



DRAFT

MUNICIPAL SERVICE REVIEW UPDATE

&

SPHERE OF INFLUENCE UPDATE

El Dorado Irrigation District

Prepared for



Report Date: August 19, 2020

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DRAFT Municipal Service Review Update & Sphere of Influence Update

EL DORADO IRRIGATION DISTRICT

Prepared for:

El Dorado LAFCO

550 Main St., Suite E

Placerville, CA 95667

<https://www.edlafco.us/>

Prepared by:



Report Date: August 19, 2020

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ACRONYMS AND ABBREVIATIONS

ACS	American Community Survey
ADD	Average Day Demand
ADWF	Average Dry Weather Flow
AF	Acre Feet
AF/Yr	Acre Feet Per Year
AMP	Asset Management Plan
AWMP	Agricultural Water Master Plan
BMP	Best Management Practices
CAFR	Comprehensive Annual Financial Report
CDF	California Department of Forestry
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CFR	Code of Federal Regulations
CIP	Capital Improvement Plan
CKH	Cortese-Knox-Hertzberg Reorganization Act of 2000
CPUC	California Public Utilities Commission
CTR	California Toxics Rule
CVP	Central Valley Project
CY	Calendar Year
DCWWTP	Deer Creek Wastewater Treatment Plant
DAC	Disadvantaged Community
DOC	California Department of Conservation
DUC	Disadvantaged Unincorporated Community
DWR	Department of Water Resources
EDCWA	El Dorado County Water Agency
EID	El Dorado Irrigation District
EDHWTP	El Dorado Hills Water Treatment Plant
EDHWWTP	El Dorado Hills Wastewater Treatment Plant
EDWPA	El Dorado Water and Power Authority
EDU	Equivalent Dwelling Unit

ENF	Eldorado National Forest
EPA	U. S. Environmental Protection Agency
FAR	Floor Area Ratio
FERC	Federal Energy Regulatory Commission
FTE	Full-Time Equivalent
FY	Fiscal Year
GAAP	Generally Accepted Accounting Principles
GASB	Government Accounting Standards Board
GHG	Greenhouse Gas
GIS	Geographic Information System
GPM	Gallons per Minute
GSA	Groundwater Sustainability Agency
HUC	Hydrological Unit Code
I/I	Infiltration and Inflow
IMS	Irrigation Management System
LAFCO	Local Agency Formation Commission
MDD	Maximum Daily Demand
MGD	Million Gallons per Day
MHI	Median Household Income
MOU	Memorandum of Understanding
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
MSR	Municipal Services Review
NACWA	National Association of Clean Water Agencies
NEPA	National Environmental Policy Act
NPDES	National Pollutant Discharge Elimination System
No.184	El Dorado Hydroelectric Project No. 184
O&M	Operation and Maintenance
PRC	California Public Resources Code
PUD	Public Utility District
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SCADA	Supervisory Control and Data Acquisition; a software application
SCS	Sustainable Communities Strategy
SCO	State Controller's Office

SFR	Single Family Residence
SGMA	Sustainable Groundwater Management Act
SOI	Sphere of Influence
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
USBR	U.S. Bureau of Reclamation
USFS	U.S. Forest Service
UWMP	Urban Water Management Plan
WMP	Water Master Plan
WRF	Water Recycling Facility
WWTP	Wastewater Treatment Plant

CHAPTER 2: RESOLUTION

This page is a place saver for the Commission's resolution, when adopted.

Chapter 1: EXECUTIVE SUMMARY



Figure 1-1: El Dorado Hills water treatment plant, secondary clarifier

This Municipal Service Review (MSR) and Sphere of Influence (SOI) Update examines how municipal water services (treated/domestic, agricultural, and recycled), wastewater, recreation, and hydroelectric services are delivered by the El Dorado Irrigation District (EID or District). The MSR discusses service delivery and efficiency, including an analysis and a written statement of conclusions, known as determinations, for each of the following factors:

- Growth and population projections for the EID service area;
- Disadvantaged unincorporated communities;
- Present and planned capacity of public facilities;
- Financial ability of the agency to provide services;
- Opportunities for shared facilities;
- Accountability for government service needs; and
- Any other matter related to service delivery as required by policy of El Dorado LAFCO, this determination is 'The potential effect of agency services on agricultural and open space lands'.

