An additional

600 acre-feet of potable water was used to supplement the recycled water system. As WWTP inflows increase with growth, up to 5,600 acre-feet of recycled water is projected to be available. Optimization of recycled water production with seasonal storage is discussed in Section 6.6.



SOURCE: EID (2000-2013) Water Resources and Service Reliability Report

Figure 5-2 EID Historical Recycled Water Supply (acre-feet)

5.2.3 Historical Active Water Conservation Savings

EDCWA commissioned Brown and Caldwell to prepare a Water Use and Conservation Analysis (WUCA) in early 2010 in response to its concerns over the availability of regional water supplies and its ongoing water supply acquisition projects. The report presents an analysis of historic and current local water use, estimates urban GPCD baselines, and documents conservation activity for EID, including the City of Placerville, GDPUD, and STPUD. The report also includes purveyor historic average per capita water use and conservation savings compared to statewide, regional, and local water system estimates. Information in this section primarily comes from the 2010 WUCA and is supplemented with information from the EID 2010 UWMP.

EID provides wholesale water to the City of Placerville and the City contracts with EID to provide conservation services. EID's service area surrounds the City of Placerville, and EID tracks water savings for its own customers as well as savings for Placerville customers; therefore, historical and projected conservation savings and water use are presented jointly for the two water purveyors.

In quantifying water conservation achieved by EID the 2010 WUCA indicates that:

> *EID and Placerville saved approximately 9,300 AF of water through metering (formerly BMP 4). Both agencies have potable water systems that are fully metered, and both employ tiered*

rate structures. Water savings resulting from metering is based on an estimated 20 percent reduction in water use according to the CUWCC. Approximately 3,600 AF in additional savings, resulting from other BMP implementation, was realized in 2008. Recycled water production at EID's Deer Creek and El Dorado Hills Wastewater Treatment Plants offset potable water use by approximately 3,500 AF in 2008.

Figure 5-3 presents EID and Placerville's historical urban and agricultural water use and conservation savings resulting from metering and other BMP implementation from the 2010 WUCA. The blue shaded area is actual water diverted to meet demands. The purple shaded area is actual recycled water supplied. The orange shaded area is water that would have otherwise been diverted if not for implementation of water conservation measures.

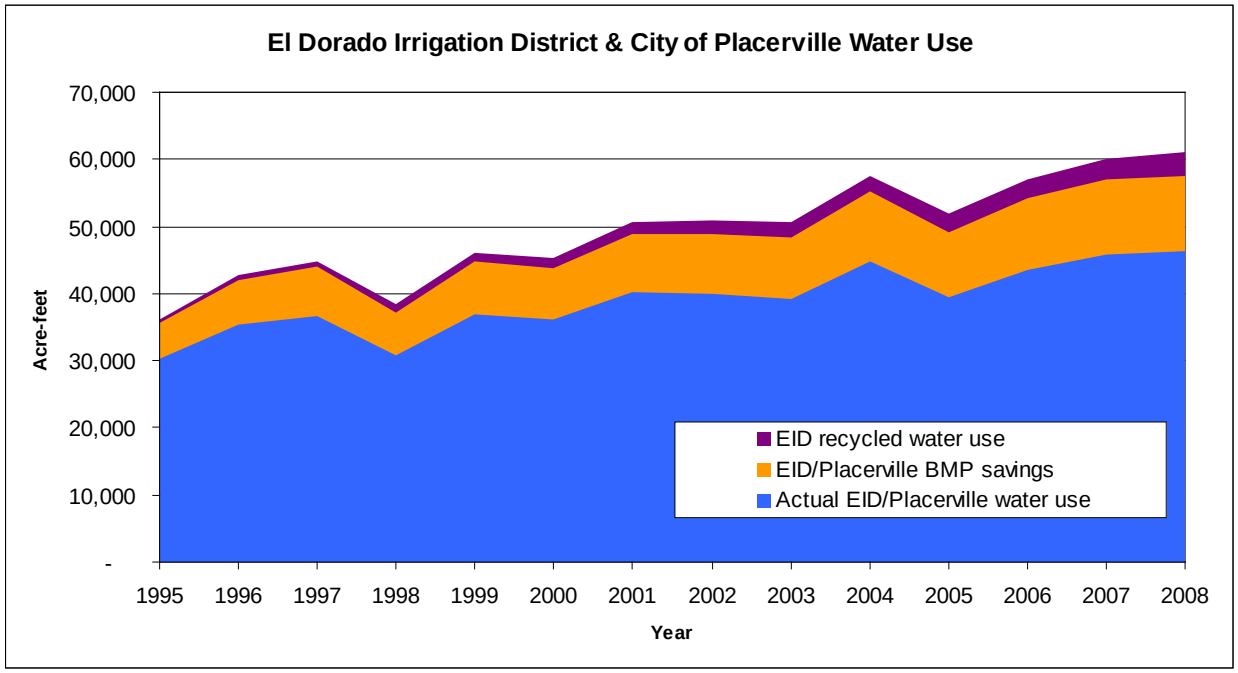


Figure 5-3 EID and Placerville Historical Water Use and Estimated Active Water Conservation Savings

Source: EDCWA 2010 Water Use and Conservation Analysis

The EID 2010 UWMP reports water savings to be about 4,000 ac-ft to date per year, based on BMP reports submitted to CUWCC website since 2002, which represented 11% of 2010 diversions of 35,677 acre-feet. Water conservation resulting from metering is not reflected in the reporting because meters were installed in the 1980's, prior to creation of CUWCC.

5.2.4 Achieving 20x2020 Conservation Goal

The following is a summary of EID water efficiency initiatives and programs (also available to City of Placerville water service customers). These actions are characterized as active conservation because EID has direct control over operational improvements and some control for offering opportunities for engaging customer participation for achieving 20x2020 goals. The BMPs and capital improvements listed below -- together with the passive water savings from building codes,

landscape requirements and retrofits subject to plumbing and appliance standards -- represent EID's current plan for meeting the 20 percent water conservation requirements under current law:

Residential Indoor

- Toilet rebates: for the installation of new high-efficiency, WaterSense rated toilets in pre-1992 residences.
- Clothes washer rebates: for new TIER 2 and TIER 3 models.
- Irrigation efficiency rebates: including the addition of weather, soil moisture, or rain sensors; replacing existing controllers with WaterSense certified models; converting fixed spray heads with high-efficiency nozzles or drip irrigation systems; and replacing leaking control valves.
- Home water audits: including leak detection assistance at the water meter and complimentary plumbing retrofits as needed.
- Complimentary plumbing retrofits: including WaterSense rated showerheads and faucet aerators, toilet tank displacement bags, toilet leak detection packets, and toilet flappers if a leak is detected.

Commercial/Industrial/Institutional (CII)

- Toilet rebates: for new high-efficiency, WaterSense rated toilets or urinals in pre-1992 establishments.
- Clothes washer rebates: for new TIER 2 and TIER 3 models.
- Water surveys: to assist in identifying leaks, fine tuning irrigation schedules, and offering water-efficiency recommendations.
- Pre-rinse spray nozzles: complimentary low-flow, high-efficiency and high-velocity pre-rinse spray valves to replace older 2 to 6 gallon per minute spray valves.

Agriculture

- Irrigation Management Services program: The program serves 70 growers and 232 soil moisture monitoring sites on approximately 350 acres with an annual budget of $20,000.
- Maintain the State CIMIS station #13 at Camino.

Large Landscape Dedicated Meters

- Irrigation efficiency rebates: including the addition of weather, soil moisture, or rain sensors; replacing existing controllers with WaterSense certified models; converting fixed spray heads with high-efficiency nozzles or drip irrigation systems; and replacing leaking control valves.
- Water budgets: provides web-based budgets calculated using aerial maps of specific sites through an RWA contract with Waterfluence.
- Low cost sub-metering: available to CII customers only, excluding Placerville customers, to separate landscape irrigation from building uses for more efficient monitoring of irrigation demands.

Educational

- Water Education Materials: available to all local schools within the EID service area and the City of Placerville. The complimentary materials include interactive classroom booklets (K-8) concerning water conservation, the water cycle, and water-themed coloring books.
- Media Education Program: provides electronic newspapers, educational supplements, and teacher guides to classrooms.
- Landscape publications: available in the lobby of EID's headquarters building and at local events, including materials on water-efficient landscape design and plant selection. The popular, interactive "Water-Wise Gardening in the Gold Country Region" plant database software is also available at the lobby kiosk or at EID's website.

- Demonstration garden: The EID headquarters building features a drought-tolerant garden with several native plant species. Signage identifies the plants, and corresponds with a list of the common and botanical names of the garden's plants available in the lobby. A detailed plant report is also available upon request at the front desk or at the lobby kiosk.
- Events: complimentary water-efficiency publications and materials are available from EID for distribution at local community events.

Recycled Water

- EID operates two reclamation plants and delivers an average 3,000 acre-feet of recycled water each year to CII customers, residential dwellings for front and back yard irrigation and treatment plant uses. Recycled water use is mandatory, where feasible, within the service area and is metered and billed on a volumetric basis.

Water Supply Conveyance Capital Improvements

- Piping the Main Ditch between Forebay Reservoir and the Reservoir 1 Water Treatment Plant. This project will reduce seepage and evapotranspiration losses by an estimated 1,300 acre-feet per year.
- Waterline replacements

In addition to the water conservation elements above, EID implements the following "foundational BMPs".

- Volumetric metering of water system customers with tiered commodity rates, including meter testing and programmatic meter replacement.
- Enforcement of a water waste prohibition regulation all year and at all times, including yearly notifications in EID's newsletter.
- Water loss control including pressure management, leak detection and intervention.
- Wholesale agency water efficiency assistance to the City of Placerville customers.
- Designation of full-time water conservation coordinator.

Since the enactment of the first statewide plumbing code measures in 1978, passive savings have also been assumed to occur by actions of existing EID customers as a result of the federal, state and local codes. These codes have evolved over time as technology has become increasingly efficient. Each of the four items listed below, along with the year the standard became/becomes effective, are described in Section 6.5.

1. National Plumbing Code (1992)
2. Cal Green (2011),
3. AB 715 (2014)
4. SB 407 (2017)
5. AB 1881 (Model Water Efficient Landscape Ordinance, 2010)

5.3 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD began installing meters in 1961. Since the 1976/77 drought GDPUD has been proactive in implementing water conservation measures. Since 1982, treated water has been billed on an inclining block rate structure where the unit cost increases with the amount of water used. This penalizes inefficient water use. Today almost all (99.8%) urban water connections are metered and billed by volume and a tiered rate structure. Water used by irrigation and agricultural accounts is also metered. Agricultural customers use untreated water, which is metered and billed on the basis of a specific flow rate.

5.3.1 Water Efficiency Program and Demand Management Measures

GDPUD focuses mainly on agricultural water efficiency programs including lining open canals and irrigation management, with $120,000 dedicated annually to lining and piping open canals. GDPUD's urban water efficiency program has focused on five main areas: pressure control; customer communication about abnormal water use; residential plumbing retrofits; large landscape efficiency and education/public outreach. GDPUD also enforces water waste prohibitions even during normal water supply situations. These ordinances prohibit gutter flooding, non-recirculating fountains, non-recirculation systems in carwash and commercial laundry establishments.

Agricultural Water Efficiency

GDPUD owns and operates over 75 miles of raw water conveyance system. The District estimates that operational and carriage losses in the raw water conveyance system account for up to 3,000 acre-feet of water per year, or approximately 25% of total diversions. As a result, raw water conveyance system losses have been identified as having the highest potential for further conservation. Routine funding for rehabilitation has resulted in piping or lining over 30 percent of the untreated water conveyance system. Unfortunately, the 20x2020 legislation does not allow credit for GDPUD's reduced raw water losses in the calculation of target GPCD.

Urban Demand Management Measures

While GDPUD focuses mainly on more significant water savings from agricultural water efficiency measures, GDPUD also implements the applicable Demand Management Measures (DMM) described in the Urban Water Management Planning Act (Water Code Section 10610 et seq.) to support its urban water efficiency program. According to its 2010 UWMP, GDPUD has implemented 11 of the 14 DMMs. As cited in the 2010 UWMP, GDPUD determined that 3 DMMs either do not apply to the District or are not currently economically feasible based on the cost of existing supplies. Additional analysis is required to determine the cost effectiveness of these measures when compared to the cost of future water supplies. **Table 5-1** provides the DMM description and status. GDPUD is not a member of CUWCC.

Table 5-1 2010 UWMP GDPUD DMM Implementation Status

DMM	*DMM Description*	*Implemented?*
A	Water Survey Programs for Single-Family and Multi -Family Residential Customers	Yes
B	Residential Plumbing Retrofits	Yes
C	System Audits, Leak Detection and Repair	Yes

D	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	Yes
E	Large Landscape Conservation Programs and Incentives	Yes
F	High-Efficiency Washing Machine Rebate Programs	No(1)
G	Public Information Programs	Yes
H	School Education Programs	Yes
I	Conservation Programs for Commercial Industrial and Institutional Accounts	Yes
J	Wholesale Agency Assistance Programs	No(2)
K	Conservation Pricing	Yes
	Water Conservation Coordinator	Yes
M	Water Waste Prohibition	Yes
N	Residential Ultra-Low-Flush To let Replacement Programs	No(1)
(1) Implementation not economically feasible (2) Implementation not applicable to District		
Source: 2010 UWMP, Page 33		

GDPUD has determined that offering a high efficiency washer or ultra-low-flush toilet rebate program is not cost effective based on the current cost of service. While GDPUD offers some level of assistance to CII customers by making them aware of abnormal water use, offering incentives is also not cost effective at this time. Future analysis of cost effectiveness considering the cost of new supplies may change the outcome of this analysis. Alternatively, GDPUD focuses its resources on the larger conservation potential of broader system-wide water conservation measures such as ditch lining of the raw water delivery system.

Recycled Water

There is currently no recycled water use in the District service area. The District manages the onsite wastewater disposal system serving the Auburn Lake Trails Subdivision in Cool. This 1,100 lot subdivision utilizes site-specific waste disposal methods that depend on the type of soil present on each lot. A small Community Disposal System (CDS) serves 139 of these lots that otherwise do not support site-specific disposal. Average dry weather wastewater flow from this system has been 22,000 gallons/day. At build out, the CDS will handle approximately 32,000 gallons/day.

The District and the Auburn Lake Trails Owners Association has evaluated the potential for utilizing reclaimed water to irrigate the nearby 9-hole golf course. The golf course currently uses 100,000 gallons of treated water per day during the summer months. The district and property owner's association determined that the wastewater system could only meet approximately 30% of that demand. Since the wastewater is not disinfected and is classified as primary wastewater, additional treatment would be required. These factors make the use of recycled water cost-prohibitive at this time.

5.3.2 Historical Active Water Conservation Savings

The 2010 WUCA indicates:

> *In 2008, GDPUD saved approximately 430 AF of water through metering (formerly BMP 4). Savings are based on an estimated 20 percent reduction in water use according the CUWCC.*

From the 2010 WUCA, **Figure 5-4** presents GDPUD's historical urban water use and conservation savings resulting from metering only as savings associated with other DMMs is not available.

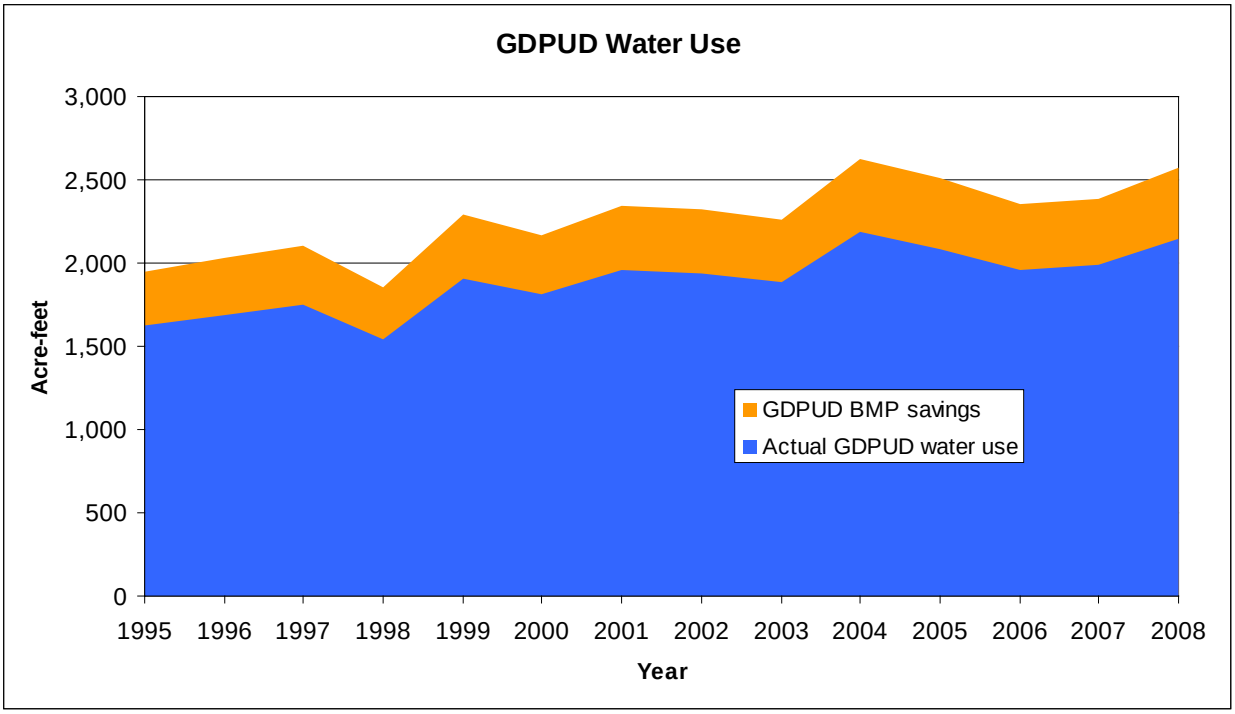


Figure 5-4 GDPUD Historical Urban Water Use and Estimated Active Water Conservation Savings

SOURCE: EDCWA 2010 Water Use and Conservation Analysis

GDPUD's 2013 water rights report to the State Water Resources Control Board indicates the District achieved a combined total of 5,200 acre-feet of water conservation savings in its raw and treated water systems. The savings is attributed to metering, public education, inclining block rate structure for the treated water system, loss monitoring, crop acreage records, canal piping and lining, phreatophyte removal and irrigation efficiency programs. A breakdown of the savings between urban and agricultural uses was not provided.

5.3.3 Achieving Per Capita Conservation Goal

The following is a summary of GDPUD water efficiency initiatives and programs from its 2010 UWMP. These actions are characterized as active conservation because the agency has more direct control over implementation of operations related measures and resources to engage and encourage customers to participate in efficiency programs. The scope of the following DMMs and capital improvements together with the passive saving that will result from building and plumbing code changes represent GDPUD current plan for meeting its SB X7-7 urban water conservation requirements.

Agricultural Water Efficiency

- Metering: Untreated irrigation water is contracted and billed on the basis of a specified flow rate. Deliveries from ditches are metered. Deliveries from pipelines are made through pressure-activated flow metering devices.
- Weather Monitoring: To promote water conservation through efficient application of irrigation water, two evaporation/weather stations have been established with the support and

cooperation of the Department of Water Resources and Georgetown Divide Resource Conservation District. Station data is published in local newspapers weekly during the irrigation season.

- Education: The Conservation District has sponsored demonstrations and newspaper articles concerning development of effective irrigation schedules by using weather and soils data.
- Irrigation Management Services (IMS): The El Dorado County Water Agency sponsors an IMS program available to growers within the GDPUD service area, utilizes irrigation management consultants, that includes providing growers with weekly site specific soil moisture monitoring results from moisture sensing nuclear probes and recommended irrigation scheduling by crop. District staff is also trained to assist in defining soil type, water holding capacity, and efficient irrigation scheduling for customers.

Urban Demand Management Measures

- Residential Water Survey Program (DMM A): The program includes monitoring usage, customer notification of abnormal use, and incentives for timely repairs.
- Residential Plumbing Retrofits (DMM B): Water conservation kits including high quality 2.5 gpm or less showerheads, 2.2 gpm or less faucet aerators, toilet displacement devises and leak detection tablets. Kits are available at the District office and are offered during surveys.
- Water System Audits, Leak Detection and Repair (DMM C): Maintenance of Water Use Records by User Type. Monthly and annual audits that identify metered use by customer category, unmetered water for authorized and unauthorized uses. Immediate repair of reported leaks, remote sensing for leak detection, targeted pipeline replacement in areas of reoccurring leaks, aging meter replacements and pressure control are implemented.
- Metering with Commodity Rates (DMM D): 99.8% of the District's domestic water connections are metered and all water is billed volumetrically. 15 unmetered accounts will have meters by 2020 where practical and/or feasible.
- Large Landscape Conservation Programs and Incentives (DMM E): Dedicated irrigation meters and detailed water use information provided to customer. Assist customers in identifying conservation that will improve efficiency and provide economic incentive through rate structure.
- Public Information Programs (DMM G): Public information program promoting conscientious use of water resources including District personnel speaking at service clubs, neighborhood association meetings, conservation messaging in bimonthly bills, flyers available at district office and on website and a demonstration of drought tolerant plants at the district office.
- School Education Programs (DMM H): Education program including District personnel speaking at schools to promote conscientious water use, conducting field trips at water treatment plant and assisting with special projects involving water resources.
- Conservation Pricing (DMM K): Water billed on an inclining block rate structure where unit cost increases with the amount used, which penalizes inefficient water usage.
- Conservation Coordinator (DMM L): Staff member dedicated to the coordination and oversight of conservation efforts.

- Water Waste Prohibition (DMM M): 1982 ordinance authorizing abatement procedures to curtail blatant water waste including discontinuation of water service.

Capital Improvements

GDPUD plans to continue systematic lining and piping of its raw water conveyance system. The District aggressively pursues grant or loan funding whenever possible to maximize its ability to maintain, rehabilitate or upgrade the raw water conveyance system.

GDPUD plans to improve its urban and agricultural water conservation program with grant funding potentially available through the Cosumnes, American, Bear and Yuba (CABY) Integrated Regional Water Management watershed group. GDPUD recently applied for grant funding through Reclamation's WaterSmart program for raw water conveyance system improvements, which was unsuccessful, and has just been awarded CABY grant funding under DWR for the same project.

Since the enactment of the first state-wide plumbing code measures in 1978, passive savings have been assumed to occur by actions of existing GDPUD customers as a result of the federal, state and local codes. These codes have evolved over time as technology has become increasingly efficient. Each of the four items listed below along with the year the standard became/becomes effective is described in Section 6.5.

1. National Plumbing Code (1992)
2. Cal Green (2011),
3. AB 715 (2014)
4. SB 407 (2017)
5. AB 1881 (Model Water Efficient Landscape Ordinance, 2010)

5.4 EL DORADO COUNTY WATER AGENCY WATER USE EFFICIENCY PROGRAM

EDCWA implements water use efficiency programs and pursues funding that supports both purveyors and private water systems. EDCWA is also an associated member of CUWCC. EDCWA's Strategic Plan, adopted in 2011, sets out the Agency's goals and objectives. A primary focus of the document is to support county purveyors in their water conservation programs but also to develop a broader countywide umbrella providing resources and support to all water users in the county. The following select goals and objectives from the Strategic Plan relate directly to water conservation and guide the programs offered by EDCWA.

Engage in community outreach and education

- Present to community organizations
- Educate public on current events and key issues
- Utilize agency website as communication tool
- Develop education program for schools

Enhance reliability of existing and future water supplies

- Advance county-wide drought planning effort
- Promote conservation and efficiency to maximize beneficial use
- Assist residents and purveyors with groundwater supply reliability
- Pursue funding opportunities to achieve greater reliability
- Assist local land use authorities in development and implementation of water related ordinances

Identify and pursue new funding sources

- Build capacity to pursue grants
- Explore fee-based services
- Pursue other sources of public and private support

5.4.1 El Dorado County Water Agency Irrigation Management Services

The Water Agency's IMS program for the West Slope of El Dorado County has been in place since 2001. EDCWA's program is a separate stand-alone program that services areas outside the EID service. Using consulting services, the program serves 70 growers and 156 soil moisture monitoring sites on approximately 850 acres in El Dorado County. This program services approximately 90% of the growers outside of EID's service area. The IMS program includes providing growers with weekly site specific soil moisture monitoring results from moisture sensing nuclear probes and recommended irrigation scheduling by crop. Most of the IMS customers are on unmetered wells but some receive surface water from GDPUD. As shown in **Figure 5-5** the IMS program has grown steadily since its inception. EDCWA budgets $80,000 annually to implement this program.

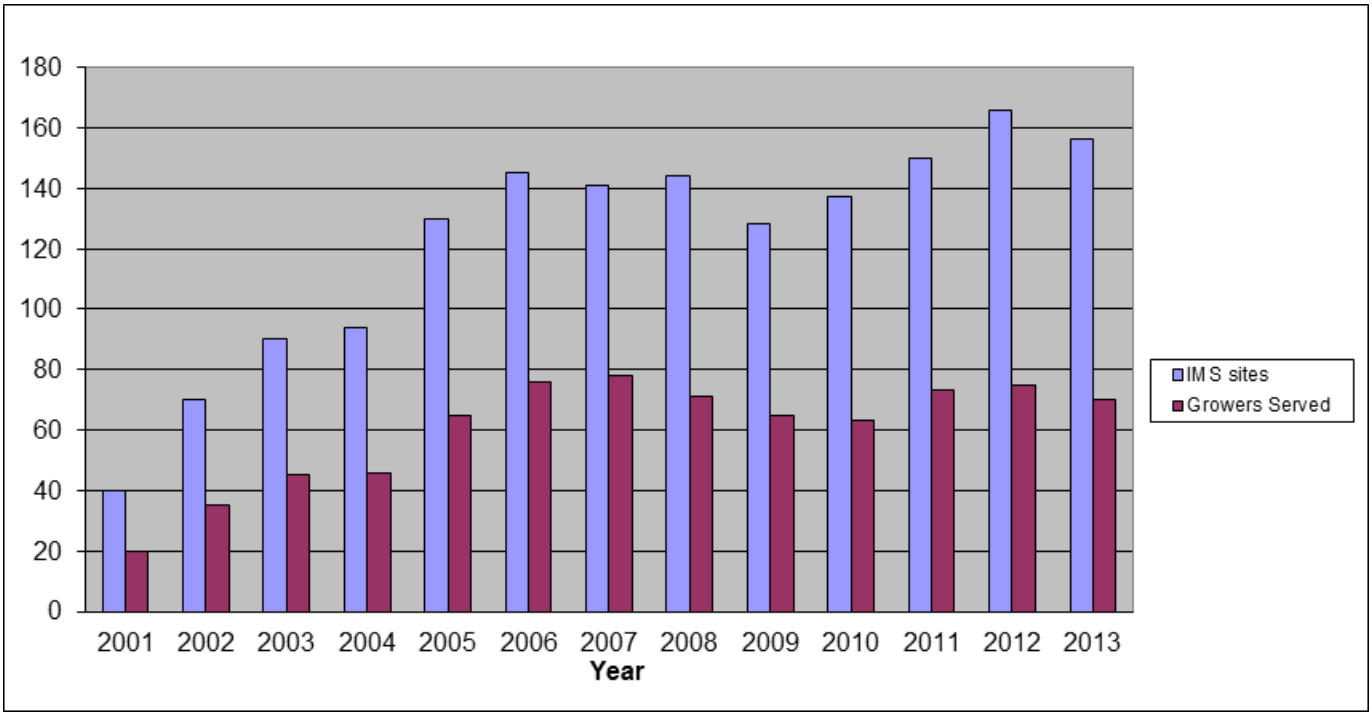


Figure 5-5 El Dorado County Water Agency IMS Sites and Participating Growers

Estimated Water Savings

Water savings is commonly assumed to be the only purpose of an irrigation management program. While conservation is usually a byproduct of irrigation management and typically the goal of a water agency, its functional purpose is efficiency or optimization of the timing and quantity of irrigation by crop type. In other words, the right amount of water, at the right time is provided to produce the best crop. Where publicly purveyed surface water supplies are available, the potential for water savings is greatest as irrigation management reduces overwatering and potential runoff from occurring. In the Water Agency's case, the water supply source for most of the program participants is private

wells in fractured rock with limited capacity. The grower's goal is to conserve as much water as is feasible early in the season so that adequate water is available later in the season. The potential for water savings is therefore lower and the focus is more on efficiency.

Although metered data is not available for well water use, water savings resulting from IMS implementation is estimated to be between 6% and 38% depending on whether ground water or surface water is used. The low end of the range is based on capacity limited groundwater use and is inferred using soil moisture data where the grower phased in IMS based irrigation practices over several years. The upper end of the range is based on other foothill IMS programs where publicly purveyed surface water is used for irrigation.

5.4.2 EDCWA Cost Sharing Program

EDCWA offers a grant program to local water agencies and other non-profit water interests with a focus on protecting existing water rights, extending existing water supplies, improving supply reliability and acquiring new water supplies for projected future demands. Over the last five years EDCWA has provided over $5 million in grants to EID, GDPUD, GFCSD, South Tahoe Public Utility District, Tahoe City Public Utility District and the El Dorado/Georgetown Resource Conservation Districts for water supply related projects.

5.4.3 Grant Writing

EDCWA pursues grant funding consistent with the goals and objectives of its strategic plan and has developed projects and/or written applications for urban water conservation plans, government building plumbing and mechanical system retrofits, ditch lining and piping and renewal energy projects on behalf of county purveyors and broader county benefit. The projects and state and federal programs EDCWA has applied to for grant funding are presented in Table 5-2. Renewable energy projects that include in-conduit hydroelectric elements are included as they represent efforts to maximize the efficient and beneficial use of water already diverted into the water system.

Table 5-2 El Dorado County Water Agency Water Use Efficiency Grant Applications

Project	*Grant Funding Source*		*Grant Amount*	*Successful*
CABY Regional Reliability Project including GDPUD and EID ditch lining and piping	Urban /Agricultural Water Use Efficiency Programs	2006	$3,000,000	No
GFCSD Reservoir Lining, Water Reliability and Conservation Project	Sierra Nevada Conservancy	2007	$373,000	No
Placerville - Hangtown Creek Comprehensive Watershed Master Plan	Sierra Nevada Conservancy	2008	$130,000	Yes
EID Pleasant Oak Main Tank 7 Variable Speed Regenerative Drive In-Conduit Hydro Project	California Energy Commission Emerging Technology Demonstration Program	2011	$1,600,000	No
South Tahoe PUD Renewable Energy Regional Exploration Project	California Energy Commission	2012	$750,000	Yes
GDPUD Sandtrap Siphon In-Conduit Hydro Project	California Energy Commission	2012	$1,540,000	No
Placerville Water Line	Integrated Regional	2013	$750,000	Yes

Replacement Program Phase I	Water Management Programs			
EID Tank 7 Small Hydroelectric Projects	Integrated Regional Water Management Programs	2013	$500,000	Yes
GDPUD Ditch Lining	WaterSMART	2014	$300,000	No
GDPUD Ditch Lining Conservation Project	Integrated Regional Water Management Programs	2014	$860,894	Yes
City of Placerville Water Line Replacement Program Phase 2	Integrated Regional Water Management Programs	2014	$745,000	Yes
El Dorado County Government Building Water Efficiency Retrofits and K-8 Water Conservation Education Program	Integrated Regional Water Management Programs	2014	1,775,187	Yes
El Dorado County Water Agency Water Conservation Plan	Integrated Regional Water Management Programs	2014	100,000	Yes
Grizzly Flats CSD Drought Measure and Water System Infrastructure Improvements	Integrated Regional Water Management Programs	2014	492,051	Yes

5.4.4 Achieving Per Capita Conservation Goal

Since 2001 with the implementation of its IMS Program, EDCWA's water resources management role in the County has evolved from a planning agency with the primary goal of protecting existing and acquiring new water rights to an expanded role including targeted water efficiency programs and providing grant funding more focused on water use efficiency. In light of the State's 20 percent water conservation mandate and ongoing drought conditions, EDCWA will need to play an even greater role in assisting the purveyors and others in the county to maximize water use efficiency given local cost effectiveness and the availability of state, federal and private grant funding. To that end and consistent with its strategic plan, EDCWA is considering the creation of an Office of Water Efficiency (OWE).

5.5 STATE-WIDE WATER CONSERVATION CODES AND LEGISLATION

This section describes the building and plumbing codes and new legislation that will generate passive water savings in new developments and existing homes that change ownership or are modified through a building permit process. Water savings resulting from these codes are not quantified for this report.

5.5.1 National Plumbing Code

The Federal Energy Policy Act of 1992, as amended in 2005 requires only fixtures meeting the following standards can be installed in new buildings:

- Toilet – 1.6 gal/flush maximum

- Urinals – 1.0 gal/flush maximum
- Showerhead - 2.5 gal/min at 80 psi
- Residential Faucets – 2.2 gal/min at 60 psi
- Public Restroom Faucets - 0.5 gal/min at 60 psi
- Dishwashing pre-rinse spray valves – 1.6 gal/min at 60 psi

Replacement of fixtures in existing buildings is also governed by the Federal Energy Policy Act; only devices with the specified level of efficiency (shown above) can be sold since 2006. The net result of the plumbing code is that new buildings will have more efficient fixtures and old inefficient fixtures will slowly be replaced with new more efficient models. The national plumbing code is an important piece of legislation and must be carefully taken into consideration when analyzing the overall water efficiency of a service area.

In addition to the plumbing code the US Department of Energy regulates appliances such as residential clothes washers. Regulations to make these appliances more energy efficient has driven manufactures to dramatically reduce the amount of water these machines use. Generally front loading washing machines use 30 to 50 percent less water than conventional models (which are still available). In a typical analysis, cost effectiveness models assume a gradual transition to high efficiency clothes washers (using 19 gallons or less) so that by the year 2020 this will be the only type of machines purchased. In addition to the industry becoming more efficient, rebate programs for washers have been successful in encouraging customers to buy more water efficient models. Given that machines last about 15 years, eventually all machines will be of this type.

5.5.2 State Building Code – CalGreen

The Cal Green requirements affect all new development in the State of California after January 1, 2011. The new development requirements under Cal Green are listed in the table below.

Table 5-3 Cal Green Building Code Summary Table

Cal Green Building Code						
Building Class	Component	Effective Date[i]	Indoor Fixtures Included	Indoor Requirement	Landscaping & Irrigation Requirements	Are the Requirements Mandatory?
Residential	Indoor	1/1/2011	Toilets, Showers, Lavatory & Kitchen Faucets, Urinals	Achieve 20% savings overall below baseline		Yes
	Outdoor	1/1/2011			Provide weather adjusting controllers	Yes
Non Residential	Indoor	1/1/2011	Submeter leased spaces	Only if building >50,000 sq. ft. & if leased space use >100 gpd		Yes
			Toilets, Showers, Lavatory & Kitchen Faucets, Wash Fountains, Metering Faucets, Urinals	Achieve 20% savings overall below baseline		Yes
	Outdoor	1/1/2011			Provide water budget	> 1,000 sq ft. landscaped area
					Separate meter	As per Local or DWR ordinance
					Prescriptive landscaping requirements	> 1,000 sq ft. landscaped area
					Weather adjusting irrigation controller	Yes

[i] Effective date is 7/1/2011 for toilets

5.5.3 State Plumbing Code – AB 715

The Plumbing Code includes the new CCR Title 20 California State Law (AB 715) requiring High Efficiency Toilets and High Efficiency Urinals be exclusively sold in the state by 2014. This effects both new construction and retrofits of individual toilets.

5.5.4 California State Law – SB 407

SB 407 (Plumbing Fixture Retrofit on Resale or Remodel): SB 407 begins from the year 2017 in residential and 2019 in commercial properties. This is 25 years after the passage of the National Plumbing Code and perceived beyond the useful life of older inefficient toilets. SB 407 program length is variable and continues until all the older high flush toilets have been replaced in the service area.

Figure 5-6 provides housing data by year built for El Dorado County as compared to California and indicates significant opportunity for water savings resulting from plumbing retrofits in homes built before 1992. A small portion of this potential has already been realized to the extent EID has offered a toilet replacement rebate program since 1995 and has replaced 5,500 toilets with low flow and ultra-low-flow toilets.

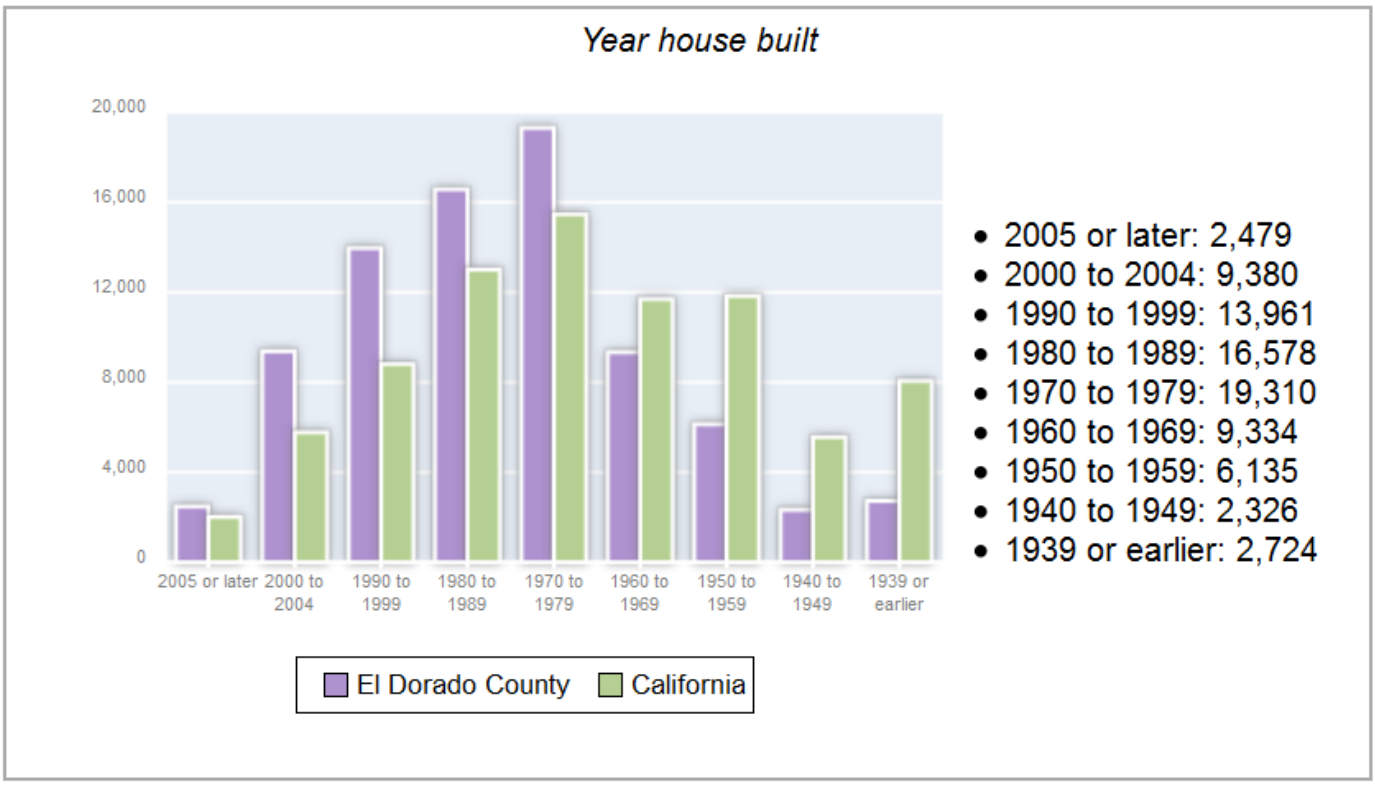


Figure 5-6 El Dorado County and California Housing - Year of Construction
SOURCE: 2010 US Census (http://www.city-data.com/county/El_Dorado_County-CA.html)

5.6 COUNTY WATER CONSERVATION CODES AND LEGISLATION

5.6.1 Landscape Ordinance Implementation

The Water Conservation in Landscaping Act of 2006 (Assembly Bill 1881) required water agencies to adopt landscape water conservation ordinances by January 2010. In the absence of such ordinances, DWR's Model Water Efficient Landscape Ordinance (MWELO) serves as the requisite standard. El Dorado County is currently in the process of updating its Zoning Ordinance and as part of that process, is updating its landscape ordinance to be consistent with General Plan policy

requirements for water conservation methods that encourage the use of native, drought tolerant species, reclaimed water, and greywater systems and to ensure it remains as effective in conserving water as the MWELO. Until such time a new ordinance is adopted, the county is operating under the MWELO for all projects submitted as of January 1, 2010.

5.6.2 County Building Codes

The County enforces all state and federal building and plumbing codes.

5.6.3 2004 General Plan Policies

El Dorado County's 2004 General Plan includes a Public Services and Utilities Element (PSUE) to "insure a pattern of development which maximizes the use of existing services while minimizing the costs of providing new facilities and services." The rapid growth experienced by El Dorado County over the last two decades, and resulting strain on services, compelled the County to address public services in its General Plan policies. The PSUE addresses water conservation and water recycling in the following policies:

- Policy 5.2.1.10: The County shall support water conservation and recycling programs and projects that can reduce future water demand, develop and implement a water use efficiency program for existing and new residential, commercial/industrial, and agricultural uses, determine which uses will require recycled water and encourage all purveyors to implement BMP.
- Policy 5.2.1.12: The County shall work with EID to support the continued and expanded use of recycled water, including storage, encourage the construction of distribution lines at the same time as other utilities are installed.
- Policy 5.2.1.15: The County shall support the efforts of the County Water Agency and public water providers to retain existing and acquire new surface water supplies for planned growth and existing and planned agricultural uses including reclaimed water.

5.7 FUTURE GOALS FOR WATER EFFICIENCY BEYOND 2020

Opportunities for conservation evolve with time as operational changes are made, technology advances, customer attitudes shift towards hopefully greater program participation, and progress towards goals are achieved through implementation. As discussed in Chapter 4, target GPCD is used to project 2020 water demands for EID and GDPUD and this chapter describes how the SB X7-7 conservation goal is envisioned to be achieved. Beyond 2020, however, as EID and GDPUD service areas buildout there is the potential for a significant increase in economic activity pursuant to the 2004 General Plan and 2007 FAR General Plan Amendment which translates into a focus on additional commercial water use efficiency in the future.

EDWCA envisions that County residents will continue to benefit from the State of California striving for more efficient use including updates to the Appliance and Plumbing Fixture Codes (CCR Title 20), further refining the goals to be water efficient in the Cal Green Building Codes (CCR Title 24), future revisions to the statewide landscape ordinance as California adopts the "new norm" in native landscaping, and more recycled water codes (CCR Title 22).

Beyond these passive code savings, all the county water purveyors will continue to seek more efficiency from their operations and customers. Each agency will continue monitoring its GPCD and find the most optimal ways to invest rate revenue to maximize water savings. Future decisions on investments in conservation, recycling and other alternative sources are planned to be based on a

few common factors, which may include water savings, cost effectiveness, customer service and future regulatory requirements.

As described in Section 5.1.2, the current cost of water for local purveyors is low due to relatively low pumping and treatment costs. Currently, the cost of supply is in the range of $62/acre-foot (EID 2014). Cost effectiveness analyses prepared by the purveyors have taken the simplistic approach of assessing conservation measures based on the current low cost of supply to the cost to implement the conservation measure.

A basic review of the Table 5-4 below (acronyms used in the table are listed immediately following the table) illustrates a long list of current and potential future conservation measures that involve education, incentives or mandates for higher efficiency. For basic qualitative comparison purposes, the range of the current cost of water supply in the County is presented with the unit cost of water savings in $/AF from conservation plans completed elsewhere in Northern California. There are reasons to select a conservation measure even if the unit cost is higher than the avoided cost, namely that its customer service benefit is tied to a key incentive program or the estimated water savings are high enough to warrant the investment to meet GPCD targets or other savings goals. These goals include maximizing outdoor irrigation efficiency to minimize consumption uses in the peak summer months. In general, the majority of conservation measures appear to be more costly on a per unit basis. However, this does not take into account future new water supply avoided cost or a full comprehensive cost effectiveness analysis. Cost effectiveness is driven by future water supply costs, which are expected to be quantified as planning for new water supplies is advanced.

Table 5-4 Summary of Current or Future Potential Water Use Efficiency and Recycled Water Measures

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
NA	**Agricultural Irrigation Management System**	Education	NA	NA	Yes	✓	✓	✓	Long-standing program	Outdoor	Both
	Agricultural Canal Lining	Operations			Yes	✓	✓	✓	Long-standing program		Agency
NA	**Recycled Water Irrigation**	Mandate			Yes	✓	✓	✓	Long-standing program	Outdoor	Agency
1.1	**Prohibit Water Waste Practices**	Mandate	NA	NA	Yes	✓	✓	✓	Long-standing practice	Outdoor	Agency
1.2	**Water Loss Control Program**	Operations program to address real water losses	62	$100-$300	Yes	✓	✓	Beyond Economic Level of Leakage	Long-standing program	Utility	Agency
1.3	**Metering (with AMR benefits to**	Operations	62	$1,000 -	Yes	✓	✓		On-going installation	Utility	Agency

[3] Based on results of a sample of conservation plans prepared in Northern California. Selection of efficiency measures for inclusion in overall conservation and recycled water programs is typically based more on volume of water saved than inferences made from unit cost of water saved estimates.

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
						✓	✓				
						✓	✓				
	Conservation)			$2,000		✓	✓				
1.3	**Submetering on New Residential Accounts**	Potential Ordinance	62	$1,100 - $1,200	No	Voluntary	Voluntary	✓	Would be new Developer Requirement	Residential	Agency
1.3	**Rebates for Mixed-use Meter Conversion to Dedicated Landscape Meter**	Incentive	62	NA	Yes	✓	✓	✓	Costly program	Landscape	Agency or County
1.4	**Conservation Pricing**	Ongoing Volumetric Pricing	NA	NA	Yes	✓	✓	✓	Long-standing policy	Utility	Agency
2.1	**Public Information Program**	Education and Awareness	NA	$200-$400	Yes	✓	✓	✓	Regional Water Authority Partnership	Utility	Partner-ships
2.2	**School Education**	Education and Awareness	NA	$400-$1,000	Yes	✓	✓	✓	SacBee Partnership	Utility	County or Agency
3.1	**SF MF Surveys**	Customer Service	62	$200-$600	Yes	✓	✓	✓	Focus on Outdoor	Residential	Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
									savings		
3.1	**WaterSense Fixtures Giveaway**	Incentive	62	$50-$100	Yes	✓	✓	✓	Education Measure	Residential	Agency
3.3	**HE Clothes Washer SF MF Clothes Washer Rebate**	Incentive	62	$300-$800	Yes	✓	✓	✓	Current PG&E Program	Residential	County or Energy Utility
3.4	**HE Toilet SF/MF/CII Rebates**	Incentive	62	$90-$400	Yes	✓	✓	✓	Outdoor savings focus	Residential	County or Agency
3	**HET SF/MF - Direct Install (Low income)**	Incentive	62	$800-$900	No	✓	✓	✓	Potential Disadvantaged community funding	Residential	Agency or County
Flex Track or GPCD	**HET SF MF - Direct Install (i.e., Green City Niagara Program)**	Incentive	62	NA	No		Costly Program	✓	Direct Install programs are costly.	Residential	County or Agency
4 - Savings	**Customized Top Users Survey & Incentive Program & CII**	Incentive	62	$300-$500	Yes	✓	✓	✓		CII	County or Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
	Rebates for Inefficient Equipment										
4 - Savings	**HE Clothes Washer CII Rebate**	Incentive	62	$500-$1000	No		Full saturation long-term	✓	Higher Emphasis on Outdoor Savings	CII	County or Agency
4 - Savings	**HET CII Rebates**	Incentive	62	$400-$500	Yes		Full saturation long-term	✓	Higher Emphasis on Outdoor Savings	CII	County or Agency
4 - Savings	**HE Urinal CII Rebates**	Incentive	62	$500-$600	Yes		Full saturation long-term	✓	Higher Emphasis on Outdoor Savings	CII	County or Agency
4 - Savings	**Focused School Retrofit Program**	Incentive	62	$750-$1300	Yes	✓	✓	✓	Upgrade equipment & landscape	CII	County or Agency
4 - Savings	**High Efficiency Fixtures Direct Install (Commercial and/or Government Buildings Only)**	Incentive	62	$1,000 - $3,000	No	✓	✓	✓	Very costly for direct install programs. Emphasis on outdoor programs	CII	Agency or County

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
5	**Outdoor Water Audit – Large Landscape**	Customer Service	62	$900-$3,000	Yes	✓	✓	✓		Landscape	County or Agency
5	**Landscape Water Budgets/Monitoring- Large Landscape Dedicated Meters & Mixed Use Conversion**	Customer Service & Education	62	$1,300 - $1,400	Yes	✓	✓	✓	Consider outsourcing from WaterFluence or other vendor	Landscape	County or Agency
Only Flex-Track or GPCD	**Turf Replacement SF Landscape Conversion**	Incentive	62	$3,200 - $3,600	No	✓	✓	✓	Popular with customers. Labor Intensive creates costly program	Residential/ Landscape	County or Agency
Only Flex-Track or GPCD	**Turf Replacement MF CII Large Landscape Landscape Conversion**	Incentive	62	$7,000 - $14,000	No	✓	✓	✓	Popular program, challenging to fund even incentive for larger	Landscape	County or Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
									customers, costly to implement		
5	**WBICs Incentive Program SF MF CII Large Landscape**	Incentive	62	$850-$900	Yes (Residential)	✓	✓	✓	Not locally cost effective	Landscape	County or Agency
5	**Irrigation Efficiency (Rotating Sprinkler Nozzle) Incentive Program SF MF CII Large Landscape**	Incentive	62	$900-$1,000	Yes (Residential)	✓	✓	✓	Not locally cost effective	Landscape	County or Agency
Flex Track or GPCD	**Require Plan CII WUE Review**	Mandate	NA	NA	Yes	✓	✓	✓	County Building Code Requirement	CII	County
Flex Track or GPCD	**Require SF Hot Water On-Demand (Ordinance)**	Mandate	NA	$700-$800	No		High Cost for Retrofit, Limited Feasibilit	✓	Requires code update	Residential Indoor	Agency or County

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
							y				
Only Flex-Track or GPCD	**Gray Water Retrofits SF Rebate**	Incentive	62	$500-$700	No		Limited Feasibility	✓	Participation challenging for retrofits	Residential/ Landscape	County or Agency
Flex Track or GPCD	**Gray Water Plumbing for SF New Development (Ordinance)**	Voluntary	62	NA	Yes	✓	✓	✓	Voluntary Developer Program	Residential	County or Agency
Flex Track or GPCD	**Rebates for Flow Sensors/Hydrometers**	Incentive	62	NA	No		Limited Feasibility	✓	Auto=shutoff for irrigation leaks	Landscape	County or Agency
Only Flex-Track or GPCD	**Turf Replacement SF Landscape Conversion**	Incentive	62	$3,200 - $3,600	No		Costly Program for Customer and Utility	✓	Popular with customers. Labor Intensive creates costly program	Residential/ Landscape	County or Agency
Only Flex-Track or GPCD	**Weather Based Irrigation Controllers (WBICs)**	Incentive	62	$850-$900	Past		✓	✓	Grant funded in the past	Residential/ Landscape	County or Agency

CUWCC BMP No.	Measure Name	Type of Program	Current Local Avoided Cost of Potable Water ($/AF)	Unit Cost of Potable Water Saved[3] ($/AF)	Current Program (Yes/No)	Potential for 20x2020	Future Long Range Potential	Feasible If Additional State Funding Support	Comments	Customer Category	County or Agency Led
	Giveaway Program (and Classes) SF										
Only Flex-Track or GPCD	**Small Irrigation Hardware Incentives (Drip Irrigation and Rain Sensors)**	Incentive	62	$50-$600	Yes		✓	✓	Small savings for the cost of running program	Residential/ Landscape	County or Agency
Code Savings	**Water Conserving Landscape & Codes (not including WBICs and turf removal) SF MF CII**	Mandate	62	$100-$200	Yes			✓	Statewide Ordinance and Codes	Residential/ Landscape	County or Agency

List of Acronyms:

AMR = Automated Meter Reading
AF = Acre-Feet
BMP = Best Management Practices
CII = Commercial, Institutional, and Industrial
CUWCC = California Urban Water Conservation Council
HET = High-Efficiency Toilets
HEU = High-Efficiency Urinals
MF = Multifamily
NA = Not Available
SF = Single Family
UHEU = Ultra-High-Efficiency Urinals
UHET = Ultra-High-Efficiency Toilets
WBIC = Weather-Based Irrigation Controller

5.7.1 Long Term Future Potential Conservation Measures

EDCWA intends to undertake a water use efficiency planning effort to better quantify the long term water savings and associated benefits and costs. Enhancements beyond 2020 to the EID and GDPUD conservation programs supported by EDCWA may include some or all of the following:

- More targeted and extensive outreach to customers and local schools (e.g., increased participation in awareness programs such as the US EPA WaterSense Program and California's Save Our Water)
- Installation of Automatic Meter Infrastructure (smart) metering technology
- Provide leak alerts with customer service follow-up to support customers addressing water loss on their side of the meter
- Develop water budgets for all potable irrigated properties over 1 acre or receiving small farm irrigation metered rate
- Providing Water Use Reports to inform customers of their use compared to similar neighboring properties
- Widespread adoption of “smart” software that can connect consumers with specific programs and opportunities to reduce their water use and save on their water bills
- Making greywater systems, rain cisterns, and other water saving opportunities more easily available in the service areas
- Improved coordination with recreational facilities to reduce water use
- Pursue funding for purveyors to provide cost-effective incentives to residential property owners and businesses to increase their efficiency
- Using government owned facilities as high efficiency demonstrations and examples for customers

5.8 FUTURE PLANNING EFFORTS

It is envisioned that an EDCWA Office of Water Efficiency would provide leadership and funding to propel El Dorado County and its water purveyors to a new level of water use efficiency. Activities an OWE could perform include but are not limited to the following:

- Prepare a conservation program plan that includes cost effectiveness analysis;
- Lead the pursuit of state and federal grant funding for water conservation and efficiency projects of local purveyors and EDCWA;
- Administer conservation rebate programs for local purveyors and residents not served or underserviced by public water suppliers;
- Coordinate and lead local outreach and education efforts on water use efficiency and conservation;

- Provide conservation coordinator services to assist the efforts of local purveyors and reach residents on private wells;
- Lead efforts to improve the health and function of local watersheds to improve water supply reliability in the face of heightened risk of catastrophic fire, diminishing snowpack, and warmer temperatures; and
- Work with local agricultural leaders to develop the next generation of IMS services across the county.