The specific determinations for each service EID provides, and the key facts that support each determination are discussed within each Chapter's topic area, 4 to 10. The areas of description and analysis contain the essential operational and management aspects for EID and constitutes a review of EID's ability to meet the service demands of the customers within its boundaries. This MSR and SOI Update considers the following public services: water, wastewater, recycled water, hydroelectric, and recreation. These services are primarily provided to residents and visitors by

the special district, in cooperation with County of El Dorado, numerous community service districts, and the City of Placerville. EID operates under a “principal act,” which governs the provision of one or more public services. The Local Agency Formation Commission (LAFCO) determines the boundaries and spheres of influence of each agency’s *principal county* (the county having the greater portion of the entire assessed value of all taxable property within the district, pursuant to Section 56066 of the Government Code). The County of El Dorado is considered the principal county for EID due to the greatest portion of the taxable property within the District being located within this County, even though a small portion of its boundary lies within Sacramento County. EID currently does not have any customers within Sacramento County.

1.1 SUMMARY OF DISTRICT

This MSR and SOI Update considers the provision of water, sewer, recycled water, hydroelectric and recreation services in County of El Dorado by EID. Figure 1-3 presents a map showing the location of the District. El Dorado LAFCO last reviewed EID in 2008 in its Wastewater, and Power MSR. EID’s SOI was last approved in 2008. The following pages provide a summary profile for EID.



Figure 1-2: Silver Lake

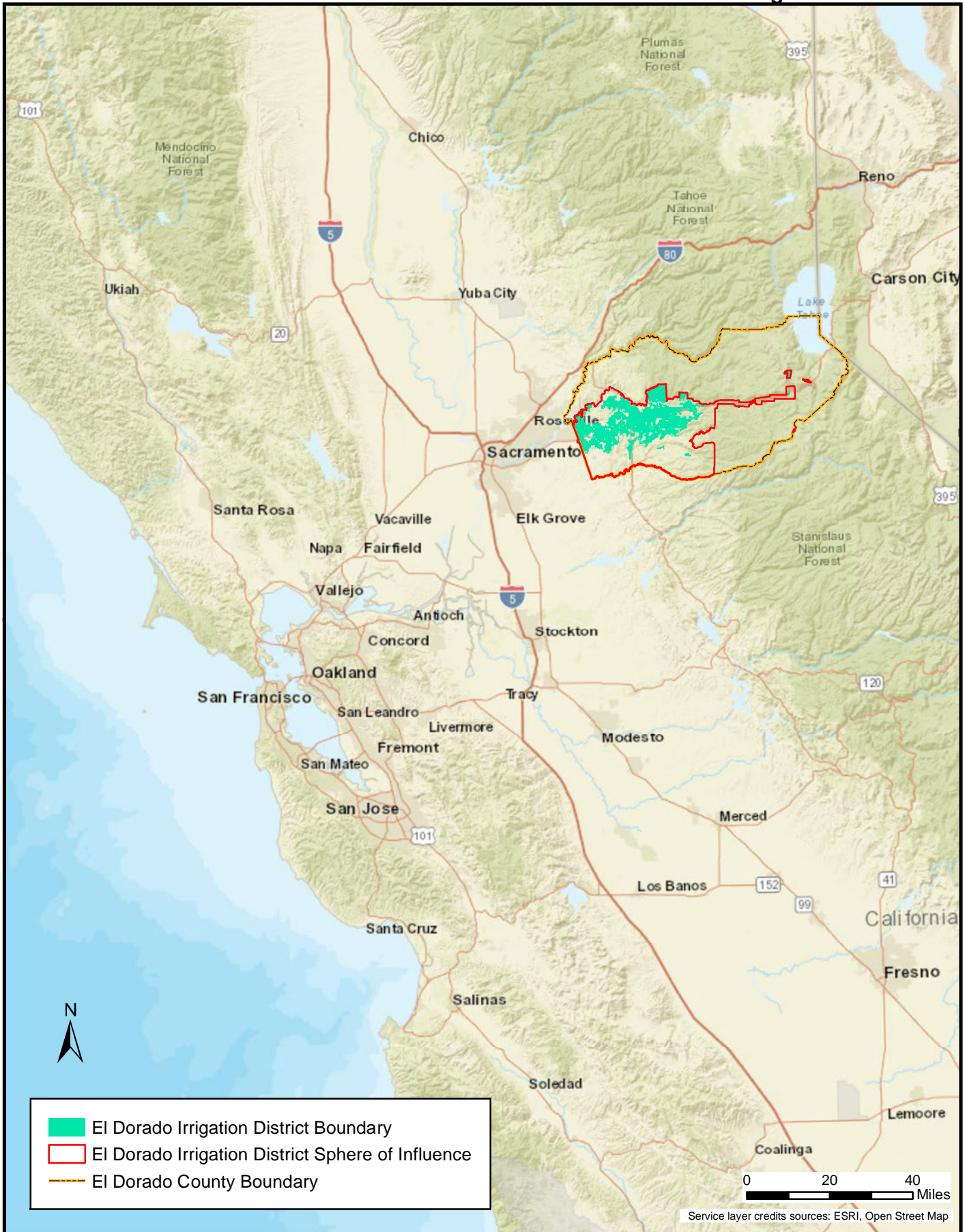


Figure 1 -3

El Dorado Irrigation District Profile

Type of District:	Irrigation District
Principal Act:	California Water Code, Division 11, Section 20500 <i>et seq.</i>
Functions/Services:	<ul style="list-style-type: none"> • Raw untreated water for agricultural irrigation, • Water treatment and distribution for residential, commercial municipal purposes, • Wastewater collection, transport, treatment, disposal, • Recycled water production and distribution for irrigation purposes, • Recreation, and • Hydropower

Main Office:	2890 Mosquito Rd, Placerville, CA 95667	
Mailing Address:	Same	
Phone No.:	(530) 622-4513	
Fax No.:	(530) 622-1195	
Web Site:	https://www.eid.org/	
General Manager:	Jim Abercrombie	Email: admin@eid.org
Alternate Contact:	Brian Mueller, PE	Email: bmueller@eid.org

Governing Body:	Elected Irrigation District Board Members	
George Osborne	Division 1 Board President	Term expires Dec. 2020
Pat Dwyer	Division 2 Board Vice President	Term expires Dec. 2022
Michael Raffety	Division 3	Term expires Dec 2020
Lori Anzini	Division 4	Term expires Dec 2022
Alan Day	Division 5	Term expires Dec 2020

Meeting Schedule:	Second Monday of each month at 9:00 AM
Meeting Location:	2890 Mosquito Rd, Placerville, CA 95667
Date of Formation:	October 5, 1925

Area Served: Multi-County District serving roughly 147,465-acres (230 square miles) of the County of El Dorado from El Dorado Hills to Pollock Pines with satellite areas on the east slope as well as a small portion of Sacramento County adjacent to El Dorado Hills.

Population¹	110,000
Number of water connections	41,396
Gross Revenue	~\$81.3 million
Principal LAFCO:	El Dorado LAFCO
Other LAFCO:	Sacramento LAFCO

1.2 SUMMARY OF FACTORS

Chapters 4 to 10 provide more detailed information on issues and challenges faced by EID. For purposes of this Executive Summary, the key water, sewer, hydro, and recreation information regarding the District is encapsulated below.

Growth and Population Projections

Existing levels of growth and future population projects are described in Chapter 5, Population and Growth and in Appendix A. The District is located in an area that is generally residential uses with some areas affected by seasonal variations, distinct user groups, and second homes. The economic downturn of 2008-2010 temporarily slowed the rate of growth for major population centers such as El Dorado Hills, Cameron Park, and the City of Placerville. However, the EID UWMP projects an annual average rate of furniture growth at 1.03 percent (EID, 2016b) as described in Chapter 5's Table 5-4: Total Estimated and Projected Population 2020 to 2060. (See Chapter 5 for additional details).