The information contained in this chapter is planned for a future update based on the on-going water efficiency efforts by the purveyors and the need for EID and GDPUD to prepare their respective 2016 UWMPs.

Chapter 6. Water Supply Need

This section of the report compares existing and future water demand (with conservation) projections to existing water supplies to determine the unmet water supply need for each purveyor. Future new public water supplies, water efficiency projects and further water conservation measures discussed in Chapter 5 are then identified to meet the ultimate need for the West Slope.

As discussed in the 2007 WRDMP, the County, like the Mountain Counties region in general, has limited water supply options. Publicly developed surface water is the primary water source for the West Slope of the County. Groundwater on the West Slope is limited due to the fractured rock nature of the sub-surface geology. Consequently, the opportunity for groundwater storage or conjunctive use projects directly within the County is very limited. EDCWA is, however, currently working on a ground water banking concept north of the Lower American River in conjunction with the El Dorado Water and Power Authority's Water Reliability Project that is currently under technical, institutional and environmental review.

In this section water supplies and sources are compared to updated water demand projections. This information is presented along with suggested projects and further conservation measures to meet those demands. Water supply information is based on historic watershed hydrologic conditions and includes information for both "firm yield" and "safe yield."

Yield Definitions

The classic definition of yield for a drainage basin is the amount of water that can be supplied from that basin in a specified interval of time. The yield of a drainage basin can be expressed as the total volume over a year or some other time frame. Under this definition, yield can vary from one time period to the next due to differences in the basin hydrology.

In water resources planning it is important to know the minimum water supply that can be delivered from a water supply system. The **safe yield** of a water system is defined by the critical period of that system. The critical period is defined by the most severe drought experienced during the period of record. If a more severe drought occurs, the critical period changes and the safe yield is reduced.

In most water supply systems, temporary shortages of a reasonable magnitude can be accepted for short periods of time. The **firm yield** definition generally allows for some shortages in the dry years. Specific firm and safe yield information is provided in the following purveyor sections.

6.1 EL DORADO IRRIGATION DISTRICT

EID water supply sources are discussed in detail in Chapter 3 of the 2007 WRDMP. For this update the 2007 WRDMP supply (yield) information is supplemented with more current information appearing in EID's 2010 UWMP and 2013 IWRMP.

6.1.1 Current and Additional New Water Supply

As required for UWMPs, a multiple dry year supply reliability assessment is included in the EID 2010 UWMP based on the years presented in Table 6-1.

Table 6-1 El Dorado Irrigation District Water Year Types

Water Year Type	*Base Year(s)*
Normal Water Year	1983
Single-Dry Year	1977
Multiple-Dry Water Years	1987–1992
SOURCE: EID (2011), Table 5-1.	

Table 6-2 provides normal, dry, and multiple dry year supply yields for each existing source of supply and additional new water supplies. The "Pre-1914/Ditch" supply source has been added since the adoption of the 2007 WRDMP. The "Additional Supply" includes additional recycled water that will become available as connections are made to the Deer Creek and El Dorado Hills Wastewater Treatment Plants. Table 6-2 also provides a third water supply scenario that is not included in the 2010 UWMP, but was included in the 2007 WRDMP, that includes existing and additional supplies with 50% CVP cutbacks in the third dry year instead of 25%. This scenario reflects the water shortage condition anticipated in the 2007 WRDMP resulting from climate change and actually imposed by Reclamation in 2014. Further cutbacks to public health and safety levels are possible in 2014 but are not likely with late season precipitation. In late May 2014, the State Water Resources Control Board curtailed all post-1914 water rights, which will further impact EID's supplies.

Table 6-2 demonstrates the variability of EID's water supply portfolio. Supply for the first and third year of multiple dry years is 94% and 84% of a normal or average year, respectively. Besides hydrologic variability, lack of access to ground water or other storage options to stabilize available supplies in dry years contributes to less water supply reliability as compared to agencies with access to ground water.

Table 6-2 El Dorado Irrigation District Current and Additional Recycled Water Supply Yield in Normal and Dry Years (acre-feet)

Source	*Existing Water Supply*			*Additional Supply*			*Existing and Additional Supply*			*Existing and Additional Supply w/50% CVP Cutback*		
	Normal Year	*Year 1*	*Year 3*	*Normal Year*	*Year 1*	*Year 3*	*Normal Year*	*Year 1*	*Year 3*	*Normal Year*	*Year 1*	*Year 3*
Sly Park	23,000	22,000	15,500				23,000	22,000	15,500	23,000	22,000	15,500
USBR	7,550	5,660	5,660				7,550	5,660	5,660	7,550	5,663	3,775
P-184, Pre-1914	15,080	15,080	15,080				15,080	15,080	15,080	15,080	15,080	15,080
Permit 21112	17,000	17,000	17,000				17,000	17,000	17,000	17,000	17,000	17,000
Recycled	3,084	3,084	3,084	2,516	2,516	2,516	5,600	5,600	5,600	5,600	5,600	5,600
Pre-1914/Ditch	4,560	3,000	3,000				4,560	3,000	3,000	4,560	3,000	3,000
Total	***70,274***	***65,824***	***59,324***	***2,016***	***2,016***	***2,016***	***72,790***	***68,340***	***61,840***	***72,790***	***68,343***	***59,955***

SOURCE: EID (2011), Table 5-3; EID (2013a).

Sly Park Reservoir is operated as a 2-year water supply. Yield is not significantly affected by one dry year but as the reservoir does not refill in a second dry year the water remaining is managed to conserve water for two additional years.

The existing USBR Water Service contract is subject to Reclamation shortage policies.

The Project 184, Pre-1914 water rights are available in all water year types.

Permit 21112 water rights are available in all water year types.

Recycled water is limited to current system capacity and assumes seasonal storage will not be built. (Source EID IWRMP, Table 6-1).

Pre-1914/Ditch water rights are limited to 3,000 acre-feet in dry years.

EID manages its water supplies and meter sales based on the firm yield of its contiguous or integrated system. The current system firm yield of 63,500 acre-feet annually was established using the OASIS Model and is published in Table 2 of EID's annual Water Resources and Service Reliability Report (WRSRR). As stated in the 2013 WRSRR:

> *this number represents an overall water demand that cannot be exceeded until new supplies are added.*

The criteria used in the OASIS Model to determine firm yield originates from EID's Regulation No. 2 (later replaced by Board Policy 5010) that defines system firm yield as:

> *annual demand which the integrated water system can theoretically meet 95% of the time. In the remaining 5% of the time, shortages calculated not to exceed 20% will be allowed.*

Also stated in the 2013 WRSRR is the following:

> *Under this (firm yield) methodology, approximately 95% of the time sufficient water supply is available to meet normal water demands … [emphasis added]*

The firm yield published in the 2013 WRSRR does not include recycled water. For purposes of determining the need for additional water supplies, in **Table 6-3**, recycled water from Table 6-2 is added to the contiguous system firm yield. For safe yield, Year 3 supply for the "Existing and Additional Supply w/50% CVP Cutback" from Table 6-2 is used and does include recycled water. Year 3 represents the most severe drought conditions identified in the 2010 UWMP. The "Existing and Additional Supply w/50% CVP Cutback" scenario includes an increase in CVP supply cutback from 25% to 50% in Year 3 to reflect current 2014 water year conditions.

Table 6-3 El Dorado Irrigation District Firm and Safe Yield Supply

Source	***Existing Water Supply***		***Existing and Additional Supply w/50% CVP cutback***	
	Firm Yield	***Safe Yield***	***Firm Yield***	***Safe Yield***
Contiguous System	63,500		63,500	
Recycled Water	3,084		5,600	
Total	***66,584***	***59,324***	***69,100***	***59,955***
SOURCE: EID (2013), Table 2				

As a comparison, the firm yield supply shown in **Table 6-3** reasonably approximates the Year 1 supplies from Table 6-1 for which the 2010 UWMP states, "It is assumed that overall demands will not change during a single-dry year."

6.1.2 Potential Impacts of Climate Change

As noted in Section 2.7 the potential effects of climate change in the County could include increased water demand (e.g., due to warmer air temperatures) coupled with changes in runoff patterns and increased frequency of drought. These effects suggest a reduction of both surface and groundwater supplies, which would reduce water supply reliability.

Supply Impacts

EID's January 2008 Drought Preparedness Plan (EID 2008) includes a separate report ("A Physically-Based Approach to Drought Planning and Climate Change for the El Dorado Irrigation District" – contained in Appendix B of the Drought Plan) prepared by the Stockholm Environment Institute (SEI). SEI developed 10 climate change scenarios for the watersheds of the South Fork of the American River and the tributaries of Sly Park Reservoir using a Water Evaluation and Analysis (WEAP) decision support model developed specifically for the study watershed. The scenarios were constrained by various assumptions set forth in that report (for example, the EID model was "… prioritized to first meet instream flow requirements …"). These scenarios "… suggested that supply reliability would be reduced by around 10%."

SEI did not specifically evaluate the potential impact of climate change within El Dorado County to future demand, since it mixed such potential impacts with future demand projections associated with growth and does so through the year 2030. It is worth noting that potential impacts to water supply are also a function of legal and water rights constraints, but it is not clear that the SEI report considered water right priorities in reaching conclusions on potential impacts to EID water supplies. Further, as there is no commonly accepted definition of water supply reliability, the precise impact of a 10% reduction in "supply reliability" is not entirely clear.

The Mountain Counties Regional Report (in the draft California Water Plan Update 2013) cites a 2012 study by the Scripps Institution of Oceanography and suggests that the study used "the most sophisticated methodology to date" and included estimates that by mid-century (2060–2069) the Mountain Counties could experience an increase of 3.1–3.4°F (1.7–1.9°C) in winter temperatures and a 5.2–6.5°F (2.9–3.6°C) increase in summer temperatures (DWR 2013, citing work by Pierce et al. [2012]).

In 2013, the Geos Institute released the results of downscaled climate modeling (Geos Institute 2013) for the Sierras for the A-2 (or business-as-usual) emissions scenario (which was developed by the Intergovernmental Panel on Climate Change). The report provides specific estimates of the potential impacts for various atmospheric and hydrologic parameters, including runoff for the Northern, Central, and Southern Sierra. For the Central Sierra, potential changes in runoff are estimated at -3% to -10% (for the period of 2010 to 2029), -2% to +3% (for the period of 2030 to 2039); and -31 to +15% (for the period of 2060 to 2079). Given the considerable range of these projections, the selection of a specific estimate for a decline (or increase) in surface water supplies is difficult.

The potential decline of 2 to 3% in runoff (until 2039) in the Geos Institute report, and the decline of 10% in water supply reliability (through 2030) in the SEI report suggest that the potential for frequent or more prolonged drought conditions should be considered. Further, given the long range purposes of this analysis, consideration of more substantial declines in surface water supplies may be prudent. The existing array of water sources, conveyance systems, and treatment facilities that capture, store, treat and deliver surface water supplies in the County could be inadequate if the availability of surface water supplies is substantially reduced.

Therefore, as a conservative assumption, for the purpose of estimating the water supply needs for the West Slope under buildout conditions, this analysis incorporates a potential reduction of 10% in surface water supplies to account for the potential impacts of climate change.

Demand Impacts

Most of the research related to water resources impacts of climate change has focused on potential impacts to water supplies as they relate to changes in temperature and long-term weather patterns. The science surrounding such evaluations is still fairly new, but reveals that surface water supplies are vulnerable to increasing temperatures. Less studied are the potential impacts of climate change on water demands.

In September 2013 the Water Research Foundation, WRF (a research organization of 950 water utilities in the U.S., Canada, Europe, Australia, and Asia) released its report on Project #4263, "Changes in Water Use Under Regional Climate Change Scenarios" (http://www.waterrf.org/ExecutiveSummaryLibrary/4263_ProjectSummary.pdf). This study was conducted since "…there have been relatively few studies of the potential impacts of climate change on the demand for water…." Using downscaled projections from global climate models and employing a process for selecting climate scenarios, the report developed future ranges of increases in water demands for six water utility service areas in North America:

- Colorado Springs Utilities
- Regional Municipality of Durham (Ontario, Canada)
- Massachusetts Water Resources Authority
- Southern Nevada Water Authority
- San Diego County Water Authority
- Tampa Bay Water Authority

The study methodology looked at water uses that are sensitive to weather – essentially landscape irrigation and any agricultural production supported by these utilities. Presumably, indoor water uses remain unchanged. There is no good match among these case studies with conditions in El Dorado County, based on significant assumed geographic differences in latitude, elevation, summer rainfall and landscape patterns. Growing seasons are shorter at higher elevations and more northern latitude. Summer rainfall in some of the case studies helps to meet summer water demands. One observation from the WRF study is that "…in hot and dry climates of the West average customer demands can be 50 to 80 percent higher than in the humid East…." Further, landscape patterns – particularly total area and plant mix – are drivers of summer water demands. Even so, this provides a qualitative benchmark for water demand vulnerability in El Dorado County.

Projections were made for the years 2055 and 2090. The minimum projected mean annual increases in water demand for each of the case studies is shown in **Table 6-4** below.

Table 6-4 Minimum Projected Increases in Mean Annual Demand by Case Study

UTILITY	*YEAR 2055*	*YEAR 2090*
Colorado Springs Utilities	5.9	7.7
Regional Municipality of Durham	1.6	2.0
Massachusetts Water Resources Authority	1.7	2.5
Southern Nevada Water Authority	3.9	5.2
San Diego County Water Authority	3.5	9.2
Tampa Bay Water Authority	1.2	2.1

These are minimum projections. In several cases the maximum projections are double or triple the minimum projections, reflecting a wide range of uncertainty related to impacts.

The WRF study concludes, as it relates to impacts of climate change on specific water utilities, that "…there is no way of discerning potential impacts without undertaking the types of analyses demonstrated in the case studies." Until better information is developed specific to El Dorado County, it appears prudent to use an irrigation demand factor of 5 percent increase for long-term water resources planning within El Dorado County. The alternatives are to assume there will be no impact of climate change on future water demands, or to assume higher percentages based on a great deal of uncertainty.

While not a purpose of this report, it is clear there may be value in a specific climate change vulnerability assessment – of both supplies and demands – for the American River Basin supported by all water users reliant on such supplies. As noted in the 2007 report on climate change vulnerability by the California Urban Water Agencies, the combined effects of decreasing water supplies and increasing water demands are serious challenges for the future.

Therefore, as a conservative assumption, to estimate the water supply needs for the West Slope under build-out conditions, this analysis also incorporates a potential increase in irrigation demands of 5% to account for the potential impacts of climate change. To be conservative only half of the urban demands are assumed to be outdoor use although outdoor use is generally higher than 50% of the total. For instance, within the recycled water service area of EID where recycled water for irrigation and potable water for indoor use are metered separately, the ratio of outdoor to indoor use is 2.5:1 according EID's Administrative Regulation 1107.

6.1.3 Additional Water Supply Need

In order to determine the need for and quantity of new supply and/or further conservation as discussed in Chapter 5, a comparison of projected supply and demand is necessary. **Table 6-5** provides a comparison of firm and safe yield water supply to the updated target demand projections with conservation. As presented in Table 6-5 there is a need for additional water supply and/or further demand reduction at buildout. When comparing existing water supply with projected demand with conservation the supply deficit ranges from 32,000 acre-feet for firm yield to 39,200 acre-feet for safe yield. When considering additional supplies and 50% CVP cutbacks, the supply deficit ranges from 29,500 acre-feet for firm yield to 38,500 acre-feet for safe yield. As discussed in Chapter 5, the Urban Water Suppliers are committed to achieving conservation and it is assumed that the savings will be sustained, except for increases resulting from increased economic activity. If additional conservation beyond the 20 percent requirement can be achieved, the need for new water supplies would be less.

Table 6-5 El Dorado Irrigation District Water Supply Need with Conservation at Buildout

	Existing Water Supply		*Existing/Additional Supply w/50% CVP Cutback*	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***	***Firm Yield (acre-feet)***	***Safe Yield (acre-feet)***
Existing and Additional Recycled Supply	66,584	59,324	69,100	59,955
Demand w/ Conservation	98,534	98,534	98,534	98,534
Target Supply Need	***(31,950)***	***(39,210)***	***(29,434)***	***(38,579)***

When considering potential climate change impacts on EID water supplies and demands identified in the SEI and WRF reports, the magnitude of need increases. **Table 6-6** provides a comparison of demand with irrigation demand increased by 5% to firm and safe yield supplies reduced by 10%, except that: 1) safe yield for the "Existing and Additional Supply" scenario (Table 6-2, Year 3) is used so that CVP supply cutbacks are not overstated; and 2) recycled water is not reduced. In this scenario the firm yield deficit (with recycled water supplies) increases from approximately 29,500 to 39,300 acre-feet while the safe yield deficit increases from approximately 38,500 to 45,300 acre-feet.

Table 6-6 El Dorado Irrigation District Water Supply Need with Assumed 10% Supply Decrease and 5% Increase in Irrigation Demand Due to Climate Change

	Existing Water Supply		*Existing/Additional Supply*	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***	***Firm Yield (acre-feet)***	***Safe Yield (acre-feet)***
Existing and Additional Recycled Supply	59,926	53,392	62,190	56,216
Target Demand	101,478	101,478	101,478	101,478
Target Supply Need	***(41,533)***	***(48,087)***	***(39,288)***	***(45,262)***

Figure 6-1, Figure 6-2, and Figure 6-3 provide a graphical comparison of each water supply scenario and the range of growth projections developed in the previous section. From these figures the timing of the need for new supplies can be determined. For the Existing Water Supply scenario shown in Figure 6-1 when considering firm yield, new supply is needed as early as 2028 for the high growth scenario and as late as 2045 for the low growth scenario. *For the medium growth scenario new supply is needed by 2035.* When considering safe yield, new supply is needed as early as 2024 for the high growth scenario and as late as 2036 for the low growth scenario. *For the medium growth scenario new supply in needed by 2029.*

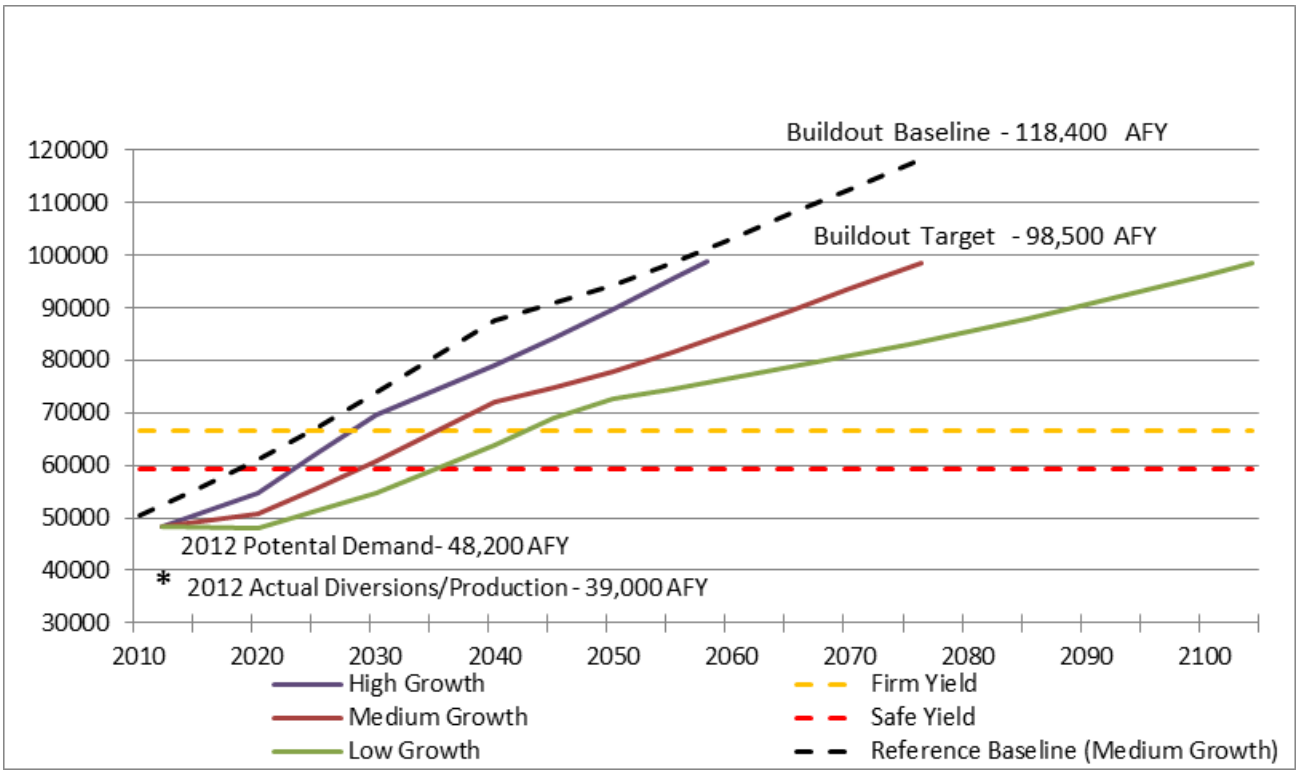


Figure 6-1 El Dorado Irrigation District Existing Supply versus Projected Demand (acre-feet)

For the "Existing and Additional Supply w/50% CVP Cutback" scenario shown in **Figure 6-2**, when considering firm yield, new supply is needed as early as 2030 for the high growth scenario and as late as 2046 for the low growth scenario. *For the medium growth scenario new supply is need by 2038*. When considering safe yield, new supply is needed as early as 2024 for the high growth scenario and as late as 2036 for the low growth scenario. For the medium growth scenario new supply is needed by 2030.

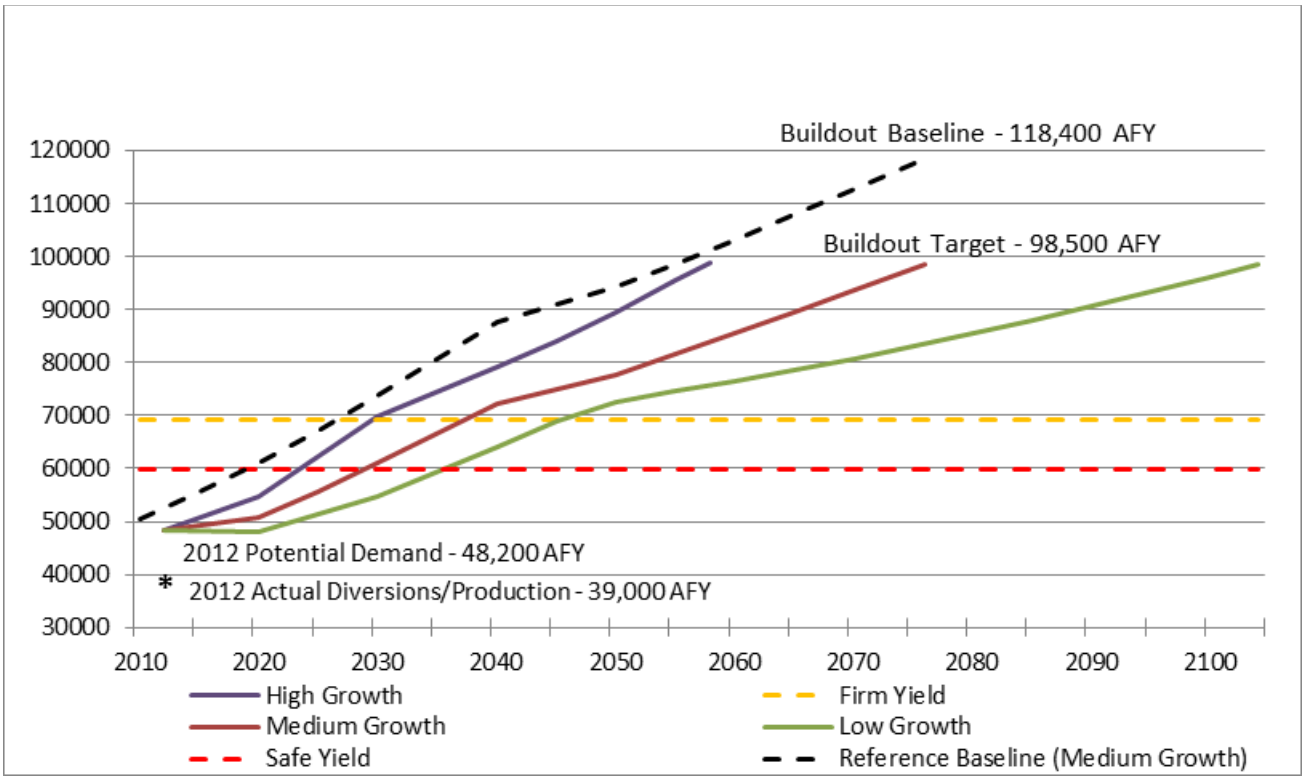


Figure 6-2 El Dorado Irrigation District Existing and Additional Recycled Water Supply w/ 50% CVP Cutbacks versus Projected Demand (acre-feet)

For the "Existing and Additional Supply w/Climate Change" scenario shown in Figure 6-3, when considering firm yield, new supply is needed as early as 2025 for the high growth scenario and as late as 2037 for the low growth scenario. *For the medium growth scenario new supply is needed by 2030.* When considering safe yield, new supply is needed as early as 2022 for the high growth scenario and as late as 2030 for the low growth scenario. *For the medium growth scenario new supply is needed by 2025.*

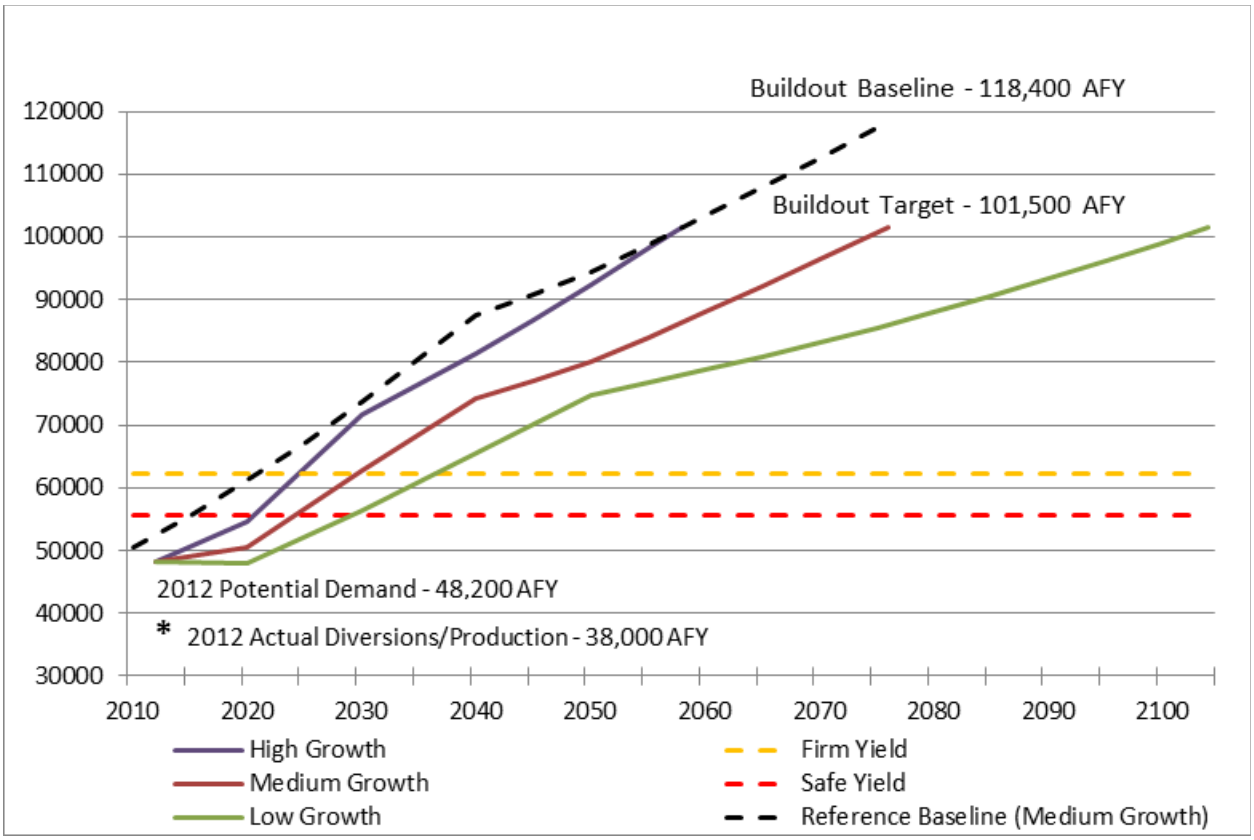


Figure 6-3 El Dorado Irrigation District Existing and Additional Recycled Water Supply versus Projected Demand w/Climate Change (acre-feet)

In order to satisfy these new water supply needs various projects were identified in the 2007 WRDMP and EID's 2013 IWRMP. The most promising of these projects are listed below.

- **Main Ditch Piping-** Piping the Main Ditch between Forebay Reservoir and the Reservoir 1 Water Treatment Plant. This project will reduce seepage and evapotranspiration losses by an estimated 1,300 acre-feet per year. This project is part of EID's plan to achieve its mandated SB X-7 water conservation goal and would not reduce the water supply need identified in this update.
- **Folsom Lake Water Supplies**—A new Water Service Sub-contract with EDCWA for unallocated USBR Central Valley Project water authorized by legislation, Public Law 101-514 (Fazio Water). Under this law, EDCWA was allocated 15,000 acre-feet from Folsom Lake to serve the future municipal and industrial (M&I) needs of the County (West Slope). This water supply is contingent on execution of a new water service contract between EDCWA and Reclamation. For planning purposes it has been assumed that this supply would be shared between EID and GDPUD. The project Environmental Impact Report analyzed a variety of allocation scenarios ranging from 15,000 acre-feet being taken by EID to 11,000 acre-feet being taken by GDPUD and 4,000 acre-feet taken by EID. Section 6.2.3 of this report identifies up to 9,400 acre-feet of additional supply need in the GDPUD service and favorable areas at buildout. GDPUD has limited new supply options and may need the full 9,400 acre-feet from this supply source. It should be noted this supply source is subject to cutbacks up to 50% in dry years under USBR's current and proposed shortage policy, as is the case in

2014. Further cutbacks to health and safety levels are also possible under Reclamation's shortage policy. It is expected that USBR Water Service Contracts will be cut back more frequently in the future under the NMFS 2009 biological opinion on the long-term operations of the CVP and State Water Project. Reclamation's recently completed informal consultation for this project with National Marine Fisheries Service (NMFS) further calls into question the certainty and timing of this supply. According to the NMFS concurrence letter dated June 2, 2014:

> "EDCWA will adhere to restrictions on diversions set forth by Reclamation and/or applicable biological opinions to ensure that the proposed project will not result in any decrease to the available cold water pool in Folsom Reservoir."

The 2009 biological opinion referenced in the concurrence letter requires improvements to Reclamation's:

> "…ability to manage the cold water pool to provide suitable temperatures for steelhead through physical and structural improvements at the dams. More specifically, improvements to the temperature control device at the EID intake structure or the construction of the most effective device for conserving cold water in Folsom Reservoir…"

- **El Dorado Water Reliability Project** (aka Supplemental Water Rights Project) — 40,000 acre-feet of new water from partial assignments of State Filed Application Nos. 5644 and 5645 by action yet to be taken by the State Water Resources Control Board on the applications and petitions filed for such water by the EDWPA, and to be stored in and diverted from SMUD's Upper American River Project in accordance with the El Dorado - SMUD Cooperation Agreement. The water would be supplied via a diversion at SMUD's Whiterock Penstock, located approximately 3 miles northeast of Placerville, and transmitted to a new treatment plant. Under the water rights application water can also be taken at Folsom Lake through existing facilities to potentially backfill CVP shortages in dry years. This water supply option is based on acquiring the water rights and paying for power foregone. This supply source is subject to cutbacks at the Whiterock Penstock in the most critically dry years under the SMUD Cooperation Agreement. Presently, there are no restrictions if taken at Folsom Reservoir.
- **Alder Dam and Reservoir** - The reservoir would have a capacity of 31,700 acre-feet and a safe yield of 11,250 acre-feet. The water would be taken at Jenkinson Lake via the Hazel Creek Tunnel, Forebay Reservoir, downstream at Folsom Reservoir, or at a new point of diversion such as the White Rock Penstock.

Additional water use efficiency projects such as more aggressive pipeline replacements, and implementation of additional water conservation measures discussed in Chapter 5 will also reduce the need for additional supplies.

6.2 GEORGETOWN DIVIDE PUBLIC UTILITY DISTRICT

GDPUD water supply sources are discussed in detail in Chapter 3 of the 2007 WRDMP. For this update the 2007 WRDMP information is supplemented with information that appears in the GDPUD 2010 UWMP and the "2009 Options to Increase Water Supply" report.

6.2.1 GDPUD Current Water Supply

As required for UWMPs a multiple dry year supply reliability assessment is included in the 2010 UWMP based on the years presented in **Table 6-7**.

Table 6-7 Georgetown Divide Public Utility District Water Year Types

Water Year Type	*Base Year(s)*
Single-Dry Year	1977
Multiple-Dry Water Years	1977
SOURCE: GDPUD (2011), Table 17	

Table 6-8 provides normal, dry, and multiple dry year supply yields and demonstrates the variability of GDPUD's water supply in dry years. Supply for the first and third year of multiple dry years is 55% of a normal or average year. Besides hydrologic variability, lack of access to ground water to stabilize available supplies in dry years contributes to poor supply reliability as compared to agencies with access to ground water.

Table 6-8 Georgetown Divide Public Utility District Existing Water Supply in Normal and Dry Years (acre-feet)

Source	*Existing Water Supply*		
	Normal Year	*Year 1*	*Year 3*
Stumpy Meadows Reservoir	20,000	11,060	11,060
SOURCE: GDPUD (2011), Table 17			

GDPUD manages its water supplies and meter sales based on the firm yield of Stumpy Meadows Reservoir. In the 2010 UWMP:

> *Firm Yield is defined as the maximum annual quantity of water that can normally be made available each year under historic hydrologic conditions. Exceptions are allowed in critical and some dry years when a deficiency may be imposed.*

Deficiencies are limited to:

> *… 10 percent for treated water and 50 percent for untreated water in critically dry years. Firm yield values reflect operational losses and water requirements. The firm yield of the 20,000 acre-foot Stumpy Meadows Reservoir is 12,200 acre-feet …*

From the "2009 Options to Increase Water Supply" report the existing safe yield of Stumpy Meadows is 10,541 acre-feet and represents maximum quantity of water that can be made available without deficiency each and every year of the historic record. Firm and safe yields are presented in **Table 6-9**.

It should be noted that firm yield is dependent on the mix of urban and agricultural demands, in that each take deficiencies at different rates. As urban uses increase as a percentage of total demand, the firm yield will necessarily be reduced or percent deficiencies will increase.

Table 6-9 Georgetown Divide Public Utility District Firm and Safe Yield (acre-feet)

	Firm Yield	*Safe Yield*
Stumpy Meadows Reservoir	12,200	10,541
SOURCE: GDPUD (2011), p. 20; GDPUD (2009), p. 19.		

6.2.2 Climate Change Impacts

Unlike EID, there has been no assessment of potential effects of climate change on the Stumpy Meadows watershed. The Stockholm Environment Institute's, "A Physically-Based Approach to Drought Planning and Climate Change for the El Dorado Irrigation District" may be applicable to Stumpy Meadows (located in the American River watershed), since the conclusions were based on "10 climate change scenarios for the watersheds of the South Fork of the American River and the tributaries of Sly Park Reservoir." Although in the neighboring Cosumnes River Watershed, EID's Sly Park Reservoir watershed characteristics are similar to Stumpy Meadows in elevation range and proximity. For these reasons the SEI study may be a reasonable surrogate for estimating the potential effects of climate change on the Stumpy Meadows watershed. As discussed in Section 5.1.2, SEI concluded that supplies "could be reduced by around 10% due to climate change."

6.2.3 Additional Water Supply Need

In order to determine the need for and quantity of new supply, a comparison of existing supply and demand is necessary. **Table 6-10** provides a comparison of firm and safe yield to adjusted Target demand projection. As can be seen in Table 6-10 there is a need for additional water supply. When comparing existing waters supply with projected Target Demand, the supply deficit ranges from 7,700 acre-feet for firm yield and 9,400 acre-feet for safe yield.

Table 6-10 Georgetown Divide Public Utility District Water Supply Need with Conservation

	Existing Water Supply	
	Firm Yield (acre-feet)	*Safe Yield (acre-feet)*
Supply	12,200	10,541
Target Demand	19,930	19,930
Target Supply Need	***(7,730)***	***(9,389)***

When considering potential climate change impacts on GDPUD water supplies using the SEI report (section 6.1.2) as a surrogate and the WRF report for increases in irrigation demand, the magnitude of need increases. **Table 6-11** provides a comparison with irrigation demand increased by 5% and firm and safe yield supplies reduced by 10%. The supply deficit ranges from 9,700 acre-feet for firm yield and 11,200 acre-feet for safe yield.

Table 6-11 Georgetown Divide Public Utility District Water Supply Need with Assumed 10% Supply and 5% Increase in Irrigation Demand Due to Climate Change

	Existing Water Supply	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***
Supply	10,980	9,487
Target Demand	20,687	20,687
Target Supply Need	***(9,707)***	***(11,200)***

Figure 6-4 provides a graphical comparison of existing supply and the range of growth projections developed in the previous section. From this figure, the timing of the need for new supplies can be determined. When considering firm yield, new supply is needed as early as 2030 for the high growth scenario and as late as 2045 for the low growth scenario. For the medium growth scenario new supply is need by 2035. These conclusions are generally consistent with those drawn in the GDPUD 2010 UWMP (p. 20).

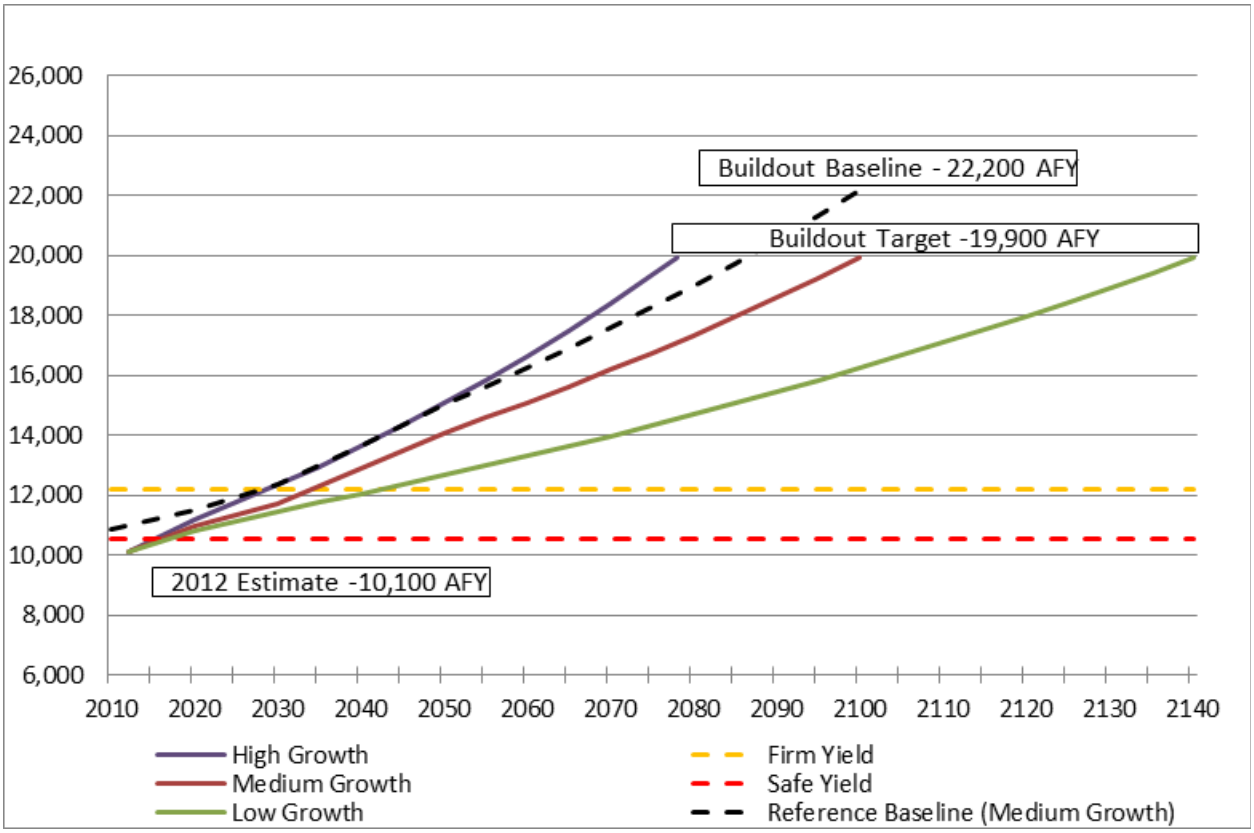


Figure 6-4 Georgetown Divide Public Utility District Existing Water Supply versus Projected Demand (acre-feet)

For the "Existing Supply with Climate Change" scenario shown in **Figure 6-5** new supply is needed as early as 2020 for the high growth scenario and as late as 2025 for the low growth scenario. For medium growth scenario new supply is needed sometime between 2020-2025.

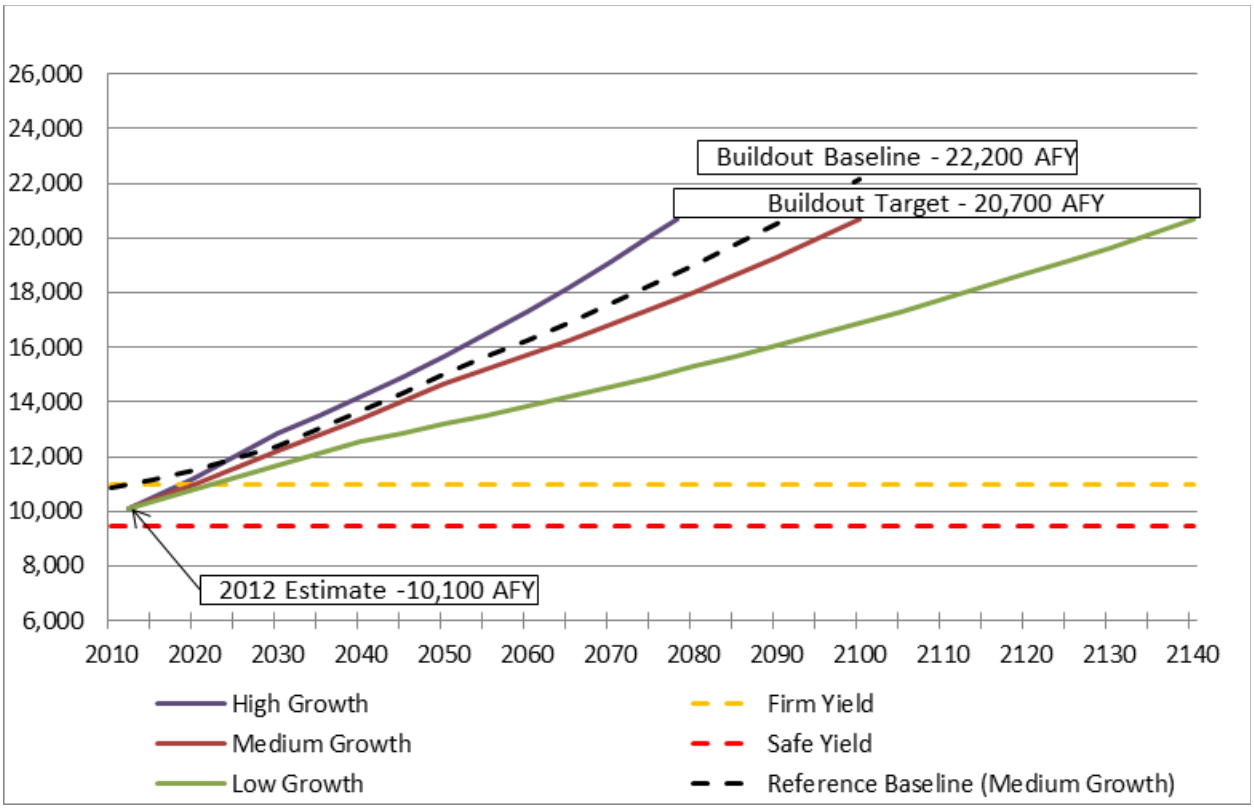


Figure 6-5 Georgetown Divide Public Utility District Existing Water Supply with Climate Change versus Projected Target Demand (acre-feet)

In order to satisfy these new water supply needs, various projects were identified in the 2007 WRDMP and the 2009 Alternatives to Increase Water Supply as follows.

- **Conveyance Canal Loss Reduction**—This option consists mainly of lining portions of unlined open canal sections. It is estimated that 670 acre-feet could be saved through reduction of conveyance losses. This project is part of GDPUD's plan to achieve its mandated SB X-7 water conservation goal and would only partially reduce the water supply need identified in this update.
- **North Fork American River Pumping (aka American River Pump Station)** - Water for this option would be made available from the proposed P.L. 101-514 Water Service Contract at Folsom Reservoir or SMUD's Upper American River Project, both of which would require an exchange with an upstream water rights holders.
  - **Folsom Reservoir Supplies** - A new Water Service Sub-contract with EDCWA for unallocated USBR Central Valley Project water authorized by legislation, Public Law 101-514 (Fazio Water). Under this law, EDCWA was allocated 15,000 acre-feet from Folsom Lake to serve the future municipal and industrial (M&I) needs of the County (West Slope). This water supply is contingent on execution of a new water service contract between EDCWA and Reclamation. For planning purposes it has been assumed that this supply would be shared between EID and GDPUD. The project Environmental Impact Report analyzed a variety of allocation scenarios ranging from 15,000 acre-feet being taken by EID to 11,000 acre-feet being taken by GDPUD and 4,000 acre-feet take by EID. As

discussed below, GDPUD has limited new supply options and may need up to 9,000 acre-feet from this supply source.

- **El Dorado Water Reliability Project** (aka Supplemental Water Rights Project) - 40,000 acre-feet of new water from partial assignments of State Filed Application Nos. 5644 and 5645 by action yet to be taken by the State Water Resources Control Board on the applications and petitions filed for such water by EDWPA, and to be stored in and diverted from SMUD's Upper American River Project in accordance with the El Dorado - SMUD Cooperation Agreement. The water would be available at Folsom Lake and would require an exchange with an upstream water rights holder. This potential supply source would be shared with EID.