Disadvantaged Unincorporated Communities

Chapter 6 addresses service provision to disadvantaged unincorporated communities (DUCs) within EID's boundary. Senate Bill (SB) 244, which became effective in January 2012, requires LAFCO to consider the presence of any DUCs when preparing an MSR that addresses agencies that provide water, wastewater, or structural fire protection services. A DUC is an unincorporated geographic area characterized as having a median household income of 80 percent or less of the statewide median household income (\$51,026 in 2018). El Dorado LAFCO has adopted Policy 6.10.4(c) regarding DUCs which applies specifically to an extension of time to complete proceedings. El Dorado LAFCO has not adopted any other DUC policies. All DUC areas within EID's existing service area receive adequate water service from EID or may receive water from private wells. Wastewater services are provided to DUC areas within EID's existing service area either by EID or by small septic systems. Fire protection services are provided by the El Dorado County Fire Protection District, El Dorado Hills County Water District, Cameron Park CSD, Diamond Springs-El Dorado FPD, Rescue FPD, Pioneer FPD, and Mosquito FPD. As listed in Appendix K.

Present and Planned Capacity of Public Facilities

Chapter 7 addresses public services and infrastructure for the District's area of service provision including:

- Raw untreated water for agricultural irrigation,
- Water treatment and distribution for residential, commercial municipal purposes,
- Wastewater collection, transport, treatment, disposal,
- Recycled water production and distribution for irrigation purposes,
- Recreation, and
- Hydropower

Metrics for each determination topic are analyzed and documented. The data presented in Chapter 7 leads to the conclusion that the District has sufficient capacity to serve existing customers within its existing service area. Facilities will be able to accommodate future growth to at least 2040 with incremental expansion of new facilities as needed. The District has sufficient water supplies to meet future development anticipated over the next 20 years. The District indicates they have adequate physical infrastructure capacities to meet service needs to the 2045 planning horizon of this MSR & SOI provided that maintenance and capital improvements continue as planned.

Although additional annexations of land to EID has the potential to increase water demand, EID does not anticipate any additional major annexations (beyond those already identified in the General Plan) within the next 20 years. The age and condition of infrastructure and facilities for the District water and wastewater supply varies, but portions have reached or is nearing the end of its useful life as described in Chapter 7.

The District's wastewater system capacity is adequate to meet projected needs as described in Chapter 7. The facilities and infrastructure on which EID wastewater system depends have variable ages. EID replaces and repairs infrastructure on a regular basis. In addition, EID has implemented collection system Best Management Practices and addresses preventative maintenance and scheduled replacement of aging infrastructure. Generally, new development occurring within the District's existing boundaries could result in an increase in demand for sewer services and the need for additional infrastructure.

The District currently provides hydroelectric power generation service. Hydroelectric power is classified as a renewable energy resource since it is naturally replenishable and can be used for electric generation on an on-going basis. The District sells the power generated to the Pacific Gas and Electric Company (PG&E) and does not provide any retail electric utility service. EID is

evaluating potential new power purchase agreement options and plans to negotiate a new power purchase agreement prior to expiration of the existing agreement with PG&E in the year 2021.

As part of its responsibilities under its license for hydroelectric services from the Federal Energy Regulatory Commission (FERC) and as part of its watershed management duties, the District owns and manages recreation facilities as described in Chapter 7. The District provides opportunities to experience watershed lands through passive recreation activities such as camping, hiking, photography, biking, and birdwatching at District owned recreation facilities such as Sly Park Recreation area. EID's Division of Parks and Recreation aims to engage the community in programs, facilities, and services that foster active and healthy lifestyles, support positive social interaction, and enhance the community's quality of life.

Financial Ability of the District to Provide Services

Chapter 8 of this MSR and SOI Update describes the financial ability of EID to continue to provide a range of services to the public. As Chapter 8 describes, EID has adequate financing mechanisms in place to ensure provision of services within its current service area. EID has multiple sources of revenue including: water and wastewater sales to customers, hydroelectric sales, property taxes, recreation fees, investment income, grazing and cell-tower leases, and gain on disposition of assets. Chapter 8 analyzes several financial metrics for EID including changes to net position, debt service, liquidity, pension payments, and rates. EID's aging public service infrastructure does require a significant investment to maintain it and replace it, as needed. To plan this significant workload, EID has an approved Capital Improvement Plan and it has been working consistently to implement the Plan and sets water and wastewater rates according to its financial plan.

Opportunities for Shared Facilities

Although no opportunities for shared facilities were identified by EID during the preparation of this MSR/SOI, EID does cooperate with neighboring agencies. For example, EID maintains facilities at Caples, Aloha, Pyramid and Echo Lakes in coordination with the U.S. Forest Service and as required by EID's FERC license. EID is a member of CalWARN and has supplied mutual aid to neighboring agencies like GDPUD during emergencies like the PSPS events. EID also assists the City of Placerville with water audits and assists the City in operational challenges.

It is recommended that EID consider opportunities to share corporate yards, specialized equipment and office space with neighboring agencies, cities and districts such as the City of Placerville when possible.

Accountability for Government Service Needs

In an MSR, LAFCO is required to make a determination about a district's government structure and accountability. In this case, Chapter 4 describes how EID provides adequate public notice in relation to District meetings and is in compliance with the Brown Act. Table, 4-3, describe many certificates of excellence that EID has received for its governmental transparency through an online presence offering ease of accessibility to information and services to the public and customers. EID has also received certificates of excellence for its good financial accountability and other achievements as described in Chapter 4.

1.3 SUMMARY OF DETERMINATIONS

A summary of the MSR determinations and the SOI determinations are listed below. These determinations will be considered by the Commission during a public hearing.

MSR DETERMINATIONS

In preparing a municipal service review, Government Code §56430 requires the Commission to prepare a written statement of its determinations. In addition, the Commission's Policies and Guidelines Section 4.4 require that additional determinations be made in an MSR prior to establishing a sphere of influence. These additional determinations are included among the Government Code §56430 determinations below.

To the extent that is feasible, both sets of determinations will be addressed in this section. In addition, the following sections will detail the meaning of each factor and explain how it applies to the services provided by this agency.

Please note that determination G below is not in the Government Code. This is because the Government Code §56430(a)7 allows for the Commission to review "any other matter related to effective or efficient service delivery as required by commission policy." El Dorado LAFCO chose to study the potential effects of agency services on agricultural and open space lands.

A. Growth and population projections for the affected area.

1. Within its 147,465-acres (230 square mile) existing boundary area, the El Dorado Irrigation District (EID) provides the following public services:
 - Raw untreated water for agricultural irrigation;

- Water treatment and distribution for residential, commercial, municipal and agricultural purposes;
 - Wastewater collection, transport, treatment, disposal;
 - Recycled water production, and distribution for irrigation purposes
 - Recreation and parks service; and
 - Hydropower.
2. EID's boundary includes the City of Placerville, a 191-acre portion of Sacramento County, and a portion of western County of El Dorado's unincorporated area.
 3. EID's SOI was initially established by LAFCO, in consultation with EID, around 1973. EID's SOI was last affirmed in 2008. In addition to its 147,465-acre boundary area, EID's existing sphere of influence covers an additional 237,065 acres. EID's boundary area and SOI encompass a total of 384,530 acres.
 4. Parcels within District boundaries are eligible for service. Any parcel that is currently outside District boundaries may apply for annexation. An application for annexation is made to both EID and El Dorado LAFCO. There are a few existing water service customers located outside the District boundaries including 10 raw water customers and approximately 30 potable water customers. Board Policies BP 9020 and 9030, along with corresponding administrative regulations, indicate that contiguity is required for annexation into the District
 5. The existing population in the EID service area is estimated to be 110,000 persons (as of year 2018). EID experienced an average annual growth rate of 1.5% between the years 2010 to 2018 as detailed in Table 5-2.
 6. Between the years 2020 to 2040, an additional 11,562 persons are expected to reside within EID's boundaries as shown in Table 5-4. This represents an overall ten percent increase in projected future population (or 0.5% per year). This will bring the total population within EID's service area in the year 2040 up to approximately 123,559 persons.
 7. Currently, EID's boundary area supports an average of 0.75 persons per acre, which is considered to be a very low population density.
 8. The existing data described in this MSR suggests that the El Dorado Irrigation District has sufficient water supply to accommodate the population growth until 2040.
 9. Physical infrastructure is sufficient to serve the existing customers located within the boundary area.