- **Rubicon River Diversion**—This option consists of constructing a gravity diversion conveyance system from the South Fork of the Rubicon that would yield 10,300 acre-feet. This option would require a request to EDWPA to negotiate with SMUD under the reopener provision of the El Dorado-SMUD Cooperation Agreement and would likely require payment to SMUD for power foregone.

- **Modification to allowable demand deficiency**—This option considers alternative dry year demand deficiency criteria designed to increase the firm yield of Stumpy Meadows Reservoir. It is estimated that up to 1,000 acre-feet of increased firm yield could be achieved.

Additional water supply options are identifies in the 2009 Alternative to Increase Water Supply. Many of these projects are cost prohibitive, institutionally challenging and/or subject to third party permission and agreement by governmental entities whose favorable participation cannot be compelled. The P.L. 101-514 water supply likely represents the most feasible new supply source in the long run, even with its limitations discussed in more detail in the Section 6.1.3 of this report.

Additional water use efficiency projects such as more aggressive pipeline replacements and implementation of additional water conservation measure discussed in Chapter 5 will also reduce the need for additional supplies.

6.3 GRIZZLY FLATS COMMUNITY SERVICES DISTRICT

GFCSD water supply sources are discussed in detail in the 2012 WSDU. The following section summarizes pertinent supply information from that report for determination of future water supply need.

6.3.1 GFCSD Current Water Supply

The GFCSD water supply comes from two diversions located on North Canyon Creek and Big Canyon Creek within the Cosumnes River drainage basin. The 2012 WSDU includes a firm and safe yield evaluation of these supplies that is provided in **Table 6-12**.

Table 6-12 Grizzly Flat Community Services District Firm and Safe Yield Supply

	Yield	*Critical Water Year, Month*
Safe Yield	165	1989, October
Firm Yield	184	1961, October
SOURCE: GFCSD (2012), Tables 8 and 10.		

From the 2012 WSDU, GFCSD defines firm yield as the water supply needed meeting demand in 95 out of 100 years. Safe yield is defined as the maximum amount of water that can be made available in any year, including the driest year(s) of record.

6.3.2 Climate Change Impacts

Unlike EID, there has been no assessment of potential effects of climate change on the GFCSD water system yield. The Stockholm Environment Institute's, "A Physically-Based Approach to Drought Planning and Climate Change for the El Dorado Irrigation District" may be applicable to GFCSD since the conclusions were based on "10 climate change scenarios for the watersheds of the South Fork of the American River and the tributaries of Sly Park Reservoir." EID's Sly Park Reservoir is within the Cosumnes River (North Fork) watershed as are North Canyon and Big Canyon Creeks (Middle Fork). For this reason the SEI study may be a reasonable surrogate for estimating the potential effects of climate change on the North Canyon and Big Canyon Creek. As discussed in Section 6.1.2, SEI concluded that "supplies could be reduced by around 10% due to climate change."

6.3.3 Additional Water Supply Need

In order to determine the need for and quantity of new supply, a comparison of existing supply and demand is necessary. **Table 6-13** provides a comparison of firm and safe yield to the demands from Table 4-17. As can be seen in Table 6-13 there is a need for additional water supply. When comparing existing water supply with projected demand, the supply deficit ranges from 129 acre-feet for firm yield and 148 acre-feet for safe yield.

Table 6-13 Grizzly Flats Community Services District Water Supply Need

	Existing Water Supply	
	Firm Yield (acre-feet)	*Safe Yield (acre-feet)*
Supply	184	165
Demand	313	313
Supply Need	***(129)***	***(148)***

When considering potential climate change impacts as set forth in the SEI report the magnitude of need increases. The GFCSD demand is not increased since the service area is within a dense conifer forest at an elevation of 3,900 feet with very little outside irrigation. **Table 6-14** provides a comparison of projected demand to firm and safe yield supplies reduced by 10%.

Table 6-14 Grizzly Flats Community Services District Water Supply Need with Climate Change		
	Existing Water Supply w/Climate Change	
	Firm Yield (acre-feet)	***Safe Yield (acre-feet)***
Supply	167	149
Demand	313	313
Supply Need	***(146)***	***(164)***

Figure 6-6 and Figure 6-7 provide a graphical comparison of each water supply scenario and demand projections developed in the previous section. From these figures the timing of the need for new supplies can be determined. For the "Existing Water Supply" scenario shown in **Figure 6-6** when considering firm yield, new supply is needed by 2027. When considering safe yield new supply is needed by 2018.

Figure 6-6 Grizzly Flat Community Services District Existing Supply versus Projected Demand (acre-feet)

For the "Existing Supply with Climate Change" scenario shown in **Figure 6-7** new supply is needed as early as 2018.

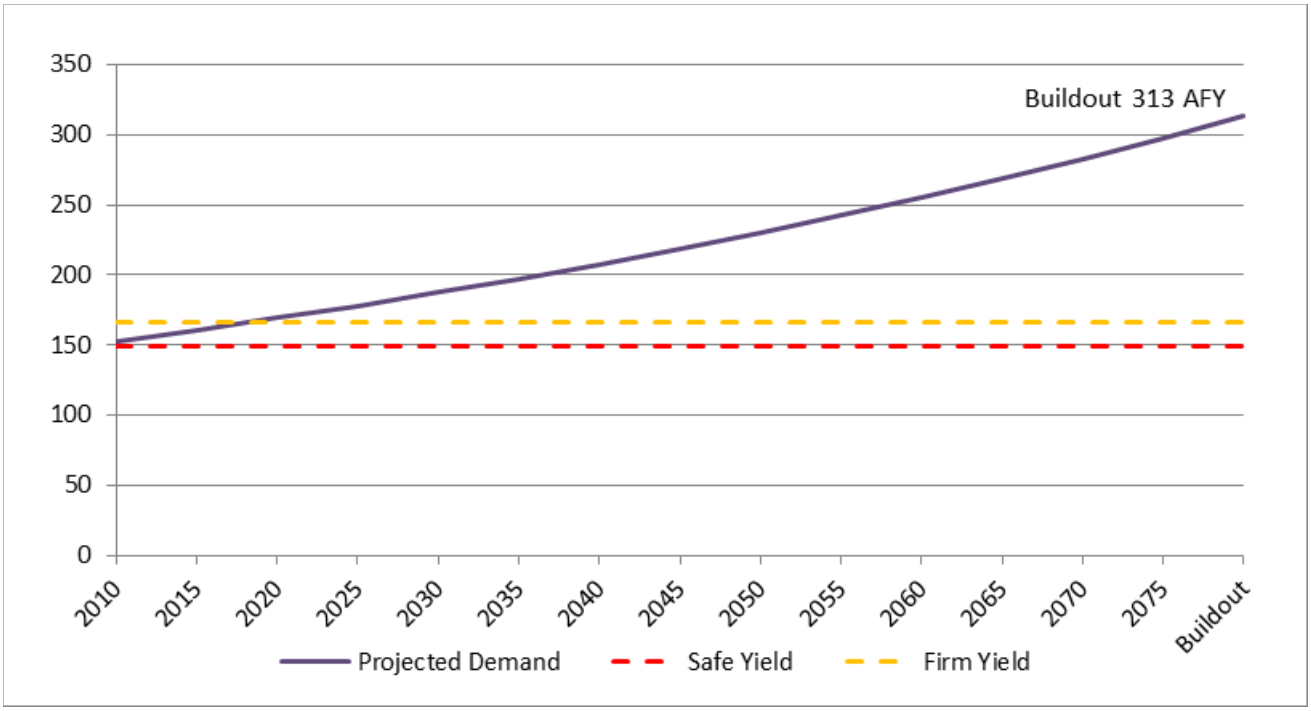


Figure 6-7 Grizzly Flat Community Services District Existing Supply with Climate Change versus Projected Demand (acre-feet)

In order to satisfy these new water supply needs, two projects are identified in the 2012 WSDU. The most promising of these projects is listed below:

- **Lincoln Hill Off-Stream Storage** - Off-stream storage reservoir with active storage of 150 acre-feet estimated to increase safe yield to 318 acre-feet annually.

Additional water use efficiency projects such as more aggressive pipeline replacements and implementation of additional water conservation measures discussed in Chapter 5 will also reduce the need for additional supplies.

Chapter 7. Conclusions

This chapter provides a summary of West Slope water supplies, demand projections and future water need. Conclusions are set forth regarding how water supply adequacy should be measured, as well as the quantity of additional water supply need under the historic hydrologic regime and under the climate change hydrologic regime considered in this update. Three additional points related to future considerations are provided at the end of this chapter.

Various metrics can be used in assessing water supply availability and adequacy. One standard, safe yield, defines the maximum amount of water that can be made available in any year, including the driest year of record. It differs from firm yield, which takes into account imposed deficiencies, based on adopted policy, during periods of drought and, therefore, defines an annual quantity that can be met in most, but not all years. Based on these differences, safe yield and firm yield are typically used in water management projections for differing purposes. Safe yield, as the maximum amount of water conceivably available based on all water year types, is more commonly used in long-range water supply planning as it is based primarily on water rights, physical constraints, and watershed hydrology. Alternatively, firm yield is used for shorter term water supply management decision-making. Both are presented below.

The “Medium Growth Rate” scenario projections are used to estimate both intermediate and long term supply needs, and those projections indicate a long-term need for additional water supplies and/or the precise timing of that need will depend on the future West Slope growth rate.

Table 7-1 focuses on ***short term water supply management using firm yield*** and generally indicates that all West Slope purveyors have adequate supplies to meet near-term demand under historic hydrologic conditions and current firm yield policies. At full buildout of the 2004 General Plan, however, approximately 58,000 acre-feet per year (AFY) of additional water supplies could be needed to meet projected demand on the West Slope when considering firm yield supplies.

Table 7-2 focuses on ***long-term planning using safe yield*** and indicates new supplies are needed for all purveyors at buildout of the 2004 General Plan, with approximately 69,000 AFY of additional water supply needed for the entire West Slope.

For EID, yield values include additional recycled water that will become available as new connections are made to the system. Urban demands in OCA not reallocated to EID and GDPUD are assumed to be satisfied with existing individual wells, except that 25% are assumed to need access to a public water supply at some time in the future either through annexations of lands into the public water supplier service area, extension of service to areas where well production is declining or wells have failed, or through transport of water by truck to existing residents that cannot economically connect to a public water supply system. Agricultural demands in the OCA’s are, however, reflected in new water supply need, as meeting this level of water demand may not be possible or sustainable with groundwater supplies.

Table 7-1 West Slope Additional Surface Water Supply Need with State Mandated Conservation – Considering Firm Yield Supply (acre-feet)

	Existing Firm Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	69,100	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	—	29,434
Georgetown Divide PUD	12,200	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	—	7,730
Grizzly Flat CSD Total	184	153	187	313	—	—	—	153	187	313	3	129
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***101,546***	**—**	**—**	***47,043***	**—**	**—**	***148,590***	***3***	***57,854***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Table 7-2 West Slope Additional Surface Water Supply Need with State Mandated Conservation - Considering Safe Yield Supply (acre-feet)

	Existing Safe Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	59,955	40,237	51,403	79,316	7,977	9,515	19,218	48,214	60,919	98,534	964	38,579
Georgetown Divide PUD	10,541	3,001	4,120	9,581	7,121	7,621	10,349	10,122	11,741	19,930	1,200	9,389
Grizzly Flat CSD Total	165	153	187	313	—	—	—	153	187	313	22	148
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***101,546***	**—**	**—**	***47,043***	**—**	**—**	***148,590***	***2,187***	***68,677***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note:1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Under a climate change hydrologic regime firm yield could look very different and could decrease to near historic hydrologic safe yield levels, confirming that safe yield is appropriate for use for long range planning purposes.

When incorporating the assumed 10% reduction in surface water supply and 5% increase in irrigation demands due to climate change, water supply need could be as high as 70,000 AFY at full buildout when considering firm yield supply as shown in **Table 7-3**. Similar information is shown in **Table 7-4** considering safe yield supplies. The new water supply need when considering safe yield at full buildout could be up to 70,000 AFY.

Table 7-3 West Slope Additional Surface Water Supply Need Considering Firm Yield and Potential Climate Change Impacts (AFY)

	Existing Firm Yield Supply	*Urban*			*Agricultural*			*Total Demand*			*Additional Water Supply Need*	
		2012	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2012*	*2030*	*Build-Out*	*2030*	*Build-Out*
El Dorado Irrigation District	62,190	40,237	52,688	81,299	7,977	9,991	20,179	48,214	62,680	101,478	409	39,288
Georgetown Divide PUD	10,980	3,001	4,223	9,581	7,121	8002	10,866	10,122	12,225	20,687	1,245	9,707
Grizzly Flat CSD Total	166	153	187	313	—	—	—	153	187	313	22	147
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	***—***	***—***	***—***	***103,777***	***—***	***—***	***48,522***	***—***	***—***	***115,291***	***1,762***	***69,703***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

Table 7-4 West Slope Additional Surface Water Supply Need Considering Safe Yield and Potential Climate Change Impacts (AFY)

	Existing Safe Yield Supply	Urban			Agricultural			Total Demand			Additional Water Supply Need	
		2012	2030	Build-Out	2012	2030	Build-Out	2012	2030	Build-Out	2030	Build-Out
El Dorado Irrigation District	56,216	40,237	52,688	81,299	7,977	9,991	20179	48,214	62680	101,478	6,464	45,262
Georgetown Divide PUD	9,487	3,001	4,223	9,821	7,121	8,002	10,866	10,122	12,225	20,687	2,738	11,200
Grizzly Flat CSD Total	149	153	187	313	—	—	—	153	187	313	39	164
Other County Areas	—	—	—	12,336	—	—	17,476	—	—	29,812	—	20,560
Western Slope Total	**—**	**—**	**—**	***103,777***	**—**	**—**	***48,522***	**—**	**—**	***152,298***	***9,246***	***74,103***

Reference Chapter 4 and 6 for detailed demand and supply projections by purveyor/area.

Note: 1) 25% of Other County Area urban demands and 100% of agricultural demands are included in the "Additional Water Supply Need." 2) 2012 agricultural demands do not include demand supplied from ground water or riparian sources.

The analyses in this report are based on projections of both demand and supply based on a variety of assumptions, as well as efforts to provide a range of the potential water supply need for each water purveyor and the West Slope as a whole. However, the 2014 Update was completed during a time of increased uncertainty with regard to impacts of both supplies and demands from continuing severe drought conditions, and unprecedented curtailment of senior water rights by the State Water Resources Control Board. In 2014 the U.S. Bureau of Reclamation also imposed severe cutbacks on its water service contracts, and earlier in the year imposed record cutbacks to its water right settlement contractors (restored to specific contract cutback limits following rains in February and March). There are also some uncertainties with regard to the potential impacts of climate change. Finally, there continue to be regulatory pressures aimed at more water entering the Sacramento-San Joaquin Delta, and such pressures threaten the reliability of upstream water supplies and water users. Considering these circumstances it is prudent to consider all options for augmenting future water supplies and achieving greater water conservation for the West Slope, and in addition explore opportunities to improve water supply conditions during prolonged droughts.

There are three additional considerations for the future addressed in this 2014 Update. The first is the future potential for additional water conservation. Urban utilities throughout California are focusing their efforts on meeting the urban water conservation mandates in SB X7-7. Conservation efforts are not likely to stop at that point, and it is likely that future conservation efforts will be pursued in El Dorado County. Chapter 5 sets forth a number of potential programs, noting that the

implementation of any of these programs will be subject to a range of feasibility measures including cost-effectiveness.

A second consideration reflects that the 2014 Update is a significant update to forecasted water demands on the West Slope and that there is value in revisiting data and key assumptions in future updates as more information becomes available (for example, the upcoming updates to urban water management plans which are due July 2016) and the impacts of future growth are experienced. We are in a time of substantial change, recognizing the emerging concerns related to climate change, the remarkable disruption of the recent prolonged economic recession which followed a time of unprecedented growth, and continued changes in water policy.

Finally, while not a purpose of this 2014 Update, Chapter 6 notes that there may be value in a specific climate change vulnerability assessment – of both supplies and demands – for the American River Basin supported by all water users reliant on such supplies. This includes all downstream water users (including environmental uses). It is clear that there is statewide interest in water supplies generated within the American River watershed. As noted in the 2007 report on climate change vulnerability by the California Urban Water Agencies, the combined effects of decreasing water supplies and increasing water demands are serious challenges for the future.

7.1 KEY FINDINGS

In summary, the key findings of the 2014 West Slope Update are listed below.

- Under short term water supply management policies, all West Slope purveyors have adequate supplies to meet near term demand under historic hydrologic conditions and current firm yield policies.
- Under long term safe yield planning assumptions, new supplies are needed for all West Slope purveyors at buildout of the 2004 General Plan, with approximately 69,000 AFY of additional water supply needed for the entire West Slope.
- The climate change hydrologic regime scenario confirms safe yield is the appropriate metric for assessing long term water supply need.
- Considering unprecedented water rights curtailment in 2014 and prolonged drought conditions, it is prudent for EDCWA and West Slope purveyors to consider all options for augmenting future water supplies and achieving greater water conservation for the West Slope.
- An American River Basin climate change vulnerability assessment supported by all water users reliant on such supplies may be valuable to understanding potential basin specific impacts.
- An EDCWA Office of Water Efficiency would provide needed leadership and funding to assist water purveyors in meeting existing and potential future State mandated water use efficiency.

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Appendix A - Completed and Pending EID and GDPUD Annexations since 1999

Table A-1 Completed and Pending EID and GDPUD Annexations since 1999

Project Name	*Project Number*	*Completion Date*	*Total Acreage*	*SFR EDUs*	*Commercial EDUs*
El Dorado Irrigation District					
Neel	96-02	10/20/1999	1.9435	1	
Jehovah's Witness	96-04	10/20/1999	4		
Hunt & Sons	95-04	05/02/2000	0.51		1
Winkelman	95-02	01/11/2001	201.78	13	
Holy trinity Church—OOA	00-09	01/23/2002	20		
Holy trinity Church—Annex	00-10	12/06/2002	20		5
Klas	00-11	03/13/2003	19.83	2	
Gilbertson	01-01	03/13/2003	1	2	
Moule	02-02	05/23/2003	0.46		3
Rescue USD	94-04	12/01/2003	10.19		0
Johnston—OOA	03-06	12/04/2003	5.4	1	
Union Mine	01-03	05/18/2004	281.4		5
Ebert	03-09	06/01/2004	5	1	
EMC	03-05	06/09/2004	1	3	
Shaw	93-05	07/26/2004	4.96	49	
Johnston—Annex	03-08	09/21/2004	11.32	1	
El Dorado Hills Station 86 (fire)	00-05	03/02/2005	10		
Spinardi	93-02	11/14/2005	72.6		
Bell Ranch	01-04	11/14/2005	116.9	113	
Silversprings—Reorganization	05-03	12/21/2005	289.56	253	
Euer Ranch—reorg	03-02	02/06/2006	5.17	460	
Fisher	04-10	02/23/2006	0.39	1	
Bannon	05-05	05/17/2006	26.02	2	
BUSD (Silver Dove School)	05-09	07/27/2006	10		6
Marble Valley—reorg	05-08	02/23/2007	2,549	398	25
Polanco—Snoline Mini Storage	02-04	05/08/2007	1.3		1
Carson Creek—reorg	03-03	05/17/2007	558	1385	
Dorkin	2006-07	05/30/2007	36.51	24	

Table A-1 Completed and Pending EID and GDPUD Annexations since 1999

Project Name	*Project Number*	*Completion Date*	*Total Acreage*	*SFR EDUs*	*Commercial EDUs*
Kregoski	2006-02	06/13/2007	28.43	2	
Garrett	2007-02	09/21/2007	11	5	
Naef—reorg	05-06	04/22/2008	18.93	2	
Visman	2007-05	09/12/2008	49.98	15	
Bass Lake Estates	2008-01	06/04/2009	7.454	36	
Summer Brook	2008-03	04/13/2010	90	34	
Campobello	2010-01	06/24/2011	32.67	49	
Alto—reorg	2009-10	08/08/2012	81.62	25	
Shingle Springs Rancheria—reorg	2012-04	12/05/2012	159.25	46	214.75
EDUHSD	2009-09	05/08/2013	214.99		35
Clarksville	2008-03	12/31/2013	11.36		28
Totals EID Annexations			***4,970***	***2,923***	***324***
GDPUD					
Buckeye	2010-02	07/12/2011	14.66	6	
Pending EID Annexations					
Seven Rivers	94-05		243.43		
La Canada—In Progress	2010-03		144.07		
Shingle Springs Montessori Sch	2012-06				
Malcolm Dixon Estates—reorg	2013-01		40		
Porter	2013-02		33		

Appendix B - 2004 General Plan/2007 WRDMP Household and Employment Projections

Table B-1 2004 General Plan West Slope Growth Projection Summary

Description	*Units*	*NS (OCA)*	*EID*	*GFCSD*	*GDPUD*	*Total*
TOTAL FOR 1999						
Residential						
Single-Family Units	Households	8,627	22,749	263	2,791	***34,430***
Multifamily Units	Households	644	4,126	—	160	***4,930***
Mobile Home Units	Households	947	1,936	15	321	***3,219***
Total Units		***10,218***	***28,811***	***278***	***3,272***	***42,579***
Employment						
Retail Employment	Employees	587	5,626	2	249	***6,464***
Service Employment	Employees	3,061	11,711	26	627	***15,425***
Other Employment	Employees	1,395	6,662	23	465	***8,545***
Total Employment		***5,043***	***23,999***	***51***	***1,341***	***30,434***
TOTAL FOR 2025						
Residential						
Single-Family Units	Households	16,832	39,690	409	3,513	***60,444***
Multifamily Units	Households	1,324	8,083	5	394	***9,806***
Mobile Home Units	Households	947	1,936	15	321	***3,219***
Total Units		***19,103***	***49,709***	***429***	***4,228***	***73,469***
Employment						
Retail Employment	Employees	2,727	14,328	2	428	***17,485***
Service Employment	Employees	8,150	24,921	27	957	***34,055***
Other Employment	Employees	4,550	15,833	23	684	***21,090***
Total Employment		***15,427***	***55,082***	***52***	***2,069***	***72,630***
TOTAL FOR CAPACITY						
Residential						
Single-Family Units	Households	27,744	53,956	2,391	8,547	***92,638***
Multifamily Units	Households	2,949	16,116	66	2,274	***21,405***
Mobile Home Units	Households	947	1,936	15	321	***3,219***
Total Units		***31,640***	***72,008***	***2,472***	***11,142***	***117,262***
Employment						
Retail Employment	Employees	5,636	22,096	6	1,753	***29,491***
Service Employment	Employees	13,713	36,085	33	3,342	***53,173***
Other Employment	Employees	8,200	23,962	27	2,269	***34,458***
Total Employment		***27,549***	***82,143***	***66***	***7,364***	***117,122***

SOURCE: ECO:LOGIC update of 2003 EPS Land Use Forecast, based on the adopted 2004 County General Plan, November 13, 2007

Approximately 500 dwelling units in EID service but within Sacramento County are not included in this housing forecast.

Household projections assume a 5% vacancy factor. Total "Dwelling Units" as defined in General Plan are approximately 5% greater.

Table B-2 2004 General Plan West Slope Urban Water Demand Forecast without Latent Demand or System Losses (acre-feet)

Description	*Units*	*NS (OCA)*	*EID*	*GFCSD*	*GDPUD*	*Total*
TOTAL FOR 1999						
Residential						
Single-Family Units	acre-feet	5,992	16,446	124	1,351	***23,913***
Multifamily Units	acre-feet	179	1,111	0	77	***1,367***
Mobile Home Units	acre-feet	658	1,377	7	155	***2,197***
Total Units		***6,829***	***18,934***	***131***	***1,583***	***27,477***
Employment						
Retail Employment	acre-feet	67	577	1	46	***691***
Service Employment	acre-feet	351	1,369	13	115	***1,848***
Other Employment	acre-feet	160	691	12	86	***949***
Total Employment		***578***	***2,637***	***26***	***247***	***3,488***
TOTAL FOR 2025						
Residential						
Single-Family Units	acre-feet	12,076	29,417	172	1,700	***43,365***
Multifamily Units	acre-feet	399	2,360	2	191	***2,952***
Mobile Home Units	acre-feet	679	1,377	6	155	***2,217***
Total Units		***13,154***	***33,154***	***180***	***2,046***	***48,534***
Employment						
Retail Employment	acre-feet	398	1,819	1	79	***2,297***
Service Employment	acre-feet	1,189	3,791	13	176	***5,169***
Other Employment	acre-feet	664	2,334	11	126	***3,135***
Total Employment		***2,251***	***7,944***	***25***	***381***	***10,601***
TOTAL FOR CAPACITY						
Residential						
Single-Family Units	acre-feet	19,272	39,937	1,004	4,137	***64,350***
Multifamily Units	acre-feet	933	4,708	28	1,101	***6,770***
Mobile Home Units	acre-feet	658	1,377	6	155	***2,196***
Total Units		***20,863***	***46,022***	***1,038***	***5,393***	***73,316***
Employment						
Retail Employment	acre-feet	815	2,771	3	322	***3,911***
Service Employment	acre-feet	1,982	5,369	14	614	***7,979***
Other Employment	acre-feet	1,185	3,426	11	417	***5,039***
Total Employment		***3,982***	***11,566***	***28***	***1,353***	***16,929***

Table B-2 2004 General Plan West Slope Urban Water Demand Forecast without Latent Demand or System Losses (acre-feet)

Description	*Units*	*NS (OCA)*	*EID*	*GFCSD*	*GDPUD*	*Total*
SOURCE: ECO:LOGIC update of 2003 EPS Land Use Forecast, based on the adopted 2004 County General Plan, November 13, 2007						
Approximately 500 dwelling units in EID service but within Sacramento County are not included in this housing forecast.						
Household projections assume a 5% vacancy factor. Total "Dwelling Units" as defined in General Plan are approximately 5% greater. Demands therefore, do not included latent demand						
Demands do not include system losses.						

Appendix C - 2007 Floor Area Ratio General Plan Amendment Employment Forecast

Table C-1 Summary of Nonresidential Forecasts by Market Area

Market #	*Market Area*	*Existing Conditions*	*Adopted General Plan*		*General Plan Amendment*	
			Total Jobs			
			2025	*Buildout*	*2025*	*Buildout*
1	El Dorado Hills	4999	31092	40846	31092	81501
2	Cameron Park/Shingle Springs/Rescue	5395	11374	25818	11374	55682
3	Diamond Springs	3584	7787	10600	7787	30141
4	Placerville/Camino	11025	14810	18701	14810	33302
5	Coloma/Gold Hill	640	791	2572	791	5705
6	Pollock Pines	1313	1676	2379	1676	4144
7	Pleasant Valley	565	828	1013	828	1940
8	Latrobe	137	307	3709	307	9901
9	Somerset	334	501	1632	501	2883
10	Cool/Pilot Hill	364	986	2783	986	4922
11	Georgetown/Garden Valley	1274	1495	5877	1495	13263
13	American River	772	798	945	798	1730
14	Mosquito	32	185	247	185	429
TOTAL		30434	72630	117122	72630	245543

SOURCE: EDC (2006b) Table 4.0-1, Page 4.0-4

El Dorado Irrigation District

Board Policies (BP)
and
Administrative Regulations (AR)

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El Dorado Irrigation District

BP 0000 MISSION, GOVERNANCE, STANDARDS, ACCOUNTABILITY

BP 0010 District Mission Statement

Adopted: December 11, 2006

The El Dorado Irrigation District is a public agency dedicated to providing high quality water, wastewater treatment, recycled water, hydropower, and recreation service in an environmentally and fiscally responsible manner.

Strategic goals include:

- Maintain continuous, dependable water service and a clean, healthy water supply
- Provide quality wastewater collection, treatment and disposal service
- Provide recycled water in geographic locations where feasible
- Generate hydro-electric power, when appropriate, and according to the FERC requirements
- Ensure opportunities for quality recreation
- Ensure District operations consistently meet all appropriate environmental and other regulations

BP 0020 Professional Governance Standards

Adopted: December 11, 2006

The El Dorado Irrigation District Board of Directors believes that to govern effectively, individual Board members must work with the General Manager, the General Counsel, and with each other to ensure that District operations meet the standards of the District Mission Statement.

This team approach recognizes the separate governance role of the Board and allows the team to assume collective responsibility for building unity and creating a positive work environment for the benefit of the District's customers and employees.

BP 0030 Accountability

Adopted: December 11, 2006

The El Dorado Irrigation District Board of Directors is committed to ensuring that the District is accountable to the public it serves. A General Manager and General Counsel accountability report is an appropriate way to inform the community about the state of the District. The process of developing and maintaining a General Manager and General Counsel accountability report gives the District staff opportunities to review achievements, identify areas for improvement, enlist community support, and establish a vision for the future.

The components of the General Manager and General Counsel accountability report will be established annually to be evaluated the following year during the Board conducted performance evaluation process.

AR 0031 Emergency Response

Approved: December 12, 2006

The District will conduct emergency operations in accordance with EID Board Resolution No. 2006-075 (Adoption of the National Incident Management System) or its successor and pursuant to the EID Emergency Response Plan.

BP 0040 Standards of Behavior

Adopted: December 11, 2006

El Dorado Irrigation District is committed to providing high-quality services with respect and courtesy to customers and co-workers alike.

The General Manager is responsible for creating and enforcing standards of behavior that reflect compliance with all applicable laws and regulations, respects diverse views and expectations, and is committed to open, fiscally sound measures and Board directed guidelines to achieve performance excellence.

The General Counsel is responsible for ensuring the District's legal positions are represented and that District business is conducted in compliance with all applicable laws and regulations.

AR 0041 Code of Ethics for Standards of Behavior

Approved: December 12, 2006

Employees shall provide services with integrity and are expected to maintain high standards in their working relationships. These standards include the following:

- **Obey the law**. We will conduct our business in accordance with all applicable laws and regulations. Compliance with the law does not comprise our entire ethical responsibility. Rather, it is a minimum, absolutely essential condition for performance of our duties.

- **Promote a positive work environment that supports doing what is right, respecting others, and performing to the best of our abilities**. While everyone who works for the District must contribute to the creation and maintenance of such an environment, our executives and management personnel assume special responsibility for fostering a work environment that will bring out the best in all of us. Supervisors must be careful in words and conduct to avoid placing, or seeming to place, pressure on subordinates that could cause them to deviate from acceptable ethical behavior.

- **Work safely: Protect yourself, your fellow employees, and District facilities**. We are committed to providing a drug-free, safe, and healthy work environment. Each of us is responsible for compliance with environmental, health, and safety laws and regulations. Observe posted warnings and regulations. Report immediately to the appropriate management any accident or injury sustained on the job or any safety concern.

- **Make accurate public disclosures**. We must assure that all disclosures and other public communication are full, fair, accurate, and timely and understandable.

- **Avoid conflicts of interest**. Avoid any relationship, influence, or activity that might impair or even appear to impair your ability to make objective and fair decisions when performing your job.

- **Accountability**. Each employee is responsible for adherence to the standards of conduct set forth in this Code and for raising questions if the standards are not being met. Violations of this

Code are cause for corrective action, which may include disciplinary action.

El Dorado Irrigation District

BP 1000 BOARD POLICY PURPOSE AND ENFORCEMENT

BP 1010 Introduction

Adopted: December 11, 2006

The El Dorado Irrigation District is governed by a five-member Board of Directors pursuant to Irrigation District Law (Water Code §§20500, et seq.). The members are elected to four-year terms on a staggered basis from five geographically identified divisions in the service area. At least every five years the division boundaries are re-evaluated to ensure population is equally distributed among the divisions and the other criteria specified by California Election Code section 22000(a) are considered. The Board sets policy for the District and provides leadership on behalf of District customers.

The Board of Directors establishes the Board meeting schedule, location and time of the meetings.

The Board hires, may terminate, and directs the General Manager and the General Counsel pursuant to their separate employment contracts. All other employees of the District, except for the legal office, work under direction of the General Manager.

AR 1010 El Dorado Irrigation District

Approved: December 12, 2006

The El Dorado Irrigation District is a public agency located in El Dorado County, California, with headquarters in the City of Placerville. Included in the District's service area are the communities of Cameron Park, Camino, Diamond Springs, El Dorado, El Dorado Hills, Placerville, Pollock Pines, Shingle Springs, Rescue, and many smaller communities.

EID is an irrigation special district organized in 1925 under the Irrigation District Law (Water Code §§20500, et seq.). Its original purpose was to ensure domestic water for Placerville and irrigation water for local farmers. The District now provides water, wastewater treatment, recycled water, hydroelectric and solar power generation, recreation, and water-use efficiency services.

The Board meets on the second and fourth Mondays of every month, beginning at 9:00 am, in the Board Room of the Harry J. Dunlop Customer Service Building on Mosquito Road in Placerville. Public participation at Board meetings is recognized as an essential part of representative government and the Board encourages public comments in the decision-making process.

BP 1020 Purpose

Adopted: December 11, 2006
Revised: January 28, 2013

The purpose of these Policies is to set forth the role of the Board of Directors and the responsibilities of the General Manager and the General Counsel in carrying out the terms and conditions under which El Dorado Irrigation District provides services to its customers.

The Policies are to direct the operations and administration of the District in a way that ensures that services are provided at the lowest possible cost, consistent with District goals and objectives, and are generally equitably distributed among those benefited, or by other specific policy of the Board.

The Board of Directors has the authority to interpret these Policies and to rule on any point of contention that is not specifically covered herein.

The Policies, as currently amended, are maintained on file at the District's headquarters on Mosquito Road in Placerville. Copies, in either standard format or alternative formats suitable for persons with disabilities, are available to the public upon request.

BP 1030 Amendments

Adopted: December 11, 2006

The Board of Directors may amend the Policies by an affirmative vote of at least three members at a publicized public hearing.

BP 1040 Restriction, Wrongful Acts, and Enforcement

Adopted: December 11, 2006

The District is authorized under California statutes to establish and enforce its Board Policies and to enforce certain laws and restrictions referenced herein. Civil Code Sections 1882-1882.6 permits the District to file a civil action for damages for the unauthorized taking of District water, illegal or unauthorized connections to any facilities owned or used by the District to provide services, and tampering with District property. The statutes also permit the recovery of three times the amount of actual damage, plus the costs of suit and reasonable attorneys' fees. Numerous Penal Code Statues criminalize similar misconduct.

Any violation of these Policies shall be cause for the Board of Directors or their designee to apply such penalties as may be provided by law, file a criminal complaint, or to take any other action as deemed appropriate, including the discontinuance of drinking water, recycled water, wastewater, and recreation services.

At recreation facilities owned, operated, or leased by the District, EID's recreation staff are authorized and empowered to enforce District rules and regulations, as well as state and local codes, relating to the safe use of the facilities. Staff may issue citations for violations or eject or exclude any violator as specified in the Park Operations Manual, pursuant to BP 10000 Recreation.

AR 1040 Wrongful Acts Subject to Penalties

Approved: December 12, 2006

The following acts are considered violations of state law and are subject to penalties imposed by the District and/or criminal authorities.

No person shall:

a) divert or cause to be diverted any District water, wastewater, or recycled water flow without authorization or consent of the District;

b) make or cause to be made any connection or re-connection to facilities owned or used by the District in order to obtain water, wastewater, or recycled water service without authorization or consent of the District;

c) prevent any meter from accurately performing its measuring functions by tampering or any other means;

d) tamper with any property or facilities owned or used by the District to provide potable water service, recycled water service, or wastewater service;

e) use or receive direct benefit from the District's facilities with knowledge or reason to believe that the diversion of water or the tampering or unauthorized connection with District water or wastewater facilities existed at the time of such use, or that the use or receipt of benefit was without authorization or consent of the District; or

f) cause damage to any water, sewer, or recycled water facility or related appurtenances above or below ground through by carelessness or neglect.

AR 1041 Water Waste Prohibition

Approved: February 26, 2008
Revised: August 27, 2008
Revised: March 2, 2009
Revised: March 31, 2014

The District prohibits uses of District-supplied raw, potable, and recycled water that constitute water waste. The objective is to encourage reasonable use of water supplies by prohibiting all intentional or unintentional water waste, including the use of wasteful equipment or techniques, when a reasonable solution or alternative is available. See AR 5011 for additional water waste regulations that apply during declared drought conditions.

AR 1041.1 Definition of Water Waste

Any of the following acts or omissions, whether willful or negligent, shall constitute the waste of water.

A. Causing or permitting water to discharge, flow, or run to waste into any gutter, sanitary sewer, water course, or storm drain, or to any adjacent lot, from any tap, hose, faucet, pipe, sprinkler, or nozzle. In the case of irrigation, "discharge," "flow," or "run to waste" means that the earth intended to be irrigated has been saturated with water to the point that excess water flows over the earth to waste. In the case of washing, "discharge," "flow," or "run to waste" means that water in excess of that necessary to wash, wet or clean the dirty or dusty object, such as an automobile, sidewalk, or parking area, flows to waste.
B. Allowing water fixtures or heating or cooling devices to leak or discharge.
C. Maintaining ponds, waterways, decorative basins, or swimming pools without water recirculation devices.
D. Backwashing so as to discharge to waste swimming pools, decorative basins, or ponds in excess of the frequency reasonably necessary to maintain the clarity and cleanliness of the water.
E. Operation of an irrigation system that applies water to an impervious surface or that is in disrepair.
F. Use of a water hose not equipped with a control nozzle capable of completely shutting off the flow of water except when positive pressure to leave the hose on is applied.
G. Irrigation of landscaping during rainfall.
H. Overfilling of any pond, pool, or fountain that results in water discharging to waste.
I. Failure to comply with any conservation practices during a District-declared drought.

AR 1041.2 Exceptions

Notwithstanding AR 1041.3, the following acts do not constitute the waste of water.

A. Flow resulting from temporary water supply system, water fixture, or heating/cooling device failures or malfunctions lasting 48 hours or less.
B. Flow resulting from firefighting or routine inspection of fire hydrants or from fire training activities.
C. Water applied to abate spills of flammable or other hazardous materials, where water is an appropriate abatement methodology.
D. Water applied to prevent or abate imminent health, safety, or accident hazards when alternate methods are not available.

AR 1041.3 Informing District Customers of the Regulation

The District shall inform customers at least once a year of the water waste regulation, either through a special item in the newsletter that accompanies each two-month bill or as a separate insert in the bill.

AR 1041.4 Enforcement

To enforce this regulation, District personnel will follow the process outlined in AR 1041.5, *Penalties for Violation of the District's Water Waste Regulation*.

AR 1041.5 Penalties for Violation of the District's Water Waste Regulation

District personnel may report or receive reports of violations of AR 1041, which prohibits uses of raw, potable, and recycled water that result in waste. Violations will be penalized as follows:

- First reported violation of any provision of AR 1041: the District shall issue to the customer a written warning notice of and direction to cease and desist violation.
- Second reported violation of any provision of AR 1041: the District shall levy a fine on the violator's bill of $100, or 20% of the two-month water bill, whichever is greater.
- Third reported violation of any provision of AR 1041: the District shall levy a $200 fine on the violator's bill. If all three violations occurred within a 12-month period, the District may elect to discontinue service of the water supply that has been wasted. If service is discontinued due to AR 1041 violations, the District will charge a reconnection fee of $100 to restore service after abatement of the violation and payment of the fine.

Restoration of service may occur without prejudice to any party's position pending appeal under AR 1041.6.

Fourth reported violation of any provision of AR 1041: the District shall levy a $500 fine on the violator's water bill. If all four violations occurred within an 18-month period, the District may elect to discontinue service of the water supply that has been wasted. If service is discontinued due to AR 1041 violations, the District will charge a reconnection fee of $100 to restore service after abatement of the violation and payment of the fine. Restoration of service may occur without prejudice to any party's position pending appeal under AR 1041.6.

Unpaid fines are subject to the property lien procedure of Water Code section 25806.

AR 1041.6 Appeal and Hearing

A customer may appeal any notice of water waste violation by filing a written request for a hearing with the District's General Counsel within seven calendar days after receiving the notice. The appeal shall identify the property and state the grounds of appeal together with all material facts in support of it. Appeals will be heard by the General Counsel or her or his designee. The filing of a request for hearing shall stay any consequences for violation until the appeal is decided.

When a hearing is requested, the hearing officer shall send written notice to the appellant by certified mail, return receipt requested, stating the time and place of the hearing. Hearing procedures shall be informal, but serve the goals of proper decorum and the pursuit of the truth. At the hearing, the appellant shall have the right to present information as to the alleged facts upon which the notice was issued, and as to any other facts that may aid the hearing officer in determining whether a violation has occurred and, if so, the appropriate consequences.

Within ten calendar days after the close of the hearing, the hearing officer shall issue a written determination either upholding, reversing, or modifying the notice of water waste violation, and briefly stating the reasons that support the determination. Failure to issue a written determination within ten calendar days shall automatically reverse the notice of water waste violation. The hearing officer's written determination shall constitute the District's final action.

AR 1050 State Criminal Laws Protecting Public Water Supplies and Wastewater Systems

Approved: December 12, 2006

In relation to the protection of public water supplies, many offenses are misdemeanors under the laws of California, and offenders may be criminally prosecuted. Such offenses include but are not limited to the following: stealing water, interfering with or damaging water tanks, pump stations, and pipelines; and discharging or depositing substances into the public wastewater system.

AR 1060 Unauthorized Use of Water

Approved: December 12, 2006

No customer may use water on any tract of land not included in his or her application for service. Each parcel must be served by a separate meter.

AR 1070 Unauthorized Regulation of Water or Wastewater Flow

Approved: December 12, 2006

No person except authorized employees of the District is permitted to turn on or turn off water at any connection or to open or close any gate valve or other device that regulates the flow or measurement of water, wastewater, or recycled water.

AR 1080 Resale of Water or Wastewater Service

Approved: December 12, 2006

No retail customer shall enter into any contract or agreement to resell any portion of the water or wastewater service to which he or she is entitled without the specific authorization of the Board.

The owner of a mobile home park, trailer park, apartment building, or other multi-unit structure or development may install a separate meter for each unit and may supply water purchased from the District to occupants of each such unit under the following conditions:

a) the rate charged shall not exceed the commodity rate charged by the District during the same period;

b) the District has the right to examine books and records of the property owner, upon reasonable notice, to ensure that the amount charged does not exceed the limits of these Policies; and

c) the property owner shall comply with all state, federal, and local provisions of law applicable to the sale, distribution, and use of water.

AR 1090 Liability for Maintenance or Damages

Approved: December 12, 2006
Revised: April 1, 2013

The District assumes no responsibility for the delivery of water or disposal of wastewater through private pipelines or for any damage resulting from operation of such pipelines. The property owner is solely responsible for maintenance and repair of water and wastewater lateral pipelines connecting to the District's system. For water lateral pipelines, the connection between the water main and the meter box, including the water meter, are owned and maintained by the District. Wastewater service lateral responsibilities are more fully set forth in AR 6020.

AR 1110 Service Interruptions

Approved: December 12, 2006

The District shall make every reasonable effort to notify customers in advance of any interruption in water supply or wastewater collection, outside of emergency circumstances. However, the District disclaims any liability for damages sustained to customer-owned water or wastewater facilities such as booster pumps, water heaters, or solar equipment. The District also disclaims responsibility for damages to private property, privately owned plumbing and other fixtures that may result from an interruption of water supply or wastewater collection or change in water pressure.

AR 1120 Right of Inspection and Access

Approved: December 12, 2006

Employees and agents of the District shall have unrestricted access to all premises, including private property, as necessary or desirable during such hours and upon such notice as is reasonable under the circumstances, to inspect facilities for the purpose of protecting the District, its customers, and public health and to enforce the provisions of these Policies, as necessary.

AR 1130 Public Access to Customer Records

Approved: December 12, 2006

The names, addresses, and any other data collected by the District regarding customers or property owners within the District, including computerized geographical information and project development files, shall not be available to the public except to the extent required by law.

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El Dorado Irrigation District

BP 2000 MANAGEMENT OF THE DISTRICT

BP 2010 Concepts and Roles in District Management

Adopted: December 11, 2006
Supersedes:

The General Manager and General Counsel are appointed by the Board of Directors and serve at the Board's pleasure. The General Manager employs department heads and management personnel to assist in the effective management of the District. All units, departments, programs, and services make up the District's management system and are organized so that appropriate decision-making takes place at various levels in accordance with Board Policies and Administrative Regulations.

AR 2010 Management Functions

Approved: December 12, 2006

District's management function is to:

- provide leadership in enhancing the quality of service provided to District customers and the community;
- ensure employee commitment to a customer-oriented approach in delivering services;
- establish a framework of District responsibility to make sure each department fulfills its role in accomplishing the District's mission;
- establish and implement appropriate budgeting oversight;
- implement and support District programs with the goal of providing high-quality, cost-efficient services;
- effectively manage the day-to-day operations of the District's various departments, programs, and projects;
- respond to local, state, and federal mandates; and
- evaluate procedures, practices, and personnel to ensure the most efficient and effective operation of the District.

AR 2011 Organization Chart/Lines of Responsibility

Approved: December 12, 2006

The General Manager or his/her designee shall maintain up-to-date District organizational charts that clearly designate lines of primary responsibility and the relationships among all District positions.

The organizational charts shall clarify working relationships and functions. They are not intended to indicate all lines of communication and cooperation that must exist to create effective and efficient operation of the District.

Supervisors and managers shall ensure that all personnel understand to whom they are responsible and for what functions.

AR 2012 Staff Organization

Approved: December 12, 2006

The General Manager shall organize District staff in a manner best suited to achieve success, in order to implement Board policies.

The Board directs the General Manager to strive to ensure a respectful, responsive, and resourceful organizational culture that:

- values individuals;
- promotes effective listening and communications skills;
- creates a climate of trust through honesty, openness, fairness, and inclusion;
- responds whenever possible to employee training needs, whether they be organizational, departmental, interdepartmental, or individual;
- provides a collaborative environment to facilitate conflict resolution, improve efficiencies, and accommodate change;
- encourages individuals to solve problems and take prudent risks; and,
- recognizes employees for good work.

AR 2013 Temporary and Part-Time Personnel/Consultants

Approved: December 12, 2006

The General Manager may hire consultants, part-time or temporary employees to assist or advise with the administration and duties of the District, subject to the adopted purchasing practices of the District.

Expenditures of funds for the hiring of consultants shall not exceed the funds budgeted by major categories for such purposes in the annual budget or revisions of the annual budget of the District.

AR 2014 Cell Phone and Smart Phone Allowance and Use

Approved: August 11, 2010
Revised:
Revised:

There is a cell phone and smart phone reimbursement program for District employees who use their personal cell and smart phones for District business purposes. The program recognizes that cell and smart phones enhance District communication, improve employee productivity, and are a key component of the District's communication network during emergencies.

AR 2014.1 Definition of Cell Phone and Smart Phone

A cell (mobile) phone is a long-range, portable electronic device for personal telecommunications. In addition to the standard voice function of a land-line telephone, cell phones can support other services such as short message service for text messaging, email, Internet access, and multimedia message service for sending and receiving photos and video. Most current cell phones connect to a cellular network of base stations, which are in turn interconnected to the public switched telephone network.

A smart phone is any electronic handheld device that integrates the functionality of a cell phone with a personal digital assistant (PDA) or similar information appliance. "Smart" functionality typically includes a miniature keyboard and/or a touch screen, and features may include Internet and email access, scheduling software, contact management, and the ability to read business documents in a variety of formats such as Adobe PDF and Microsoft Office. Connectivity to these features may require the purchase of additional software, which is used to synchronize the smart phone with data such as email and calendars.

In addition to the purchase price of a cell phone or smart phone, these devices require a service or calling plan that defines expected use over a period of time and is paid in monthly installments that vary, but typically include a fixed access charge and air time and data charges.

AR 2014.2 Scope

The program applies to all District employees.

AR 2014.3 Program

Under current government regulations, all personal use of and any reimbursement for personal use of District-owned or provided cell phones must be treated as taxable income. Administration of the program will be conducted in accordance with Standard Operating Procedure *Establishment and Payment of Cell Phone*

and Smart Phone Allowance or its successor. Program administration is cross-functional and assigns responsibilities as follows:

The General Manager will determine the amount of each type of allowance and adjust periodically as required.

The Director of Information Technology will recommend the cost estimates to set the allowance amounts for approval by the General Manager.

The Director of Human Resources will administer program allowance payments to approved employees through the Payroll process.

The Director of Finance will administer the payment of approved reimbursements through the Accounts Payable process.

Each Department Director will determine the need for an employee to receive an allowance and review their employee's ongoing program participation on an annual basis or other suitable frequency as determined by District business needs.

Four approaches for the use and payment of cell phones and related costs are authorized. An employee may be authorized for one approach. Options B and C below provide an allowance for business use of an employee provided cell phone and fall under IRS Regulation 1.62(c) as a non-taxable business expense reimbursement.

A. District-Owned Phones

The cell and smart phones should be purchased, maintained, and supported through cost allocation to the department where the employee is assigned if the cell phone is used for 100% District business, including all incoming and outgoing calls and/or data usage, and no personal use (with the exception of life safety situations).

The IT Department will perform the following controls on District-owned cell and smart phones.

As required

- Manage user addition, change, and disconnect requests as well as service plans and features with the cellular carrier; maintain the authorized inventory.

  Monthly

  • Validate summary bills and sub-accounts against the authorized inventory of District-owned devices, phone numbers, service plans, and features.

  • Analyze summary fixed access charges, air time charges, data charges, and other charges and credits.

Annually

- Coordinate collection of requirements, address any needed changes, and update related documentation.
- Analyze requirements and recommend standard devices, a service provider, and service plans that provide the best value to the District.

Supervisors will perform the following controls for District-owned cell and smart phones used in their groups.

As required

- In all instances of shared device use, maintain a log—including the assigned user and the time and date of possession of the device—to ensure accountability.
- Review and approve requests to add, modify, or remove District-owned cellular devices and services prior to submitting to the IT Department for action.

Monthly

- Review cell phone invoices for appropriate and applicable use.

Department directors will perform the following controls for District-owned cell and smart phones used in their departments.

Annually

- Review the continuing need for an employee to receive a District-provided device, based on District business need.

B. Employee-Owned Smart Phones

If the smart phone is used for a mix of District and personal use, the employee may request department head approval for an allowance, which will be used to offset the costs incurred by the owner of the phone, including the data plan. The employee is responsible for all costs incurred.

The IT Department will perform the following controls on authorized employee-owned smart phones that comply with published District standards.