10. County of El Dorado's General Plan was adopted in 2004. Individual elements have been updated on an individual basis. The 2013-2021 Housing Element was adopted in October 2013, with the most recent update occurring to the Land Use Element in August 2019. The County of El Dorado General Plan is sufficient to provide EID with information about anticipated future growth for purposes of infrastructure planning.

11. Farmland and grazing land totals 163,448 acres within the EID boundary and another 179,883 acres are in the SOI as shown in Figure 5-4. Open Space within the EID boundary calculates to 6,728 acres with an additional 12,555 acres in the District's SOI.

B. The location and characteristics of any disadvantaged unincorporated communities within or contiguous to the sphere of influence.

12. California's median household income was \$63,783 in 2016. This yields a DUC threshold MHI of less than \$51,026. There are several census tracts and census block groups that meet the DUC threshold within EID's boundary as shown in Chapter 6, Figure 6-1.

13. There are Disadvantaged Unincorporated Communities within or contiguous to the EID boundary and sphere of influence, including 13 Block Groups and four Census Tracts, some of which overlap the blocks as listed in Tables 6-1 and 6-2.

14. The unincorporated areas are provided with numerous public services as listed in Table 3-1: Local Agency Service Providers, in Chapter 3 of this MSR. Wastewater services are provided to DUC areas either by EID or by small septic systems. Fire protection services to the DUCs described in this chapter are provided by local fire departments such as the El Dorado County Fire District and those described in Appendix K. No public health and safety issues have been identified.

15. Some of the DUCs described in this chapter do receive adequate water service from EID (as described in Chapter 7), Georgetown PUD, or private wells. The installation of private wells is overseen by the County of El Dorado Health Department. The current or long-term functioning of these wells has not been comprehensively studied. Groundwater in these areas is sometimes located within fractured rock. It is possible that some property owners in DUC's may not have a well or may not have a non-functioning well, thereby necessitating a purchase of water from an outside source or delivery by truck. Within EID's boundaries, property owners are eligible to apply to EID for water service. However, the cost and feasibility of infrastructure extension is dependent on a range of variables and cannot be estimated at this time. To date no health or safety issues have been identified.

C. Present and planned capacity of public facilities, adequacy of public services, and infrastructure needs or deficiencies, including needs or deficiencies related to sewers, municipal and industrial water, and structural fire protection in any disadvantaged, unincorporated communities within or contiguous to the sphere of influence.

16. EID has been diligent in developing plans to accommodate the service needs of current and future customers and generally reviews and updates service plans when necessary. EID service departments provide reports and updates to EID Board of Directors and the general public to ensure needs are reviewed and addressed. Some reports are not being updated in accordance with anticipated scheduling such as the Integrated Water Resources Master Plan, last updated in 2013.
17. For water services, EID often works with neighboring agencies and other partners to provide adequate water supplies and service. For example, EID cooperates with SMUD, USBR, and the El Dorado County Water Agency.
18. In general, EID takes steps to ensure that adequate funding is available for future projects to enhance public services. The District maintains a robust Capital Improvement Plan to address system deficiencies and enhance the level of its public services.
19. EID's 2015 Urban Water Management Plan (UWMP) and its Water Resources and Service Reliability Report sufficiently details annual and future water demand for EID with detailed analysis of available water supply during "average year," "single year," and "multi-dry years" events. In addition, the UWMP includes an extensive Water Shortage Contingency Analysis and Plan. EID evaluates options to increase water supplies, including constructing new reservoirs and pursuing new water rights.
20. EID recently approved rate increases to fund capital improvement projects to replace or upgrade aging water facilities and systems. In general, EID is facing higher costs for replacement of aging infrastructure. EID's UWMP discusses contingency planning, including catastrophic supply interruption.
21. EID currently provides adequate services to meet the needs of its existing customers, currently 41,396 water connections. EID provides potable water service that meets all public health requirements. Services provided by EID directly to paying customers include potable water that meets all public health requirements.

22. It is not practical for EID to provide public services for water to southeastern portions of the SOI due to elevation changes and distance from existing infrastructure.
23. EID's physical water facilities are currently extensive within the District boundary. However, portions of the physical infrastructure for water services, including pipelines, are nearing the end of their useful life. EID's CIP aims to address infrastructure deficiencies within the current boundary. The future provision of water infrastructure to the SOI will be evaluated through the development and project application process.
24. Though EID has sufficient water supply capacity to meet projected water service demands to its current boundary area through the year 2045, it is not clear whether EID would have sufficient water supply to provide service to the entire SOI in the future. Reducing the geographic size of the SOI would allow EID to pace the development of new water supplies and water conservation to support planned growth in the SOI area in a geographically efficient manner.
25. Similar to the 2008 MSR/SOI update, it is not practical for EID to expand water services in the next 10 to 20 years to encompass all of the geographic area contained within its existing SOI, given current constraints on physical infrastructure and other resources.
26. EID approved the most recent Sewer System Management Plan Update (SSMP) in 2019, which guides the proper management, operation, and maintenance of all parts of EID sanitary sewer system under its control. The SSMP aims to reduce and prevent sanitary sewer overflows (SSOs) and mitigate SSOs if they occur. EID's Wastewater Facilities Master Plan (WFMP) was updated in 2013. The Wastewater Facilities Master Plan recommends expansion of the EDHWWTP to 5.45 mgd when growth dictates and also recommends other infrastructure improvements. EID service departments provide reports and updates to the EID Board of Directors and the general public ensure needs are reviewed and addressed.
27. EID has cooperated with the El Dorado Hills Community Services District (EDHCSD) by authorizing the sale of EID's Bass Lake parcel—a part of EDHCSD's plans for a regional park. EID will continue to cooperate with neighboring agencies and other partners to provide adequate water and sewer services.
28. The District maintains a robust Capital Improvement Plan and corresponding financial plan to enhance the level of its wastewater and recycled water services. For example, In FY2019 EID made investments to rehabilitate the wastewater lift station, replace the force

main, and rehabilitate the collection systems pipeline. Under the lift station program the District has contracted for the rehabilitation of the Southpointe lift station, which will be complete in fall 2020 and has scheduled the construction of a bypass pipeline to eliminate the Rancho Ponderosa lift station in fall 2020 or spring 2021.

29. EID's wastewater services are provided by four separate wastewater systems. EID's Wastewater Facilities Master Plan and budget includes projects to provide additional infrastructure capacity to accommodate planned growth. However, the modeling for the plan was conducted using data prior to 2013 and should be updated based on current growth projections.
30. The age of EID's facilities and infrastructure varies. EID replaces and repairs critical infrastructure on a regular basis. In addition, EID has implemented collection system BMPs and addressed preventative maintenance and scheduled replacement of aging infrastructure.
31. EID currently provides for adequate wastewater collection, treatment, and disposal services to meet the needs of the existing customers of approximately 23,652 sewer connections.
32. EID provides wastewater treatment services to 62,000 residents and 882 businesses.
33. Extending sewer service to the entire existing SOI area would require extensive facility and infrastructure expansion and this expansion is not practical in the near-term.
34. The provision of sewer service to the existing SOI would be coordinated between the County of El Dorado, the private land-owner, LAFCO, and EID. Additionally, future public sewer services are suggested by the County of El Dorado General Plan to the communities of Camino, Cedar Grove, and Pollock Pines.
35. Similar to the 2008 MSR SOI update, it is not practical for EID to expand wastewater services in the next 10 to 20 years to encompass all of the large geographic area contained within its SOI given elevation changes, distance from existing infrastructure and given constraints on its current capacity.
36. The hydroelectric power generated by EID is not sold directly to consumers within The County of El Dorado. Instead, EID has a contract to sell power to PG&E which distributes electricity to retail customers via the electric grid. This contract will expire in 2021 and

EID is researching various options to either renew this contract or to find suitable alternative contracts.