As required

- Manage the addition, change, and disconnect requests to the District email system.
- Program the phone so that it can securely and reliably access District mobile device services. This may include the installation of additional software to secure data should the device be lost, stolen, or broken.
- Attempt to secure the data within four business hours on a smart phone reported lost, stolen, or broken. Current technologies do not guarantee that all data can be secured if the device is lost, stolen, or broken.

Annually

- Analyze requirements for employee-owned smart phones and specify standards that provide the best value to the District.

Supervisors will perform the following controls for employee-owned smart phones used in their groups.

As required

- Review and approve requests to add, modify, or remove employees to the smart phone allowance program based on business needs.

Department directors will perform the following controls for employee-owned smart phones used in their departments.

Annually

- Review the continuing need for an employee to receive an allowance based on District business needs.

C. Employee-Owned Cell Phones

If the cell phone is used for a mix of District-business and personal use, the employee may request department director approval for an allowance, which will be used to offset the costs incurred by the employee. The employee is responsible for all costs incurred.

Supervisors will perform the following controls for employee-owned cell phones used in their groups.

As required

- Review and approve requests to add, modify, or remove employees to the cell phone allowance program based on business needs.

Department directors will perform the following controls for employee-owned cell phones used in their departments.

Annually

- Review the continuing need for an employee to receive an allowance based on District business needs.

D. Incidental Use of Personal Cell Phones

For employees required to use their personal cell phone for unplanned District business, a per-minute payment is authorized. The employee must request the reimbursement through the District's expense statement process.

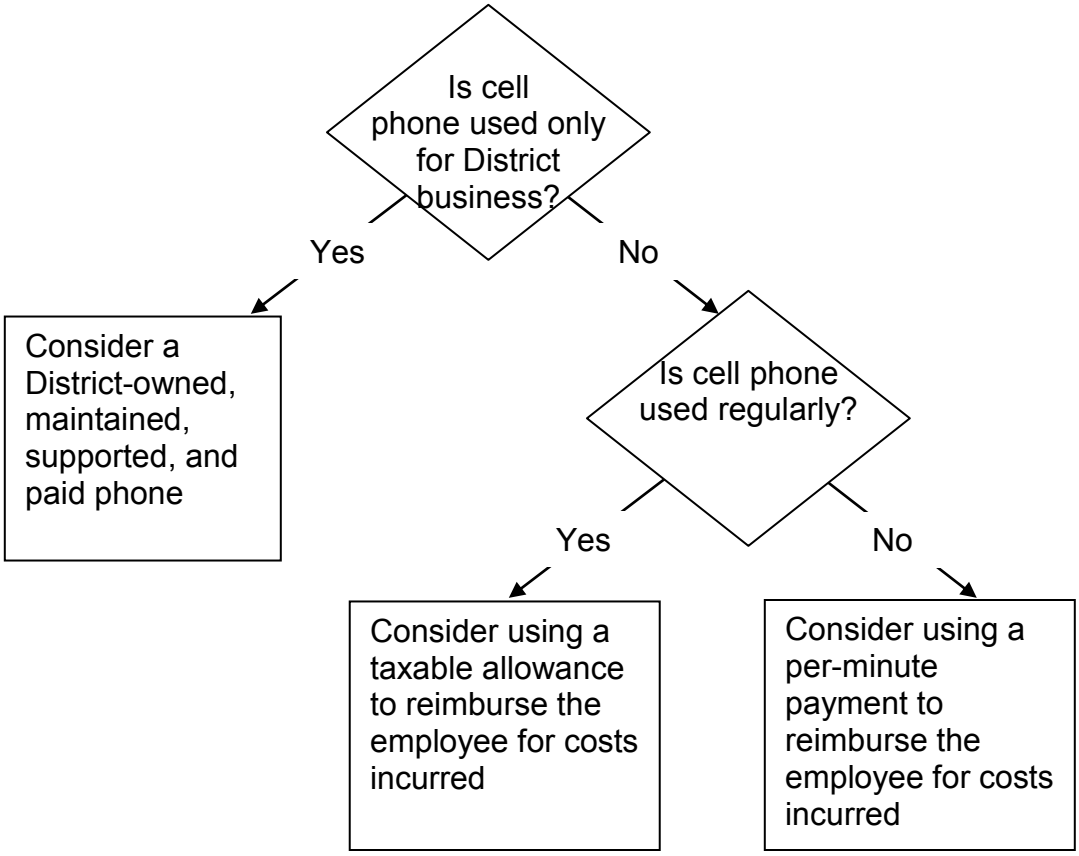
Supervisors will perform the following controls for incidental use of employee-owned cell phones used in their groups.

As required

- Review and approve requests to reimburse employees for incidental use of employee-owned cell phones based on business needs.

AR 2014.4 Cell Phone Allowance Decision Guideline

This decision guideline is intended to aid the reader in selecting the most appropriate program approach.



AR 2015 Personal and Private Internet Service Use and Reimbursement

Approved: August 11, 2010
Revised: July 14, 2014

This administrative regulation establishes guidelines for the use of personal computers and/or personal or private internet services to conduct District business through secure remote access over the internet. The District recognizes that this practice can enhance employee productivity and the delivery of system support services. The regulation also establishes conditions under which employees may be reimbursed for the use of their personal computer and/or personal or private internet services. The regulation is not intended to alter the District's practice of providing computer workstations for employee use or cellular internet service on District workstations for those employees who routinely and frequently work in the field and have a business need for secure remote access to District information systems.

AR 2015.1 Definitions

Personal Computer – A personal computer is a general purpose computer whose size, cost, capabilities, and features make it useful for individuals, and which is intended to be operated directly by an end-user with no intervening computer operator. A personal computer may be a desktop computer or a laptop, netbook, tablet or a handheld model, and is not equipped by the manufacturer with the features or functionality intended to make it suitable to serve as the end-user's mobile phone. Software applications for most personal computers include, but are not limited to, word processing, spreadsheets, databases, web browsers and e-mail clients, digital media playback, and myriad personal productivity and special-purpose software applications. Personal computers typically have connections to the internet, allowing access to a wide range of other resources. Personal computers may be connected to a network, either by a cable or a wireless connection.

Personal and Private Internet Service – A personal internet service uses an Internet service provider (ISP) company to gain access to the internet for personal use with no expectation of resale. Personal internet services are typically found in residences and in some public areas. A private internet service is generally a reseller of ISP services at a facility such as a hotel or conference center where the operator can authorize only specific users to access the Internet for a limited time on a fee basis, such as per day or per hour. Either type of service connects its users or customers to the World Wide Web using a wired or wireless access point.

Full-time Telecommuter – An employee with job duties that require the employee to work from a home office four or more days per week on a recurring basis. Job titles currently authorized as full time telecommuters under this program are Board members, who are expected to complete the vast majority of their District-related job functions through remote access and do not maintain individual offices in District facilities. The procedures for Board members obtaining reimbursement are set forth in AR 12065.

AR 2015.2 Scope

The program applies to all District employees.

AR 2015.3 Program

The District treats the reimbursement of an expense incurred while peforming services for the district as non-taxable income. The following approaches for the use and potential payment of costs related to personal computer and/or personal or private internet are authorized. One or more of these approaches may apply to an employee at a time.

A. Use While Fulfilling Standby or Support Duties

Employees expected to fulfill standby or support duties are provided with a District-owned computer appropriately configured and secured for this purpose. No use of a non-District personal computer is permitted for fulfilling standby or support duties. No reimbursement is authorized for occasional or potential use of personal or private internet service used to conduct District-related activities for employees where secure remote access to District information systems has been provided as a tool by their supervisor. Providing employees with secure remote access via the internet to various business applications and information sources is viewed by the District as a convenience, not a requirement. When remote access is not authorized, feasible, available, or possible, employees must report in person to the job site to attend to their job duties.

B. Use While Traveling on District Business

Employees who expect they will need remote access services when traveling on District business should make arrangements at least three business days in advance with the IT Department to acquire a temporary District-owned computer if necessary and/or temporary cellular internet service for the duration of the business trip. If such arrangements are not possible, a reimbursement payment is authorized for the cost of using a private internet service.

C. Incidental Mobile Internet Use

No reimbursement is authorized for employees that use their personal internet service on a smart phone or similar mobile device for District business if the employee has not been authorized for the Smart Phone Allowance under the Cell Phone and Smart Phone Allowance and Use program. See AR 2014.3 for additional provisions of this program.

D. Full-time Telecommuting Use

Employees who are required to use their personal computer for District business on a near full-time basis are eligible to receive a payment for the actual cost of the computer and certain related items:

- Reimbursement for the purchase price of a single personal computer and extended warranty, up to a maximum of $1,000 no more than one time every four years.
- Reimbursement for the purchase price of software applications required to effectively and securely perform District duties.

Not eligible for reimbursement are any other costs associated with personal computer ownership, including diagnostic and repair services, software and equipment maintenance, training, data backup and recovery, peripheral devices and accessories.

Employees who are required to use their personal internet service for District business on a near full-time basis will receive a payment for the actual cost of the service, up to a maximum of $40 per month.

BP 2020 Role of the General Manager

Adopted: December 11, 2006
Supersedes:

The success of the District depends upon the ability of individuals and groups to adapt to the changing needs of the District and its customers in effectively carrying out the Board's direction. The General Manager shall establish and maintain a standard of respect, ethical behavior, responsiveness, and resourcefulness for District managers and staff to:

- work cooperatively to identify District, customer, and community needs;
- motivate, challenge, and guide others in providing high-quality, cost-efficient services;
- continuously evaluate the effectiveness and quality of the services provided;
- be knowledgeable about District policies and procedures, negotiated agreements, and past practices;
- keep the Board and public informed on the status of the District and make recommendations for changes and improvements that will promote the continued success of the District;
- keep the Board informed on decisions that significantly impact the operations of the District;
- inform the Board on industry developments that have a bearing on the duties or policies of the Board;
- conduct strategic planning and make appropriate recommendations for the future;
- employ a professional staff to assist in carrying out Board Policies;

- offer professional leadership through ongoing program improvements;

- develop and administer regulations and procedures to govern employer-employee relations under state and federal statutes;

- enter into contracts as necessary to perform the functions of the District; and

- comply with all the duties and responsibilities set forth by state and federal law.

BP 2030 Role of the General Counsel

Adopted: December 11, 2006
Supersedes:

The General Counsel shall be attorney for the District, acting by and through its Board of Directors, management, employees, and agents. The General Counsel shall be responsible for:

- providing high-quality, cost-efficient legal services to the District and all District personnel acting within the scope of their employment;
- securing and managing the services of outside counsel to provide specialized knowledge or avoid potential conflicting attorney roles;
- ensuring full compliance with applicable laws and regulations in all District activities;
- proactive counseling and representing the District, the Board, the General Manager and the departments in transactions and events involving District interests;
- representing the District in litigation; and
- ethical behavior.

BP 2040 Formulation and Enforcement of Administrative Regulations

Adopted: December 11, 2006
Supersedes:

The General Manager, in cooperation with the General Counsel, shall establish and amend as necessary or desirable, Administrative Regulations to implement Board policies and bylaws according to law.

Administrative Regulations shall be effective immediately upon adoption by the General Manager and General Counsel. Adopted Administrative Regulations shall be provided to the Board. The General Manager and/or General Counsel have the authority to interpret all Administrative Regulations and to rule on any point of contention that is not specifically covered therein.

BP 2050 Administrative Leeway in the Absence of Policy

Adopted: December 11, 2006
Supersedes:

While the Board Policies and Administrative Regulations are intended to be inclusive, in the absence of a policy or regulation, all employees are directed to act reasonably and in good faith based on the mission and goals of the District. Likewise, the General Manager shall have the power to act in emergency situations where no Board Policies or Administrative Regulations exist.

BP 2060 Conflict of Interest

Adopted: December 11, 2006
Supersedes:

The General Manager and the Board of Directors shall adopt and promulgate a Conflict of Interest Code in compliance with the Political Reform Act, Government Code section 81000, et seq.

Copies of the Conflict of Interest Code can be obtained from the Office of the General Counsel.

El Dorado Irrigation District

BP 3000 DISTRICT BUSINESS OPERATIONS

BP 3010 Budget

Adopted: September 11, 2006
Supersedes: N/A

The Board is committed to promoting the most efficient and effective use of the District's financial resources that will accomplish the goals of the District, support facilities and programs, and provide quality services to District customers. It is the responsibility of the General Manager to inform the Board about financial operations of the District so the Board can make informed decisions and fully discharge its legal responsibilities in a fiscally sound manner.

The Board shall adopt a two-year operating budget and may modify it prior to the end of the year. The Board shall also adopt every year a five-year Capital Improvement Plan and approve funding on an as-required basis.

AR 3011 Budget Development

Approved: December 12, 2006
Revised: November 4, 2010

It is the responsibility of the General Manager to develop the budget based on the priorities and needs of the District and its customers. The budget and any budget modification shall:

1. include, but not be limited to, operating expenses, debt, construction, and reserve funds;
2. meet all legal requirements;
3. support the District's mission;
4. maintain prudent levels of reserves in water, wastewater, hydroelectric, and recreation to fund contingencies that meet the District's debt service requirements;
5. allow the District to meets its financial obligations, including bond covenants;including the annual allocation of property taxes between water and wastewater operating funds;
6. be consistent with a financial plan that guides the District in satisfying its multi-year commitments; and
7. encourage public participation through required disclosures and public hearings.

Responsibility for overseeing the budget development process is assigned to the department head for Finance and Management Services, who will work directly with each department head or manager in drafting the budget. Once the annual budget is prepared, the Board shall act on it.

Timing for preparation and presentation of the annual budget and the five-year Capital Improvement Plan is as follows:

The five-year Capital Improvement Plan will be presented in a workshop for the Board in September or October of each year. The five-year plan will then be presented to and adopted by the Board no later than the end of November of any given year.

The budget will be presented in a workshop for the Board in November on or after the five-year Capital Improvement Plan is adopted. The budget then will be presented and adopted by the Board prior to the end of the calendar year.

Following budget adoption, the department head for Finance and Management Services shall exercise supervision over the finances of the District in keeping with regular budgetary procedures.

Finance Manager shall bring to the Board any modification to the adopted property tax allocation between the water and wastewater operating funds in order to meet the anticipated debt coverage requirements for those separate utilities.

AR 3012 Budget Management and Five-Year Financial Plan

Approved: December 12, 2006
Revised: November 4, 2014

The General Manager desires to maximize efficiency in the management of revenue and expenditures and thereby assigns responsibility for monitoring program budgets to department heads and program managers who shall use financial reports, program reports, and other pertinent data to ensure maximum effectiveness of program operation.

Purpose of the Five-Year Financial Plan

The Five-Year Financial Plan establishes the cost of funding the operations and maintenance, capital expenditures, and debt expenses required to meet the District's mission of providing high quality, wastewater treatment, recycled water, hydro-power, and recreational services in an environmentally and fiscally responsible manner, meeting the District's debt covenant requirements to its bond holders and matching future revenues to those costs.

Long-term financial planning:

- Avoids volatile rate adjustments;
- Better manages debt;
- Better manages prepayment of debt;
- Funds the Capital Improvement Plan;
- Provides a plan for meeting debt covenant requirements; and
- Sets clear, public goals and expectations.

Goals and Objectives of the Financial Plan

The goals and objectives are to:

- Establish necessary operating and maintenance costs, debt expenses, and pay- as-you-go project costs;
- Generate adequate revenues to fund those costs, meet debt covenants, and maintain adequate cash reserves;
- Avoid "rate shock" – small annual rate adjustments are better than years of zero rate increases followed by double-digit increases to make up shortfalls;
- Maintain strong credit ratings with rating agencies (S&P – A+, Moody's – A1);
- Maintain cash reserves between $60 million and $80 million;
- Maintain CIP funding levels to replace high priority capital assets prior to end of life, avoiding critical asset failures;
- Maintain 1.7 to 2.0 debt coverage ratio with Facility Capacity Charges (FCC); and
- Maintain 1.25 debt coverage ratio without FCC's – in all years, meet Finance Control test that annual operating revenue, excluding FCC's, must equal or exceed total annual operating expenses plus debt payments.

AR 3013 Appropriation for Contingencies

Approved: December 12, 2006

Fund balances that are budgeted for contingencies may be transferred to an expenditure appropriation as needed, upon authorization of the responsible department head or program manager.

AR 3014 Reserves

Approved: December 12, 2006

The District will maintain operating reserves, as approved by the board, in each of its fund types including: water, wastewater, hydroelectric, and recreation funds, as a credit enhancement and to provide for:

- economic uncertainties, local disasters, and other financial hardships or downturns in the local, regional, state, or national economies;
- contingencies for unseen operating and capital needs;
- funding for planned remedial, replacement, or renovation of existing facilities;
- cash-flow requirements; and
- a revenue source for invested interest earnings to reduce District needs for ratepayer funds.

AR 3015 Financial Control Test

Approved: August 22, 2012

The projected annual revenues of every adopted District operating budget, excluding Facility Capacity Charges, must equal or exceed the projected annual operating expenses plus debt payments.

BP 3020 Revisions to the Budget

Adopted: September 11, 2006
Supersedes: N/A

After approval of the District's budget, any revision to it shall require the approval of the Board. The General Manager shall bring to the Board's attention any budget revisions that may be necessary because of increased expenditures due to law, regulation, changes in demand for services, price increases, or any other external factors.

BP 3030 General Manager's Reporting Responsibilities

Adopted: September 11, 2006
Supersedes: N/A

The General Manager shall submit quarterly financial status reports during the fiscal year to the Board. All reports should show whether the District is meeting its financial obligations and include a forecast for the remainder of the current fiscal year.

BP 3040 Annual Audit

Adopted: September 11, 2006
Supersedes: N/A

An annual audit of the District's fiscal operations will be conducted by an independent certified public accountant or certified public accountant firm with knowledge and experience in public agency accounting. An audit report shall be prepared by the auditor.

The independent certified public accountant firm shall be contracted for three years with an option for a two year extension, requiring Board approval.

Government Code section 26909 requires government agencies to undergo periodic external financial reviews. The Board will review and receive the annual audit report within 180 days after the end of the fiscal year.

BP 3050 Financial Condition and Activities

Adopted: September 11, 2006
Supersedes: N/A

The District will be run in a fiscally responsible and prudent manner according to the principles of AR 3051.

AR 3051 Budget Principles

Approved: December 12, 2006
Revised: October 16, 2012

The General Manager shall ensure that the District is run in a fiscally responsible and prudent manner so that:

1. Expenses do not exceed funds that have been received in the budget period to date unless those funds are specifically appropriated for designated reserves or available from the proceeds of authorized short or long-term debt.
2. Indebtedness, except as provided in the Irrigation District Act, shall not exceed an amount greater than can be repaid by certain, otherwise unencumbered revenues within 90 days or prior to the close of the fiscal year.
3. Unappropriated, long-term reserves or undesignated fund balances are not used.
4. Unbudgeted inter-fund transfers are not conducted in any amount greater than can be repaid by certain, otherwise unencumbered revenues within 90 days or prior to the close of the fiscal year without Board approval.
5. Payroll and debts are settled in a timely manner.
6. Tax payments or other government ordered payments or filings are not allowed to be overdue or inaccurately filed.
7. Receivables are pursued after a reasonable grace period in a timely and business-like manner.
8. Operation of the District includes written contracting and purchasing administrative regulations and a procurement manual that address normally prudent protections to assure legal and fiscal compliance against non-competitive acquisition practices, conflict of interest, favoritism, and non-inclusive supplier policies.
9. In the expenditure of public funds, the District shall comply with Article 16, section 6, of the California Constitution.

AR 3052 Employee Expense and Reimbursement

Approved: January 14, 2011

Scope

This Administrative Regulation applies to all District employees, other than the Board of Directors, who incur expenses in the conduct of District business. Board expenses and reimbursement are governed by BP 12065 and AR 12065.

This Administrative Regulation also makes narrowly limited provisions for payment or reimbursement of expenses of other personnel from other agencies and the public as specifically provided below.

General Principles

The following general principles govern all employee requests for and all District payment or reimbursement of expenses.

- District employees shall not profit by or experience a financial loss by incurring travel and other expenses while conducting authorized District business.

- District employees compelled to travel or incur other expense in the performance of their duties for the District shall have their expenses for registration, lodging, transportation, meals, incidentals, and other costs paid or reimbursed, provided those expenses were actually and necessarily incurred and are reasonable in amount, and subject to the maximum limits established by this Administrative Regulation for lodging, meals, and private automobile use.

- The District will not pay or reimburse any costs for alcoholic beverages, or for any expenses incurred on behalf of an employee's spouse or family member who accompanies the employee.

- Travel arrangements should be as economical as practical considering the travel purpose, traveler, the time available to accomplish the travel, available transportation and facilities, and time away from other job duties. Common carrier travel shall be in "coach," "economy," or equivalent class. Rental cars shall be economy or equivalent class unless weather, road conditions, or job duties necessitate otherwise.

- When the sponsor of a training, conference, meeting, or seminar offers discounted lodging, employees seeking District payment or reimbursement of lodging

expenses shall utilize the discounted lodging if space is available. Subject to this rule, lodging should be booked whenever possible at establishments that waive transient occupancy taxes for government agencies.

- Employees opting to use private automobiles for District business are responsible for ensuring that the vehicle is in sound and safe operating condition. They must possess a valid driver's license and have current auto insurance documentation on file with the District as required by the Employee Handbook.

- Participants for any travel requiring expense reimbursement should ordinarily be limited to no more than two staff members, who will be responsible for sharing information with other interested parties upon return. A department head or the General Manager may authorize more participants if he or she determines that the travel involves training or meetings of sufficient technical content or breadth that more widespread participation is warranted.

- Employees seeking payment or reimbursement must obtain prior authorization for expenses or travel as provided herein before incurring the expenses and commencing travel.

- No expense is payable or reimbursable unless it is consistent with the intent of this Administrative Regulation.

- The General Manager may, in his or her sole discretion, authorize one-time exceptions to any requirement of this Administrative Regulation, based on good cause shown by the responsible department head. Exceptions will be made only in the interests of fairness and to further the intent of this Administrative Regulation.

Procedures

The following procedures apply to all expense payments and reimbursements.

- Requests for travel authorization and expense payment or reimbursement shall be processed using forms as specified by the Finance Director. Forms shall require written approval from, at minimum, the employee's supervisor and department head, and the Finance Director or his or her designee. Approval should be obtained in advance, whenever feasible.

    - Requests for travel authorization should be submitted at least 30 days prior to travel, whenever feasible, to allow appropriate consideration and to minimize costs.
    - Expense statements and all required substantiation should be submitted not more than 10 business days after the expense is incurred or the travel is completed, whichever is later.

- The Finance Director may, in his or her reasonable discretion, decline to process documentation that does not meet these timelines, does not comply with this Administrative Regulation, is inaccurate, or is incomplete.

- Invoices, published rates, or other comparable documentation are required for pre-payment or cash advances for registration fees, lodging costs, transportation costs, and other authorized expenses.

- Receipts are required for reimbursement of registration fees, lodging costs, transportation costs, meal costs, daily incidental expenses greater than $10.00, and other authorized expenses. Receipts shall be itemized whenever feasible, and appropriately annotated by the requesting party in all instances.

- Incidental expenses, defined as tips, toll charges, transportation costs, parking fees, snow chain installation and removal charges, and similar expenses, are reimbursable without receipts up to a combined maximum of $10.00 per day.

- Payment or reimbursement of certain expenses is limited as follows:

  - ***Lodging*** – On a daily basis, not more than three times the then-current per diem hotel rate provided for the locality under the federal per diem method in the United States Internal Revenue Service's Publication 1542. In-room entertainment fees, spa fees, and similar ancillary services are not lodging expenses and are not authorized for payment or reimbursement.
  - ***Private automobile transportation*** – On a per-mile basis, the United States Internal Revenue Service's then-current federal rate. Mileage for travel shall be computed from the employee's designated work location, except that if travel begins from the employee's residence, mileage shall be calculated from the residence or designated work location, whichever is less.
  - ***Long-distance automobile transportation*** – Employees should not use a District or private automobile for travel more than a five (5) hour, one-way driving distance from the District offices. Any exception to this rule must receive prior approval from the employee's department head. If air travel would be more economical, but the employee is allowed to travel by automobile, the District will pay reimburse transportation costs incurred up to the amount of the air travel cost. The District will not pay or reimburse any transportation costs in excess of that amount, nor any extra days of lodging, meals and other expenses.
  - ***Meals*** – For breakfast, not more than $15.00, including tip; for lunch, not more than $20.00, including tip; for dinner, not more than $35.00, including tip. Subject to these limits, tips of up to 15% of the meal cost are eligible for payment or reimbursement. Except when meals are approved as part of a program for training, meetings, conferences, or

seminars, breakfast expenses are authorized only if an employee's travel extends at least two hours before the employee's regular work hours begin and dinner expenses are authorized only if an employee's travel extends at least two hours after the employee's regular work hours end. The District will not pay or reimburse any additional or other expenses for meals that are already included in the registration fee for a training, meeting, conference, or seminar. There are no per-diem payments for meals.

- Payment or reimbursement of expenses for non-District employees is prohibited, except as follows:

    - Meal costs for the subject of a job interview or a person participating on a job interview panel, when deemed appropriate by the Human Resources Director.
    - Meal costs for representatives of other governmental agencies, community organizations, or private interests, when the meal is attended by one or more District employees, the meal directly and substantially facilitates the conduct of District business, and the expense is authorized by the employee's department head. Due to the potential for abuse, it is the express intent of this regulation that District department heads construe and apply this exception narrowly and only when the District's best interests are clearly served by invoking it.

- District employees may request and receive cash advances of no less than $50.00 and no more than 75% of non-prepaid, authorized expenses. Cash advances will be reconciled against actual expenses at the conclusion of travel. The employee shall refund the District within 2 business days of returning to work for any excess of advanced funds over non-prepaid, authorized expenses actually incurred.

Additional or Overtime Compensation

Overtime or additional compensation for attendance or travel time involved with seminars, conferences, or training sessions for employees will be compensated in accordance with then-current Fair Labor Standards Act guidelines. Employees and supervisors should consult with the Human Resources Department for guidance.

BP 3055 Disposition of Personal Property

Adopted: September 11, 2006
Supersedes: Purchasing Policies and Procedures Manual adopted 11/25/91, revised 2/27/95, revised 7/19/99

The District will dispose of surplus property in a fiscally responsible manner according to the adopted administrative regulations.

AR 3055 Disposition of Personal Property

Approved: December 12, 2006

AR 3055.1 Disposition of personal property valued at $50,000 or more

Disposition of personal property valued at $50,000 or more will be made only after approval of the Board of Directors.

AR 3055.2 Disposition of personal property valued between $5,000 and $50,000

Disposition of personal property valued between $5,000 and $50,000 will be made only after approval of the General Manager, who will report all such dispositions to the Board of Directors on a quarterly basis.

AR 3055.3 Disposition of personal property valued at less than $5,000

Disposition of personal property valued less than $5,000 shall be made by the District Services Administrator as approved by the department head for Finance and Management Services, who will report all such dispositions to the General Manager on a quarterly basis.

AR 3055.4 Restrictions on employee purchases

District employees shall not purchase District property unless such property is disposed of through a third party such as a contract auctioneer.

BP 3060 Contracts and Procurement

Adopted: September 11, 2006
Supersedes: Purchasing Policies and Procedures Manual adopted 11/25/91, revised 2/27/95, revised 7/19/99
Revised: August 13, 2012

The District shall adopt procurement and contracting procedures by administrative regulations. Such procedures shall be designed to provide a fair, open, and competitive process that avoids conflicts of interest, collusion, and favoritism.

Prior to approving a contract or procurement with any outside entity, the District shall first obtain bids when required by law or when beneficial to the District. If bids are not required by law and the General Manager does not opt to use the bidding process, goods and services shall be at the lowest price consistent with desired quality or which is in the best interests of the District.

The Board of Directors hereby delegates to the General Manager the authority to approve contracts and procurements with values of up to and including $50,000, and construction contract change orders of up to and including $100,000. Except during emergencies, the Board of Directors shall approve all contracts or procurements with values greater than $50,000, and construction contract change orders with values greater than $100,000.

In the event of an emergency requiring immediate contract or procurement action, the General Manager is hereby authorized to approve any and all contracts necessary to abate the emergency after first informing the President of the Board of Directors and scheduling an emergency meeting of the Board of Directors at the earliest possible opportunity. The General Manager shall bring any and all contracts or procurements with values exceeding the levels set forth above, but approved during an emergency, to the Board of Directors for ratification at the first meeting of the Board immediately following the emergency.

AR 3061 Procurement and Contracts

Approved: December 12, 2006
Revised: October 22, 2008
October 16, 2012
February 14, 2013

AR 3061.01 Purpose

This administrative regulation seeks to establish efficient, equitable, and uniform procedures for all District contracting for goods (including, without limitation, materials and equipment), services (professional and other), rentals and leases of personal property, and construction; provide for fair and equitable treatment by the District of all persons involved in the contracting process; maximize the purchasing value of public funds; exercise financial control over the District expenditures it covers; clearly define authority for spending approvals and contracting functions; and provide safeguards for maintaining a high-quality procurement system.

AR 3061.02 Procurement and Contract Administration

The District's General Services Supervisor, who shall be the District's Purchasing Agent, will implement and administer standard operating procedures for District contracting in consultation with the District's Office of the General Counsel, to implement the purpose and requirements of these administrative regulations.

The District shall conduct all contracting for goods, services, rentals and leases of personal property, and construction in accordance with these administrative regulations and associated standard operating procedures, and under the administration of the Purchasing Agent.

AR 3061.03 Appropriated Funds

The District shall procure only items and services for which the Board of Directors has appropriated funds.

AR 3061.04 Procurement and Contract Authority

Except as otherwise provided herein, and subject to the ultimate authority and direction of the Board of Directors, General Manager, and General Counsel, the District shall not purchase or contract for goods, services, rentals and leases of

personal property, or construction without the approval of the Purchasing Agent. The Purchasing Agent may delegate (or withdraw), in writing, responsibility to approve such transactions to others for a designated term. In addition to the approval of the Purchasing Agent, all contracts and procurements must be approved as follows:

a. A single contract or commitment shall not exceed $50,000 without approval by the Board of Directors. All other contracts or commitments require the following spending approval.

   1. Up to and including $50,000 - General Manager
   2. Up to and including $25,000 - Department Director
   3. Up to and including $10,000 - Division Manager
   4. Up to and including $5,000- Supervisor, or employee who has been pre-approved in writing by his/her department director at the recommendation of his/her division manager for such spending approval authority.

b. Where a single contract or commitment that was originally approved for less than or equal to $50,000, requires a change order that increases it to more than $50,000, the change order shall be submitted to the Board of Directors for approval.

c. Under the direction of the Purchasing Agent and the General Counsel, the District shall adopt and maintain standard forms, which the District shall use for all contracts and procurements, unless the use of such standard forms is infeasible or otherwise not in the District's best interests.

d. The Purchasing Agent shall ensure that District procurements are not artificially divided to avoid the approval requirements set forth herein.

AR 3061.05 Solicitation of Bids and Proposals

Except as otherwise provided herein, and subject to the ultimate authority and direction of the Board of Directors, General Manager, and General Counsel, responsibility for the solicitation of bids and proposals resides in the Purchasing Agent. The Purchasing Agent may delegate (or withdraw), in writing, solicitation responsibility. All solicitations should adhere to the following guidelines:

a. Formal Solicitation of Sealed Bids and Proposals: Except as authorized herein or by statute and/or action of the Board of Directors, the District shall solicit contracts or procurements over $50,000 by issuing a formal Request for Bids (RFB) or Request for Proposals (RFP) with written bidding instructions; the criteria for contract award; bid protest procedures; contract terms and conditions; plans and specifications (for RFBs); insurance and bonding requirements, published notice, or other means of advertisement, each as required by law or deemed necessary to

promote competition and protect or further the District's interests; and all other information required by law.

Notwithstanding any provision contained herein, the District shall comply with all laws and regulations concerning solicitation, bid, and award procedures for the construction of public works projects regardless of the size of the project or amount of the contract.

When required by law, the District shall award all contracts solicited under this subsection to the lowest responsive responsible bidder. The District shall award all other contracts to the proposer whose proposal is in the District's best interests. In circumstances in which the District formally solicits bids or proposals and receives only one responsive bid or proposal, the District may negotiate with and award the contract to the sole bidder/proposer.

b. Informal Solicitations: The District shall solicit contracts and procurements, except those for the construction of public works projects, of $50,000 or less as follows:

   1. $15,000.01 to $50,000 – Three (3) documented quotes or proposals.
   2. $5,000.01 to $15,000 –Two (2) documented quotes or proposals.
   3. Goods or services procurements under $5,000 shall not require competitive solicitation.
   4. The above thresholds include taxes, fees and freight.
   5. The Purchasing Agent may request additional bids or proposals.
   6, The District may re-use unchanged awards for one year following acceptance.

c. Request for Qualifications: The District may use a Request for Qualification (RFQ) procedure to acquire the services of certain professionals that require extended analysis, the exercise of discretion, independent judgment, and an advanced, specialized type of knowledge, expertise, or training customarily acquired either by a prolonged course of study or equivalent experience in the field. The District may utilize the RFQ procedure for single procurements, or for establishing an on-call list of professional services providers capable and qualified to conduct certain types of services. No contract for the services of legal counsel may be awarded without the approval of the District's General Counsel. Procedures for the selection of architect, engineer, and land surveying services shall be in accordance with state law.

d. Procurements Subject only to Purchasing Agent Determination: For certain procurements, it is impractical to implement competition in the solicitation process. Accordingly, the Purchasing Agent shall maintain a standard operating procedure listing the types of procurements that generally do not require competition other than at the direction of the

Purchasing Agent upon reviewing a specific procurement request. The listing can be changed only by approval of the General Manager and General Counsel upon the recommendation of the Purchasing Agent.

e. Authorization for the Procurement of Goods or Services from a Single Source: Notwithstanding anything herein, for good cause documented in writing and approved by Purchasing Agent and an executive manager with sufficient spending authority, the District may negotiate with a single source for the procurement of goods or services, including construction services when authorized by law. Good cause for single-sourcing may include, for example, when there is only one available source for a necessary good or service, the General Manager has authorized standardization of goods or services pursuant to Section 3061.09, a prospective consultant or vendor possesses unique skills and expertise necessary for a particular procurement, or emergency or extraordinary circumstances require immediate action that cannot be delayed for obtaining bids or proposals.

f. Prequalification of Bidders: The Purchasing Agent may, at his/her discretion, pre-qualify bidders for public works construction contracts. Pre-qualification of bidders will be conducted in accordance with the legal requirements for contractor pre-qualification.

AR 3061.06 Protests

The District shall adopt and maintain a protest procedure for protests of the solicitation and award of contracts, and include a description of the protest procedure in solicitation documents. Any actual or prospective bidder, proposer, or contractor who is aggrieved in connection with the solicitation of a bid or proposal, or the award of a contract on which he/she bid or proposed, may file a written protest in the manner prescribed in the solicitation documents.

AR 3061.07 Piggyback Procurements

The Purchasing Agent may arrange for the District to enter purchase contracts with a supplier for the purchase of goods or services when the pricing and terms have been previously established by another local, state, or federal, public entity, or an association of public entities, provided:

a. the resulting contract with the supplier of goods or services is the result of competitive bidding or negotiation and is made in compliance with the competitive bid or proposal requirements of the participating entity or association;
b. the purchase is made within the longer of one year of the competitive bid or negotiation, or the original contract term or subsequent extension(s);
c. the purchase conforms to the District's specifications for the goods or services; and

d. the purchase is of equal or better value to the District than if made directly by the District.

AR 3061.08 Cooperative Procurements

The Purchasing Agent may arrange for the District to enter an agreement with one or more local, state, or federal public entity, or association of public entities to procure goods or services cooperatively, provided:

a. the resulting contract with the supplier of goods or services is the result of competitive bidding or negotiation and is made in compliance with the competitive bid or proposal requirements of the participating entity or association;
b. the contract conforms to the District's specifications for the goods or service; and
c. the purchase is of equal or better value to the District than if made directly by the District.

AR 3061.09 Standardization of Goods and Services

Upon recommendation of the Purchasing Agent, the General Manager may authorize the uniform adoption or other standardization of a good or service to promote efficiency or for other good cause when the good or service is designated to match others in use, or planned to be used, by the District. All standardizations shall be valid for a term up to three years, which term may be extended one time up to three additional years by the Purchasing Agent after examining market conditions and upon a determination by the Purchasing Agent that the standardization still serves the District's best interests.

AR 3061.10 Contract Documents and Records

Standardized contracting documents will be developed and provided by the Purchasing Agent in consultation with the District's Office of the General Counsel. Non-standard (vendor agreements) are not authorized for use unless approved by the Purchasing Agent after consulting with the Office of General Counsel. District staff not supervised by the Purchasing Agent, operating under delegated solicitation authority, will provide copies of received quotes, bids, proposals and evaluations to the Purchasing Agent, or his/her designee, before purchases orders or contracts are executed unless otherwise directed by the Purchasing Agent.

AR 3061.11 Americans with Disabilities Consideration during Procurement

District staff shall include accessibility as a criterion during purchasing decision making. Whenever possible, evaluate design, office supplies, furniture and building materials purchases for compatibility with a wide range of disabilities and sensitivities. Select items that are easily adjustable or can be modified to accommodate a variety of physical and ergonomic needs.

BP 3070 Records Retention and Management

Adopted: September 11, 2006
Amended: September 27, 2010
Supersedes: N/A

The District shall manage the life cycle of District records and information under a consolidated records management program and ensure that all records are protected, stored, retrieved, and archived with accuracy, efficiency, and compliance.

The District's records shall be classified and retained, destroyed, and disposed of pursuant to resolutions adopted from time to time by the Board of Directors in accordance with Water Code section 21403 and Government Code section 60201, or their successors.

AR 3070 Electronic Mail Management and Retention

Adopted: October 15, 2014

AR 3070.1 Purpose

The El Dorado Irrigation District ("District") provides electronic mail ("e-mail") to its employees to facilitate the conduct of District business. In return for providing e-mail, the District expects its employees to manage and protect records resulting from their e-mail communications. This regulation describes the responsibilities of all District employees concerning the creation, removal, storage, and retention of e-mails.

District e-mail and e-mail systems are intended solely as a means of communicating information. No District e-mail user is authorized to use the District e-mail system for the long-term storage and maintenance of District records. To ensure the District e-mail system functions as intended, it is imperative that all District employees and e-mail users regularly delete e-mails from the system as provided in this regulation.

This regulation supplements and is intended to be carried out in concert with District's Records Retention Schedule ("Records Schedule"). While not all e-mail communications are District records, all e-mail communications are subject to discovery and can be used as electronic evidence in the event of litigation. Unmanaged and unidentified e-mails residing on District computers could create expensive and unmanageable problems in the event of litigation and pose a threat to District's ability to properly and coherently document and reconstruct business and decision-making processes.

The following items detail specific features of the District's computer network and related hardware and software that comprise the District e-mail system:

1. The District performs an electronic back-up of its computer network, including the e-mail system, following each business day. Those back-ups are an electronic recording of the status of District's computer systems at a particular moment in time and cannot accurately capture or reflect all e-mail or other activity that occurred on the District's computer network on a specific day. For example, a back-up does not capture items on employees' physical computer desktop or in their non-network drives.

2. The District maintains a particular computer system back-up for no more than two weeks, after which that back-up is completely overwritten. Such overwriting is necessary for management and security reasons and to aid the recovery of the computer system in case of a complete failure. Because the process is transitory, a back-up is not reliable and cannot constitute District records.

3. The District maintains an e-mail filtering system that is intended to reduce SPAM, Phishing, viruses, and other unwanted cyber-security threats from entering the District's network. District employees are responsible for promptly reviewing summary e-mail lists from the e-mail filter to determine if valid e-mails were captured by the filter and to delete unwanted, unknown or potentially threatening e-mails. The e-mail filtering system automatically and permanently deletes filtered e-mail after a set time period.

4. The District maintains an e-mail removal system that is intended to automatically dispose of e-mail messages that are unwanted or no longer relevant. District employees are responsible for promptly reviewing incoming, draft, and sent e-mail to determine and segregate for separate handling those that constitute District records, to delete unwanted, unknown or potentially threatening e-mails, and to delete or allow the removal of all other e-mails. The e-mail removal system automatically and permanently deletes e-mail after a set time period depending upon the folder location of the e-mail message.

AR 3070.2 Scope of Regulation

Some e-mail communications constitute District records. Therefore, e-mails also may be governed by the District's Records Schedule depending on their use, character, and contents. In general, e-mail communications fall into three categories:

1. E-mails (including attachments) that document official District business, which include conducting a business transaction with a vendor or consultant, interacting with regulatory agencies, responding to a public information request, and directing employees or consultants are District records and are subject to the District's Records Schedule. The employee who receives or sends an e-mail that is a District record is responsible for promptly transferring the record to a paper or electronic medium, as appropriate, and then filing it and retaining it in accordance with the Records Schedule.

2. E-mails (including attachments) that provide specific information, document an event or communication that serves a transitory official purpose, or involve informal communications - such as announcing the date and time of a meeting or event, responding to professional "list serves" an employee participates in, or circulating draft documents - are not considered District records. Typically, this type of e-mail serves its purpose

once it is read, responded to, or superseded and there is no need to retain it. Occasionally the employee who sends or receives this type of e-mail needs to intentionally save the e-mail for a limited period of time for informational or official purposes. When this need arises, the employee may place the e-mail into a user-defined folder where the e-mail message can be retained for up to 2 years. If an employee believes that any e-mail of this type constitutes a District record, such an e-mail or attachment should be promptly transferred to a paper or electronic medium, as appropriate, and then filed and retained in accordance with the Records Schedule. If an employee is unsure about whether or not an e-mail that falls into this category constitutes a District record, the employee should put it into a user-defined folder to safeguard the e-mail until a final determination can be made and appropriate action taken.

3. E-mails (including attachments) providing personal or general information - such as personal messages, informal communications between employees, meeting or event announcements and reminders, linking to news articles, and working notes and drafts (unless intentionally saved for an official purpose) are not District records. This type of e-mail serves its purpose once it is read, responded to, or superseded and the employee shall promptly delete it or allow it to be removed automatically.

The District's Information Technology staff shall administer this regulation, with oversight and ultimate authority over the regulation exercised by the General Manager.

AR 3070.3 E-mail Retention and Removal

Each District employee is expected to review their e-mail messages at least once each business day under normal circumstances. If an employee will be away from work or unable to review their e-mail, they must notify e-mail senders with an out of office alert or make other provisions to ensure that e-mail is reviewed promptly. Additionally, each District employee is expected to appropriately manage their e-mail messages on a regular basis. E-mail management at least weekly is encouraged as a best practice.

Any e-mail communications (including attachments) that constitute District records must be saved as a paper or electronic document in accordance with the District's Records Schedule. Each District employee is responsible for complying with this regulation with respect to the e-mails they send or receive. If an employee has any question or concern about retaining an e-mail or attachment or other issues of compliance with this regulation, they should discuss the issue with the Information Technology or Records Management staff, as appropriate. If deemed necessary, the Records Management or Information Technology staff may consult with the General Manager and legal counsel about any e-mail retention or removal issue.

E-mail (including attachments) contained in an employee's electronic mailbox within the District e-mail system will be automatically and permanently deleted from the following folders or their sub-folders when the date and time stamp of the e-mail exceeds the identified age:

Folder	Automatic e-mail removal after
Deleted items folder	30 days
Junk e-mail folder	30 days
Inbox	90 days
Sent items folder	90 days
Drafts folder	90 days
Employee-defined folder	2 years

Therefore, e-mails that have continuing business value to District or one of its employees or officers or are otherwise deemed District records under this regulation must be stored on an employee-defined e-mail folder in the short or intermediate term, or stored long-term on an appropriate paper or electronic medium for the duration prescribed by the District Records Schedule.

Whenever feasible, e-mail messages should be filed with other District records concerning the same subject matter or program to ensure that such e-mails are preserved, stored and disposed of in the same manner as like records. If an e-mail does not relate obviously or directly to an existing District subject file or program, an employee should either request that a new records retention category be created or file the e-mail with correspondence.

These rules also apply to any attachments to e-mails, which should be handled in the same manner as described above.

District employees and officers are prohibited from keeping any District-related documents or e-mails on e-mail systems, electronic devices, storage media, or storage services that are not provided by the District nor that are not expressly authorized by the District for this purpose. In addition, employees shall not retain District records or e-mails in alternate locations for the intent or purpose of circumventing the District's Records Schedule or Electronic Mail Management and Retention Regulation.

It is the responsibility of each District employee to comply with this regulation and to manage their e-mails in accordance with it. All employee use of e-mail, including personal use, is subject to District's E-mail/Internet/Computer Use policies provided in the Employee Handbook, as such policies may be amended or restated from time to time. In accordance with those E-mail / Internet / Computer Use policies, the District reserves the right at any time to review employees' e-mail boxes and to purge any e-mails retained there in violation of this regulation.

BP 3080 Claims against the District

Adopted: September 11, 2006
Supersedes: Policy #10
Revised: August 13, 2012

The District shall adopt administrative regulations that comply with state law for the review and disposition of claims for damages submitted to the District pursuant to the Government Claims Act (Gov. Code §§900-935). Such procedures shall be designed to provide a fair, open, and unbiased process that avoids conflicts of interest, collusion, and favoritism. Claims not covered by the District's insurer of less than and including $50,000 shall be resolved by the General Manager; the Board of Directors shall review and resolve claims greater than $50,000.

AR 3081 Claims Against the District

Approved: December 12, 2006
Revised: October 16, 2012

Pursuant to Gov. Code § 935, the District hereby adopts the following claims procedure: All claims against the District subject to the Government Claims Act (Gov. Code §§ 810 et seq.) ("Act"), and all other claims not governed by any other statute or regulation expressly relating thereto, shall be submitted to the District in accordance with the procedures set forth in the Act (Gov. Code, §§ 900-935.4), preferably using the District's claims form. The District shall process such claims in accordance with the Act. The District's Risk Analyst, is delegated the authority of the General Manager to take action on and resolve any and all claims against the District subject hereto of less than, and including, $50,000, but any action taken by the Risk Analyst shall first be approved by the District's General Counsel. The Risk Analyst may submit any and all claims subject to this regulation to the District's insurer, and will work with the District's insurer in the adjustment of such claims.

BP 3090 Investment Policy

Adopted: September 11, 2006
Supersedes: Policy #46

The District's funds shall be invested by District bonded personnel in accordance with principles of sound treasury management and the provisions of California Government Code Sections 53600 et seq.. It is the General Manager's responsibility to ensure that the District's investments provide the highest safety and security for the portfolio, match maturities to future liabilities, and meet daily cash flow demands while achieving the highest possible market rate of return.

AR 3091 Investment

Approved: December 12, 2006

The ultimate goal is to enhance the economic status of the District while protecting its funds. Investments will be accomplished in a manner that provides the highest safety and security for the portfolio, matches maturities to future liabilities, and meets daily cash-flow demands while trying to achieve the highest available average market rate of return.

AR 3091.1 Scope

This policy and subsequent administrative regulations cover all funds and investment activities that are under the direct authority of the District. These funds are accounted for in the District's financial reports and include:

- water and wastewater funds
- capital improvement funds
- debt service funds
- recreation funds
- hydroelectric funds

Investment of bond proceeds shall be governed by these regulations unless otherwise specified by the provisions of related bond indentures. Interest earnings and expenses are allocated proportionately and equitably to each fund.

AR 3091.2 Prudence

The standard of prudence to be used by investment officials shall be the "prudent person" standard and shall be applied in the context of managing an overall portfolio. Investment officers acting in accordance with written procedures and this investment policy and exercising due diligence shall be relieved of personal responsibility for an individual security's credit risk or market price changes, provided deviations from expectations are reported in a timely fashion and the liquidity and sale of securities are carried out in accordance with the terms of this policy.

"...investment shall be made with judgment [sic] and care, under

circumstances then prevailing, which persons of prudence, discretion and intelligence exercise in the management of their own affairs, not for speculation but for investment considering the probable safety of their capital as well as the probable income to be derived."

AR 3091.3 Objectives

Temporarily idle or surplus funds of the District shall be invested in accordance with principles of sound treasury management and in accordance with the provisions of California Government Code Sections 53600 et seq. and this Investment Policy. The primary objectives, in priority order, of investment activities shall be:

AR 3091.4 Safety of Principal

The preservation of principal is of primary importance. Each transaction shall seek to ensure that capital losses are avoided, whether they be from securities default or erosion of the market value. The portfolio is priced to market on a monthly basis.

The District shall seek to preserve principal by mitigating the following two types of associated risk:

Credit Risk, defined as the risk of loss due to failure of the issuer of a security, shall be mitigated by limiting investments to the safest types of investment grade securities and by diversifying the investment portfolio so that the failure of any one issuer would not unduly harm the District's cash flow.

AR 3091.5 Investment Committee

The District established an Investment Committee in 1993 as a sub-committee of the Asset and Liability Management Committee. The Investment Committee consists of the department head for Finance and Management Services/District Treasurer, the District's Deputy Treasurer, and the department head for Environmental Compliance and Water Policy. The purpose of the committee is to review all investment activity and investment strategies. This committee meets quarterly, or more frequently if the need arises, to review the investments of the previous quarter and develop future strategy.

The following table sets portfolio-wide exposure limits (the

Investment Committee may set more specific limits). In addition, the limit on any single issuer is set at 10 percent for corporate and 30 percent for government agency.

Asset Classification	**Minimum Exposure**	**Maximum Exposure**
LAIF + California Asset Managment Trust	Greater of 20% or 3 months of normalized operating and capital expenditures	75%
US Treasury Issues	0%	75%
Government Agency	0%	80%
All Other*	0%	40% or less

* See Authorized Investments for specific details.

Securities purchased under the Asset Classification of "All Other" require ratings by Moody's and Standard & Poor's. Minimum credit ratings are set in the table below.

Asset Classification	**Moody's Rating**	**S & P Rating**
Short-Term	P-1	A-1 or better
Long-Term	A2 or better	A or better
Issuer Disqualifier*	Below P-1 or A2	Below A-1 or A

* *Issuer Disqualifier* means that regardless of the ratings of a particular issue, if the issuer itself has other, senior debt that fall below any of these standards, none of the issues will qualify. For example, if a long-term issue under consideration is rated A2/A, which would normally qualify, but the issuer's commercial paper (short term) is rated A-1/P2, then the issue would still be disqualified.

If a security in the portfolio is downgraded to a level below the minimum credit rating the managers of the Pooled Investment funds will report the downgrading to the other members of the Investment Committee. Credit risk will also be mitigated by pre-qualifying the financial institutions, broker/dealers, intermediaries, and advisors with whom the District does business.

Market Risk, defined as a market value fluctuation due to overall changes in the general level of interest rates, shall be mitigated by:

a. structuring the investment portfolio so that securities mature to meet cash requirements for ongoing operations and matching

future liabilities, thereby avoiding the need to sell securities on the open market prior to maturity, and

b. by investing operating funds primarily in shorter-term securities.

It is recognized, however, that in a diversified investment portfolio, occasional measured losses are inevitable and must be considered within the context of the overall investment return and current economic circumstances

AR 3091.6 Liquidity

The investment portfolio shall remain sufficiently liquid to meet all operating requirements that may be reasonably anticipated. This is accomplished by structuring the portfolio so that securities mature concurrent with cash needed to meet anticipated demands. Furthermore, since all possible cash demands cannot be anticipated, the portfolio should consist largely of securities with active secondary or resale markets. Emphasis should be on marketable securities with low sensitivity to market risk. Additional liquidity considerations include issue size, denomination, market of issuance and form of security.

AR 3091.7 Yield

The investment portfolio shall be designed with the objective of attaining a market average rate of return throughout budgetary and economic cycles, taking into account the investment risk constraints and liquidity needs. Return on investment is of least importance compared to the safety and liquidity objectives described above. The core of investments is limited to relatively low-risk securities in anticipation of earning a fair return relative to the risk being assumed. The District's investment strategy is passive and securities shall not be sold prior to maturity with the following exceptions:

a. a declining credit security could be sold early to minimize loss of principal or

b. a security swap would improve the quality, yield, or target duration in the portfolio. Liquidity needs of the portfolio require that the security be sold.

Given this passive strategy, the benchmark used by the District's

Treasurer to determine whether market average yields are being achieved shall be the one-year U.S. Treasury Note because the weighted average maturity of the portfolio typically averages one year or less.

AR 3091.8 Public Trust

All participants in the investment process shall act as custodians of the public trust. Investment officials shall recognize that the investment portfolio is subject to public review and evaluation. In managing the investment portfolio, the managers should avoid any transactions that might impair public confidence in the District. Investments should be made with precision and care, considering the probable safety of the capital as well as the probable income to be derived.

AR 3091.9 Authority

Authority to manage and responsibility for operation of the investment program is granted to the District Treasurer, derived from the adoption of this policy. The District Treasurer shall carry out and maintain established written procedures and internal controls for the operation of the investment program consistent with this investment policy.

Procedures should include references to safekeeping, delivery vs. payment, investment accounting, repurchase agreements, wire transfer agreements, collateral/depository agreements, banking services contracts, and guidance of the specific use of various tools and electronic systems used. No person may engage in an investment transaction except as provided under the terms of this policy and the procedures established by the District Treasurer. The District Treasurer shall be responsible for all transactions undertaken and shall establish a system of controls to regulate the activities of subordinate officials.

AR 3091.10 Ethics and conflicts of interest

Officers and employees involved in the investment process shall refrain from personal business activity that could conflict with proper execution of the investment program, or that could impair their ability to make impartial investment decisions. Employees and investment officials shall disclose to the General Manager any material financial interest in financial institutions that conduct business within this jurisdiction, and they shall further disclose any large personal financial/investment positions that could be related to the performance of the District's portfolio. Employees and investment officials are prohibited from undertaking personal investment transactions with the same individual who conducts business on behalf of the District.

Investments in negotiable certificates of deposit issued by any financial institution, including credit unions, are prohibited if members of the District's Board or employees with investment decision-making authority serve on the board of directors or the specified committees of the financial institution issuing the negotiable certificate of deposit.

AR 3091.11 Local agency investment fund

Yearly, the District's Investment Committee evaluates the State of California Local Agency Investment Fund (LAIF) as a suitable investment for the District. The state fund may invest in a broader range of securities than the District invests in, and it is important to be aware and comfortable with the securities the state pool purchases. The committee also evaluates the fund's operations, how interest is calculated, and its investment policy and security.

AR 3091.12 California asset management trust

Yearly, the Investment Committee evaluates the California Asset Management Trust as a suitable investment for the District. The fund may invest in a broader range of securities than the District invests in, and it is important to be aware and comfortable with the securities the pool purchases. The committee will also evaluate the fund's operations, how interest is calculated, its investment policy and security.

AR 3091.13 Qualified dealers and institutions

The District Treasurer will maintain a list of financial institutions and broker/dealers with whom the District elects to do business, selected by credit worthiness and who are authorized to provide investment services in the State of California. These may include "primary" dealers or regional dealers that qualify under Securities and Exchange Commission Rule 15C3-I (uniform net capital rule). No public deposit shall be made except in a qualified public depository as established by state laws.

The District Treasurer shall conduct a qualified dealer selection process every three years. All financial institutions and broker/dealers who desire to become qualified bidders for investment transactions must submit the following as appropriate:

a. audited financial statements,
b. proof of National Association of Securities Dealers (NASD) certification,
c. proof of state registration,
d. completed broker/dealer questionnaire, and
e. certification of having read, understood, and agreeing to comply with the District's investment policy.

All financial institutions and broker/dealers with whom the District elects to transact investment activities will first be interviewed and approved by the Investment Committee and then submitted to the Board of Directors for final approval. An annual review of approved financial institutions and broker/dealers will be conducted by the Investment Committee to examine financial condition and ensure state registration and certification of having read the District's investment policy.

AR 3091.14 Safekeeping of securities

All trades where applicable will be executed by delivery vs. payment (DVP). This ensures that securities are deposited in eligible financial institution prior to the release of funds. Securities will be held by a third-party custodian as evidenced by safekeeping receipts.

AR 3091.15 Internal controls

The District Treasurer is responsible for establishing and maintaining an internal control structure designed to ensure that the assets of the entity are protected from loss, theft or misuse. The internal control structure shall be designed to provide reasonable assurance that these objectives are met. The concept of reasonable assurance recognizes that (1) the cost of a control should not exceed the benefits likely to be derived and (2) the valuation of costs and benefits requires estimates and judgments by management.

Accordingly, the District Treasurer shall establish a process for annual independent review by an external auditor to assure compliance with policies and procedures. The internal controls shall address the following points:

a. **Control of collusion.** Collusion is a situation where two or more employees are working in conjunction to defraud their employer.

b. **Separation of transaction authority from accounting and record keeping.** Separation of duties is achieved by separating the person who authorizes or performs the transaction from the people who record or otherwise account for the transaction.

c. **Custodial safekeeping.** Securities purchased from any bank or dealer including appropriate collateral (as defined by state law) shall be placed with independent third-party safekeeping.

d. **Avoidance of physical delivery securities.** Book entry securities are much easier to transfer and account for because actual delivery of a document never takes place. Delivered securities must be properly safeguarded against loss or destruction. The potential for fraud and loss increases with physically delivered securities.

e. **Clear delegation of authority to subordinate staff members.** Subordinate staff members must have a clear understanding of their authority and responsibilities to avoid improper actions. Clear delegation of authority also preserves the internal control structure that is contingent on the various staff positions and their respective responsibilities.

f. **Investment and wire transfers.** All wire transfers and

investment transactions that occur via the on-line banking system have pre-authorized templates, controls, and security provisions. All transfers require initiation and approval by two authorized persons. Written confirmation is required for all wire transfers. On certain occasions, telephone transactions may occur. Because of the potential for error and improprieties that arises from telephone transactions, all telephone transactions will be supported by written communications and approved by two authorized persons.

g. **Wire transfer agreement with the lead bank or third-party custodian.** This agreement should outline the various controls and security provisions and delineate responsibilities of each party making and receiving wire transfers.

h. **Purchase of investment securities**. The purchase of any security must first be approved by two members of the Investment Committee. Settlement information and instructions sent to safekeeping must first be approved by the District Treasurer. Written confirmation is required for all investment purchase transactions.

AR 3091.16 Authorized investments

The District is governed by the California Government Code Sections 53600 et seq. A copy of the applicable California Government Code provision is attached as Exhibit 1. Within the context of these limitations, the following investments are authorized and further limited:

a. **Local Agency Investment Fund.** The District may invest in the Local Agency Investment Fund (LAIF) established by the State Treasurer for the benefit of local agencies up to the maximum permitted by State law (as established in California Government Code Section 16429.1). There is a 75-percent maximum on the total value of the portfolio which can be invested. The minimum limitation is calculated based on the sum of the balances of LAIF and CAMP. This minimum is the greater of 20% of the total portfolio or three months of normalized operating and capital expenditures.

b. **California asset management trust.** The District may invest in the California Asset Management Trust established as a Joint Powers Authority to provide local California governments with investment management services in a professionally managed money market portfolio. There is a 75-

percent maximum on the total value of the portfolio which can be invested. The minimum limitation is calculated based on the sum of the balances of LAIF and CAMP. This minimum is the greater of 20% of the total portfolio or three months of normalized operating and capital expenditures.

c. **U.S. Treasury issues.** U.S. Treasury Bills, Bonds, and Notes are those for which the full faith and credit of the United States are pledged for payment of principal and interest. There is a 75-percent maximum limitation on the total market value of the portfolio that can be invested in this category, although the five-year maturity limitation is applicable.

d. **Government agency.** Obligations are issued by the Government National Mortgage Association (GNMA), the Federal Farm Credit System (FFCB), the Federal Home Loan Bank Board (FHLB), the Federal National Mortgage Association (FNMA), the Student Loan Marketing Association (SLMA), and the Federal Home Loan Mortgage Association (FHLMC). There is a 80-percent maximum limitation on these issues, and a 30-percent limit for a single agency name because U.S. government backing is implied rather than guaranteed on some types of issues. The five-year limitation is applicable.

e. **Other**

1. *Bills of Exchange or Time Drafts* drawn on and accepted by a commercial bank, otherwise known as *Banker's Acceptances*, are eligible for purchase by the Federal Reserve System. Bankers' acceptances purchased may not exceed 180 days to maturity or 40 percent of the portfolio's market value. No more than 30 percent of the District's surplus funds may be invested in the bankers' acceptances of any one commercial bank.

2. *Commercial Paper* ranked "P1" by Moody's Investor Services or "A1" by Standard and Poor's and issued by a domestic corporation having assets in excess of $500,000,000 and having an "A2" or better rating on its long-term debentures as provided by Moody's and a rating of "A" or better by Standard and Poor's. Purchases of eligible commercial paper may not exceed 180 days to maturity nor represent more than 15 percent of the market value of the portfolio. This percentage may be increased to 30 percent if the dollar weighted average maturity does not exceed 31 days. No more than 10 percent of the market

value of the portfolio may be invested in commercial paper issued by any one corporation.

3. *Medium Term Corporate Notes*, with a maximum maturity of five years, may be purchased. Securities eligible for investment shall be rated "A2" or better by Moody's or "A" or better by Standard and Poor's rating services. The notes must be issued by corporations organized and operating in the United States or by depository institutions licensed by the United States or any state and operating in the United States. Purchase of medium term notes may not exceed 30 percent of the market value of the portfolio, and no more than 10 percent of the market value of the portfolio may be invested in notes issued by one corporation. Commercial paper holdings should also be included when calculating the 10- percent limitation.

4. *Negotiable Certificates of Deposit* issued by a nationally or state charged bank or state or federal savings institution. Purchases of negotiable certificates of deposit may not exceed 25 percent of the market value of the portfolio. The maturity limitation of five years is applicable.

5. *Repurchase Agreements.* The District may invest in repurchase agreements with banks and dealers with which the District has entered into a master repurchase contract that specifies terms and conditions of repurchase agreements. The maturity of repurchase agreements shall not exceed 90 days. The market value of securities used as collateral for repurchase agreements shall be monitored daily by the District Treasurer's staff and will not be allowed to fall below 100 percent of the value of the repurchase agreement. To conform with provisions of the Federal Bankruptcy Code, which provides for the liquidation of securities held as collateral for repurchase agreements, the only securities acceptable as collateral shall be eligible negotiable certificates of deposit, eligible bankers' acceptances, or securities that are direct obligations of, or that are fully guaranteed as to principal and interest by, the United States or any agency of the United States.

6. *Collateralized Negotiable Investments*. The District may invest in notes, bonds, or obligations that are at all times secured by a valid first-priority security interest in

securities of the types listed by Section 53651 as eligible securities for the purpose of securing local agency deposits and have a market value at least equal to that required by Section 53652 for the purpose of securing local agency deposits. The securities serving as collateral shall be placed by delivery or book entry into the custody of a trust company or the trust department of a bank that is not affiliated with the issuer of the secured obligation, and the security interest shall be perfected in accordance with the requirements of the Uniform Commercial Code or federal regulations applicable to the types of securities in which the security interest is granted.

7. *Monies held by a trustee or fiscal agent and pledged* to the payment or security of bonds or other indebtedness, or obligations under a lease, installment sale, or other agreement of a local agency, or certificates of participation in those bonds, indebtedness, or lease installment sale, or other agreements. These may be invested in accordance with the statutory provisions governing the issuance of those bonds, indebtedness, or lease installment sale, or other agreement, or to the extent not consistent therewith or if there are no specific statutory provisions, in accordance with the ordinance, resolution, indenture, or agreement of the local agency providing for the issuance.

AR 3091.17 Ineligible investments

Investments not described in these regulations shall not be included in the District's portfolio. Derivative securities, for example, are ineligible investments. They are financial instruments whose value depends on (is derived from) the value of one or more underlying assets or indexes of asset values. The term "derivative products" refers to instruments or features such as collateralized mortgage obligations (CMOs), interest only strips (IOs and principal-only (POs), forwards, futures, currency and interest rate swaps, options, floaters/inverse floaters, and caps/floors/collars. Any security that could result in zero interest accrual if held to maturity is ineligible.

The District Treasurer may seek the Board’s approval for any modifications to the list of eligible investments as state laws are revised or as market and risk conditions change.

AR 3091.18 Reporting

The District Treasurer will provide to the Board, General Manager, Internal Auditor, and the Investment Committee quarterly investment reports that provide a clear picture of the status of the current investment portfolio. The reports should include comments on fixed income markets and economic conditions, discussion regarding restrictions on the percentage of investment by categories, possible changes in the portfolio structure going forward, and thoughts on investment strategies. Required elements of the quarterly report include:

a. A list of individual securities held at the end of the reporting period by authorized investment category.
b. Average life and final maturity of all investments listed.
c. Coupon, discount, or earnings rates.

d. Par value, amortized book value, market value, source of market value, and unrealized gains/losses.
e. Percentage of the portfolio represented by each investment category.
f. Summary of quarterly transactions.
g. Certification of compliance with the District's investment policy.
h. Year-to-date summary of interest earnings (forecast vs. actual).

i. Year-to-date estimate of arbitrage rebate.
j. Six-month cash-flow forecast.

The quarterly report will graphically illustrate portfolio benchmark performance to the market average rate of return.

BP 3095 Delegation of Investment Function

Adopted: September 11, 2006
Supersedes: Policy #46

Delegation of the investment function by any local governing body is limited to a one-year period. The Board will delegate the investment function to the District Treasurer in conjunction with its annual investment review and adoption. The District Treasurer may delegate investment and cash management operational duties to others as approved by Board resolution.

BP 3096 Investment Policy Certification

Adopted: September 11, 2006
Supersedes: Policy #46

It is the responsibility of the District's Treasurer to submit the District's investment policy and administrative regulations for re-certification by the Municipal Treasurer's Association of the United States and Canada every three years. The intent is to ensure compliance with all current legislative requirements and professional standards and practices of prudent investment management.

Exhibit 1: Summary of Authorized Investments

INVESTMENT TYPE	CONDITIONS	TERM
LAIF + California Asset Management Trust	Minimum Limit: Greater of 20% or 3 months of normalized operating and capital expenditures Limit: 75% maximum	n/a
U.S. Treasury Bills, Bonds and Notes	Limit: 75% maximum	5 years
Agencies of the U.S. Govt.	Limit: 80% maximum – Prudent investor rule applies, no more than 30% of max. for a single agency	5 years
Other		
1. Bankers acceptances	Limit: 40% , no more than 30% in any one commercial bank	**180 days**
2. Commercial paper	Domestic corp – assets $500,000,000 – A1 P1 rating. Limit: 15% of portfolio market value, 30% if average maturity does not exceed 31 days. No more than 10% of max. in any single corporation.	180 days
3. Medium term notes	Limit: 30% of total market value- no more than 10% in one corporation, rated A or better, corporations operating, organized & licensed in U.S.	5 years
4. Negotiable Certificates of Deposit	Limit: 25%	5 years
5. Repurchase agreements	Master repurchase agreements. Securities collateral. See Investment Policy	90 days
6. Collateralized negotiable investments	Secured by a valid 1st priority security interest of types listed in Section 53651 as eligible securities – market value equal to that required by Section 53652.	5 years

	See Investment Policy.	
7. Monies held by a trustee or fiscal agent	Pledged for payment of bonds, other indebtedness, lease obligations, installment sale, or other agreement of a local agency. COP's in investments mentioned above. See Investment Policy.	5 years

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El Dorado Irrigation District

BP 4000 HUMAN RESOURCES

BP 4010 Human Resources Policy

Adopted: August 28, 2006
Supersedes: Policy No. 6 – Adopted August 19, 1980, Amended February 28, 1994

The General Manager is responsible, either directly or through assignment, for developing clear, fair, and organized human resources regulations. The regulations should establish conditions that will attract and retain the highest qualified individuals for all positions.

The human resources regulations shall:

- clarify the rules of employment;
- include effective procedures for handling grievances;
- protect against retaliation for non-disruptive expression of dissent;
- acquaint employees with the District's interpretation of their protections under this policy;
- ensure that standards, programs, and procedures meet or exceed acceptable industry standards as written in state and federal regulations;
- ensure a healthy and safe work environment for all District employees;
- ensure that people who work for or on behalf of the District are paid a competitive wage and are provided competitive benefits; and
- comply with all applicable state and federal laws and regulations.

AR 4010 Concepts and Roles in Human Resources

Approved: December 12, 2006

The District desires to attract and retain the best qualified people for the benefit and welfare of EID customers and to meet customer expectations.

Accordingly, human resources regulations must be:

- implemented in an atmosphere of mutual trust and good will,
- consistent with policies established by the Board of Directors, and
- consistent with applicable state and federal rules and regulations.

AR 4011 Role of the Director of Human Resources

Approved: December 12, 2006

The Director of Human Resources is responsible for ensuring that the District:

- attracts and retains qualified employees within the context of management succession planning and overall workforce planning;
- determines fair and equitable salary schedules for unrepresented, management, and confidential employees;
- negotiates with employee organizations;
- maintains an atmosphere that engenders a positive work environment;
- establishes disciplinary processes, including an appeals process, that adheres to all applicable statutes and regulations in accordance with the human resources regulations described in the collective bargaining agreement and the employee handbook;
- fosters and supports equal employment opportunities;
- fosters and supports a high level of employee performance and satisfaction; and
- establishes employee development and performance evaluation procedures to enhance and improve performance.

AR 4012 El Dorado Irrigation District Employee Handbook

Approved: December 12, 2006

In accordance with BP 4010, the District's employee handbook is provided to new employees on their first day of employment at the District.

Copies of the handbook are available upon request.

AR 4013 Harassment-Free Work Environment

Approved: December 12, 2006

The District is committed to providing a workplace free of harassment. This includes harassment based on factors such as race; color; gender; religion; national origin; ancestry; age; physical and mental disability; medical condition; veteran status; sexual orientation; marital status; family care or medical leave status; and pregnancy, childbirth, and related medical conditions.

The District will not tolerate harassment of employees by non-employees with whom District employees have a business, service, or professional relationship.

Harassment includes verbal, physical, and visual conduct that creates an intimidating, offensive, or hostile working environment or that interferes with work performance. Such conduct constitutes harassment when (1) submission to the conduct is made either an explicit or implicit condition of employment; (2) submission to or rejection of the conduct is used as the basis for an employment decision; or (3) the harassment interferes with an employee's work performance or creates an intimidating, hostile, or offensive work environment.

Harassing conduct may take many forms and includes but is not limited to the following: intimidation; slurs; jokes; statements; gestures; assault; impeding or blocking another's movement or otherwise physically interfering with normal work; and pictures, drawings, or cartoons based on an employee's gender, race, color, national origin, religion, age, physical disability, mental disability, medical condition, ancestry, marital status, sexual orientation, family care or medical leave status, marital status or any other legally protected category or status.

Sexually harassing conduct in the workplace includes all of the prohibited actions listed above as well as unwelcome conduct such as requests for sexual favors, conversation containing sexual comments, and unwelcome sexual advances.

AR 4013.1 Reporting Harassment

Any incident of harassment shall be reported immediately to a supervisor or manager, to any member of management, or to Human Resources. Managers who receive complaints or who observe harassing conduct must inform Human Resources immediately. The District emphasizes that employees are not required to notify their supervisor if that supervisor is the individual who is harassing the employee or if an employee feels uncomfortable discussing the situation with the supervisor. An employee may always directly contact Human Resources to report this type of situation.

Reported instances of harassment will be investigated thoroughly. Confidentiality will be maintained throughout the investigation to the extent possible while still maintaining our legal obligation to conduct a full investigation.

The District will not tolerate retaliation against any employee for cooperating in an investigation or for making a complaint to Human Resources or to any manager. If it is established that unlawful harassment has occurred, appropriate action will be taken to correct the situation. Such action may include, but is not limited to, oral or written counseling, disciplinary suspension or probation, or discharge from the organization.

AR 4013.2 Responsibility

Supervisors are obligated to prevent violation of this policy and are responsible for taking prompt actions to end any discriminatory or sexually harassing behavior or conduct. Human Resources is responsible for promptly hearing and investigating employees' complaints of discrimination or sexual harassment and for communicating any recommendations for remedies to appropriate management for implementation when violations of policy are identified.

AR 4014 Medical Reimbursement Program

Approved: March 7, 2007
Revised: June 3, 2011
Revised: March 11, 2013

AR 4014.1 Medical Reimbursement Program

The purpose of the District's Medical Reimbursement Program is to allow eligible participants to be reimbursed for up to $2,500 per year of legitimate, documented medical, dental, and vision costs and expenses not covered by insurance, as well as healthcare insurance premium costs not otherwise paid by the District. Eligible expenses will be approved by the Human Resources Director before reimbursement is processed through the payroll system. Reimbursements are reported as income on participants' W-2 forms.

AR 4014.2 Medical Reimbursement Program – eligible participants

Eligible participants in the Medical Reimbursement Program are all members of the Board of Directors, the General Manager, the General Counsel, and any other at-will, contract employees.

AR 4014.3 Medical Reimbursement Program – eligible expenses

To be eligible, all claimed expenses must be accompanied by invoices, receipts or equivalent documentation accepted by the Human Resources Director as sufficient to demonstrate that the expense is one of the following:

- Services provided by a bona fide healthcare provider to an eligible participant, their spouse, domestic partner, or dependant; directly paid by an eligible participant, their spouse, or domestic partner; and not covered by insurance;
- Goods or services prescribed by a bona fide healthcare provider to an eligible participant, their spouse, domestic partner, or

dependant; directly paid by an eligible participant, their spouse, or domestic partner; and not covered by insurance; or

- Healthcare insurance premium costs for a policy covering an eligible participant, their spouse, domestic partner, or dependent, and not otherwise paid by the District.

AR 4014.4 Medical Reimbursement Program – ineligible expenses

The following medical expenses are not eligible for reimbursement:

- Cosmetic medical procedures with no therapeutic purpose; and
- Medical marijuana purchased pursuant to California's Compassionate Use Act.

AR 4015 Injury and Illness Prevention Program

Approved: June 16, 2009

District management recognizes the need to ensure a safe and healthy work environment for its employees, volunteers, contractors, visitors, and the public. An important element in meeting this goal is the District's Injury and Illness Prevention Plan (IIPP). The plan has been developed in accordance with the California Code of Regulations, General Industry Safety Order 3203, which requires IIPPs for California-based operations.

The IIPP clearly states expectations for safety responsibilities at all levels within the organization and provides personnel a reference for consistent safety compliance. It is implemented as a continuous improvement program and is reviewed—and revised, if needed—on an annual basis. At a minimum, IIPP specifies and addresses the following:

1. Name(s) and title(s) of personnel responsible for the program.
2. EID's system for identifying and evaluating workplace hazards, including scheduled periodic inspections to identify unsafe conditions and work practices.
3. EID's methods and procedures for correcting any unsafe or unhealthy work practices and conditions in a timely manner.
4. An occupational health and safety training program designed to instruct employees in safe and healthy work practices and in hazards specific to each employee's job assignment.
5. A procedure to investigate occupational injuries and illnesses.
6. EID's system for communicating with employees on occupational health and safety matters, including provisions designed to encourage employees to identify and report hazards at the work site without fear of reprisal.
7. EID's system for ensuring that employees comply with safe and healthy work practices, which may include disciplinary action for failure to comply.

A copy of the plan is available at http://peoplescope/Pages/Default.aspx or upon request from the Safety/Security Office.

El Dorado Irrigation District

BP 5000 WATER SUPPLY

BP 5010 Water Supply Management

Adopted: August 28, 2006
Supersedes: Regulation No. 1 – adopted March 24, 1982, amended April 21, 2003
Regulation No. 2 – adopted July 24, 1989, amended August 6, 2001
Regulation No. 3 – adopted October 25, 1993
Regulation No. 7 – adopted December 14, 1988, amended October 21, 2002
Regulation No. 10 – adopted September 30, 1981, amended February 7, 2000
Regulation No. 11 –adopted June 17, 1984

The Board is committed to provide a water supply based on the principles of reliability, high quality, and affordability in a cost-effective manner with accountability to the public. It is the General Manager's responsibility to ensure that the tenets of this policy are carried out in an open, transparent manner through sound planning, to assure preparedness under varying conditions, and effective management.

It is the policy of the Board that the District will not issue any new water meters if the *Water Resources and Service Reliability Report* indicates that there is insufficient water supply. When warranted by the findings of the report, the General Manager will bring the possibility of restrictions on meter issuance to the Board's attention. Any such restrictions will be established pursuant to Water Code Section 350 et. Seq. of the California Water Code.

AR 5010 Water Availability and Commitments

Approved: December 12, 2006

AR 5010.1 Annual reporting

The District will maintain adequate water supply and demand records to ensure accurate monitoring and reporting. The General Manager will ensure that an updated *Water Resources and Service Reliability Report* is prepared annually for review by the Board of Directors. The report will include the current system firm yield of the overall District, along with the water supply and infrastructure capacity, potential demands, existing commitments, and meter availability for each water service area of the District as defined in the report.

AR 5010.2 Shortages

The *Water Resources and Service Reliability Report* will use a system firm yield method to determine that sufficient water supply exists to meet potential demands. Under this methodology, approximately 95% of the time sufficient water supply is available to meet normal water demands, but during the remaining 5% of the time water shortages may occur. Such shortages may result in the implementation of voluntary or mandatory conservation measures.

AR 5010.3 New meter restrictions

Should findings in the *Water Resources and Service Reliability Report* warrant restrictions on the issuance of new water meters, the General Manager will bring the situation to the attention of the Board of Directors. During emergency conditions when supplies are restricted or limited, the General Manager may also bring to the Board's attention possible restrictions on water meter availability.

AR 5011 Water Supply Management Conditions

Approved: December 12, 2006
Revised: July 25, 2008

The District recognizes that variations in weather patterns can cause watersheds to yield different quantities of water supply in any given year. In some years, dry weather or drought conditions may occur which result in varying degrees of water shortage. The District also recognizes that future climate change may impact the intensity and duration of future droughts.

The actions required to respond to both near- and long-term changing water supply conditions are outlined in the District's *Drought Preparedness Plan*, adopted by the Board of Directors on February 11, 2008. The following water supply management conditions, and corresponding drought stages, describe the incremental steps needed to manage increasing levels of water shortage.

AR 5011.1 Water supply normal and unrestricted Drought Stage Zero – Ongoing water conservation

Stage Zero is in effect at all times unless another subsequent stage is declared. Stage Zero reflects periods when normal water supplies and normal distribution capacity are available, and the District anticipates the ability to meet the unrestricted demands of its customers. A prohibition of water waste will be in effect during both normal and restricted water supply conditions.

AR 5011.2 Water supply slightly restricted Drought Stage 1 – Voluntary reductions in use

The objective of Stage 1 is to initiate public awareness of predicted water shortage conditions, and encourage voluntary water conservation to decrease normal demand up to 15%.

AR 5011.3 Water supply moderately restricted
Drought Stage 2 – Voluntary and mandatory reductions

The objective of Stage 2 is to increase public understanding of worsening water supply conditions, encourage voluntary water conservation measures, and then if necessary, enforce mandatory conservation measures in order to decrease normal demand up to 30%.

AR 5011.4 Water supply severely restricted
Drought Stage 3 – Mandatory restrictions

The objective of Stage 3 is to enforce extensive mandatory restrictions on water use, and implement water rationing to decrease normal demand up to 50% to ensure that water use is limited to health and safety purposes.

AR 5011.5 Declared water shortage emergencies

The General Manager may also declare a water shortage emergency due to an existing condition or when there is a high probability that a condition will be realized in the near future. Such conditions may include an unexpected disruption of supply, storage, or distribution system facilities.

AR 5012 District Infrastructure and Facilities

Approved: December 12, 2006
Revised: May 25, 2010

AR 5012.1 Connections to District infrastructure

Connections to the District's infrastructure shall be made only by District employees or under the direct supervision of District employees. No connection to District infrastructure shall be made without prior approval.

AR 5012.2 Responsibility for infrastructure maintenance

The District's ownership of and responsibility for the operation and maintenance of facilities will end at the discharge side of the meter, or discharge conduit. In circumstances where the customer owns a testable check valve assembly, the annual testing and maintenance of internal components are conducted by the District. The District will be responsible to operate, maintain, and replace District water mains, flumes, ditches, and other facilities of the District's total supply, transmission, and distribution system. The District's water supply system shall be under the exclusive control and management of duly appointed District personnel, and no one shall have any right to operate, maintain or replace any of the District's water facilities, or interfere with the District system in any manner.

For service through private waterlines or community group systems, measuring devices placed within these systems shall be at the sole discretion of the District. Any such placement, however, does not create an obligation on the part of the District for the operation, maintenance, or replacement of the private waterlines or group system.

AR 5013 Water Service Interruptions or Restrictions

Approved: December 12, 2006
Revised: July 25, 2008
December 20, 2012

Water service interruptions or restrictions may occur during water supply conditions, especially Drought Stages 2 and 3, and water shortage emergencies as declared by the General Manager. The District may, with prior notification, temporarily remove or lock off meters or otherwise interrupt water service to classifications not assigned for human consumption.

Irrigation and agricultural services provided by the District may be subject to an interruption or restriction under these conditions. Temporary Water Use program services provided by the District may also be subject to removal, lock-off, restriction, or discontinuance.

The District may also restrict water availability for Temporary Water Use in certain locations due to constraints in the distribution system.

AR 5013.1 Violations

The District reserves the right to interrupt or restrict, without prior notice, any irrigation or agricultural service, construction, or Temporary Water Use that is found to violate the restrictions imposed by a water shortage condition.

AR 5013.2 Service interruptions due to planned or unplanned maintenance

The District reserves the right at any and all times to shut off water delivery or reduce pressure for the purpose of maintenance or making repairs and alterations to the water system. Whenever possible, advance notice of interruption of service will be given to all affected water users.

AR 5014 Fire Suppression

Approved: December 12, 2006
Revised: December 18, 2012
Revised: August 20, 2013
Revised: February 19, 2015

A fire suppression system may consist of a private interior fire sprinkler system or public fire hydrants. The fire protection agency having jurisdiction over the property will set the fire suppression requirements. The District will provide water for fire hydrants and other fire suppression facilities, but does not warrant or guarantee any range of pressures or rates of flow. The District will not be liable for water pressure or damage in any manner that arises from the availability of water or water pressure at any hydrant or facility used for fire suppression.

The District will provide water at no cost to fire protection agencies for the purpose of fire suppression activities. These activities are limited to equipment maintenance and testing, training, and the filling of fire suppression equipment. All other domestic uses of water, including but not limited to washing of tools, driveways and vehicles, and irrigation uses as well as interior uses at fire stations and any associated training facilities, will be supplied in accordance with District regulations and procedures and must be metered and paid for by the fire protection agency.

AR 5014.1 Fire hydrants

Public fire hydrants for parcels located inside District boundaries will be installed and connected to District mains when requested by the fire protection agency having jurisdiction or when required as a condition of a building permit or subdivision of land. The cost of the fire hydrant assembly and all other appurtenances, including installation, will be paid for by the holder of the building permit or the developer of the project. The District will review, approve, and inspect all public fire hydrant installations.

All public fire hydrants will be owned, operated, tested for functionality, flow tested and maintained by the District from the water main up to and including the hydrant. All fire hydrants may be inspected, tested for functionality, and externally maintained by the fire protection agency.

No person, other than authorized EID or fire protection agency personnel, shall open or draw water from any fire hydrant connected to the District's distribution system without prior specific authorization from the District. Refer to AR 9073 for authorized temporary water use.

The removal or relocation of any public fire hydrant must be approved by the District in advance, and any removal or relocation will be made at the expense of the person or entity requesting the change.

AR 5014.2 Commercial fire suppression services

The property owner will be responsible for the expense of installing a commercial fire suppression system and appropriate backflow prevention device as required by the District.

Water provided to a fire suppression sprinkler system will not be used for any purpose other than extinguishing a fire or testing of the fire protection system.

AR 5014.3 Residential fire suppression services

A residential fire sprinkler system may be served by the residential water meter except if a separate service line and water meter is needed to provide the required fire flow.

AR 5015 Ground Water Supply

Approved: December 12, 2006

Because of the unreliable nature of underground water sources in most of El Dorado County, ground water will not be relied on to augment firm yield supply or as a sole source of water for domestic, irrigation, or fire-fighting purposes. Any consideration of direct ground water augmentation to the existing water system will be evaluated on the basis of short- and long-term reliability, quality, and economics. More than one professional, expert opinion regarding adequacy will be required. The costs of necessary tests, expert opinions, and District staff time will be borne by the applicant.

BP 5020 Cross-Connection Control and Backflow Prevention

Adopted: August 28, 2006
Supersedes: Regulation No. 10 – Prevention of Contamination by Backflow and Cross Connections, Adopted September 30, 1981, Amended February 7, 2000

The District will establish and maintain a cross-connection control program according to the California Code of Regulations - Title 17, Section 7583-7605, or their successors.

AR 5021 Cross-Connection Control and Backflow Prevention

Approved: September 16, 2009

In accordance with BP 5020, the District protects its public water system at the service connection against any actual or potential cross-connection between the public water system and any source or system containing used water, industrial fluid, gas or other substance that is not, or cannot be, approved as safe, wholesome and potable for human consumption. Such protection is enforced through California Code of Regulations Title 17 Section 7584, which requires the District to comply with all applicable state and federal laws required by the Safe Drinking Water Act of 1974, as they are now constituted, or as they may hereafter be amended or recodified, and implemented through the District's "Cross-Connection Control and Prevention of Backflow Program."

A copy of the current "Cross-Connection Control and Prevention of Backflow Program" is available upon request from the Environmental Division.

BP 5030 Water Conservation

Adopted: August 28, 2006
Supersedes: Regulation No. 21 – Conservation, Adopted June 10, 1981

It is Board policy to take reasonable and prudent measures to conserve all water and to adopt and implement water-use efficiency programs that will benefit its customers.

BP 5040 Drought Preparedness and Climate Variability

Adopted: August 28, 2006
Supersedes: Regulation No. 2 – Water Supply Reliability, Adopted July 24, 1989, Amended August 6, 2001

The Board supports the adoption and implementation of a drought preparedness plan to ensure a proactive response to the impacts of drought conditions. Included in the planning effort is consideration of climate variability.

BP 5050 Watershed Management

Adopted: August 28, 2006
Supersedes:

It is Board policy to adopt and support watershed management strategies that will maximize water supply reliability and water quality.

El Dorado Irrigation District

BP 6000 WASTEWATER COLLECTION

BP 6010 Wastewater System Management

Adopted: September 25, 2006
Supersedes: Regulation 13 – adopted October 28, 1987, revised January 24, 1994

The District will maintain a wastewater collection, treatment, and disposal system that complies with applicable state, and federal wastewater discharge requirements and regulations.

AR 6020 Wastewater Discharge and Disposal

Approved: December 12, 2006
Revised: April 1, 2013

Where sufficient capacity exists in mainline and collection sewers, the District will make service available subject to applicable connection procedures and fees. Connection to the District's sewer shall not cause objectionable odors or significant corrosive conditions such as those associated with effluent-only systems or pumped services.

AR 6020.1 Wastewater discharge and disposal

No wastewater or other substances shall be introduced into the District's wastewater system that would:

1. introduce pollutants into the District's treatment plants that will interfere with the plants' operations, including the use or disposal of wastewater sludge, or otherwise be incompatible with operations;
2. interfere with opportunities to recycle and reclaim treated effluent and wastewater sludge;
3. injure or damage any person or property or endanger the public health or safety;
4. cause the District to violate any federal or state law or permit;
5. endanger humans, animals, and fish or other aquatic life in any body of water receiving effluent from the District plants

AR 6020.2 Customer responsibility

Service Lateral Responsibilities

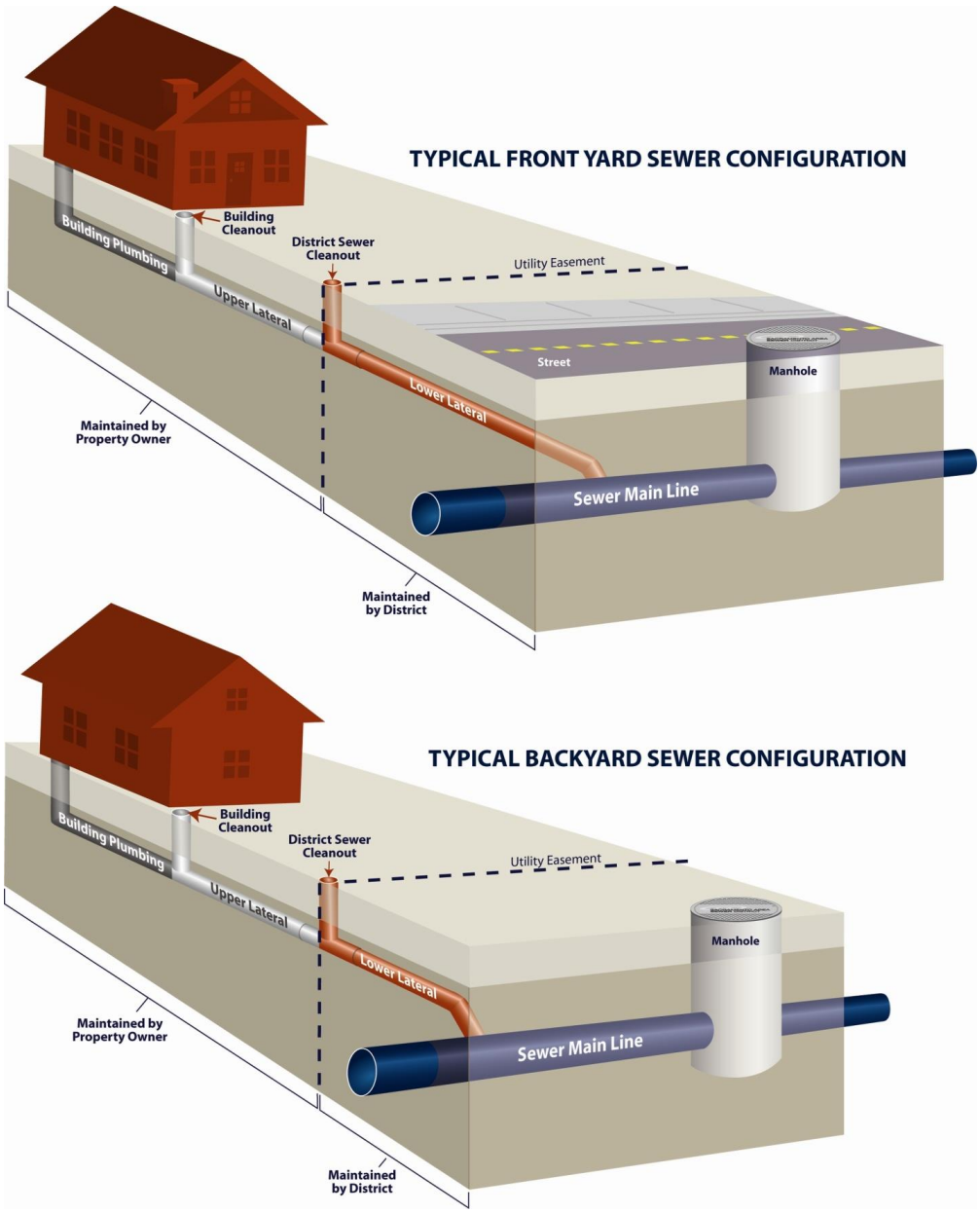
The wastewater service laterals are comprised of an upper and lower portion. The upper lateral is defined as that portion of the wastewater lateral that exists from building plumbing to the cleanout located at or near the utility easement line. In the absence of a cleanout at or near the utility easement line, the upper lateral extends to the utility easement line itself. The lower lateral is defined as that portion of the wastewater lateral from the mainline to the downstream end of the upper lateral, including the cleanout.

The property owner owns and has sole responsibility for clearing stoppages, inspecting, maintaining and repairing the upper lateral. The owner must perform all required maintenance and keep the upper lateral in good condition to avoid negative impacts to the operation and maintenance of the lower lateral. This includes the following:

a) The upper lateral shall be kept free from roots, grease deposits, and other solids that may impede the flow or obstruct the transmission of waste
b) All joints shall be tight, and all pipes shall be sound and free from structural defects, including cracks, breaks, and missing portions, to prevent infiltration and ex-filtration of waste by groundwater or stormwater
c) No drains or other appurtenances that collect stormwater or surface water shall be connected to the upper lateral

The District owns and is responsible for clearing stoppages and for inspecting, maintaining, and repairing the lower lateral. District and owner responsibilities are illustrated in Figure 1 on the following page.

Figure 1:


TYPICAL FRONT YARD SEWER CONFIGURATION
Building Cleanout
Building Plumbing
District Sewer Cleanout
Utility Easement
Upper Lateral
Street
Manhole
Lower Lateral
Maintained by Property Owner
Sewer Main Line
Maintained by District
TYPICAL BACKYARD SEWER CONFIGURATION
Building Cleanout
Building Plumbing
District Sewer Cleanout
Utility Easement
Upper Lateral
Manhole
Lower Lateral
Maintained by Property Owner
Sewer Main Line
Maintained by District

In the absence of a cleanout in the lower lateral, the District reserves the right, subject to approval by the property owner, to install a cleanout at the upstream-end of the lower lateral, or in close proximity thereto. The District maintains sole responsibility for mainlines owned by the District.

Low Pressure Sewer Systems

Low pressure sewer systems are not allowed without approval of the District. If a low pressure sewer system is approved, a private sewer maintenance agreement shall be executed and recorded on all participating properties which will include a delineation of ownership and maintenance responsibilities.

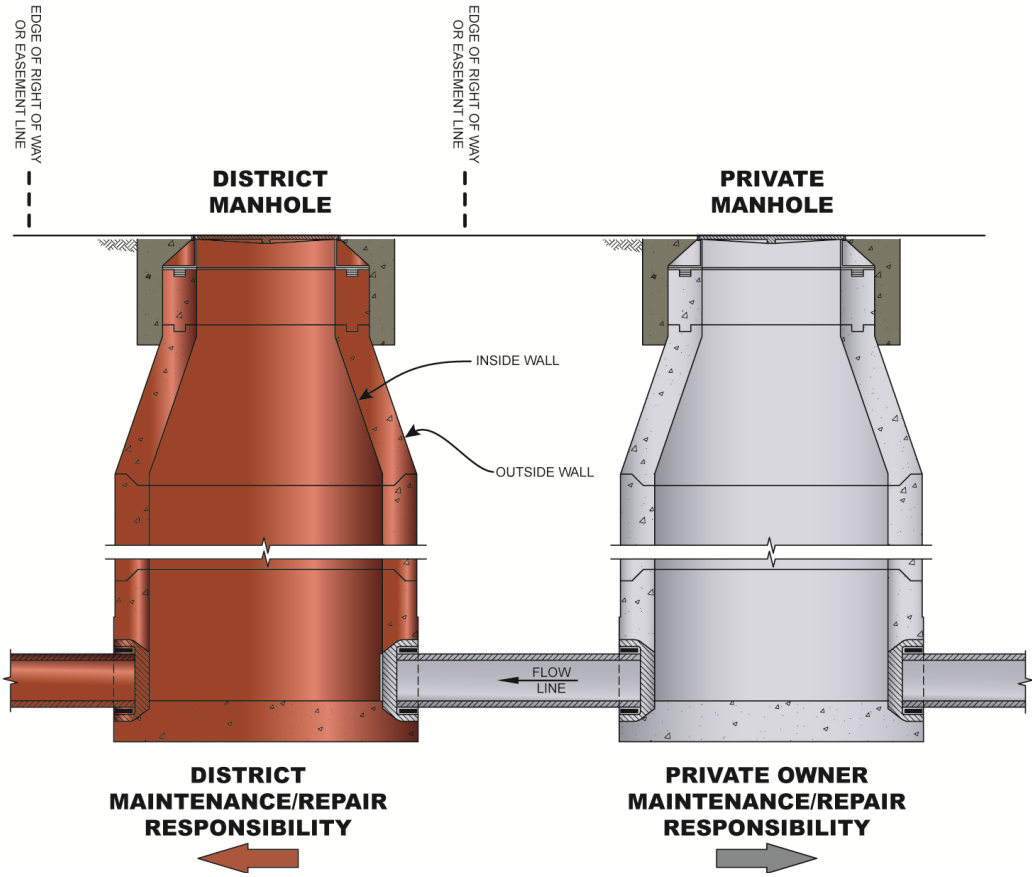
In cases where a parcel or structure is served by a low pressure sanitary sewer collection system, the owner or official/designated owner's group has the sole responsibility for ownership, operation, and maintenance of the low pressure sewer system outside of the utility easement, unless otherwise approved by the District.

The District is not responsible for backups into structures or overflows onto the owner's real property or adjacent real properties caused by grinder pumps, including, but not limited to, a loss of power to or plugging of the grinder pump.

Private System

In cases where a District manhole has been installed to separate a private system from the District sewer system, the end of the pipe at the inside of the upstream wall of the District manhole marks the limit of the District's maintenance and repair responsibility. This responsibility is illustrated in Figure 2 on the following page.

Figure 2



Any customer that violates these regulations will be liable to the District for all direct and indirect costs, expenses, and damages associated therewith, and may be subject to civil liability and/or criminal prosecution.

AR 6021 Industrial Pretreatment Program

Approved: December 12, 2006
Revised: February 25, 2009

In accordance with BP 6010, the District has established and maintains an Industrial Pretreatment Program that complies with applicable state and federal wastewater discharge requirements and regulations.

A copy of the Industrial Pretreatment and Pollution Prevention Program is available upon request from the Environmental Division.

AR 6022 Requirements for the Control of Fats, Oils, and Grease from Food Service Establishments

Approved: June 4, 2009

In accordance with BP 6010, the District controls the amount of fats, oils and grease entering the sewer system from food service establishments to comply with applicable state and federal wastewater discharge requirements and regulations.

A copy of the "Requirements for the Control of Fats, Oils, and Grease from Food Service Establishments" is available upon request from the Environmental Division.

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El Dorado Irrigation District

BP 7000 RECYCLED WATER

BP 7010 Authorized and Mandated Use of Recycled Water

Adopted: September 25, 2006
Supersedes: Regulation No. 31
Revised: November 12, 2013

The District mandates the future use of recycled water, wherever economically and physically feasible, as determined by the Board, for non-domestic purposes when such water is of adequate quality and quantity, available at a reasonable cost, not detrimental to public health, and not injurious to plant life, fish, and wildlife. The type of use is defined in Title 22 of the California Code of Regulations. In general, the lands subject to mandatory recycled water use are defined in the most current version of the District's Master Plans.

The District shall have authority to monitor and inspect the entire recycled water system, including on-site facilities, to ensure and enforce compliance with all applicable requirements and standards. The District shall have the right to access customers' premises as required for these purposes. The District may impose penalties and fines and require corrective action for misuse of recycled water.

AR 7010 Suitability of Recycled Water Supplies

Approved: December 12, 2006

Recycled water supplies will meet the applicable conditions in Title 22 of the California Code of Regulations for tertiary treated wastewater.

AR 7011 Determination of Required Use

Approved: December 12, 2006
Revised: November 12, 2013

Non-domestic use includes, but is not limited to, commercial landscape irrigation, residential or multi-family dual plumbed landscape irrigation, construction water, industrial process water, and recreational impoundments.

The criteria for determining whether recycled water is feasible for a particular property or non-domestic use include the following factors:

- The property is located within an area as defined in the most current version of the District's Master Plan.
- Recycled water may be furnished for the intended use at a reasonable cost to the customer and the District.
- Recycled water is of adequate quality for the intended use and does not require significant additional on-site treatment beyond that required for potable water.
- The use of recycled water is consistent with all applicable federal, state, and local laws and regulations.
- The use of recycled water will not be detrimental to the public health and will not adversely affect plant life, fish and wildlife.

AR 7011.1 Residential dual plumbed water EDU ratio

For residential dual plumbed connections, the District will allocate water EDU's on a 2.5 to 1 ratio (i.e., 2.5 dual plumbed connections = 1 water EDU) in recognition that, based on current demand data, the annual potable water requirement of dual plumbed residential connections is approximately 40% of a full potable connection, including potable supply supplementation of the recycled water system. The District may periodically review and update this allocation based on the then-current demand data.

AR 7012 Construction and Inspection of Facilities

Approved: December 12, 2006

To ensure the health and safety of the public, on-site facilities shall be constructed and inspected to conform to the District's On-Site Facilities Design and Construction Standards and in accordance with the District's Master Reclamation Permit issued by the Regional Water Quality Control Board - Central Valley Region.

The District shall have the ultimate responsibility and authority to monitor and inspect the entire system to ensure and enforce compliance with all applicable standards, regulations, User Reclamation Plans, and Engineer's reports. For these purposes, the District shall have the right to access the customer's premises as required.

AR 7013 Discontinuation / Interruption of Service

Approved: December 12, 2006
Revised: March 20, 2012

It is the goal of the District to provide continuous service and, in the event of a service disruption, to resume service in an expedited manner. When misuse has been established and penalties and fines are not paid or corrective action is not taken within the prescribed time frames, service may be temporarily terminated. Service will be restored when penalties and fines are paid and/or corrections are made.

AR 7013.1 Supply

The District reserves the right to limit the use of recycled water when supplies are limited.

AR 7013.2 Misuse of Recycled Water

Penalties and fines shall be imposed for misuse of recycled water, and the customer will be required to take corrective action as prescribed by the District. Misuse of recycled water includes, but is not limited to, the following:

- Modification or relocation of the meter, which results in nonconformance with District requirements.
- Intentional non-permitted discharges; for example, discharge to surface water or pond overflow.
- Intentional cross connection; for example, connection of the recycled water system to the potable water system.
- Non-approved system installations or modifications; for example, irrigation system modifications that have not been reviewed, approved, and/or inspected by the District, excluding drip systems and sprinkler heads.
- Theft of recycled water; for example, unmetered use of water or meter tampering.
- Non-compliant use of recycled water; for example, use that is not in compliance with the User Reclamation Plan, engineer's reports, and/or the provisions of Title 22 of the California Code of Regulations.
- Operational non-compliance; for example, system operation that is not in compliance with the site User Reclamation Plan or engineer's reports such as irrigating outside of the allowable time period.

- Noncompliance with applicant agreement, engineer's reports, or User Reclamation Plans. This applies to the developer or owner of a development who does not follow the specific requirements outlined in the applicant agreement, engineer's reports, and/or User Reclamation Plans.

AR 7013.3 Fines and Penalties

Misuse of recycled water may result in discontinuation of service, penalties, and fines. Penalties and fines paid to the District shall be designated to reimburse operating expenses and/or environmental restoration projects, payment of fines to regulatory agencies, or otherwise according to the District's fines and penalties schedule.

When determining the level of penalty and/or fine, the District will consider all relevant facts and circumstances and may consult with regulatory agencies such as the Department of Health Services (DOHS), Central Valley Regional Water Quality Control Board (CVRWQCB), and/or other resource agencies as appropriate. The District reserves the right to impose fines and penalties in excess of those described above, including possible termination of service, upon a finding of gross negligence or willful misconduct.

A customer may appeal the District's imposition of a penalty and/or fine. Appeals shall follow the procedures of AR 1041.6.

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El Dorado Irrigation District

BP 8000 HYDROELECTRIC SYSTEM

BP 8010 Hydroelectric System Management

Adopted: October 11, 2006
Supersedes: N/A

The District maintains and operates its hydroelectric generating facilities in a safe, efficient, and environmentally responsible manner, and in compliance with all applicable federal and state permits and regulations, the terms of the Federal Energy Regulatory Commission license, and all related agreements. Hydroelectric power generation shall be compatible with the District's consumptive water supply operations.

AR 8010 Priority of Consumptive Water Diversion over Power Generation

Approved: December 12, 2006

The hydroelectric power generation shall be synchronized with consumptive water production with the intentions to maximize power generation. When the General Manager determines there is a conflict between hydroelectric generation and consumptive water production, priorities shall be given to consumptive water production.

AR 8011 Participation in Power Markets

Approved: December 12, 2006

The District shall market its electric generating capacity and energy to the fullest extent possible by using a combination of power marketing strategies, which offer the optimal blend of maximum revenue with acceptable risk levels. Such power markets may include, for example, non-firm energy generated as available, day-ahead firm energy, renewable energy, and ancillary services. The District shall remain up-to-date in regards to electric power marketing strategies, associated risks, and changes.

AR 8012 Emergency Preparedness

Approved: December 12, 2006

The District shall maintain a set of Standard Operating Procedures for the hydroelectric facilities. The SOPs will include emergency preparedness guidelines and recommendations designed to avert the need to invoke an emergency or mitigate the consequences of an emergency.

In addition to the SOPs, the District shall maintain Emergency Action Plans for each of the dams licensed by the Federal Energy Regulatory Commission (FERC). The dam EAPs will be updated periodically and exercised annually by way of either tabletop exercise or a functional exercise.

AR 8013 System Operation

Approved: December 12, 2006

The District shall operate and maintain its hydroelectric system of ditches and powerhouse in a safe and cost-effective manner, in compliance with regulatory requirements and industry standards.

AR 8014 Priority of the Dam Safety Program

Approved: July 10, 2012

The District shall maintain a dam safety program to safeguard the public, the environment, and its hydroelectric facilities. This will be facilitated through the Owner's Dam Safety Program (ODSP), as required by the Federal Energy Regulatory Commission; applicable to the District's high and significant hazard potential dams.

The ODSP shall assure that dam safety is of the highest priority within the District's organization through: acknowledging dam safety responsibilities; promoting internal communication throughout the organization; clearly designating responsibility for maintaining dam safety; allocating adequate resources to dam safety; and continual learning in dam safety.

BP 8020 Additional Generation Opportunities

Adopted: October 11, 2006
Revised: August 10, 2009

The District shall seek to augment its electric energy and capacity revenue stream, and/or reduce its operational energy expenses, by adding new generation facilities whenever they are economically viable.

It is the policy of the El Dorado Irrigation District that resources planning and infrastructure, including water and wastewater systems, emphasize renewable energy and energy efficiency toward a goal of energy independence for El Dorado County and its citizens.

El Dorado Irrigation District

BP 9000 CUSTOMER SERVICE

BP 9010 Customer Service

Adopted: November 11, 2006
Supersedes: N/A

The District strives to meet or exceed customers' reasonable expectations for service through innovative thinking, effective issue resolution, and execution of strategic plans.

AR 9010 Access to Programs, Services, and Facilities

Approved: November 6, 2008

The El Dorado Irrigation District (EID) provides access to its programs, services and facilities to persons with disabilities in accordance with Title II of the Americans with Disabilities Act of 1990 (ADA) (42 U.S.C. §§ 12131-12134), its implementing regulation (28 C.F.R., part 35), and other applicable federal and state laws. The District's Human Resources Director or designee is the initial point of contact for inquiries or complaints regarding accessibility.

AR 9011 Use of District Facilities

Approved: April 22, 2010

District facilities shall be used only for activities that are directly related to or advance the District's mission. The use of District facilities by non-District personnel directly relates to or advances the District's mission if all of the following conditions are satisfied:

- The use is by an organization of which the District or any of its employees is a member.
- The organization's mission or activities are directly related to a business function of the District.
- District personnel are eligible to attend and participate in the activity for which the District facility is being used.
- The activity will further the professional development or personal health of District personnel, or otherwise advance the District's interests.
- The organization has agreed to reimburse the District for any documented District costs incurred solely as a result of the facility use.
- An authorized representative of the organization furnishing the activity has executed a District-approved liability waiver and release form, and the organization has provided satisfactory evidence of insurance coverage in types and amounts reasonably deemed necessary by the District. If the Office of the General Counsel approves, the District may waive any or all of these liability and insurance requirements.

BP 9020 Establishing New Service

Adopted: November 11, 2006
Supersedes: Regulation Nos. 1, 5, 6, 8, 12, 14, 17, 18, 22

The District provides drinking water, recycled water, and wastewater services to residential, municipal, commercial, industrial, and agricultural customers within the District's service area. These services are subject to the provisions of all Board Policies and applicable Administrative Regulations and to the payment of appropriate rates, fees, deposits, and charges.

AR 9021 Eligibility for New Service

Approved: December 12, 2006
Revised: July 24, 2012

When applying for and receiving service from the District, each customer covenants and agrees to be bound by and to comply with all applicable laws, the District's Board Policies and Administrative Regulations, and all terms of signed service agreements.

Except as otherwise indicated in the District's Board Policies and Administrative Regulations, new service will be provided subject to the following conditions:

- The land to be served is within the service area and becomes subject to the indebtedness of the District and annexed to the District.
- The applicant or authorized agent shall make application for service and pay, by cash or check, all applicable water, wastewater, and recycled water connection charges.
- If the property to be served is intended or required to have water, recycled water, and wastewater service, then all services must be listed and paid for in the application process.
- **Raw Water** - Requests for ditch service will be considered only for non-drinking purposes and only if the service ties to the Main Ditch. All raw water connections require the approval of the District's General Manager.
- **Drinking Water** - A District water main of adequate capacity and pressure must exist in a right-of-way abutting a principal boundary of the land to be served, or adequate mains, pumps, and storage facilities (as solely determined by the District) must be constructed in accordance with the District's Board Policies and Administrative Regulations.
- **Recycled Water** - The District requires that customers use recycled water, wherever feasible, for future non-domestic purposes when it is of adequate quality and quantity, available at reasonable cost, not detrimental to public health, and not injurious to plant life, fish, and wildlife. In general, the lands subject to mandatory recycled water use are as defined in the most current version of the District's Recycled Water Master Plan.
- **Wastewater** - A sewer main of adequate capacity must exist in a right-of-way abutting a principal boundary of the land to be served,

or adequate wastewater facilities, including lift stations and collection facilities, must be constructed in accordance with the District's Board Policies and Administrative Regulations.

- **Commercial Private Fire Service** - A private fire service is required for commercial customers who request water for fire suppression other than from public fire hydrants. The principal boundary of the property must abut a District water main of adequate size, capacity, and pressure, unless the applicant receives prior approval from the District. The District does not guarantee any range of pressure or rates of flow and is not liable for damage to the private fire service because of water pressure. The District reserves the right to require a metered service be installed and to disconnect a private fire service if water is taken through the detector check assembly for any use other than fire suppression. The District is not liable for any loss or damage due to such action. *See Administrative Regulation 5014 for more information on commercial and residential fire suppression services.*
- **Small Farm Irrigation and Agricultural Metered Irrigation Service -** To qualify for small farm or agricultural metered irrigation service rates, users must meet all of the requirements set forth in AR9024.

AR 9021.1 Failure to apply for service

Anyone using water, wastewater, and recycled water services without having applied to the District shall be held liable for these services from the date of any previous meter reading that most nearly coincides with the actual date the services were first used.

AR 9021.2 Acceptance of application(s) for service

The District will accept applications for water, recycled water, and wastewater services after determining that all conditions of eligibility have been met. For acceptance, applications must be accompanied by all supporting documentation requested by the District. The District's acceptance of an application for service is not a guarantee that a service connection will be made or service provided.

In compliance with Government Code section 65589.7 or its successors, District staff shall prioritize the processing of applications for service made by developments that include housing units affordable to lower income households.

No service connection will be made if it is found that actual conditions or operation of facilities would violate the District's Board Policies, Administrative Regulations, and *Water, Sewer and Recycled Water Design & Construction Standards*.

AR 9022 Payment of Service Connection Charges

Approved: December 12, 2006

Applicants who meet District requirements for service shall pay a facility capacity charge (FCC) for each service connection. This and all other appropriate fees, surcharges, and inspection and construction costs, if any, must be paid in full prior to receiving service. Payment shall be made by the owner of the property benefiting from the service or by others with the owner's written consent and permission.

AR 9022.1 Refunds and transfers

Once paid, fees, application costs, FCCs, and surcharges are not refundable except if the County/City nullifies or modifies a proposed project. The applicant must provide appropriate documentation of the change or modification, and the District will deduct the appropriate administrative fee from the refund.

Once paid, application costs, FCCs, and surcharges cannot be transferred except if a boundary line adjustment reduces the water demand for a second service, the County/City modifies a project, or the County/City certifies the lot as unbuildable. All transfers must be under the same ownership and must obtain approval from the lien holder prior to the transfer. Verification from either the City or the County will be required if a project is modified or the lot is deemed unbuildable. All transfers are subject to the District's Board Policies and Administrative Regulations in effect at the time the transfer is approved. Any applicable FCCs or meter relocation fees must be paid in full prior to approval of the transfer.

AR 9022.2 Fee Deferral for Affordable Housing

Single-family or multi-family development projects that meet affordable housing criteria for persons and families of low or moderate income, as defined by California Health & Safety Code section 50093 and related enactments, or their successors, may be eligible to defer the payment of FCCs and associated fees otherwise owed to the District at the time of the issuance of a building permit by the local building official. The maximum fee deferral period will not exceed 12 months, and the District will not issue, install or certify water, sewer or recycled water meters or connections until the FCCs and associated fees are paid in full.

AR 9022.2 Fee Deferral for Affordable Housing (continued)

As a condition of the request for deferment of fees, the property owner will execute an Agreement to pay the fees. The Agreement will be in recordable form, and upon recordation by the county recorder shall constitute a real property lien for the payment of the fees which shall be enforceable against successors in interest to the property owner. Interest (equal to the prevailing prime lending rate on the date the Agreement is signed, plus 2%) will be charged on all amounts deferred and will accrue from the date the Agreement is signed.

AR 9023 Non-Standard Service

Approved: December 12, 2006

When in the sole determination of the District satisfactory service cannot be supplied from District mains because of elevation, location, or other factors, the District reserves the right to refuse service or to require the applicant to provide a written release from liability for any damages or inconvenience that may occur by reason of insufficient pressure, inadequate volume, or intermittent supply. Applicants must, at their own expense, provide private pipelines, storage facilities, and/or pumping plants sufficient to meet their needs.

AR 9024 Small Farm and Agricultural Metered Irrigation (AMI)

Approved: December 12, 2006
Revised: July 13, 2012
Revised: August 20, 2013
Revised: July 14, 2014
Revised: November 4, 2014

To qualify for small farm or agricultural metered irrigation service rates, users must meet all of the requirements under the appropriate category below. Users whose intent is to farm but do not meet eligibility requirements for the Small Farm Irrigation or AMI rate, or who have not begun development, will be placed on the appropriate rate until they meet eligibility requirements.

The right to the Small Farm or AMI rate is not perpetual and does not run with the land. In the event the property changes hands or the qualifications are not being met, the District reserves the right to change the rate to the appropriate rate (for example, Single Family Residential) until such time as the customer can meet the eligibility requirements.

Small Farm Irrigation Eligibility Requirements:

- Minimum parcel size is one (1.0) acre per County Assessor's Office records
- Minimum ½ acre planted agricultural crops and/or qualifying livestock as a marketable product in accordance with county zoning
- Maintenance of the crop to produce a marketable product
- Submission of one of the following: 1) valid Certificate of Compliance from the El Dorado County Department of Agriculture, or 2) current appropriate IRS form that shows at least $3,500 annual gross income in "agricultural products of the lands"
- The Small Farm rate will remain in effect for the customer and time period stated on the Certificate of Compliance. The rate will remain in effect for three years for customers who submit an appropriate IRS form.

Agricultural Metered Irrigation (AMI) Eligibility Requirements:

- Minimum 10.0 acres of irrigated pasture or a minimum of 5.0 acres planted orchards, groves, vineyards or other horticultural pursuits with acreage determined by the El Dorado Department of Agriculture's guidelines for measuring crops

- The AMI rate will remain in effect until there is a change in ownership or the property no longer qualifies for the rate. Surveys may be performed at the District's discretion to ensure the property meets the eligibility requirements.

For customers on an AMI rate, one meter may be installed to serve multiple parcels under the same ownership. The owner must provide sufficient county recorded documentation of ownership. Facility Capacity Charges (FCCs) will not be assessed on the additional parcel, but applicable billing unit charges will apply. When landholdings are under the same ownership, the meter remains with the original parcel or nearest new parcel if the landholdings are modified or sold. Liens are to be placed on each commonly owned parcel, and when a title change occurs, all other parcels under separate ownership will be required to obtain a new water meter, conform to all Board Policies and Administrative Regulations, and pay the FCCs in place at the time of purchase.

AR 9025 Authorized Use of Water

Approved: December 12, 2006
Revised: August 20, 2013

The sole use of water furnished by the District shall be on the parcel that is specified in the customer's application for service. Water furnished by the District to a residential premise may not be resold (for example, multiple dwellings on a master meter), except by the City of Placerville.

The District also provides temporary water use for authorized projects in three ways. Refer to AR 9073 for Temporary Water Use meters.

AR 9026 Water Meters

Approved: December 12, 2006
Revised: August 24, 2012

All delivered water will be measured by appropriate metering devices as determined by the District. Meters will be installed in full compliance with the District's Board Policies, Administrative Regulations, *Water, Sewer and Recycled Water Design & Construction Standards*, and payment of all appropriate connection charges.

At the time of application, the customer is responsible for selecting the appropriate meter size for the service being requested and for applying for a change in meter size if needs change over time. The District may reevaluate the meter installation and require a different size or type meter based on historic use or flow restrictions.

A single water connection and meter will be established for each parcel of land under separate ownership or that is separately described in the County records. No more than one parcel shall be serviced through a single meter, with the exception of agricultural accounts, where one meter may be installed to service multiple parcels under the same ownership. *(See AR9024).*

District meters will be situated in easily accessible locations immediately adjacent to or within the owner's parcel on the principal boundary of the property abutting a right-of-way satisfactory to the District. Exceptions to this requirement are authorized when the District's main does not conform to the perimeter boundaries of a parcel or lie within a right-of-way or vehicular access easement.

For community property, one meter may be installed to serve a parcel of land owned by a home owner's association, such as a condominium, planned unit development or mobile home park, subject to a responsible entity entering into a contract with the District regarding payment of fees and conditions of service. Master location meters and sub-meters *(See AR 9027)* may be installed and used to meter commercial landscape irrigation on community property.

Meters are maintained by the District. Customers are responsible for all repairs to their systems on their sides of the meters. There is a one-year warranty on the gate valve starting from the time of installation regardless of the status of occupancy of the property. Customers are liable for

meter repair costs if the District determines that repair work was required as a direct result of excessive wear beyond meter design flow standards or other physical damage to the meter.

AR 9027 Sub-Meters

Approved: December 12, 2006
Revised: January 10, 2013

Sub-meters may be used as follows:

- To meter permanent or long-term commercial establishments that exist in separate buildings or permanent portions of a building;
- To meter commercial landscape irrigation;
- To meter mixed-use developments;
- To meter uses in parks and other facilities of public agencies; and
- To meter any other uses, as reasonably deemed feasible and appropriate by District staff.

AR 9028 Extension or Improvement of Facilities

Approved: December 12, 2006
Revised: January 10, 2013
Revised: April 1, 2013

When water, recycled water, and wastewater services are requested for property that is within District boundaries but does not abut a District water or sewer main with adequate capacity, the District may require an extension or improvement of the District's distribution system. Any improvements or extensions will be paid for by the applicant and must be designed and constructed to meet the District's then-applicable *Water, Sewer and Recycled Water Design & Construction Standards* and when completed, must generate revenues equal to or greater than the costs of staff, equipment or material necessary to operate the facility, plus general and administrative costs. The applicant will have the facilities designed by a licensed professional engineer with experience in the design and construction of the same type of system(s), and installed by an experienced, competent, and licensed contractor. Upon completion and after inspection and acceptance by the District, the facilities shall then be owned and operated by the District.

Extensions or improvements include but are not limited to water, recycled water, and wastewater mains, storage facilities, pump stations, pressure reducing stations, treatment facilities, lift stations, fire hydrants, and all appurtenances.

Design of the facilities shall be in accordance with accepted engineering practices, current AWWA standards, and in compliance with the District's *Water, Sewer and Recycled Water Design & Construction Standards*. Improvement plans will be approved by the District Engineer or his/her designee. All facilities shall be installed in accordance with plans and specifications that have been approved by the District and are in conformance with the District's design standards, noted above, as they exist at the time of approval.

AR 9028.1 Facility Capacity Charge (FCC)

The District will not pass on to the existing customer the incremental cost for expansion of utility facilities and service to provide for growth. Expansion of District facilities to provide capacity for new development will be financed by facility capacity charges assessed to the developers. The extension of utility lines to the development will be engineered and financed by the developer.

AR 9028.2 Inspection and acceptance

District staff will inspect the construction of all new District facilities. The District will not accept or provide regular permanent service through a facility that has not been inspected and accepted.

The District will accept the project upon completion of the construction and successful testing, final inspection by the District, submission of as-built drawings acceptable to the District and all other required documentation, and payment of any outstanding monies due. The facilities shall be owned, operated, and maintained by the District except as specified below:

- Water service line from meter to building or end use
- Recycled water service line from meter to end use
- Wastewater service lateral from the cleanout located at or near the public utility easement line, or in the absence of such a cleanout, the public utility easement line itself to building or end use
- Commercial fire sprinkler line from check valve vault to building

AR 9028.3 Payment of costs

Applicants for extension or improvement of facilities shall pay the District's actual costs including but not limited to engineering analysis, designs, plan checks, preparation of environmental impact documents, hearings, reviews or preparation of improvement plans, construction inspections, as-built drawings, project administration, and usual overhead expenses allocated to such work.

AR 9028.4 First-year warranty responsibilities

For a period of one year from the date of acceptance by the District, the property owner shall warrant for the repair of all defects, leaks, or failure occurring in the facilities that are, as determined by the District, due to negligence in the manufacture and/or installation of the facilities, exclusive of operation of the system by the District, its agents, or natural disasters. Failure by the property owner to pay for any of these repairs after being billed by the District will result in the District placing a lien against the property.

When the facilities serve a residential subdivision, the applicant or the applicant's contractor shall submit a one-year repair surety, which may be a bond , certificate of deposit, or irrevocable letter of credit (in form acceptable to the District) in an amount not less than ten percent of the construction costs of the facilities.

AR 9028.5 Reimbursement for extension and/or improvement

Property owners who extend or improve District water, wastewater, and/or recycled water facilities may qualify for reimbursement of costs, in whole or part, from the District, later users of the facilities, or a combination of the two pursuant to a written agreement with the District. The applicant for reimbursement shall prepare estimates of construction costs and potentially benefitted parcels at its sole expense, for the District's review and determination of reimbursement eligibility. All reimbursements shall be made in arrears as sufficient funds become available to the District. All reimbursements shall be limited to actual, documented and District-approved costs incurred by the application prior to reimbursement.

AR 9028.6 Letters issued by the District

Facility Improvement Letter - The District will issue a Facility Improvement Letter for water, wastewater, and/or recycled water services to applicants requesting service to existing parcels, lands being subdivided, and lands being rezoned or involving petition for amendment to the County or City general plans. The Facility Improvement Letter will be valid for three years from the date of issuance. This document will state the current availability of service and the ability of the District's existing system to provide the requested service. The District may require the submittal of a Facility Plan Report for approval if deemed necessary because of project size or complexity. An extension of up to one year for the Facility Improvement Letter may be granted upon request and submittal of the appropriate application and fee.

Meter Award Letter - The District will issue a Meter Award Letter to eligible applicants once all District requirements have been met, the applicant has complied with all construction and maintenance bonding requirements, and all of the following have been received by the District:

- Facility Improvement Letter
- Approved Facility Plan Report, if required
- Extension of Facilities application and fee, if required
- Environmental documents
- Payment of all applicable water, wastewater, recycled water and other connection fees
- Approval of Annexation, if required
- Agreements approved and signed by the EID Board of Directors
- Land rights being or guaranteed to be conveyed to the District

- All Engineered Improvement Plans approved by the District Engineer and payment of associated fees

Status Letter - Upon request, the District will issue a letter to eligible applicants meeting the following conditions:

- Water, wastewater, and/or recycled water improvements have been completed and accepted by the District (Notice of Completion issuance)
- Applicant has supplied the District with parcel numbers, lot numbers, and addresses for each parcel.

AR 9028.7 Exceptions to extension or improvement of facilities requirements

Water, wastewater, and recycled water services that meet all of the criteria listed below may request variance from the requirement for extension or improvement of facilities.

Criteria for a temporary off-site metered connection for domestic water:

- The property does not front a District water main extension.
- An upgrade to District facilities is not required to provide a minimum level of service as defined in the District's Design and Construction Standards. The parcel to be served shall be located within 1500 linear feet (measured along the path of the service line) from a water line that has capacity and meets the District's minimum line size criteria, as determined by the District Engineer or their designee.
- The property applying for off-site service has been or will be developed as a single family residence. Off-site meters shall not be authorized for the purpose of subdividing residential properties.
- For new single family residential projects, the applicant provides written verification from the appropriate fire district indicating that the fire protection district will not require the installation of a new public fire hydrant. The applicant also provides a letter from the El Dorado County Building Department indicating no objection to the installation of an off-site water meter and private service line.
- The property owner enters into an "Off-site Service Agreement."
- District staff reasonably determines that an extension of facilities to the property would not be in the best interest of the District or surrounding properties.
- For properties applying for off-site service on the basis of hardship, documentation of well failure issued by a certified well company must be provided. District staff shall make hardship determinations on a case-by-case basis.
- The applicant provides a copy of a properly recorded minimum 10-foot easement allowing the property owner to install, operate, maintain, repair, and

replace the private service line, extending from the public water main up to the property to be served. All proposed and recorded easements are subject to the review and approval of District staff prior to the issuance of a water meter.

- All approved offsite water services will be required to install backflow protection. The protection shall be a minimum of a Reduced Pressure Principle Backflow Prevention Assembly (RP).

Approval for a temporary off-site connection will expire twenty-four months from approval if the applicant has not signed an agreement or submitted payment of all applicable fees for the meter.

Criteria for private wastewater service:

- District staff reasonably determines that an extension of facilities to the property would not be in the best interest of the District or surrounding properties.
- A system improvement is not required to provide a minimum level of service.
- The property owner enters into an "Off-site Service Agreement."
- The private wastewater line shall be constructed by the property owner in accordance with District standards and shall be inspected by the District. Subsequent maintenance and repair is the responsibility of the property owner.
- The applicant provides a copy of a properly recorded minimum 10-foot easement allowing the property owner to install, operate, maintain, repair, and replace the private service line, extending from the public sewer main up to the property to be served. All proposed and recorded easements are subject to the review and approval of District staff prior to the issuance of a water meter.

AR 9028.8 Land rights schedule

The applicant shall provide all land easements and right-of-way to the District as follows:

- **Non-subdivision and minor land division:** prior to signing improvement plans
- **Subdivision, off-site:** prior to signing improvement plans
- **Subdivision, on-site:** prior to recording final map, or dedicated by the map

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AR 9029 District Access to Facilities

Approved: December 12, 2006

When applying for and receiving service from the District, customers authorize appropriate District employees and agents to enter their properties at reasonable times for the purpose of reading, inspecting, testing, checking, repairing, maintaining, or replacing the District's meters, backflow prevention devices, and other equipment and facilities. Any fences or other structures that restrict access to new or existing District facilities shall have proper gates or other means to permit reasonable access to the facilities.

BP 9030 Annexation of Land to the District

Adopted: November 11, 2006
Supersedes: Regulation No. 23

The District has the authority to annex property to benefit the operations, management, and implementation of District functions. The General Manager and/or the General Counsel and their designees may represent the Board of Directors in negotiations. It takes a majority vote of the Board to approve all annexations.

AR 9031 Application for Annexation

Approved: December 12, 2006

The District will accept an application for annexation upon determining that all conditions of eligibility have been met and appropriate fees have been paid. A Facility Improvement Letter is a prerequisite to acceptance of an annexation application and will determine if extension to District facilities will be needed.

Annexation of land to the District provides the potential for drinking water, recycled water, and/or wastewater services, but does not guarantee that these services will be available when requested.

If the annexation is not authorized to proceed, the proposal terminates and the applicant must wait one year to apply again.

AR 9032 Recording of Annexation

Approved: December 12, 2006

Before an annexation is recorded with the Local Agency Formation Commission (LAFCO), the impact fee must be paid. The impact fee is an incremental fee to establish a measure of equity between lands that supported the payment of voter-approved debt for the construction of water conveyance facilities. If the annexation is terminated, the impact fee is refunded, and no accrued interest is paid to the applicant.

BP 9040 Improvement and Assessment Districts

Adopted: November 11, 2006
Supersedes: Regulation No. 19

The District may establish Improvement Districts to benefit District operations, capital facility planning and funding or other implementation of District functions. The General Manager and/or the General Counsel and their designees may represent the Board in negotiations. It takes a majority vote of the Board to approve all improvement and assessment districts.

BP 9050 Payment for On-going Service

Adopted: November 11, 2006
Supersedes: Regulation Nos. 5, 15

The District's Board of Directors establishes charges and rates for water, recycled water, and wastewater services.

AR 9051 Billing

Approved: December 12, 2006

Billings will be sent periodically as established by the Board. All billings will be delivered to the United States Postal Service. The property owners are responsible for keeping the District advised of the correct address where bills are to be mailed. All accounts will remain in the property owner's name. Property owners may request that a bill be mailed in care of a tenant or renter, providing the District receives a completed Owner/Tenant Agreement. This agreement does not release the property owner from responsibility for any unpaid charges. Tenants or renters who contact the District regarding shut-offs or other matters concerning service will be referred to the property owner. However, if a tenant or renter wants to pay a bill to avoid an interruption in service, the District will accept payment and credit the account. Non-receipt of a bill does not relieve a customer of any payment obligation to the District.

AR 9051.1 Minimum bills

The District requires all metered accounts to be billed on a regular basis for water, recycled water, and wastewater services and any applicable surcharges from the date the meter is installed. This includes accounts with no usage.

If a meter fails to register correctly, cannot be read, or is not read during the billing cycle, the bill will be based on the District's estimate of the quantity of water delivered as an average of past water usage or will consist of the minimum base charges, taking into consideration seasonal water demand and any other factors that are material and significant in arriving at a fair charge.

Bills will be pro-rated for commencement or termination of service based on the number of days of service during the billing period.

Residential wastewater rate calculations are performed annually, based on water consumption that occurs during the two-month winter billing cycle. For new customers, the lesser of the flat rate or first full billing cycle will be used until a winter billing cycle is established.

AR 9051.2 Disputed bills

Any request for investigation of a disputed bill must be made in writing. The fact that a bill may be in dispute does not justify non-payment. The bill shall be paid in full when due, while investigation and settlement of the dispute proceeds. If the District determines there has been a calculation error, the District will recalculate the charges back one year and apply an adjustment to the customer's account.

AR 9051.3 Bill adjustments

Leak Adjustments

The District may credit accounts if excessive delivery is the result of water leakage that occurs from underground or unexposed pipes beyond the discharge flange of the water meter. Credits will not be given when there is visible leakage, such as leaks from faucets, toilets, sprinklers and hose bibs or for wasteful use or the customer's acts, omissions or negligence.

The District must receive the request for credit in writing within 60 days from the bill date of the bill that reflects the leakage. An adjustment will only be made after leaks have been repaired and it is reasonable to predict that the leak or loss will not occur again. The customer must submit repair receipts for verification that the leak has been repaired. Adjustments are for a single billing period and no more than one adjustment will be made to the same customer for the same premises in any five-year period.

When the District determines an adjustment is warranted, one-half (1/2) of the billed water costs in excess of the amount billed the previous year during the same billing period will be credited. If billing history has not been established for the same billing cycle for the previous year, the average of the water costs billed the previous six (6) billing cycles will be used. If the customer requesting the leak adjustment at the property where the leak occurred has not established usage history for six (6) billing cycles, the customer account is ineligible for an adjustment.

Residential Sewer Commodity Adjustments

The District may adjust accounts if excessive delivery is the result of water leakage that occurs from underground or unexposed pipes beyond the discharge flange of the water meter. The District will also take into consideration the filling of pools, and irrigation issues. Credits will not be

given when there is visible leakage, such as leaks from faucets and toilets or for wasteful use or the customer's acts, omissions or negligence.

The District must receive a Sewer Commodity Adjustment Request form within 60 days from the bill date of the bill that reflects the leakage. An adjustment will only be made after leaks have been repaired and it is reasonable to predict that the leak or loss will not occur again. The customer must submit repair receipts for verification that the leak has been repaired. Adjustments will be made for the initial billing period and be effective through the next winter billing period. No more than one adjustment will be made to the same customer for the same premises in any three-year period.

In most instances where a leak has occurred, staff will use the previous year's winter average usage to calculate the adjustment. If a customer moves to another location, the lesser of the flat rate or first full billing cycle will be used until a winter billing cycle is established.

Commercial Sewer Commodity Adjustments

The District may adjust accounts if excessive delivery is the result of water leakage that occurs from underground or unexposed pipes beyond the discharge flange of the water meter. The District will also take into consideration any water usage that did not transfer into the District's wastewater system such as the filling of pools, and irrigation issues. Credits will not be given when there is visible leakage, such as leaks from faucets and toilets or for wasteful use or the customer's acts, omissions or negligence.

The District must receive a Sewer Commodity Adjustment Request form within 60 days from the bill date of the bill that reflects the leakage. An adjustment will only be made after leaks have been repaired and it is reasonable to predict that the leak or loss will not occur again. The customer must submit repair receipts for verification that the leak has been repaired. Adjustments are for a single billing period and will be calculated using last year's usage during the same billing period at the District's current rate. No more than one adjustment will be made to the same customer for the same premises in any one-year period.

AR 9051.4 Billing errors

If during an audit of customer accounts an error in a billing calculation or failure to bill for service is discovered, the District will calculate the

amount of credit or additional charges to the customer's account, but will only calculate corrections back one year. All back billing issues will be monitored on a case-by-case basis. Customers will be notified in writing of changes to their accounts.

AR 9052 Payment

Approved: December 12, 2006

Bills are due and payable on mailing or presentation. Payment shall be made to the District's business office or to a collector authorized by the District.

AR 9052.1 Late payment charge

The District will impose a late payment charge on a balance of $10.00 or greater if not paid five working days past the delinquent date.

AR 9052.2 Returned checks

A returned check fee shall be paid for each check tendered as a payment to the District that is returned unpaid after negotiation by the District.

AR 9052.3 Charges against deposits

The District may charge any unpaid bills against any deposit made by the party liable for the bill.

AR 9052.4 Payment arrangements

Payment arrangements will be extended to customers. If a customer defaults on a payment arrangement, the account must be brought current prior to extending the payment arrangement. If a customer defaults twice within six months, payment arrangements will not be extended until the account is in good standing for six months. If a customer defaults three times within a 12-month period, payment arrangements will not be extended until the account is in good standing for 12 months. Payment arrangements will not be extended to customers who have defaulted on payment arrangements more than five times in an 18-month period.

Customers who receive a 48-hour notice may be extended payment arrangements. If customers default on this arrangement, a District employee will disconnect service, and an appropriate fee will be charged for reconnection.

AR 9053 Active Delinquency

Approved: December 12, 2006
Revised: July 25, 2008
Revised: August 20, 2013

When a customer's account becomes delinquent, the District will send a Past Due Notice by mail and give the customer an additional 10 days to make payment, including the appropriate late fee, prior to the termination of service. If the District does not receive payment or the customer does not make satisfactory payment arrangements within the 10 days, the District will send a Disconnect Notice to the customer by mail and assess a disconnect notice fee. At least 24 hours prior to the termination of service, the District will attempt to contact by telephone an adult person residing at the premises of the customer to notify them of the pending termination of service. If, prior to the date set for termination of service, payment has not been received by the District or payment arrangements made by customer with District, a District employee will be dispatched to disconnect service. The customer will at that time be charged appropriate fees by the District to cover the field costs of the delinquency. Disconnection of service for delinquency in payment will not occur on a Saturday, Sunday, legal holiday, or when the District's business office is closed to the public.

Additionally, service will not be terminated under the following conditions: (a) during a pending investigation by the District of a customer dispute or complaint concerning the service at issue; (b) when the customer has been granted an extension of time by the District for the payment of the bill at issue; (c) on the certification of a licensed physician that to do so will be life threatening to the customer, and the customer is financially unable to pay for service within the normal payment period but willing to enter into a payment arrangement with the District for all charges the customer is unable to pay prior to delinquency; or (d) for an account serving a multi-unit residential structure or mobile home park, when a public health or building official certifies that termination would result in a significant threat to the health or safety of the residential occupants or the public.

AR 9054 Liens

Approved: December 12, 2006

The District will file liens in accordance with Section 25806 of the Water Code of the State of California against the properties of customers who fail to pay the District for service provided.

Once a customer's service has been disconnected or payment for a vacant property is delinquent, the customer will be sent a 30-day lien notification. The notification states that if payment is not received within 30 days, a lien may be placed against the property. Once the lien is recorded, the customer will receive notification of the lien and will be informed that if payment is not made by July 1 of the following year, the lien may be assessed to the property owner's property taxes.

AR 9055 Collections

Approved: December 12, 2006
Revised: June 15, 2014

Accounts that are closed and remain unpaid after a final bill has been issued are subject to collection notifications. Once a final account is 30 days delinquent, a notification letter is sent informing the customer of the District's collection process. If the account remains unpaid, 60- and 90-day delinquent notification letters will be sent. After the 90-day period, the District sends the account to a collection agency or transfers the delinquent balance to another account owned by the customer. Once the account is submitted to a collection agency, the District cannot collect payments for the account. The customer must contact the collection agency to make payment. Once a payment is received by the District from the collection agency, the account will be removed from collections.

BP 9060 Discontinuance of Service

Adopted: November 11, 2006
Supersedes: Regulation No. 4

The District strives to maintain service to customers to the maximum extent possible. However, under specified circumstances where District policies and/or procedures and regulations are violated, notification of potential disconnection will be provided and discontinuation of service may follow, pursuant to District administrative regulations.

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AR 9061 Disconnection or Discontinuation of Service

Approved: December 12, 2006
Revised: July 25, 2008

Failure to comply with applicable laws and the District's Board Policies and Administrative Regulations is sufficient cause to discontinue service until full compliance has been made.

The District reserves the right to disconnect any connection to its water, recycled water, and wastewater systems for any of the following reasons:

- The District determines a condition exists that is hazardous to the health and safety of the public.
- The customer fails to comply with any of the District's policies, administrative regulations, standards, or procedures.
- The service is being furnished without a proper application or under a false or fraudulent application.
- There is evidence of unlawful tampering or interference with District facilities by the customer.
- The customer fails, after notice from the District, to remove an obstruction that prevents EID employees from reading a meter.
- The District finds flagrant wasting of water, and the customer does not correct the problem within the specified period of time.
- The customer fails to pay bills or does not comply with bill payment plans.

Notification of potential disconnection for failure to pay bills or to comply with bill payment plans will be given in accordance with AR 9053. The timing and form of notification of potential disconnection for any other reason will be as deemed appropriate by the District depending upon such factors as, for example, the immediacy of the hazard to public health and safety.

AR 9061.1 Customer Notifications of Interruption of Service

Whenever possible, advance notice of interruption of service will be given to all customers who will be affected. This notice will be in the form of a door hanger, automated telephone message, web site message, notification through the media, or other means deemed appropriate by the District.

In the event of a natural disaster or other emergency, the District follows the procedures for public notification outlined in its Emergency Response Plan.

AR 9062 Cancellation of Service by the Customer

Approved: December 12, 2006

Service will be terminated on any business day (not a Saturday, Sunday, or legal holiday) at the customer's request provided that the request is received by the District no later than three business days prior to the date of termination. The customer will be responsible for bills related to all service furnished by the District prior to notification of the termination of service.

The District will not disconnect service for eviction purposes. Customers requesting a temporary termination of service will be informed that they may shut off water at their valve.

AR 9063 Reinstatement of Service

Approved: December 12, 2006
Revised: November 5, 2014

Customers requesting that their service be restored shall pay a field service call fee, any delinquent charges, and any applicable service charges before service is restored.

An additional standby charge may be assessed if a standby technician is requested to restore the service after hours. If service is restored after hours and payment has not been received, the service may subsequently be disconnected and additional charges may apply.

BP 9070 Additional Services

Adopted: November 11, 2006
Supersedes: Regulation No. 6

The District may provide additional services when beneficial to the District's business.

AR 9071 Additional Services

Approved: December 12, 2006

The District provides additional services to existing and potential customers, developers, and the general public when the District determines that the service is necessary, reasonable, and in alignment with the District's mission. The provision of supplemental services is subject to the District's Administrative Regulations and the payment of appropriate deposits, rates, fees, and charges.

AR 9072 Underground Service Alert (USA)

Approved: December 12, 2006

EID will respond to Underground Service Alert (USA) requests that are within the District's service area. In compliance with northern and central California's "Call Before You Dig" program, anyone other than the District who will be digging must notify USA two working days prior to the start of this work. USA will assign a ticket number to the requester and then contact the District to provide one of the following services:

- mark or stake the horizontal path of the District's underground facilities,
- provide information to the requester about the District's underground facilities, or
- advise the requester that the District does not have underground facilities in conflict with the specified digging.

The ticket issued by USA will be active for a 28-day period. The District will not perform a utility locate service if the ticket has expired. The requester is also required to notify USA, not the District, at any time that the field markings are no longer reasonably visible.

AR 9073 Temporary Water Use Program

Approved: December 12, 2006
Revised: December 20, 2012
Revised: August 20, 2013

All withdrawals of water from temporary connections must use District-provided hardware. The District provides temporary water use for authorized projects in three ways. Connections are authorized and established upon receipt of a signed agreement (permit) and payment of all appropriate deposits, fees, and charges.

- **Card lock bulk water stations**. The card lock water stations provide water to customers with prepaid cards that are available at the District office. A straight commodity charge is applied to water from these stations. There is a fee for the cash card and no recurring fees or charges. The cards are reusable and should be treated as cash.

- **Interim bulk water stations**. These bulk water stations require the user to have an approved permit and a key to allow access to the stations. A daily fee is charged to users to draw water from these stations. There is a fee to obtain a permit to set up an account and users are billed bi-monthly for the daily fee. There is also a charge for lost keys. There is no commodity charge for water drawn from interim bulk water stations. These stations will be replaced with card lock bulk water station at the District's earliest opportunity.

- **Fixed meter**. These meters are located at the closest approved fire hydrant or blow-off to a customer project. The customer must have an approved permit for the District to set the hardware at the requested location. The customer must provide a hardware deposit to the District and will pay a fee to set up the account, a daily rental fee, and commodity water charges.

Failure to adhere to these requirements will result in the assessment of a financial penalty against the applicant and/or a prohibition on current or future use of temporary water use hardware.

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El Dorado Irrigation District

BP 10000 RECREATION

BP 10010 Authority and Enforcement of Park Regulations

Adopted: November 13, 2006

BP 10010.1 Authority

The District is committed to the health and safety of visitors and District employees at all EID recreation facilities and to the protection of District recreation properties.

BP 10010.2 Enforcement

Board policies, rules, and regulations shall govern and apply to all visitors and District employees at EID recreation facilities.

EID recreation staff are authorized and empowered to enforce District rules and regulations for all District-owned, -operated, and -leased recreation facilities as well as state and local codes related to safe use of those facilities. Staff may issue citations for violations and eject or exclude any violator as specified in the Park Operations Manual.

AR 10011 Recreation

Approved: December 12, 2006
Revised: January 3, 2013

AR 10011.1 Recreation Access

Use of the Districts recreational lands is a privilege. Recreational use privileges may be revoked at any time for violations of Federal, State, County, or District laws, or rules; non-payment of fees; behavior that endangers people, animals, or facilities; or behavior that diminishes the recreational experience of others.

Trespassing- Visitors shall not trespass on recreation property or use recreation facilities during hours not posted for public use and/or when an entrance gate is closed and locked. Anyone entering during off-use hours may be charged with defrauding an innkeeper. All visitors must display proof of payment or a valid permit.

Selling or Soliciting - Visitors shall not engage in soliciting, selling, or peddling any good or services or distribute any circulars in the areas without prior approval of the District.

AR 10011.2 Fees

Fees are subject to change, based on staff evaluation of similar facilities and services.

AR 10011.3 Annual Permits

Annual permits for day use and boating are subject to availability and valid only during posted day use hours. Annual permit period is based on a calendar year. Permit stickers must be attached to the driver-side mirror or exterior windshield, on the vehicles for which they were purchased, to be valid.

AR 10011.4 Vehicle Use

Vehicle Speed Limit - Visitors shall not operate any vehicle in excess of the posted speed limit, which is a maximum of 15 mph on recreation roads and 5 mph in campgrounds. No visitor shall drive a vehicle within any EID recreation area other than in a reasonable and prudent manner and with due regard for traffic and road conditions. In no event shall a vehicle be driven at a speed that endangers the safety of persons, property, or wildlife.

Drivers' Licenses - Visitors shall not operate any type of motorized vehicle on park properties without possession of a valid driver's license for the vehicle.

Roadway Rules - Vehicles shall be operated only on designated roadways and parking areas. Motor vehicles, bicyclists, and other recreational users shall share the roadways within any EID recreation area.

Vehicle Washing and Repair - Persons are prohibited from washing, repairing, and cleaning any vehicles within recreation boundaries.

Vehicle Parking - Visitors shall not illegally park a vehicle within EID recreation boundaries without authorization by the District. The District reserves the right to tow—at the expense of the vehicle's owner—any illegally parked vehicle and vehicles that block gates in the park or campgrounds.

Motorized wheelchairs and mobility devices – Persons with mobility disabilities may use motorized wheelchairs and mobility devices in defined pedestrian areas and developed camping and recreational facilities, and on any trails designated and signed as disabled accessible. Persons utilizing these devices are encouraged to consult with staff in advance regarding safety and accessibility issues.

Electric Vehicle/Golf Cart Use - Electric vehicles and golf carts within park boundaries shall strictly obey all State and local vehicle operation statutes, codes, and regulations. Such vehicles shall operate only on designated roadways and obey all of the rules listed in these administrative regulations.

Motorized Scooters - Motorized scooters are not allowed.

AR 10011.5 Boat Use

Boats are allowed during day use hours. Boat operators shall comply with California boating laws, the *ABC's of California Boating Laws* and all posted rules. Use of boat docks is restricted to loading or unloading only. Loitering, fishing, diving, and swimming on or around boats docks is prohibited.

Specific Jenkinson Lake Boat Restrictions - Personal watercraft (Jet Skis, sea doos, etc.) are not permitted on Jenkinson Lake.. The maximum number of boats, excluding the mooring facility, allowed on Jenkinson Lake is 101. Maximum speed limit is 35 mph. A counter-clockwise boating traffic pattern is required.

Islands are off limits. Unloading and exchanging of occupants on the islands in Jenkinson Lake are prohibited.

Specific Caples Lake Boat Restrictions – Maximum speed 15 mph. Alpine County restricts boating speed limit to 15 mph on all lakes within Alpine County.

Specific Forebay Reservoir Restrictions – Boats of any kind are not permitted on Forebay Reservoir.

Unsafe Boating Activities - Any malicious or unsafe boating activities, failure to observe posted safety rules, or California boating laws may result in a loss of boating privileges and forfeiture of all paid fees and deposits.

Noise Limits on Boats - Boat motors shall meet the noise requirements stipulated in the *ABC's of California Boating Law*. General noise from boats, including amplified sound, shall not diminish the recreational experience of others.

AR 10011.6 Mooring Facilities

The district operates a seasonal mooring facility at Jenkinson Lake. Occupants must sign a rental contract and provide proof of current insurance. Subleasing of slips is prohibited.

AR 10011.7 Pets

Pets must be on a leash and under an owner's control at all times. Pet owners are required to immediately clean up after their pets. Unleashed, vicious or noisy pets subject the owners to revocation of recreational privileges.

Specific Jenkinson Lake Restrictions – By order of the State of California, pets are not permitted in the waters of Jenkinson Lake. Violations will result in revocation of the owners' recreational privileges.

AR 10011.8 Day Use

Day-Use Vehicle Fees – All vehicles entering the recreation areas are subject to day use fees. Proof of payment must be displayed in vehicle windshield during entire visit.

Equipment Rentals - The District may rent game equipment including but not limited to horseshoes and volleyballs/nets.

Use of Sound Amplifying Equipment - Sound amplifying equipment is not allowed in day-use areas.

AR 10011.9 Campgrounds

Campsites- Campsites with a barbecue, fire ring, and table are available to the public. Available campsites include Americans With Disabilities Act accessible campsites.. Campsites not reserved in advance are available on a first-come, first-served basis. Camping registration tags must be displayed in the window of the vehicle. Campsite fee includes campsite and one vehicle only. Extra vehicles, boats, and pets are subject to additional fees.

Campsite Appearance and Cleanliness - Campsite cleanliness is required for aesthetic, sanitary, and safety purposes. Campsites must be free of debris.

Campsite Occupancy - a maximum occupancy is 8 people per campsite unless otherwise specified.

Minors at Campsites Overnight - Minors under 18 years of age shall not be allowed to reserve or register for a campsite. Minors under 18 years of age must be accompanied by their legal guardian while camping overnight.

Maximum Stay at a Campsite - The maximum stay at a campsite shall not exceed 14 consecutive nights..

Campsite "Quiet Time" - A period of "quiet time" is observed in campsites from the hours of 10:00 p.m. to 6:00 a.m. During quiet time, noise, including that from generators, radios, music and sound amplifying equipment, and other disturbing activities are not allowed.

Jenkinson Entry and Exit Gates - -Entry gates will be locked at various times depending on the season. All outside emergency personnel will have access to gate locks. Campers may exit, but reentry will be limited.

Campsite Day Guests - All guests of campers must vacate the campgrounds no later than posted day use hours. Guests may park at campsites, where space is available, but must not block any roadway or create overcrowding conditions that, in the opinion of park staff, cause a disturbance or other problems. Registered campers are responsible for the actions and behavior of their guests while in the park.

Fires at Campsites - Fires are permitted only in the provided fire rings and cannot reach a height that is dangerous. No garbage is to be burned in the fire rings and the wood must be no longer than the diameter of the fire ring.

AR 10011.10 Camp Host Program

Camp Host Positions - The District may work with volunteers during peak-use times each year to assist staff in customer service functions and maintenance of facilities.

AR 10011.11 Filming

Permits - Filming and photography are permitted subject to an application procedure, proof of insurance, and payment of applicable fees.

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AR 10016 Protection of District Property and Wildlife

Approved: December 12, 2006

District Property - Visitors shall not damage or deface any recreation property owned or leased by the District.

Vegetation - Visitors to District recreation facilities shall not dig up, remove, or damage any tree, plant, shrub, or other vegetation.

Trash Disposal - Visitors shall not place or leave any glass, ashes, wastepaper, bottles, cans, or other trash or rubbish at District recreation facilities except in receptacles provided for that purpose. Trash or rubbish shall not be brought onto District recreation facilities for disposal.

Fire Hazards - Visitors shall not create any fire hazards at District recreation facilities; for example, logs that are larger than the diameter of provided fire rings shall not be burned.

Birds and Mammals - Visitors shall not abuse, injure, or kill any birds or mammals at District recreation facilities or interfere with their habitat. The California Department of Fish and Game may be notified to address these kinds of problems.

AR 10017 Recreation and Forest Lands Adjoining Caples and Silver Lakes

Approved: December 12, 2006

AR 10017.1 Camping

Camping (defined as the temporary use of District lands for the purpose of overnight occupancy without a permanently fixed structure) is prohibited.

AR 10017.2 Vehicle use

- Possessing and/or using a vehicle off of developed forest roads is prohibited.
- Vehicles use on trails is prohibited.

AR 10017.3 Exceptions

- Any federal, state, or local officer or member of an organized rescue or fire fighting force in the performance of an official duty is not restricted by Administrative Regulation 10017.2, nor are persons with a permit specifically authorizing such vehicle use.

AR 10018 District Recreation Staff

Approved: December 12, 2006

District park rangers will adhere to the guidelines outlined in EID's *Park Manual*.

AR 10019 Water Quality

Approved: December 12, 2006

Directive – All District staff will treat water quality in EID owned lakes seriously and will immediately report any activity—including but not limited to gasoline or oil spills in the lake and trash at campsites and along shorelines—that could impact the quality of the water

Dogs - Dogs and other domestic animals are not permitted in Jenkinson Lake.

Diapers - Babies in diapers are not permitted in Jenkinson Lake

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El Dorado Irrigation District

BP 11000 FEES AND CHARGES

BP 11010 Fees and Charges

Adopted: November 27, 2006
Supersedes: Resolution No. 04-120
Portions of Regulation Nos. - 4, 5, 6, 7, 8, 10, 13, 14, 18, 19, 22, 23

The District shall strive to recoup all costs of providing services through rates, fees, charges, fines, and deposits. The Board will adopt changes in rates pursuant to Article XIII D Section 6 of the California Constitution (Proposition 218) and changes to Facility Capacity Charges (FCCs).

In relation to FCCs, the District is committed to provide capacity for a reasonable rate of growth within its service area. FCCs will be charged to applicants for new service to cover the costs of services that include but are not limited to water filtration, sewage treatment, recycled water, system storage, and transmission and distributions systems. Existing customers will not share in these costs.

The General Manager is authorized to approve changes in fees, charges, fines, and deposits as warranted by the costs of providing services.

AR 11010 Adoption of Rates, Fees, and Charges

Approved: October 26, 2011
Revised: October 4, 2013

The District will establish all user charges and fees at the full cost of providing the service, including direct, indirect, overhead, and capital recovery costs.

The Board of Directors will review and adopt rates and Facility Capacity Charges (FCCs). The General Manager or her/his designee will periodically review and report to the Board on rates and FCCs and will review and approve all other District fees, charges, penalties, and deposits.

A copy of *Attachment A*, which sets forth the *Fees/Deposits/Penalties* is available upon request from the Customer Services Division.

AR 11020 Deposits - General

Approved: December 12, 2006

In general, District-required deposits are estimates only. Project-related deposits include averages of overhead, materials, and labor. Deposits for equipment loans are based on the average time and materials spent to inspect, repair, recalibrate, and clean the loaned equipment.

If a deposit falls short of actual costs, the District will bill the customer for the difference. If the deposit exceeds actual costs, the District will refund the difference to the customer.

AR 11030 Bond Segregation / Re-apportionment Deposit

Approved: December 12, 2006

The District requires a deposit from the property owner to cover costs associated with reapportionment of a bond assessment. District engineering, legal, and administration costs will be charged against the deposit.

AR 11040 Land Annexation Fee

Approved: December 12, 2006

This fee reimburses the District for one year's taxes based on a 10-year average tax rate per $100 assessed land value paid for tax Class 207 voter approved debt. The fee will be updated annually and applied to the current assessed land value of the property.

AR 11050 Land-based Financing Fee

Approved: December 12, 2006

The District will consider developer requests or petitions to initiate the formation of a special assessment or community facilities district, which would be considered only after receiving the required form(s) and a non-refundable deposit. The deposit will be 1% of the proposed principal amount of the bonds to be issued. It will be used to cover District labor and other costs such as independent financial advisory, appraisal, and market absorption analysis services that are associated with proceedings and are not contingent on bond issuance.

The deposit is reimbursable from the proceeds of bonds upon issuance. In the event that actual costs exceed deposited fees, the applicant will deposit additional funds to advance the process. If the District does not receive additional funds within the requested time period, the proceedings will be suspended.

AR 11060 Customer Maintenance Call Fee

Approved: December 12, 2006

If a District employee or work crew is dispatched in response to a customer call to fix an operational problem or leak, and the problem is determined to be related to customer-owned equipment, the District will charge a fee for the maintenance call based on time and materials, including overhead. To avoid unnecessary charges, District personnel will ask customers to identify the problem and alert them to their responsibility for customer-owned equipment.

AR 11070 Facility Improvement Letter Fee

Approved: December 12, 2006

The District will charge a fee for completing a Facility Improvement Letter. This fee will reimburse District costs to review requests for future service and analyze the capacity of the District's systems and available supply.

AR 11080 Delinquent Account Field Call Fee

Approved: December 12, 2006

The District will charge for a field call to deliver a delinquent account notification or turn off service on a delinquent account. The fee will cover the cost of dispatching personnel to complete the action. EID will make a reasonable effort to contact customers prior to discontinuance of service for non-payment.

AR 11090 Temporary Water Use Charges

Approved: December 12, 2006
Revised: December 18, 2012

- **Charges for use of temporary water use hardware –** Customers requesting temporary water use will be charged to cover the District's costs of providing service. These charges are defined on page three of the Temporary Water Use permit.

- **Deposit for temporary water use hardware –** The District will require a deposit to cover labor and materials for any repairs required on District hardware.

- **Fine for tampering with temporary water use hardware –** Anyone who uses temporary water use hardware to take unauthorized water or alters the District hardware, including breaking the safety wire on the adjusting vane and changing the configuration of the meter assembly, will be fined.

AR 11100 Private Fire Service Charges

Approved: December 12, 2006

A bi-monthly fee for private fire service will be charged based on the size of the service. In addition, water consumption resulting from leakage and testing will be charged at double the rate for general use. Water used for any purpose other than testing is a violation and will be charged at five times the rate for general use. There will be no charge for water used to extinguish accidental fires.

AR 11110 Commercial and Industrial Waste Discharge Permit Fee

Approved: December 12, 2006

The District will charge a fee for a Commercial and Industrial Wastewater Discharge Permit to recover the cost of implementing the Industrial Pretreatment Program.

AR 11120 Inspection Fees

Approved: December 12, 2006

Recycled water on-site facility inspection fee – This fee **c**overs the cost of labor and materials for project set-up and inspections.

Residential wastewater inspection fee – This fee **c**overs labor and materials for the inspection of each unit of service. This fee is payable at the time of application.

AR 11130 Meter Fees

Approved: December 12, 2006

Meter installation deposit/fee – The District will charge a flat fee for installation of ¾-inch and 1-inch meters if an existing outlet is provided. Payment for all other meter installations will be based on a written job estimate. A deposit must be paid prior to commencement of work on these installations. The deposit will be used for labor, materials, equipment, and overhead and may also include the District's costs in obtaining a Department of Transportation permit, a complete road crossing, and/or a bore for the meter installation.

Meter tampering fee – When meter tampering is suspected, the District will take steps to assure that the tampering ceases and that the equipment is restored to proper working condition. Tampering is interference with a pin-lock or pad-lock or reconnection of a pulled meter. If meter registers are broken, if meters are removed, or if curb-stops are altered, the District will make the necessary repairs to restore service. The property owner may be billed for time and materials.

Meter testing and repair fee – Typically, the District receives requests to test meters when high consumption is registered. If the meter is determined to be defective, the meter is repaired or replaced at no charge to the customer. If the meter meets acceptable flow standards, the customer may be billed for the cost associated with the meter test.

AR 11140 Ditch Service Fees

Approved: December 12, 2006

Ditch service call fee - The District will charge a fee to ditch customers who request an increase or decrease in their flow during the irrigation season. This fee will cover the cost of labor to make the necessary weir adjustments.

Tampering with ditch flow fee - Customers or other individuals who receive unauthorized water from ditches will be charged a tampering fee.

AR 11150 Account Set-Up Fee

Approved: December 12, 2006

The District will charge an account set-up fee when a new customer is set up on an established meter. This fee will cover administrative costs and the labor to perform a field meter read (trip charge).

AR 11160 Bad Check Fee

Approved: December 12, 2006

The District will charge a fee to cover costs associated with processing returned checks and will assess a graduated penalty per occurrence within a 12-month period.

AR 11170 Late Payment Fee

Approved: December 12, 2006

The District will assess a late payment charge on past due accounts. This fee will be applied to a past due account for any unpaid balance greater than $10.00.

AR 11180 Lien Release Fee

Approved: December 12, 2006
Revised: August 20, 2013

The District will charge customers a fee to release a lien on a parcel. The fee will be equal to the administrative cost to process and deliver the lien release. It will include a fee set by the El Dorado County Recorder's Office, which will be paid to the El Dorado County Recorder's Office.

AR 11190 Overhead Charges

Approved: December 12, 2006

- **Overhead for development project labor –** Project-related work performed by the District's development engineering and construction inspection staff will be fully cost allocated. An overhead amount will be charged in addition to full direct labor costs and benefits. This charge will be recalculated annually by the District.

- **Overhead for District materials –** The most current District overhead rate will be applied to all materials charges. This charge is to be recalculated annually by the District.

AR 11200 Quitclaim Easement Charges

Approved: December 12, 2006

EID costs associated with quitclaim easements will be fully recovered by the District through time and materials charges, plus overhead.

AR 11210 Miscellaneous Fees

Approved: December 12, 2006

These fees include but are not limited to general administrative costs; labor to retrieve and duplicate District records; reproduction of reports, manuals, maps, and other documents; and reproduction of tapes, CDs, and other electronic or digital media. Miscellaneous Fees will be recalculated on an annual basis.

AR 11220 Special Rate Categories

Approved: December 12, 2006
Withdrawn: August 20, 2013

AR 11230 Penalties and Fines

Approved: December 12, 2006

Penalties and fines paid to the District will be designated for business purposes.

Determination of penalties and fines – When determining the level of penalties and fines, the District will consider all relevant facts and circumstances and may consult with regulatory agencies such as the Department of Health Services and Central Valley Regional Water Quality Control Board, as appropriate. The District reserves the right to impose fines and penalties in excess of those above, including possible termination of service, upon a finding of gross negligence or willful misconduct.

Non-payment of penalties and fines – When penalties and fines are not paid within 30 days or corrective action is not taken within the prescribed time-frames, the District may temporarily terminate service. Service will be restored when penalties and fines are paid and/or corrections are made.

AR 11240 Attachment A

Approved: December 12, 2006

Schedule of 2007
FEES / CHARGES / PENALTIES / DEPOSITS

This document will consist of one or more charts containing the fees, deposits and other charges that are proposed for 2007. It will be developed each year as part of the budget process and then included as an attachment to BP11000.

Until adoption of the 2007 budget, Section 4.0 Miscellaneous Fees / Deposits / Penalties of EID's current rules and regulations binder and Resolution No. 04-120 will remain in effect.

El Dorado Irrigation District

BP 12000 BY-LAWS OF THE BOARD

BP 12010 Purpose

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

The purpose of these By-laws is to provide Board directed rules for the conduct of the Board members and meetings of the Board of Directors of the District.

BP 12020 Duties and Powers

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

The Board's role is to provide oversight and direct the implementation of the District's mission. The Board will do so by deciding and monitoring policy and fiscal matters. Board members will use the following methods to address their concerns – advise the General Manager, work through Board committees, present specific recommendations to the whole Board for action. Board members shall be guided by a desire to achieve and support the District's mission in a constructive manner.

BP 12030 Public Statements and Individual Board Member Actions

Adopted: December 11, 2006
Supersedes:

All public statements in the name of the Board shall be issued by the Board President or, if appropriate, by another Board member, the General Manager, or the General Counsel, but only at the direction of the Board President unless otherwise authorized by the Board without the Board President's direction. No individual Board member shall make public statements or express an opinion or position, orally or in writing, in such a way that it allows an audience to conclude that such opinion or position is held by the Board, unless the Board has acted as a unit to adopt the position or opinion.

The Board is the unit of authority. Apart from the normal function as part of the unit, a Board member has no individual authority. Individually, a Board member may not commit the District or the Board to any policy, act, or expenditure. No individual member of the Board has any administrative responsibility or authority with respect to the District or any of its programs, nor as an individual to command the services of any employee of the District.

Non-compliance with this policy shall be grounds for censure by the Board.

BP 12040 Code of Ethics

Adopted: December 11, 2006
Supersedes:

In all actions as a Board member, the first commitment is to the betterment of the District and the community. In the performance of these duties, Board members shall be aware of, and comply with the Constitutions of the State and Nation, the California Water Code, other laws pertaining to the services provided by the District, and the established policies of the District. As elected representatives Board members can neither relinquish nor delegate their responsibilities to any other individual or group.

In addition to giving consideration to the wants and needs of their individual constituency, each Board member shall consider the District as a whole.

Board members shall present concerns and concepts through the process of Board debate and, if in the minority, the Board member shall respect the divergent opinions presented.

Board members shall devote sufficient time, thought, and study to proposed actions to make informed decisions.

BP 12050 Accountability, Review, and Evaluation

Adopted: December 11, 2006
Supersedes:

In exercising their oversight, and in order to maintain accountability for the performance of their duties and responsibilities, the Board shall provide for ongoing review and evaluation of current programs, services, and activities of the District. The Board recognizes that this includes regular reports to the public on qualitative and quantitative assessments.

The General Manager shall establish and conduct regular assessments of the services and activities of the District. This may include oral or written reports presented at meetings of the Board.

BP 12060 Compensation

Adopted: December 11, 2006
Supersedes:

The Board's compensation is defined by Section 21166 of the California Water Code and it is fixed by the adoption of an ordinance in accordance with Section 21166.

BP 12065 Board Expense and Reimbursement

Adopted: August 15, 2007
Supersedes: Policy Statement No. 11

The reimbursement of Board expenses shall comply with Sections 53232.2 and 53232.3 of the California Government Code or their successors. Eligibility and procedures shall be defined by the terms of a resolution adopted in accordance with those statutes.

AR 12065 Board Expense and Reimbursement

Approved: August 15, 2007
Revised: July 14, 2014

Purpose

This document sets forth the policy of the El Dorado Irrigation District concerning Directors' expense payments and reimbursements.

Intent

The District encourages Directors to take advantage of opportunities to be informed concerning matters of interest to the District, and to inform others of the activities and interests of the District. The District encourages Directors to attend conferences, seminars and other meetings that require their participation or provide the foregoing opportunities. Directors are entitled to reimbursement for the amount of reasonable and prudent expenditures incurred by Directors in the performance of their duties as Directors. Directors may not profit by or experience a financial loss in the course of conducting District business. The District does not pay or reimburse for any expenses incurred by spouses and other family members of Directors. No expense is payable or reimbursable unless it is consistent with the Intent of this policy.

Procedures

A. The District's annual budget will set an appropriate level of funding for payment and reimbursement of Directors' expenses. The General Manager or his or her designee will be responsible for ensuring that the budgeted amount is not exceeded without approval of the Board.

B. Direct expenses for registration fees, travel, hotels and meals will be paid by the District in accordance with the guidelines and per diem rates for an accountable expense reimbursement plan as defined in the United States Internal Revenue Service's Publication 535, section 13 and Publication 1542 ("Accountable Plan"). A copy of the Accountable Plan documents can be obtained from the District Director of Finance and Management Services.

C. The following expenses are permissible business-related expenditures:

1. Personal Vehicle Expenses. A director will be reimbursed for travel miles at the rate authorized under the Accountable Plan for all necessary travel. A Director will be considered to have accounted for personal vehicle expenses by indicating the miles traveled, the business purpose of the travel and the dates of travel.

2. Hotel Expenses. The District will pay or reimburse a Director's hotel expenses necessarily incurred. A Director may either (a) receive reimbursement for the per diem hotel rate provided in IRS Publication 1542 for the locality in which the hotel is located; or (b) use the Director's personal funds to pay for hotel charges, in which case the District will reimburse the Director for actual charges up to three times the applicable per diem hotel rate provided in the Accountable Plan; or (c) request that the District pay for hotel charges, in which case the District will pay for actual charges up to three times the per diem hotel rate provided in the Accountable Plan, and the Director will be responsible for any excess hotel charges.

3. Meal/Incidental Allowance. A Director attending a conference, seminar, or meeting outside of El Dorado County will be given a meal/incidental allowance for costs necessarily incurred. A Director may either (a) receive reimbursement at the per diem meal/incidental rate provided for in Publication 1542 for the locality in which the conference, seminar, or meeting is held; or (b) use the Director's personal funds to pay for meals and incidentals, in which case the district will reimburse the Director for actual charges up to three times the per diem meal/incidental rate provided for in the Accountable Plan. If a Director is not traveling for a full day, defined as from 12:01 a.m. to 12:00 midnight, the per diem meal/incidental allowance will be prorated according to the actual hours of travel. If a Director who is not traveling for a full day uses his or her personal funds to pay for meals and incidentals, the District will reimburse the Director for actual charges incurred for meals and incidentals while traveling, up to three times the prorated per diem meal/incidental rate provided for in the Accountable Plan. Tips for meals should not be reported separately because they are included in the allocated amount of the meal per diem. Actual expenses for alcoholic beverages shall not be reimbursed. Incidentals include but are not limited to tips for taxi drivers, baggage porters, bellhops and hotel maids.

4. Common Carrier Travel. When personal vehicle use for District business is impractical due to time and/or distance, a Director may use regularly-scheduled commercial carriers for travel. A Director traveling by plane, train, rental car, bus, or taxi will travel by the least-expensive fare actually available for the date and time of the travel. Notwithstanding the foregoing, a Director may utilize charter transportation if such transportation is included as part of an integrated package price for travel, including but not limited to Water Education tours and the Sacramento Chamber of Commerce "Cap to Cap" program. Airport or train parking are reimbursable expenses; however, long-term parking shall be used at airports and train stations for travel exceeding 24 hours and reimbursement shall be limited to the long-term parking rate in such instances. A Director may use personal funds to purchase a common-

carrier fare, in which case the District will reimburse the Director for the actual amount of the fare.

5. Telephone/Computer/Fax/Cellular/Internet Services. A Director will be reimbursed for actual telephone (including one cellular phone), computer (including one personal computer and software applications required to effectively and securely perform District business), fax and internet service provider expenses incurred on District business. Each Director will be offered a District-issued and paid cellular phone, but is not obliged to accept it.

6. Meeting/Conference/Seminar Registration and Similar Expenses. The District will pay or reimburse a Director's actual registration charges or similar expenses incurred to gain admission to a meeting, conference, seminar or similar activity. Such payment or reimbursement, as well as hotel and meal/incidental per diem payments or reimbursements, shall be limited to a maximum of three days per event with the following exception: ancillary programs that are not part of the main conference, such as workshops held immediately before or after the main conference.

7. Meals Within El Dorado County. The District will pay or reimburse a Director for meals within El Dorado County. If a Director seeks reimbursement for a meal under this provision, the Director may either (a) receive reimbursement at one-third of the per diem meal/incidental rate provided in Publication 1542 for El Dorado County; or (b) use the Director's personal funds to pay for the meal, in which case the District will reimburse the Director for actual charges up to the per diem meal/incidental rate provided for in the Accountable Plan. Tips for meals should not be reported separately because they are included in the allocated amount of the meal per diem. Actual expenses for alcoholic beverages shall not be reimbursed.

8. Meals of Other Persons. This Policy recognizes that at times it is appropriate for a Director to be reimbursed for the meal expenses of others who are meeting with a Director during the meal. If a Director seeks reimbursement for the meals of other persons under this provision, the Director may either (a) receive reimbursement for each other person at one-third of the per diem meal/incidental rate provided for in Publication 1542 for the locality in which the meeting is held; or (b) use the Director's personal funds to pay for meals and incidentals, in which case the District will reimburse the Director for actual charges for each other person up to the per diem meal/incidental rate provided for in the Accountable Plan. Tips for meals should not be reported separately because they are included in the allocated amount of the meal per diem. Actual expenses for alcoholic beverages shall not be reimbursed.

9. Membership Fees or Dues. The District will pay or reimburse a Director's actual fees or dues for membership in organizations if the Board President or Board of Directors finds that the membership will serve a District business purpose.

D. In order to be reimbursed for any expense authorized under this Policy, a Director must fill out a District-provided expense report. The report form is designed to ensure that Directors' expense reimbursements comply with the requirements of the Accountable Plan. Accordingly, the General Manager will review each report form, and sign indicating compliance with the requirements of this Policy. In all cases where a Director seeks reimbursement for expenses incurred while attending a conference, seminar or other meeting, the Director must attach a copy of the conference registration form to his or her expense reimbursement report as a condition of receiving reimbursement for an appropriately-incurred business expense. Originals or copies of additional documentation shall be required as follows as a condition of receiving reimbursement under this Policy:

1. Personal Vehicle Expenses. The Director will not be required to attach any additional documentation to the expense report.

2. Hotel Expenses. If a Director is entitled to be reimbursed for hotel charges, the Director may claim the per diem hotel rate allowed in Publication 1542 for the locality in which the hotel is located. The Director will report on the District expense report as directed without attaching any additional documentation except as specified in this Policy. If a Director wishes to use personal funds to pay hotel charges and be reimbursed for the actual charges to the extent allowed by this Policy, the Director must attach to the expense report an itemized bill issued by the hotel and the credit card receipt or other proof of the Director's payment.

3. Meal/Incidental Allowance. If a Director is entitled to be reimbursed for a meal/incidental allowance, the Director may claim the per diem amount allowed in the Publication 1542 for the locality in which the expense was incurred. The Director will report on the District expense report as directed without attaching any additional documentation. If a Director wishes to use personal funds to pay for meals and claim reimbursement for the actual meal charges to the extent allowed by this Policy, the Director must attach to the expense report an itemized bill or receipt issued by the restaurant and the credit card receipt or other proof of the Director's payment. If a Director wishes to use personal funds to pay for incidental expenses and claim reimbursement for actual incidental expenses to the extent allowed by this Policy, the Director must attach to the expense report a bill or receipt issued by the source of each incidental expense, subject to paragraph 11, below.

4. Common Carrier Travel. A Director must attach to his or her expense report the fare, coupon, or itemized bill from a travel agency, airline or

railroad showing the actual amount expended for such travel. A Director must attach to his or her expense report receipts for any airport or train parking authorized by this Policy, showing the actual amount expended for such parking.

5. Telephone/Computer/Fax/Cellular/Internet Service. A Director must attach to his or her expense report an itemized bill or receipt from each service provider.

6. Meeting/Conference/Seminar Registration and Similar Expenses. A Director must attach to his or her expense report a completed conference registration form and the credit card receipt or other proof of the Director's payment.

7. Meals Within El Dorado County. If a Director is entitled to be reimbursed for a meal within El Dorado County, the Director may claim one-third of the per diem amount allowed in Publication 1542 for El Dorado County. The Director will report on the District expense report as directed without attaching any additional documentation. If a Director wishes to use personal funds to pay for meals and claim reimbursement for the actual meal charges to the extent allowed by this Policy, the director must attach to the expense report an itemized bill or receipt issued by the restaurant and the credit card receipt or other proof of the Director's payment.

8. Meals of Other Persons. If a Director is entitled to be reimbursed for a meal of one or more other persons, the Director may claim, per person, one-third of the per diem amount allowed in Publication 1542 for the locality in which the expense is incurred. The Director will report on the District expense report as directed without attaching any additional documentation, except that the Director shall identify the other person(s) and the business purpose of the meeting. If a Director wishes to use personal funds to pay for meals and claim reimbursement for the actual meal charges to the extent allowed by this Policy, the Director must attach to the expense report an itemized bill or receipt issued by the restaurant and the credit card receipt or other proof of the Director's payment. In addition, the Director shall identify the other person(s) and the business purpose of the meeting.

9. Membership Fees or Dues. A Director must attach to his or her expense report a bill or receipt from the organization and the credit card receipt or other proof of the Director's payment.

10. In all cases where the District pre-pays a Director's expense for hotel expense, conference registration, common carrier travel, or membership fees or dues as authorized by this Policy, the Director will remain responsible for filing an expense report and attaching any appropriate

documentation obtained by the Director in conformance with paragraphs 1 through 9 above.

11. For incidental expenses where no receipt is available, e.g. tips, toll charges, parking meter costs, etc., a reimbursement request for such expenses may be claimed on the District approved expense report. Certification that such expenses were actually incurred by the Director will be made when signing the District approved expense report form.

E. In accordance with the Accountable Plan, a Director must substantiate all expenses on an expense report with the appropriate documentation attached within 60 days of incurring or paying the expense. Any mis- or late-reported expenses incurred by a Director will not meet the requirements of the Accountable Plan, and will be considered income to the affected Director. To comply with the applicable tax laws, the District will be required to issue to a Director a Form W-2 reporting all mis-or late-reported expenses as income. Expenses turned in late, after 60 days, will be subject to Board approval.

F. District will prepare a list of the amount and purpose of each expense reimbursement paid by the District to each Director. This information will be included in the agenda materials for each regular monthly Board of Director's meeting each month.

BP 12070 Members

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

The Board shall consist of five members, each for a four-year term. The five members are elected by the voters in their Division according to California state law.

Vacancies shall be filled according to California state law.

BP 12080 Meeting Procedures

Adopted: July 19, 2004
Updated: December 11, 2006
Revised: July 14, 2014

A. Except in unusual circumstances, the Board shall, in accordance with *Robert's Rules of Order Newly Revised*, limit itself to the following motions in ascending order of precedence:

1A. Main motions (same order of precedence as 1B.)
a. Original main motions
b. Incidental main motions

1B. Motions that bring a question again before the assembly (other than motion to reconsider) (not in order of precedence)
a. Take from the table
b. Rescind
c. Discharge

2. Subsidiary motions (in ascending order of precedence)
a. Postpone indefinitely
b. Amend
c. Refer to committee
d. Postpone to a certain time
e. Limit or extend limits of debate
f. Previous question
g. Lay on the table

3. Privileged motions (in ascending order of precedence)
a. Call for the orders of the day
b. Raise a question of privilege
c. Recess
d. Adjourn
e. Fix the time to which adjourn

4. Incidental motions (not in order of precedence)
a. Point of order
b. Appeal
c. Suspend the rules

d. Objection to the consideration of the question
e. Division of a question
f. Consideration by paragraph or Seriatim
g. Request to be excused from a duty
h. Requests and inquiry
    i. Parliamentary inquiry
    ii. Point of information
    iii. Request for permission to withdraw or modify a motion
    iv. Request to read papers

5. Motion to reconsider (subject to Section H. below)

B. Except as prohibited by the Brown Act, the Board, by motion passing with minimum of four affirmative votes, may suspend or vary the application of these meeting procedures with regard to any proceedings, or to any particular problem before the Board.

C. Meetings shall be conducted within the guidelines of any regularly adopted agenda.

D. Three voting members of the Board shall constitute a quorum for the transaction of business. The only action which may be taken at a meeting attended by less than a quorum is to adjourn the meeting.

E. At each regular meeting of the Board, the minutes of the prior meeting shall be presented for approval.

F. Members of the Board who are unable to attend a meeting shall, if possible, so inform the Clerk to the Board before said meeting, in order to determine a quorum in advance.

G. Except as otherwise provided by law or District procedures, to constitute "action taken" on any item, the motion must receive at least three affirmative or negative votes.

H. A motion for previous question may be passed by three affirmative votes.

I. No matter upon which "action is taken" may be reagendized or reconsidered for a period of six (6) months except by the following process: The Board of Directors may, upon any member's agendizing the matter, vote to reconsider any action previously taken, and if a majority of the Board votes to reconsider, the matter shall be placed on the agenda for reconsideration at a subsequent meeting.

J. The rules contained in the current edition of *Robert's Rules of Order Newly Revised* shall govern the District in all cases to which they are applicable and in which they are not inconsistent with applicable law, these By-Laws, or any District policy statement.

BP 12080.1 Voting

Voting on resolutions and motions shall be recorded by Division and declared passed or failed by the Clerk to the Board.

AR 12081 Meetings

Approved: December 12, 2006
Revised: July 19, 2012

A. Regular meetings shall generally be held on the second and fourth Monday of each month at 2890 Mosquito Road, Placerville, California starting at 9:00 a.m. in open session. When the date falls on a legal holiday, the meeting shall be specified in advance by the Board.

B. Meetings may be adjourned to another time and place by the President. He/She shall give public notice of the time and place during the meeting so adjourned. The meeting place shall be within the District boundary except as provided in Government Code Section 54954.

C. Special meetings of the Board may be called at any time by the President of the Board or a majority of the Directors by giving at least 24-hour written notice to each Director as well as each local newspaper of general circulation and radio or television station requesting notice in writing. The call and notice shall specify the time and place of the special meeting and the business to be transacted or discussed. No other business shall be considered at the meeting. The call and notice shall be posted at least 24 hours prior to the special meeting in a location that is freely accessible to members of the public.

D. Emergency meetings of the Board may be held when required and shall be ordered by the President, or by a majority of the Directors. The emergency meeting shall meet the definitions and follow the procedures provided in Government Code Section 54956.5. Each local newspaper of general circulation and radio or television station which has requested notice of special meetings pursuant to Government Code Section 54956 shall be notified by the Clerk to the Board, or other person designated by the President, one hour prior to the emergency meeting or, in the case of a dire emergency, at or near the time that the President or designee notifies the Directors of the meeting. Notification shall be by telephone or email addresses provided in the most recent request of such newspaper or station notification of special meetings shall be exhausted. To the extent that telephone or email services are not functioning, notification shall be deemed waived and the District shall notify such newspaper or station of the fact of the holding of the emergency meeting, the purpose of the meeting, and any action taken at the meeting as soon after the meeting as possible. The minutes of an emergency meeting, a list of persons who the President of the Board, or designee of the Board, notified or attempted to notify, and a report of all roll-call votes, and any actions taken at the meeting shall be posted for at least 10 days in a public place as soon as after the meeting as possible.

E. Closed sessions may be agenized for a regular, special, or emergency meeting, or called by the Board or its President during the course of a regular or emergency meeting, under any applicable provision of the Brown Act. All procedures relating to closed sessions shall comply fully with the Brown Act.

F. Workshops and standing committee meetings will normally be held at 2890 Mosquito Road.

AR 12082 Order of Business

Approved: December 12, 2006
Revised: November 4, 2010
Revised: May 15, 2014

The normal order of business for Board meetings shall be as follows. When the General Manager's Report includes employee recognition, that portion of the Report shall occur immediately prior to the approval of the Consent Calendar. The President of the Board has the prerogative to alter the order of items 6 through 16 to enhance public participation or meeting efficiency, except that time-specific items shall not be called prior to their noticed time.

1. Roll Call
2. Pledge of Allegiance
3. Moment of Silence
4. Adopt Agenda
5. Approve Consent Calendar
6. Action on Items Pulled from Consent Calendar
7. Public Comment
8. Board of Directors' Communications
9. Clerk to Board Communications
10. General Manager's Report
11. Public Hearings
12. Workshops
13. Information Items
14. Director Items
15. Action Items
16. Closed Session
17. Review of Assignments
18. Adjournment

AR 12083 Order for Each Specific Agenda Item

Approved: December 12, 2006

A. President announces matter next by name and item number to be discussed.

B. President or General Manager calls staff to review items and present recommendations.

C. President or General Manager calls on principal party, applicant or person requesting Board actions.

D. President asks for input from public. Public input will normally be limited to five (5) minutes per person. The President may establish other guidelines as he/she sees fit based upon the number of those wishing to speak, the time available, or other factors.

E. President calls for discussion from Board members and controls further public comment. The President will normally limit discussion to the Board until action is taken, unless directed otherwise by a majority of the Board.

F. Board acts to:

1. close or continue hearing until later date,

2. request further information from staff or others, which information shall be limited to specific response to Board questions,

3. approve, conditionally approve, deny or take under advisement, and

4. continue to a later date any timed appearances or public hearing items that take more time than allocated.

AR 12084 Agenda Items

Approved: December 12, 2006

Agenda items and requests for appearances shall be in writing and shall specifically set forth both the matter to be discussed and the action requested of the Board, along with copies of said request and documentary information or supporting material.

BP 12090 Board Officers

Adopted: July 19, 2004
Updated: December 11, 2006
Supersedes:

A. The officers of the Board shall consist of a President and Vice President.

B. The President and Vice President shall be elected to one-year terms by members of the Board at the first regular meeting in December of each year during Board non-election years, or either a designated meeting in December or first meeting the following month in election years. The President and Vice President shall take office immediately following the election. Vacancies shall be filled in the same manner, at a regular meeting following the time the vacancy occurs. No officer shall serve more than two consecutive years in the same position, unless elected by a four-fifths vote of the Board.

C. The President shall act as the presiding officer at all meetings of the Board.

D. The Vice President shall preside and exercise all duties of the President in his/her absence, or by direction of the President. In the absence of both the President and Vice President, and temporary President shall be elected by the Board to act as President until the return of the President or Vice President.

BP 12100 Representative Appointments

Adopted: December 11, 2006
Supersedes:

The President, with concurrence by the Board, may appoint Board representatives to various organizations and associations. These entities shall be identified in AR 12101 and updated annually in consultation with the General Manager and General Counsel.

AR 12101 Board Representative Appointments

Approved: December 12, 2006
Revised: November 24, 2014

Board members may be appointed to represent the District in the following organizations:

1. American Public Power Association
2. Association of California Water Agencies
3. California Association for Sanitation Agencies
4. California Municipal Utilities Association
5. Citizens for Water
6. El Dorado County Water Purveyors Association
7. El Dorado Forum
8. El Dorado County Local Agency Formation Commission
9. Mountain Counties Water Resources Association
10. Regional Water Authority
11. SAGE
12. Taxpayers' Association of El Dorado County

BP 12110 Standing Committees

Adopted: December 11, 2006
Supersedes:

The President, with concurrence by the Board may appoint Board members to serve as Chairs of Board Standing Committees. The Standing Committees shall be identified in AR 12111 and updated annually in consultation with the General Manager and General Counsel.

AR 12111 Standing Committee Appointments

Approved: December 12, 2006
Revised: November 24, 2014

A. The following standing committees, composed of the entire membership of the Board, are hereby established:
   1. Engineering and Operations;
   2. Insurance and Personnel;
   3. Finance, Rates, and Charges;
   4. Legal and Legislation; and
   5. Recreation and Property Management.

B. Committees may meet on the following duties, and as necessary:
   1. Engineering and Operations – Monthly at the first Board meeting of the month;
   2. Insurance and Personnel – Quarterly, at the second Board meeting of the month;
   3. Finance, Rates, and Charges – Quarterly, at the first Board meeting of the month;
   4. Legal and Legislation – Second Board meeting of October and June; and
   5. Recreation and Property Management – First Board meeting of October and June.

C. The President, with the approval of the Board, may appoint two chairs to each Board Standing Committee.

BP 12120 Ad-hoc Committees

Adopted: December 11, 2006
Supersedes:

The President, with concurrence by the Board, may appoint ad-hoc committees.

BP 12130 Conflict of Interest

Adopted: December 11, 2006
Supersedes:

Except as expressly permitted under the terms of the Political Reform Act (Government Code Section 81000 et seq.), a Board member shall not take any action on, or participate in any discussion or otherwise influence the Board on any matter of Board business in which said member of the Board has a "financial interest" as defined under the Political Reform Act.

RESOLUTION NO. 182-2011

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

RESOLUTION OF INTENTION TO AMEND THE GENERAL PLAN

WHEREAS, the County of El Dorado is mandated by the State of California to maintain an adequate and proper General Plan; and

WHEREAS, The County of El Dorado's General Plan and the various elements thereof must be continually reviewed and updated with current data, recommendations and policies; and

WHEREAS, on April 4, 2011, Development Services presented to the Board of Supervisors the first Five-Year Review of the General Plan with findings that support a need for a variety of revisions to policies related to the development of housing affordable to the moderate-income earner, the creation of jobs, improving sales tax revenues, further supporting the promotion and protection of Agriculture and to address recent changes in State law; and

WHEREAS, on July 25, 2011, Development Services presented to the Board of Supervisors a list of key issues and options for addressing identified General Plan amendment components discussed on April 4, 2011 as part of the General Plan 5 year review; and

WHEREAS, the Board of Supervisors directed staff to return with a comprehensive Resolution of Intention that included previously adopted Resolutions of Intentions to amend the General Plan including; 1) ROI 274-2008, adopted 10/7/2010 - Planned Development policies for 30 percent Open Space and requirement for a Planned Development when creating 50+ parcels; 2) ROI 110-2009 adopted 5/19/2009 - Community Region Boundary Change for Camino/Pollock Pines; 3) ROI 179-2010 adopted 12/7/10 - Historical Design Overlay for historical town sites of El Dorado and Diamond Springs; and

WHEREAS, the Board of Supervisors intends to have the above listed Resolutions superseded by this resolution.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission and Board of Supervisors will set public hearings to consider the following amendments:

LAND USE ELEMENT

Land Use Map

Camino/Pollock Pines Community Region Boundary amendment: consider amending the Camino/Pollock Pines Community Region Boundary to create three Rural Centers to allow for separate and distinct opportunities for each of the communities.

Policy 2.1.1.3

Commercial/Mixed Use: Consider amending allowable residential density by increasing residential use as part of a Mixed-use development from 16 units per acre to 20 units per acre to achieve CEQA streamlining benefits.

Policy 2.2.1.2 and Table 2-1

Table 2-1 & Commercial and Industrial Use: Consider amending General Plan Table 2-1 and Policy 2.2.1.2 for Commercial and Industrial to allow for commercial and industrial uses in the Rural Regions.

Commercial/Mixed Use: Consider deleting the sentence, "*The residential component of the project shall only be implemented following or concurrent with the commercial component.*"

Industrial Use: Consider deleting the requirement for Industrial Lands to be restricted to only industrial lands within, or in close proximity to Community Regions and Rural Centers. Delete the requirement that Industrial Lands in Rural Regions can only provide for on-site support of agriculture and natural resource uses.

Multi-Family Use: Consider amending density from 24 units per acre to 30 units per acre to comply with California Government Code 65583.2(c)(iv) and (e) which requires jurisdictions within Metropolitan Statistical Areas (MSA) of populations greater than 2,000,000 to allow for up to 30 units per acre when determining sites to meet the low and very low housing allocation categories. El Dorado County is located within the Sacramento MSA. Amend the Multi-Family land use to allow for commercial as part of a mixed use project. Amend the Multi-Family land use to encourage a full range of housing types including small lot single family detached design without a requirement for a Planned Development.

High Density Residential Use: Consider deleting requirement for a Planned Development application on projects of 3 or more units per acre.

Open Space: Consider amending policy to make reference to Objective 7.6.1

Table 2-2
Consider amending table to reflect changes in density for Commercial/Mixed Use from 16 units per acre to 20 units per acre and Multi-Family from 24 units per acre to 30 units per acre.

Policy 2.2.1.5 and Table 2-3
Consider amending Policy to direct the regulation of building intensities be established in the Zoning Ordinance and delete Table 2.3.

Policies 2.2.3.1, 2.2.3.2, 2.2.5.4
Consider amending the 30% open space requirement inside of Community Regions and Rural Centers to allow lesser area of "improved open space" on site, set criteria for options in meeting a portion of the requirement off-site or by an in lieu fee option as deemed necessary.

Table 2-4
Consider amending Table 2-4 to reflect Zoning Ordinance Update revision to zones.

Policy 2.2.4.1
Consider amending the Density Bonus policy which allows incentive for the creation of open space as part of residential projects, and implement policy specifics through Zoning Ordinance.

Policy 2.2.5.4
Consider deleting policy.

Policy 2.2.5.8
Consider amending the policy requirement for a Neighborhood Services Zone and allow for objectives to be meet in a related zone.

Policy 2.2.5.10

Consider deleting requirement for special use permit for Ag Support Services; incorporate standards and permitted uses into Zoning Ordinance

Policy 2.4.1.3
Consider amending policy to recognize the historical townsites of El Dorado/Diamond Springs and other historical townsites.

Policy 2.9.1.2, 2.9.1.3 and 2.9.1.4
Consider amending criteria for establishing Community Region and Rural Center boundaries. Amend timeframe for revision by the Board of Supervisors allowing for amendments to the boundaries to be completed by Board of supervisors on an as needed basis.

New Policies
Consider setting criteria for and identify Infill sites and Opportunity areas that will provide incentives substantial enough to encourage the development of these vacant/underutilized areas. This amendment would set criteria for CEQA streamlining opportunities but would not amend land uses or go beyond existing EIR growth projections or densities set by the General Plan. These policies may support the use of Traditional Neighborhood Design guidelines, Mixed Use, and Form Base Code.

TRANSPORTATION AND CIRCULATION ELEMENT

Policy TC-1a, TC-1b, and Table TC-1
Consider revising policies, and table to bring objectives into conformance with policy TC-1p, TC-1r, TC-1t, TC-1u, TC-1w, TC-4f, TC-4i, HO-1.3, HO-1.5, HO-1.8, HO-1.18, HO-5.1 and HO-5.2, to allow for narrower streets and road ways and to support the development of housing affordable to all income levels.

Policies TC-1m, TC-1n(B), TC-1w
Consider amending policies to clean up language including; TC-1m delete "of effort"; TC-1n(B) replace accidents with crashes; and TC-1w, delete word maximum.

Table TC-2, TC-Xband TC-Xd
Consider amending or deleting Table TC-2 and maintain list outside of General Plan and amending any policies referring to Table TC-2.

Policy TC-Xb(C)
Consider amending policy TC-Xb(C) to refer to Figure TC-1 when referencing the circulation diagram.

Policy TC-Xg
Consider amending to include that each development shall also design necessary improvements as well as construct or fund them.

Policy TC-Xi
Consider amending policy to allow for coordination of regional projects to be delivered on a schedule agreed to by related regional agencies and therefore not subject to meeting the scheduling requirements of the policies of this General Plan.

Policies TC-4a, TC-4d and TC-4f
Consider amending policies to clean up language to ensure consistency with subsequent adopted plans.

Policies TC 4i, TC-5a, TC-5b and TC-5c
Consider amending policies to provide more flexibility when requiring sidewalks.

New Goal
Consider a new goal and associated policies recognizing the requirements of California Government Code § 65080(b)(2)(I) implemented through the regional Metropolitan Transportation Plans to provide CEQA streamlining opportunities for qualified projects.

New Policy
Consider a new policy that supports the development of new or substantially improved roadways to accommodate all users, including bicyclists, pedestrians, transit riders, children, older people, and disabled people, as well as motorists consistent with appropriate code requirements. Add implementation measure to update the applicable manuals and standard plans to incorporate elements in support of all users. (Assembly Bill 1358 the Complete Streets Act of 2008)

PUBLIC SERVICES AND UTILITIES ELEMENT

Policy 5.1.2.2 and Table 5-1
Consider amending policy and table to provide flexibility when achieving minimum level of service requirements consistent with related policies being considered for amendment.

Policies 5.2.1.3 and 5.3.1.1
Consider amending policies to increase flexibility for the connection to public water and wastewater systems when projects are located in a Community Regions.

PUBLIC HEALTH, SAFETY AND NOISE ELEMENT

Policy 6.4.1.4 and 6.4.1.5
Consider amending policies and remove Attachment A to address recommendations by the Office of Emergency Services and Homeland Security regarding dam failure inundation.

Policy 6.5.1.11 and Tables 6-1 thru 6-5
Consider revising existing noise standards to establish attainable noise thresholds with regard to temporary nighttime construction activities and other temporary exceedences.

Objective 6.7.1 and 6.7.5
Consider amending the General Plan Objective 6.7.1 and 6.7.5 to reflect updated air quality plan opportunities that support the adoption of a separate Air Quality - Energy Conservation Plan. Create policy(s) to implement these objectives.

CONSERVATION AND OPEN SPACE ELEMENT

Policy 7.1.2.1
Consider amending the restrictions for development on 30% slopes, and set standards in the Zoning Ordinance and Grading Ordinance.

Objective 7.6.1.3(B)
Consider amending policy to delete specific references to zones to conform with the changes proposed in the Zoning Ordinance update.

AGRICULTURE & FORESTRY

Policy 8.1.3.2

Consider amending policy to provide a limited buffer for lands within a Community Region by adding language similar to 8.4.1.2 to 8.1.3.2 to bring the forest resources and agriculture lands buffering policies, in line with one another.

Policy 8.2.4.2
Consider amending policy to eliminate special use permit requirement for visitor-serving uses and establish standards and permitted uses in the Zoning Ordinance

Policy 8.2.4.4
Consider amending policy and any related policies to allow for ranch marketing activities on grazing lands.

BE IT FURTHER RESOLVED, the Board of Supervisors intends to analyze the following policies:

Policy 2.2.1.2
High Density Residential: Consider analyzing the effects of increasing High Density Residential Land use density from a maximum of 5 units per acre to 8 units per acre.

Policy 2.1.1.1 and 2.1.2.1
Consider analyzing the possibility of adding new, amending or deleting existing Community Regions or Rural Center planning areas.

TC-1y
Consider analyzing the potential for deleting the El Dorado Hills Business Park employment cap limits including option identified in TC-1v.

Policy TC-Xd, TC-Xe and TC-Xf
Consider revising the policies to clarify the definition of "worsen", what action or analysis is required if the threshold of "worsen" is met, clarification of the parameters of analysis (i.e. analyis period, analysis scenarios, methods), thresholds and timing of improvements.

Policy 7.2.1.2
Consider amending policy to clarify the Mineral Resource Zones that are required to be mapped.

BE IT FURTHER RESOLVED the Board of Supervisors hereby authorizes Planning Services under the management of the Chief Administator to procede with the preparation of all necessary documentation and CEQA review requirements pursuant to the requirements of the California Environmental Quality Act.

BE IT FURTHER RESOLVED that Resolutions ROI 274-2008, ROI 110-2009 and ROI 179-2010 are hereby superseded by this resolution.

BE IT FURTHER RESOLVED that the Planning Commission and Board of Supervisors will return in a public hearing to consider the proposed amendments.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held the 14 day of November, 2011 by the following vote of said Board:

Ayes: Sweeney, Briggs, Knight, Nutting, Santiago
Noes: none
Absent: none

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

By: _____
Deputy Clerk

First Vice Chair, Board of Supervisors
John R. Knight

RESOLUTION NO. 183-2011

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

RESOLUTION OF INTENTION TO UNDERTAKE A COMPREHENSIVE UPDATE OF THE ZONING ORDINANCE

WHEREAS, the County of El Dorado is mandated by the State of California to maintain an adequate and proper General Plan; and

WHEREAS, the County of El Dorado adopted a General Plan in 2004; and

WHEREAS, many Policies, programs, and implementation measures are implemented through the Zoning Ordinance; and

WHEREAS, the Zoning Ordinance has not been comprehensively updated for over 30 years, yet has been amended an average of twice a year, resulting in a Zoning Ordinance that is a patchwork of provisions and dated regulations; and

WHEREAS, many State and federal regulations that affect the Zoning Ordinance are not accurately reflected in the Ordinance; and

WHEREAS, the Board of Supervisors adopted Resolution of Intention No. 44-2008,and

WHEREAS, the Board of Supervisors is considering amendments to the General Plan to address job creation, construction of housing for moderate-income families, the retention of sales taxes, and support of the agriculture and resource industries of the County that would be implemented by the Zoning Ordinance, and

WHEREAS, according to Section 17.10.010 the Zoning Ordinance amendment must be initiated by Board of Supervisors Resolution;

NOW, THEREFORE, BE IT RESOLVED that the County of El Dorado Board of Supervisors hereby authorizes the Development Services Department to proceed with the preparation of a Comprehensive Update of the Zoning Ordinance, addressing the following issues:

1. Conform the zoning map to the General Plan land use designations;

2. Eliminate conflicting provisions of the existing ordinance;

3. Include provisions in the ordinance to implement General Plan Implementation Measures LU-A, HO-6, HO-16, HS-K, CO-A, AF-A, ED-N, ED-P, ED-II, ED-JJ, ED-KK, and ED-QQ

4. Ensure that the ordinance is consistent with applicable state and federal laws;

5. Reorganize the ordinance for ease of use by the public, staff, and decision makers, including the use of tables to identify permitted uses and development standards, establishing specific use regulations for administrative review of specified uses, and providing rules of interpretation and a comprehensive glossary;

6. Create new zones to reflect current zoning needs and implement the General Plan, including the following zones: Rural Lands, Forest Resources, Agricultural Grazing, Neighborhood Service, and Limited Agriculture;

7. Delete obsolete zones, including Unclassified, Agriculture, Residential-Agricultural, and Planned Commercial;

8. Create overlay zones to more effectively implement General Plan policies;

9. Expand potential uses in the agricultural and rural lands zones to provide for opportunities for agricultural support, recreation, and rural commerce, including allowing ranch marketing on grazing land;

10. Provide a range of intensities for home occupations, based on size and zoning of parcels, addressing the use of accessory structures, customers, and employees.

11. Modify zoning for Williamson Act contracted and rolled out land to reflect the underlying General Plan land use designation;

12. Revise the zoning map to conform to standardized rule sets for zoning modifications based on the General Plan land use designations; and

13. Provide a range of commercial zones to specify and direct the type, design, and location of commercial uses.

BE IT FURTHER RESOLVED that the Board intends to have analyzed in the Environmental Impact Report for Comprehensive Zoning Ordinance Update the following options which may be included in the ordinance:

1. Create a Rural Commercial Zone that would be permitted within the Rural Regions planning concept area;

2. Increase potential uses to provide additional agricultural support, recreation, home occupation, and other rural residential, tourist serving, and commercial uses in zones in the Rural Region;

3. Create standards (master plans) for mixed use and Traditional Neighborhood Design development to provide for a streamlined approval process and to protect the commercial viability of the site;

4. Include single family detached development standards in the Multi-Family zone. Allow up to 15% of the project area, for commercial uses as part of a mixed use development in multifamily zones.

5. Provide multiple industrial zones to specify and direct the type, design, and location of industrial uses;

6. Provide alternative means to any open space requirement as part of a planned development to provide more flexibility and incentives for infill development and focus on recreation in Community Regions and Rural Centers;

7. Amend Zoning map to include historical overlay on El Dorado and Diamond Springs in relationship to historical townsites but consistent with adopted General Plan and Zoning Ordinance policies; and

8. Codify standards for wetland and riparian setbacks.

BE IT FURTHER RESOLVED that Resolution of Intention No. 44-2008 is hereby incorporated into and superseded by this resolution.

BE IT FURTHER RESOLVED that the Planning Commission and Board of Supervisors will return in a public hearing to consider the proposed amendments.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held the 14 day of November, 2011, by the following vote of said Board:

Ayes: Sweeney, Briggs, Knight, Nutting, Santiago
Noes: none
Absent: none

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

By: _____
Deputy Clerk

_____
First Vice Chair, Board of Supervisors
John R. Knight

RESOLUTION NO. 184-2011

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF EL DORADO

RESOLUTION OF INTENTION TO UNDERTAKE A COMPREHENSIVE UPDATE OF THE ZONING ORDINANCE

WHEREAS, the County of El Dorado is mandated by the State of California to maintain an adequate and proper General Plan; and

WHEREAS, the County of El Dorado adopted a General Plan in 2004; and

WHEREAS, many Policies, programs, and implementation measures are implemented through the Zoning Ordinance; and

WHEREAS, the Zoning Ordinance has not been comprehensively updated for over 30 years, yet has been amended an average of twice a year, resulting in a Zoning Ordinance that is a patchwork of provisions and dated regulations; and

WHEREAS, many State and federal regulations that affect the Zoning Ordinance are not accurately reflected in the Ordinance; and

WHEREAS, the Board of Supervisors adopted Resolution of Intention No. 44-2008,and

WHEREAS, the Board of Supervisors is considering amendments to the General Plan to address job creation, construction of housing for moderate-income families, the retention of sales taxes, and support of the agriculture and resource industries of the County that would be implemented by the Zoning Ordinance, and

WHEREAS, according to Section 17.10.010 the Zoning Ordinance amendment must be initiated by Board of Supervisors Resolution;

NOW, THEREFORE, BE IT RESOLVED that the County of El Dorado Board of Supervisors hereby authorizes the Development Services Department to include with the preparation of a Comprehensive Update of the Zoning Ordinance the provision of opportunities for residential and recreational uses on Timber Production Zone land compatible with timber management and harvesting.

BE IT FURTHER RESOLVED that the Planning Commission and Board of Supervisors will return in a public hearing to consider the proposed amendments.

PASSED AND ADOPTED by the Board of Supervisors of the County of El Dorado at a regular meeting of said Board, held the 14 day of November, 2011, by the following vote of said Board:

Ayes: Sweeney, Briggs, Knight, Santiago
Noes: none
Absent:
Recused: Nutting

Attest:
Suzanne Allen de Sanchez
Clerk of the Board of Supervisors

By: _____
Deputy Clerk

_____
First Vice Chair, Board of Supervisors
John R. Knight

County of El Dorado

Chief Administrative Office

330 Fair Lane
Placerville, CA 95667-4197

Terri Daly
Chief Administrative Officer

Phone (530) 621-5530
Fax (530) 295-2537

NOTICE OF PREPARATION OF
A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR)
AND NOTICE OF PUBLIC SCOPING MEETING FOR THE
EL DORADO COUNTY TARGETED GENERAL PLAN AMENDMENT AND ZONING ORDINANCE UPDATE

Date: 10/01/2012

To: Interested Parties

From: El Dorado County Chief Administrative Office

The County of El Dorado (County) will be the Lead Agency under the California Environmental Quality Act (CEQA) for preparation of an Environmental Impact Report (EIR) for the Targeted General Plan Amendment (TGPA) and Zoning Ordinance Update (ZOU). The purpose of this Notice of Preparation and Notice of Public Scoping Meeting is to request the views of public agencies and interested persons as to the scope and content of the environmental information and analyses, including the significant environmental impacts, reasonable alternatives and mitigation measures that should be included in the Draft EIR. The project description, location, and potential environmental effects are summarized in the attached materials.

The County released a Notice of Preparation on May 25, 2012 with a 45 day review period for this project. Comments received during this review period and through the Zoning Ordinance Workshop held the week of July 16, 2012 are available on the County website at http://www.edcgov.us/landuseupdate/. Documents have been revised based on current direction by the Board of Supervisors and comments received. Written comments should be directed to revisions made to the documents and sent at the earliest possible date, but not later than 30 days after the receipt of this notice. There will be another opportunity to submit detailed comments when the Draft EIR is released for public review. Please send your comments to:

Shawna Purvines, Senior Planner
Development Services Department, Planning Services
2850 Fairlane Court, Building "C"
Placerville, CA 95667

or use the Public Comment form at:

http://www.edcgov.us/landuseupdate/

The County will conduct a public agency and public scoping meeting on the project to provide additional information and to receive verbal and written input. The public meeting will include a brief overview of the project by the County staff, followed by an opportunity for public and agency comment. The public meeting will be held at the El Dorado County Planning Commission, 2850 Fairlane Court, Placerville, on October 25, 2012.

Kim Kerr
Assistant Chief Administrative Officer
Interim Department of Transportation Director

NOTICE OF PREPARATION OF
A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (EIR)
AND NOTICE OF PUBLIC SCOPING MEETING
FOR THE
EL DORADO COUNTY TARGETED GENERAL PLAN AMENDMENT AND ZONING ORDINANCE UPDATE

Location:

This project involves changes to policies of the County General Plan and the adoption of an update to the Zoning Ordinance. These changes will take effect county-wide in those areas that under county jurisdiction. In addition, the County will consider amending the Camino/Pollock Pines Community Region Boundary and Agricultural District Boundaries in the General Plan.

Project Description:

The County is proposing a limited number of amendments to its General Plan policies and land use designations and a comprehensive update to the Zoning Ordinance. The items below are listed in no particular order of importance.

General Plan Amendments

Amendments to the General Plan are proposed for the Land Use Element; Transportation and Circulation Element; Public Services and Utilities Element; Public Health, Safety and Noise Element; Conservation and Open Space Element; and Agriculture and Forestry Element.

General Plan amendments to be addressed in the EIR are primarily policy changes, although a limited number of General Plan Land Use Designations, discussed below, are also identified for potential amendment. The EIR will analyze all of the potential amendments under consideration.

The following is a summary of the proposed policies and maps considered for analysis or amendments to the General Plan:

Land Use Map

1. Camino/Pollock Pines Community Region Boundary amendment to create three (3) Rural Centers including Camino, Cedar Grove, and Pollock Pine, to allow for separate and distinct opportunities for each of the communities.

2. Agriculture District Boundary Expansion for Garden Valley-Georgetown, Coloma, Camino-Fruitridge, Gold Hill, Oak Hill, Pleasant Valley, and Fair Play-Somerset.

3. Limited Land Use clean-up identified through the Zoning Ordinance Update.

Consider Amending the Following Policies

1. *Policy 2.1.1.3:*Commercial/Mixed Use- Amend to allow residential density by increasing residential use as part of a mixed-use development from 16 units per acre to 20 units per acre.

2. *Policy 2.2.1.2, Table 2-1, and Table 2-1*: Commercial and Industrial- Amend to allow for commercial and industrial uses in the rural regions.

3. *Policy 2.2.1.2*:Commercial/Mixed Use- Delete sentence, "The residential component of the project shall only be implemented following or concurrent with the commercial component."

4. *Policy 2.2.1.2:* Delete requirement that industrial lands be restricted to areas within, or in close proximity to community regions and rural centers. Delete the requirement that industrial lands in rural regions have more limited industrial uses, for support of agriculture and natural resource uses.

5. *Policy 2.2.1.2:* Amend multi-family density from 24 units per acre to 30 units per acre to comply with California Government Code 65583.2(c)(iv) and (e). Amend the multi-family land use to encourage a full range of housing types including small lot single family detached design without a requirement for a planned development.

6. *Policy 2.2.1.2:* High Density Residential- Delete requirement for a planned development application on projects of 3 or more units per acre.

7. *Policy 2.2.1.2:*Open Space- Amend policy to refer to Objective 7.6.1

8. *Table 2-2:* Amend table to reflect changes in density for commercial/mixed use from 16 units per acre to 20 units per acre and multi-family from 24 units per acre to 30 units per acre.

9. *Policy 2.2.1.5 and Table 2-3:* Amend policy to direct the regulation of building intensities be established in the Zoning Ordinance and delete Table 2.3.

10. *Policies 2.2.3.1, 2.2.3.2, and 2.2.5.4:* Amend the 30% open space requirement for Planned Development community regions and rural centers to allow lesser area of "improved open space" on site, and consider options to provide a portion of the required open space off-site or by an in-lieu fee option.

11. *Table 2-4:* Amend as necessary to reflect Zoning Ordinance Update revisions.

12. *Policy 2.2.4.1:* Amend the density bonus criteria, and consider placing the specifics of this policy into the Zoning Ordinance.

13. *Policy 2.2.5.4:* Delete policy requiring a Planned Development application on projects requesting the creation of 50 parcels or more.

14. *Policy 2.2.5.8:* Amend the policy creating the Neighborhood Services zone and allow for objectives to be met in a related commercial zone.

15. *Policy 2.2.5.10:* Delete policy requirement for special use permit for agriculture support services; incorporate standards and permitted into Zoning Ordinance

16. *Policy 2.4.1.3:* Amend policy to recognize the historical town sites of El Dorado/Diamond Springs and other historical town sites.

17. *Policies 2.9.1.2, 2.9.1.3, and 2.9.1.4:* Amend criteria for establishing community region and rural center boundaries by deleting the restriction that boundaries can be amended every five years, and allow revisions to the boundaries to be initiated by Board of Supervisors whenever necessary.

18. *Add New Policies that provide* set criteria for and identify infill sites and opportunity areas that will provide incentives for development of these vacant/underutilized areas, including streamlining the CEQA process for these identified locations. These policies may support the use of traditional neighborhood design guidelines, mixed use, and "form based" codes. These policy changes would not include amending the land use designations, or increasing the densities currently provided for in the General Plan.

19. *Policies TC-1a, TC-1b, and Table TC-1:* Revise policies, and table to further support the important objectives found in policies TC-1p, TC-1r, TC-1t, TC-1u, TC-1w, TC-4f, TC-4i, HO-1.3, HO-1.5, HO-1.8, HO-1.18, HO-5.1 and HO-5.2, allowing for narrower streets and road ways and to support the development of housing affordable to all income levels.

20. *Policies TC-1m, TC-1n(B), TC-1w:* Amend to make minor modifications to clarify language including; TC-1m delete "of effort"; TC-1n(B) replace accidents with crashes; and TC-1w, delete word maximum.

21. *Tables TC-2, Policy TC-Xb, and Policy TC-Xd:* Amend or delete Table TC-2; if Table TC-2 is deleted, amend all references to TC-2, including the references in TC-Xb and TC –Xd.

22. *Policy TC-Xb (C):* Consider minor amendment to refer to Figure TC-1 when referencing the circulation diagram.

23. *Policy TC-Xg:* Amend to clarify the requirement that development constructs or funds necessary road improvements, and include the requirement to design, or fund design.

24. *Policy TC-Xi:* Amend to allow for coordination of regional projects to be delivered on a schedule agreed to by related regional agencies and therefore not subject to meeting the scheduling requirements of the policies of this General Plan.

25. *Policies TC-4a, TC-4d, and TC-4f:* Amend to clean up language to ensure consistency with subsequent adopted plans.

26. *Policies TC 4i, TC-5a, TC-5b, and TC-5c*: Amend to provide more flexibility of when sidewalks are required.

27. *Add New Goal and associated policies* to provide for CEQA streamlining opportunities for qualified projects that are consistent with the Metropolitan Transportation Plans.

28. *Add New Policy* to support the development of new or substantially improved roadways to accommodate all users, including bicyclists, pedestrians, transit riders, children, older people, and disabled people, as well as motorists, to comply with Assembly Bill 1358, the Complete Streets Act of 2008. Add implementation measure to update the applicable manuals and standard plans to incorporate elements in support of all users.

29. *Objective 5.1.1, 5.1.2, and Table 5-1:* Amend as needed policy(s) and table to clarify Board authority when determining minimum level of service requirements consistent with General Plan objectives, standards, and related policies.

30. *Policy 6.4.1.4 and 6.4.1.5*: Amend policies and remove flood insurance rate maps, to address recommendations by the Office of Emergency Services and Homeland Security regarding dam failure inundation.

31. *Policy 6.5.1.11 and Tables 6-1 thru 6-5*: Amend existing noise standards to establish attainable noise thresholds with regard to temporary nighttime construction activities and other temporary exceedances.

32. *Objective 6.7.1 and 6.7.5:* Amend these objectives to reflect updated air quality plan opportunities that support the adoption of a separate Air Quality - Energy Conservation Plan.

33. *Policy 7.1.2.1:* Amend the restrictions for development on 30% slopes, and set standards in the Zoning Ordinance and Grading Ordinance.

34. *Policy 7.2.1.2 and 7.1.2.3*: Amend to clarify which mineral resource zones are required to be mapped.

35. *Objective 7.6.1.3(B):* Amend to delete specific references to zone districts to conform to the changes proposed in the Zoning Ordinance update.

36. *Policy 8.1.3.2:* Amend policy to provide a limited buffer for lands within a community region by adding language similar to Policy 8.4.1.2 to Policy 8.1.3.2.

37. *Policy 8.2.4.2: Consider* amending policy to eliminate the requirement for a special use permit for all visitor serving uses , and instead establish standards, permitted uses, and requirements for permits, in the various zone districts in the Zoning Ordinance

38. *Policy 8.2.4.4:* Consider amending the policy to allow for ranch marketing activities on grazing lands.

Consider Analyzing the Following Policies

1. *Policies 2.1.1.1 and 2.1.2.1:* Analyze the possibility of adding, amending or deleting existing Community Regions or Rural Center planning areas.

2. *Policy 2.2.1.2:* High Density Residential- Analyze the potential effects of increasing high density residential land use density from a maximum of 5 units per acre to 8 units per acre.

3. *Policy TC-1y:* Analyze the potential for deleting the El Dorado Hills Business Park employment cap limits including option identified in TC-1v.

4. *Policies TC-Xd, TC-Xe and TC-Xf:* Analyze impacts to revising the policies to clarify the definition of "worsen", to clarify what is required if a project "worsens" traffic, identifying the methodology for traffic studies (e.g. analysis period, analysis scenarios, methods), and identifying the timing of improvements.

Zoning Ordinance Update

The proposed comprehensive Zoning Ordinance Update has two elements: 1) revising the zoning maps to bring existing zoning designations into conformance with the General Plan, and 2) providing a comprehensive update of the text of the Zoning Ordinance both to bring conformance with the General Plan and to modernize implementation tools.

The following is a summary of the proposed changes:

1. Ensure that the zoning designation for all parcels in the County conforms to the General Plan land use designations for those parcels.

2. Eliminate inconsistent provisions of the existing Zoning Ordinance.

3. Include provisions in the Zoning Ordinance to implement General Plan Implementation Measures LU-A, HO-6, HO-16, HS-K, CO-A, AF-A, ED-N, ED-P, ED-II, ED-JJ, ED-KK, and ED-QQ.

4. Ensure that the Zoning Ordinance is consistent with applicable state and federal laws.

5. Reorganize the Zoning Ordinance for ease of use, including the use, including the use of tables to identify permitted uses and development standards, establishing specific use regulations for administrative review of specified uses.

6. Create new zones to reflect current zoning needs and implement the General Plan, including the following zones: Rural Lands, Forest Resources, Agricultural Grazing, Neighborhood Service, and Limited Agriculture.

7. Delete obsolete zones, including Unclassified, Agriculture, Residential-Agricultural, and Planned Commercial.

8. Create combining zone districts (e.g. Historical, Community Design, etc.) to identify land that needs additional regulation, protection of resources, protection of public health and safety, or establishes a review process to more effectively implement General Plan policies and related ordinances.

9. Expand potential uses in the agricultural and rural lands zones to provide for opportunities for agricultural support, recreation, and rural commerce, including allowing ranch marketing on grazing land.

10. Provide a range of intensities for home occupations, based on size and zoning of parcels, addressing the use of accessory structures, customers, and employees.

11. Modify zoning for Williamson Act contracted and rolled out land to reflect the underlying General Plan land use designation.

12. Revise the zoning map to conform to standardized rules (i.e. mapping criteria) for zoning modifications based on the General Plan land use designations.

13. Provide a range of commercial zones to specify and direct the type, design, and location of commercial uses. Proposed zones include Commercial Regional (CR), Commercial General (CG), Commercial Community (CC), Commercial Planned Office (CPO), Commercial Limited (CL), and Commercial Mainstreet (CM).

14. Create a Rural Commercial Zone that would be permitted within the rural regions planning concept area.

15. Increase potential uses to provide additional agricultural support, recreation, home occupation, and other rural residential, tourist serving, and commercial uses in zones in the rural region.

16. Create standards (master plans) for proposed mixed use and traditional neighborhood design development on commercial and multi-family zoned parcels to provide for a streamlined approval process and to protect the commercial viability of the parcels.

17. Include standards for single family detached development proposed in multifamily zones. Create a standard to allow a limited percentage of commercial use in proposed mixed use development in multifamily zones.

18. Provide multiple industrial zones to specify and direct the type, design, and location of industrial uses.

19. Provide alternative means to any open space requirement as part of a planned development to provide more flexibility and incentives for infill development and focus on recreation in community regions and rural centers.

20. Amend Zoning map to include a historical overlay zone district to the historical townsites of El Dorado and Diamond Springs, consistent with adopted General Plan and Zoning Ordinance policies.

21. Establish standards for wetland and riparian setbacks.

22. Provide opportunities for residential and recreational uses on Timber Production Zone land compatible with timber management and harvesting.

Project Objectives

The TGPA and Zoning Ordinance Update have the following objectives:

TGPA:

1. Establish policies related to the development of housing affordable to the moderate income earner,
2. Establish policies that will result in job creation and improved sales tax revenues,
3. Establish policies that will promote and protect agriculture in the county,
4. Establish policies consistent with SB 375 (2008) and housing element law, and
5. Revise existing General Plan policies as needed to provide clarity.

Zoning Ordinance Update:

1. Conform the zoning map to the General Plan land use designations,
2. Eliminate conflicting provisions within the existing ordinance,
3. Include provisions in the ordinance to implement General Plan Implementation Measures LU-A, HO-6, HO-16, HS-K, CO-A, AF-A, ED-N, ED-P, ED-II, ED-JJ, ED-KK, and ED-QQ,
4. Ensure that the ordinance is consistent with applicable state and federal laws,
5. Reorganize the ordinance for ease of use, including the use of tables to identify permitted uses and development standards, establishing specific use regulations for administrative review of specified uses,
6. Create new zones to reflect current zoning needs and implement the General Plan, including Rural Lands, Forest Resources, Agricultural Grazing, and Limited Agriculture,
7. Delete obsolete zones,
8. Create overlay zones to more effectively implement General Plan policies,
9. Expand potential uses in the agricultural and rural lands zones to provide for opportunities for agricultural support, recreation, and rural commerce, including allowing ranch marketing on grazing land,
10. Provide a range of intensities for home occupations, based on size and zoning of parcels, adding the use of accessory structures, customers, and employees,
11. Modify zoning for Williamson Act contracted and rolled out land to reflect the underlying General Plan land use designations,

12. Revise the zoning map to conform to standardized rules sets for zoning modifications based on the General Plan land use designations, and

13. Provide a range of commercial zones to specify and direct the type, design, and location of commercial uses, consistent with the General Plan.

Level of Detail for the Environmental Analysis in the Draft EIR

The analysis will be at a program-level. It will focus on the reasonably foreseeable direct and indirect physical environmental effects that could result from implementation of the TGPA and the ZOU. Because no specific development projects are being proposed, the analysis will not be parcel-specific.

The ZOU includes a number of optional ordinances that will be considered by the County, but which may or may not be adopted. The EIR will examine these options as part of the project and will discuss the range of impacts that could result from adopting the options as part of the ZOU.

Scope of the EIR– Potential Significant Effects

The County is preparing an Initial Study pursuant to Appendix G of the CEQA Guidelines to help identify potential significant effects to be analyzed in the Draft EIR. The following list of potentially significant effects is not intended to be comprehensive. The Draft EIR may address additional impacts as a result of the comments received on the Notice of Preparation, the scoping meetings, and the Environmental Checklist/Initial Study.

Comments and suggestions are requested regarding the environmental issues that will be analyzed in the EIR; a 45 day public comment period (instead of the normal 30 day period) is set to begin upon receipt of this Notice of Preparation.

Potentially Significant Impacts to be Addressed in the EIR

At this time, the following issues are anticipated to be addressed in the EIR:

1. Aesthetics
2. Agriculture Resources
3. Air Quality
4. Biological Resources
5. Cultural Resources
6. Greenhouse Gas Emissions
7. Land Use/Planning

8. Noise
9. Population/Housing
10. Transportation/Traffic

Less Than Significant Impacts That Will Not Be Addressed in the EIR

Based on a preliminary review of the Project, the County has determined that the proposed Project would have a less than significant impact or no impact on the CEQA issue areas identified below. This is a preliminary determination only and does not preclude the County from making a different determination upon further analysis.

The primary reasons for these preliminary determinations are as follows:

Geology/Soils

None of the proposed changes in General Plan policy or zoning regulations will result in an increased risk from geologic hazards in that no reduction in safeguards are proposed.

Hazards and Hazardous Materials

None of the proposed changes in General Plan policy or zoning regulations will result in the exposure of residents to hazards or hazardous materials. For example, no changes are proposed to regulations regarding naturally occurring asbestos.

Hydrology/Water Quality

None of the proposed changes in General Plan policy or zoning regulations will violate any water quality standards or waste discharge requirements, nor will the proposed project substantially alter or degrade groundwater supplies, existing drainage patterns, or water quality.

Mineral Resources

None of the proposed changes in General Plan policy or zoning regulations will substantively change mineral resource designations or the regulation of mineral resource recovery.

Public Services, Utilities/Service Systems

Because none of the proposed changes in General Plan policy or zoning regulations will substantively change projected population or change the amount of housing designated in the General Plan, or increase areas to be developed, the changes are not expected to substantially affect demand for public services or utilities. However, this will be reviewed in the EIR in relation to proposed changes to density at the local level.

Recreation

None of the proposed changes in General Plan policy or zoning regulations will reduce standards for recreational lands, nor will they substantially reduce recreational opportunities; therefore future recreational demands will be met during the future process of considering individual development projects.

Alternatives to be addressed in the EIR

In accordance with section 15126.6 of the State CEQA Guidelines, an EIR must "describe a range of reasonable alternatives to the Project, or to the location of the Project, which would feasibly attain most the basic objectives of the Project, but would avoid or substantially lessen any of the significant effects of the Project, and evaluate the comparative merits of the alternatives." The State CEQA Guidelines also require that a No Project Alternative be evaluated, and that under specific circumstances, an environmentally superior alternative be designated from among the remaining alternatives.

The EIR will evaluate a reasonable range of alternatives, selected by an alternatives screening analysis, which will include alternatives that meet most or all of the objectives described above, are potentially feasible, and reduce significant impacts associated with the proposed TGPA and ZOU. The EIR will include an explanation of why other alternatives were rejected from further analysis in the EIR.

The alternatives analysis may, in addition to the No Project Alternative, consider one or more of the reduced intensity alternatives for further development and analysis in the EIR. The selected alternatives will be analyzed at a qualitative level of detail for comparison against the impacts identified for the proposed Project, consistent with the requirements of CEQA. Because this is a county-wide project, no alternative will be analyzed that is outside the county.

Requests for Additional Information

If you have any questions, please contact Shawna Purvines at the County of El Dorado, Development Services Department, Planning Services, 2850 Fairlane Court, Building "C," Placerville, CA 95667, by telephone at (530) 621-5362, or by e-mail toTGPA-ZOU@edcgov.us.

The full text of the proposed changes, is available from the Development Services Department, Planning Services, 2850 Fairlane Court, Building "C," Placerville, CA 95667. The full text of the proposed changes is also available online at the Land Use Policy Programmatic Update website: http://www.edcgov.us/landuseupdate/, and at the following County libraries:

1. Main Library in Placerville, 345 Fair Lane, Placerville, CA 95667. HOURS: Tuesday & Wednesday 12-7, Thursday, Friday & Saturday 10-5, Closed Sunday & Monday

2. Cameron Park Branch 2500 Country Club Dr, Cameron Park, CA 95682 HOURS: Monday, Wednesday & Friday 10-5, Tuesday & Thursday 12-7, 2nd Saturday of each month 10-3, Closed Saturday & Sunday

3. El Dorado Hills Branch 7455 Silva Valley Parkway El Dorado Hills, CA 95762. Monday 1-5, Tuesday & Wednesday 12-7, Thursday & Friday 10-5, Saturday 1-5, Closed Sunday.

4. Georgetown Branch 6680 Orleans Street P. O. Box 55 Georgetown, CA 95634. HOURS: Tuesday & Wednesday 12-7, Thursday 10-5, Friday 1-5, Saturday 10-3, Closed Sunday & Monday.

5. Pollock Pines Branch 6210 Pony Express Trail P O Box 757 Pollock Pines, CA 95726 HOURS: Tuesday 12-7, Wednesday & Thursday 10-5, Closed Friday, Saturday, Sunday & Monday.

6. South Lake Tahoe Branch 1000 Rufus Allen Blvd South Lake Tahoe, CA 96150. HOURS: Tuesday & Wednesday 10-8, Thursday, Friday & Saturday 10-5, Closed Sunday & Monday.

Aquatic Buffer Model Ordinance

☞ *This ordinance focuses primarily on stream buffers. Communities creating coastal buffers may wish to incorporate additional features. For an example of a coastal buffer ordinance, see the Rhode Island ordinance.*

Section I. Background

Buffers adjacent to stream systems and coastal areas provide numerous environmental protection and resource management benefits that can include the following:

1) Restoring and maintaining the chemical, physical, and biological integrity of the water resources
2) Removing pollutants delivered from urban stormwater
3) Reducing erosion and sediment entering the stream
4) Stabilizing stream banks
5) Providing infiltration of stormwater runoff
6) Maintaining base flow of streams
7) Contributing the organic matter that is a source of food and energy for the aquatic ecosystem
8) Providing tree canopy to shade streams and promote desirable aquatic organisms

☞ *This benefit applies primarily to forested buffer systems. In some communities, such as prairie settings, the native vegetation may not be forest. See the example ordinance from Omaha, Nebraska, for an example.*

9) Providing riparian wildlife habitat
10) Furnishing scenic value and recreational opportunity

It is the desire of the _____(*Natural Resources or Planning Agency*) to protect and maintain the native vegetation in riparian and wetland areas by implementing specifications for the establishment, protection, and maintenance of vegetation along all stream systems and/or coastal zones within our jurisdictional authority.

Section II. Intent

The purpose of this ordinance is to establish minimal acceptable requirements for the design of buffers to protect the streams, wetlands, and floodplains of _____ (*jurisdiction*); to protect the water quality of watercourses, reservoirs, lakes, and other significant water resources within _____(*jurisdiction*); to protect _____'s (Jurisdiction's) riparian and aquatic ecosystems; and to provide for the environmentally sound use of _____'s (*jurisdiction's*) land resources.

Section III. Definitions

Active Channel	The area of the stream channel that is subject to frequent flows (approximately once per one and a half years) and that includes the portion of the channel below the floodplain.
Best Management Practices (BMPs)	Conservation practices or management measures that control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxics, sediment, and runoff.

Buffer	A vegetated area, including trees, shrubs, and herbaceous vegetation, that exists or is established to protect a stream system, lake, reservoir, or coastal estuarine area. Alteration of this natural area is strictly limited.
Development	1) The improvement of property for any purpose involving building 2) Subdivision or the division of a tract or parcel of land into two or more parcels 3) The combination of any two or more lots, tracts, or parcels of property for any purpose 4) The preparation of land for any of the above purposes
Nontidal Wetlands	Those areas not influenced by tidal fluctuations that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

☞ *The definition of "nontidal wetland" here is adapted from the definition of "wetland" used by the USEPA and the US Army Corps of Engineers.*

Nonpoint Source Pollution	Pollution that is generated by various land use activities rather than from an identifiable or discrete source and is conveyed to waterways through natural processes, such as rainfall, stormwater runoff, or groundwater seepage rather than direct discharges.
One Hundred-Year Floodplain	The area of land adjacent to a stream that is subject to inundation during a storm event that has a recurrence interval of 100 years.
Pollution	Any contamination or alteration of the physical, chemical, or biological properties of any waters that will render the waters harmful or detrimental to 1) Public health, safety, or welfare 2) Domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses 3) Livestock, wild animals, or birds 4) Fish or other aquatic life
Stream Channel	Part of a watercourse either naturally or artificially created that contains an intermittent or perennial base flow of groundwater origin. Base flows of groundwater origin can be distinguished by any of the following physical indicators: 1) Hydrophytic vegetation, hydric soil, or other hydrologic indicators in the area(s) where groundwater enters the stream channel in the vicinity of the stream headwaters, channel bed, or channel banks 2) Flowing water not directly related to a storm event 3) Historical records of a local high groundwater table, such as well and stream gauge records.
Stream Order	A classification system for streams based on stream hierarchy. The smaller the stream, the lower its numerical classification. For example, a first-order stream

does not have tributaries and normally originates from springs and/or seeps. (See Figure 1.)

Stream System — A stream channel together with one or both of the following:
1) 100-year floodplain
2) Hydrologically related nontidal wetland

Streams — Perennial and intermittent watercourses identified through site inspection and US Geological Survey (USGS) maps. Perennial streams are those which are depicted on a USGS map with a solid blue line. Intermittent streams are those which are depicted on a USGS map with a dotted blue line.

☞ *Defining the term "stream" is perhaps the most contentious issue in the definition of stream buffers. This term determines the origin and the length of the stream buffer. Although some jurisdictions restrict the buffer to perennial or "blue line" streams, others include both perennial and intermittent streams in the stream buffer program. Some communities do not rely on USGS maps and instead prepare local maps of all stream systems that require a buffer.*

Water Pollution Hazard — A land use or activity that causes a relatively high risk of potential water pollution.

Section IV. Applications

A) This ordinance shall apply to all proposed development except for that development which meets waiver or variance criteria as outlined in Section IX of this regulation.
B) This ordinance shall apply to all timber harvesting activities, except those timber harvesting operations which are implementing a forest management plan that has been deemed to be in compliance with the regulations of the buffer ordinance and has received approval from _____(*state forestry agency*).
C) This ordinance shall apply to surface mining operations except that the design standards shall not apply to active surface mining operations that are operating in compliance with an approved _____(*state or federal agency*) surface mining permit.
D) The ordinance shall not apply to agricultural operations that are covered by an approved Natural Resources Conservation Service (NRCS) conservation plan that includes the application of BMPs.

☞ *Communities should carefully consider whether exempt agricultural operations from the buffer ordinance because buffer regulations may take land out of production and impose a financial burden on family farms. Many communities exempt agricultural operations if they have an approved NRCS conservation plan. In some regions, agricultural buffers may be funded through the Conservation Reserve Program (CRP). For further information, consult the Conservation Technology Information Center (CTIC) at www.ctic.perdue.edu.*

☞ *Livestock operations near and around streams may be regulated by communities. Livestock can significantly degrade the stream system and accelerate streambank erosion. The King County Livestock Management Ordinance is one example of a local livestock ordinance. For more information, contact the King County Department of Development and Environmental Services at (206) 296-6602.*

E) Except as provided in Section IX, this ordinance shall apply to all parcels of land, structures, and activities that are causing or contributing to

1) Pollution, including nonpoint source pollution, of the waters of the jurisdiction adopting this ordinance
2) Erosion or sedimentation of stream channels
3) Degradation of aquatic or riparian habitat

Section V. Plan Requirements

A) In accordance with Section IV of this ordinance, a plan approved by the appropriate agency is required for all development, forest harvesting operations, surface mining operations, and agricultural operations.
B) The plan shall set forth an informative, conceptual, and schematic representation of the proposed activity by means of maps, graphs, charts, or other written or drawn documents so as to enable the agency an opportunity to make a reasonably informed decision regarding the proposed activity.
C) The plan shall contain the following information:

☞ *The ordinance can identify the scale of maps to be included with the analyses in items 2) through 7). A 1"=50' to 1"=100' scale will generally provide sufficient detail.*

1) A location or vicinity map
2) Field-delineated and surveyed streams, springs, seeps, bodies of water, and wetlands (include a minimum of 200 feet into adjacent properties)
3) Field delineated and surveyed forest buffers
4) Limits of the ultimate 100-year floodplain

☞ *The limits of the ultimate floodplain (i.e., the floodplain under "built-out" conditions) might not be available in all locations.*

5) Hydric soils mapped in accordance with the NRCS soil survey of the site area
6) Steep slopes greater than 15 percent for areas adjacent to and within 200 feet of streams, wetlands, or other waterbodies

☞ *The ordinance may also explicitly define how slopes are measured. For example, the buffer may be divided into sections of a specific width (e.g., 25 feet) and the slope for each segment reported. Alternatively, slopes can be reported in segments divided by breaks in slope.*

7) A narrative of the species and distribution of existing vegetation within the buffer

D) The buffer plan shall be submitted in conjunction with the required grading plan for any development,and the forest buffer should be clearly delineated on the final grading plan.
E) Permanent boundary markers, in the form of signage approved by _____(*natural resources or planning agency*), shall be installed prior to final approval of the required clearing and grading plan. Signs shall be placed at the edge of the middle zone (See Section VI.I).

Section VI. Design Standards for Forest Buffers

A) A forest buffer for a stream system shall consist of a forested strip of land extending along both sides of a stream and its adjacent wetlands, floodplains, or slopes. The forest buffer width shall be adjusted to include contiguous sensitive areas, such as steep slopes or erodible soils, where development or disturbance may adversely affect water quality, streams, wetlands, or other waterbodies.

B) The forest buffer shall begin at the edge of the stream bank of the active channel.
C) The required width for all forest buffers (i.e., the base width) shall be a minimum of 100 feet, with the requirement to expand the buffer depending on
   1) Stream order
   2) Percent slope
   3) 100-year floodplain
   4) Wetlands or critical areas

☞ *The width of the stream buffer varies from 20 feet to 200 feet in ordinances throughout the United States (Heraty, 1993). The width chosen by a jurisdiction will depend on the sensitivity and characteristics of the resource being protected and the political realities in the community.*

B) In third-order and higher streams, 25 feet shall be added to the base width of the forest buffer.
C) The forest buffer width shall be modified if steep slopes are within close proximity to the stream and drain into the stream system. In those cases, the forest buffer width may be adjusted.

☞ *Several methods may be used to adjust buffer width for steep slopes. Two examples ifollow:*

Method A

Percent	Width of Buffer
15%-17%	add 10 feet
18%-20%	add 30 feet
21%-23%	add 50 feet
24%-25%	add 60 feet

Method B

	Type of Stream Use	
Percent Slope	Water Contact Recreational Use	Sensitive Stream Habitat
0% to 14%	no change	add 50 feet
15% to 25%	add 25 feet	add 75 feet
Greater than 25%	add 50 feet	add 100 feet

D) Forest buffers shall be extended to encompass the entire 100-year floodplain and a zone with a minimum width of 25 feet beyond the edge of the floodplain.
E) When wetland or critical areas extend beyond the edge of the required buffer width, the buffer shall be adjusted so that the buffer consists of the extent of the wetland plus a 25-foot zone extending beyond the wetland edge.

H) Water Pollution Hazards
The following land uses and/or activities are designated as potential water pollution hazards

and must be set back from any stream or waterbody by the distance indicated below:

1) Storage of hazardous substances—(150 feet)
2) Aboveground or underground petroleum storage facilities—(150 feet)
3) Drainfields from onsite sewage disposal and treatment systems (i.e., septic systems)—(100 feet)
4) Raised septic systems—(250 feet)
5) Solid waste landfills or junkyards—(300 feet)
6) Confined animal feedlot operations—(250 feet)
7) Subsurface discharges from a wastewater treatment plant—(100 feet)
8) Land application of biosolids—(100 feet)

☞ *For surface water supplies, the setbacks should be doubled.*

☞ *A community should carefully consider which activities or land uses should be designated as potential water pollution hazards. The list of potential hazards shown above is not exhaustive, and others may need to be added depending on the major pollutants of concern and the uses of water.*

I) The forest buffer shall be composed of three distinct zones, with each zone having its own set of allowable uses and vegetative targets as specified in this ordinance. (See Figure 2.)

☞ *Although a three-zone buffer system is highly recommended, the widths and specific uses allowed in each zone may vary between jurisdictions.*

I) Zone 1, Streamside Zone
   a) Protects the physical and ecological integrity of the stream ecosystem.
   b) Begins at the edge of the stream bank of the active channel and extends a minimum of 25 feet from the top of the bank.
   c) Allowable uses within this zone are highly restricted to
      i) Flood control structures
      ii) Utility right of ways
      iii) Footpaths
      iv) Road crossings, where permitted
   d) Target for the streamside zone is undisturbed native vegetation.

☞ *This ordinance assumes that the native vegetation in the stream corridor is forest. In some regions of the United States, other vegetation such as prairie may be native. See the Omaha, Nebraska, buffer ordinance for an example of a stream buffer ordinance that protects nonforested systems.*

2) Zone 2, Middle Zone
   a) Protects key components of the stream and provides distance between upland development and the streamside zone.
   b) Begins at the outer edge of the streamside zone and extends a minimum of 50 feet plus any additional buffer width as specified in this section.
   c) Allowable uses within the middle zone are restricted to
      i) Biking or hiking paths
      ii) Stormwater management facilities, with the approval of _____ *(local agency responsible for stormwater*).

iii) Recreational uses as approved by _____ (*planning agency*).
iv) Limited tree clearing with approval from _____ (*forestry agency or planning agency*).

d) Targets mature native vegetation adapted to the region.

3) Zone 3, Outer Zone
   a) Prevents encroachment into the forest buffer and filters runoff from residential and commercial development.
   b) Begins at the outward edge of the middle zone and provide a minimum width of 25 feet between Zone 2 and the nearest permanent structure.
   c) Restricts septic systems, permanent structures, or impervious cover, with the exception of paths.
   d) Encourages the planting of native vegetation to increase the total width of the buffer.

Section VII. <u>Buffer Management and Maintenance</u>

A) The forest buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources. Management includes specific limitations on alteration of the natural conditions of these resources. The following practices and activities are restricted within Zones 1 and 2 of the forest buffer, except with approval by _____ _____ (*forestry, planning or natural resources agency*)
   1) Clearing of existing vegetation
   2) Soil disturbance by grading, stripping, or other practices
   3) Filling or dumping
   4) Drainage by ditching, underdrains, or other systems
   5) Use, storage, or application of pesticides, except for spot spraying of noxious weeds or non-native species consistent with recommendations of _____(*forestry agency*)
   6) Housing, grazing, or other maintenance of livestock
   7) Storage or operation of motorized vehicles, except for maintenance and emergency use approved by _____(*forestry, planning, or natural resources agency*)

B) The following structures, practices, and activities are permitted in the forest buffer, with specific design or maintenance features, subject to the review of _____ (*forestry, planning, or natural resources agency)*:
   1) Roads, bridges, paths, and utilities:
      a) An analysis needs to be conducted to ensure that no economically feasible alternative is available.
      b) The right-of-way should be the minimum width needed to allow for maintenance access and installation.
      c) The angle of the crossing shall be perpendicular to the stream or buffer to minimize clearing requirements
      d) The minimum number of road crossings should be used within each subdivision, and no more than one fairway crossing is allowed for every 1,000 feet of buffer.
   2) Stormwater management:
      e) An analysis needs to be conducted to ensure that no economically feasible alternative is available and that the project either is necessary for flood control or significantly improves the water quality or habitat in the stream.
      f) In new developments, onsite and nonstructural alternatives will be preferred over larger facilities within the stream buffer.

g) When constructing stormwater management facilities (i.e., BMPs), the area cleared will be limited to the area required for construction and adequate maintenance access as outlined in the most recent edition of _____ (*refer to stormwater manual*).

☞ *Rather than placing specific stormwater BMP design criteria in an ordinance, it is often preferable to reference a manual. With this approach, specific design information can be changed over time without going through the formal process needed to change ordinance language.*

☞ *The* Maryland Stormwater Design Manual *is one example of an up-to-date stormwater design manual. For more information, go to www.mde.state.md.us. Under topics, choose "Stormwater Design Manual."*

h) Material dredged or otherwise removed from a BMP shall be stored outside the buffer.

3) Stream restoration projects, facilities, and activities approved by _____ (*forestry, planning, or natural resources agency*) are permitted within the forest buffer.
4) Water quality monitoring and stream gauging are permitted within the forest buffer, as approved by _____(*forestry, planning or natural resources agency*):.
5) Individual trees within the forest buffer that are in danger of falling, causing damage to dwellings or other structures, or causing blockage of the stream may be removed.
6) Other timber cutting techniques approved by the agency may be undertaken within the forest buffer under the advice and guidance of _____ (*state or federal forestry agency*) if necessary to preserve the forest from extensive pest infestation, disease infestation, or threat from fire.

C) All plans prepared for recording and all right-of-way plans shall clearly
1) Show the extent of any forest buffer on the subject property
2) Label the forest buffer
3) Provide a note to reference any forest buffer stating: “There shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the agency.”
4) Provide a note to reference any protective covenants governing all forest buffer areas stating: “Any forest buffer shown hereon is subject to protective covenants that may be found in the land records and that restrict disturbance and use of these areas.”

D) All forest buffer areas shall be maintained through a declaration of protective covenant, which is required to be submitted for approval by _____ (*planning board or agency*). The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity.

☞ *This protective covenant can be kept either by the local government agency responsible for management of environmental resources or by an approved nonprofit organization. An example conservation easement is included later in this section.*

E) All lease agreements must contain a notation regarding the presence and location of protective covenants for forest buffer areas and shall contain information on the management and maintenance requirements for the new property owner.

F) An offer of dedication of a forest buffer area to the agency shall not be interpreted to mean that this automatically conveys to the general public the right of access to this area.

G) _____ (*responsible individual or group*) shall inspect the buffer annually and immediately following severe storms for evidence of sediment deposition, erosion, or concentrated flow channels and corrective actions taken to ensure the integrity and functions

of the forest buffer.

☞ *A local ordinance will need to designate the individual or group responsible for buffer maintenance. Often, the responsible party will be identified in protective covenants associated with the property.*

H) Forest buffer areas may be allowed to grow into their vegetative target state naturally, but methods to enhance the successional process such as active reforestation may be used when deemed necessary by _____ (*natural resources or forestry agency*) to ensure the preservation and propagation of the buffer area. Forest buffer areas may also be enhanced through reforestation or other growth techniques as a form of mitigation for achieving buffer preservation requirements.

☞ *Explicit forestry management criteria are often included in a forestry or natural resources conservation ordinance. An example forest conservation ordinance from Frederick County, Maryland is included in the miscellaneous ordinances section of this site.*

Section VIII. <u>Enforcement Procedures</u>

A) _____ (*director of responsible agency)* or his/her designee is authorized and empowered to enforce the requirements of this ordinance in accordance with the procedures of this section.

B) If, upon inspection or investigation, the director or his/her designee is of the opinion that any person has violated any provision of this ordinance, he/she shall with reasonable promptness issue a correction notice to the person. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance that has been violated. In addition, the notice shall set a reasonable time for the abatement and correction of the violation.

C) If it is determined that the violation or violations continue after the time fixed for abatement and correction has expired, the director shall issue a citation by certified mail to the person who is in violation. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance that has been violated and what penalty, if any, is proposed to be assessed. The person charged has 30 days within which to contest the citation or proposed assessment of penalty and to file a request for a hearing with the director or his/her designee. At the conclusion of this hearing, the director or his/her designee will issue a final order, subject to appeal to the appropriate authority. If, within 30 days from the receipt of the citation issued by the director, the person fails to contest the citation or proposed assessment of penalty, the citation or proposed assessment of penalty shall be deemed the final order of the director.

B) Any person who violates any provision of this ordinance may be liable for any cost or expenses incurred as a result thereof by the agency.

C) Penalties that may be assessed for those deemed to be in violation may include the following:
   1) A civil penalty not to exceed $1,000.00 for each violation. Every day that such violation(s) continue will be considered a separate offense.
   2) A criminal penalty in the form of a fine of not more than $1,000.00 for each violation, imprisonment for not more than 90 days, or both. Every day that such violation(s) continue will be considered a separate offense.
   3) Anyone who knowingly makes any false statements in any application, record, or plan required by this ordinance shall upon conviction be punished by a fine of not more than $1,000.00 for each violation, imprisonment for not more than 30 days, or both.

☞ *Specific penalties will vary between communities, and should reflect realistically enforceable penalties given the political realities of a jurisdictin.*

F) In addition to any other sanctions listed in this ordinance, a person who fails to comply with the provisions of this buffer ordinance shall be liable to the agency in a civil action for damages in an amount equal to twice the cost of restoring the buffer. Damages that are recovered in accordance with this action shall be used for the restoration of buffer systems or for the administration of programs for the protection and restoration of water quality, streams, wetlands, and floodplains.

Section IX. **Waivers/Variances**

A) This ordinance shall apply to all proposed development except for activities that were completed prior to the effective date of this ordinance and had received the following:
   1) A valid, unexpired permit in accordance with development regulations
   2) A current, executed public works agreement
   3) A valid, unexpired building permit
   4) A waiver in accordance with current development regulations.

B) The director of the agency may grant a variance for the following:
   1) Those projects or activities for which it can be demonstrated that strict compliance with the ordinance would result in a practical difficulty or financial hardship
   2) Those projects or activities serving a public need where no feasible alternative is available
   3) The repair and maintenance of public improvements where avoidance and minimization of adverse impacts to nontidal wetlands and associated aquatic ecosystems have been addressed
   4) Those developments which have had buffers applied in conformance with previously issued requirements

C) Waivers for development may also be granted in two additional forms, if deemed appropriate by the director:
   1) The buffer width made be reduced at some points as long as the average width of the buffer meets the minimum requirement. This averaging of the buffer may be used to allow for the presence of an existing structure or to recover a lost lot, as long as the streamside zone (Zone I) is not disturbed by the reduction and no new structures are built within the 100-year floodplain.
   2) _____ (*planning agency*) may offer credit for additional density elsewhere on the site in compensation for the loss of developable land due to the requirements of this ordinance. This compensation may increase the total number of dwelling units on the site up to the amount permitted under the base zoning.

D) The applicant shall submit a written request for a variance to the director of the agency. The application shall include specific reasons justifying the variance and any other information necessary to evaluate the proposed variance request. The agency may require an alternative analysis that clearly demonstrates that no other feasible alternatives exist and that minimal impact will occur as a result of the project or development.

E) In granting a request for a variance, the director of the agency may require site design, landscape planting, fencing, signs, and water quality best management practices to reduce adverse impacts on water quality, streams, wetlands, and floodplains.

Section X. Conflict With Other Regulations

Where the standards and management requirements of this buffer ordinance are in conflict with other laws, regulations, and policies regarding streams, steep slopes, erodible soils, wetlands, floodplains, timber harvesting, land disturbance activities, or other environmental protective measures, the more restrictive shall apply.

Figure 1: Stream Order (Source: Schueler, 1995)

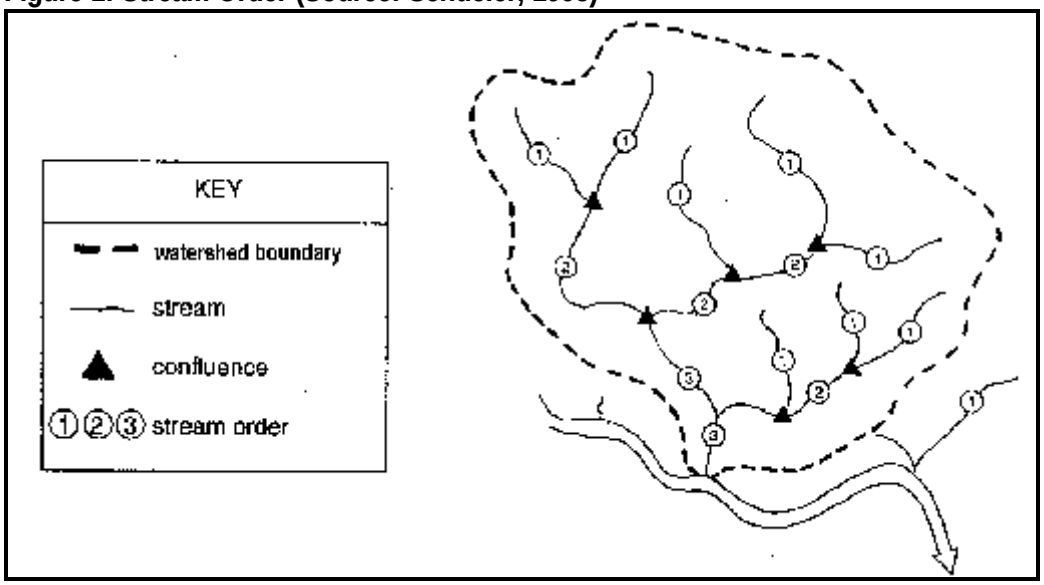
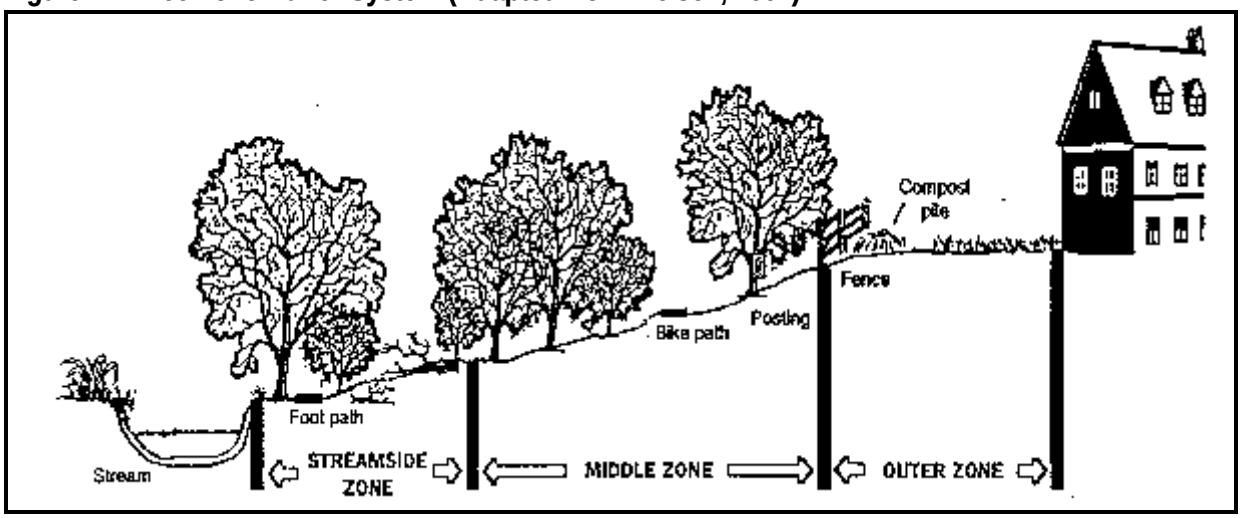


Figure 2: Three Zone Buffer System (Adapted from Welsch, 1991)



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