37. EID has studied the vulnerability of its hydropower systems due to changing conditions and has acknowledged the various risks to these facilities. The MSR consultants recommend that EID continue to consider a broad approach to risk reduction including implementation of projects that may reduce utility costs, such as expanded use of renewable resources including solar or pumped storage. Another example of a risk reduction strategy is the vegetation management program that EID is implementing in the watershed, which will contribute towards a reduction in risk of catastrophic wildfire and therefore reduce risks to hydroelectric facilities.
38. In general, EID is facing higher costs for replacement of aging infrastructure. EID's Capital Improvement Plan addresses future improvements to hydroelectric facilities.
39. The western County of El Dorado region has several recreation service providers including the El Dorado Hills Community Services District, City of Placerville, California State Parks, Bureau of Land Management, and the U.S. Forest Service as listed in El Dorado LAFCO's 2004 "West County Parks and Recreation Services MSR". EID has cooperative relationships with several of these park and recreation service providers. In regards to EID's parks and recreation services, currently, there is no need to further study whether additional efficiencies could be gained through structural or organizational changes at this time.
40. For recreation services, EID often works with neighboring agencies such as the El Dorado Hills CSD; State Agencies such as CalFire, Federal agencies such as U.S. Bureau of Reclamation and other partners to provide and enhance park and recreation facilities. For example, portions EID's Vegetation Management Plan is being implemented with grant funding administered by CalFire. As another example, EID has facilitated the creation of a regional park at Bass Lake through the sale of this property to El Dorado Hills CSD.
41. As part of its responsibilities under its license for hydroelectric services from the Federal Energy Regulatory Commission (FERC) and as part of its watershed management duties associated with its drinking water supplies, EID manages open space and park land and provides recreation facilities on that land. EID provides opportunities to experience watershed lands through passive recreation activities such as camping, hiking, fishing, photography, biking, and bird-watching.

42. EID tracks and reports visitation to its recreation facilities. Over the past ten years, the number of day use visitors to EID's recreation facilities has increased from 244,433 visitors in the year 2009 to 526,764 visitors in 2018.
43. EID operates a system of reservoirs that provide water for consumptive and hydroelectric uses, as well as recreational opportunities including camping, boating, picnicking, fishing, and hiking. EID owns and operates Jenkinson Lake, located within the Sly Park Recreation Area in Pollock Pines. As part of its FERC license, EID operates Silver Lake and Caples Lake and associated recreational facilities located near Kirkwood in El Dorado, Amador, and Alpine counties. Some facilities are owned by EID and others are located on federal lands within the Eldorado National Forest. EID also owns and operates Forebay Reservoir in Pollock Pines, which provides day-use facilities for picnicking and fishing.
44. EID funds capital improvement projects to replace or upgrade aging park facilities. In general, EID is facing higher costs for replacement of aging infrastructure. The maintenance/ improvement projects identified by EID will improve the adequacy and capacity of the parks and recreation facilities and services.
45. EID currently provides adequate park and recreation services to meet the needs of its existing customers and to also meet the needs of visitors from other regions. EID's park and recreation facilities are open to the general public and are not limited to local residents.

D. Financial ability of agencies to provide services.

46. The Comprehensive Annual Financial Reports and budgets are prepared on a regular basis and they clearly and transparently present financial information.
47. EID's reserve policy is incorporated into the Board Policies and Administrative Regulations which is posted on the District website.
48. EID's audited Comprehensive Annual Financial Report contains a list of its accounting policies. Additionally, the District document entitled "Board Policies and Administrative Regulations" describes its purchasing Policy, with specific procedures for purchases and procurement practices. The Board Policies and Administrative Regulations is readily available on the EID website.

49. Required reports are sent to the California State Controller for Government Compensation. A link to these documents is provided from the EID website. <https://www.eid.org/about-us/advanced-components/employment-opportunities/employment>
50. EID's total revenue was less than the total expenditures in four of the five study years as shown in Figure 8-7.
51. One reason that expenditures exceed revenues could be related to the mechanisms used to fund capital improvement projects during this timeframe. It is recognized that capital improvement projects are expensive and necessary. Many water districts in California are in a similar situation.
52. Changes to the Net Position are shown in Table 8-2, to be highly variable. However, the increase in Net Position of \$38.8 million from FY2016 to 2018 is noted.
53. EID's Capital Improvement Plan (CIP) is updated annually and covers a five-year time period. The most recent CIP was adopted by the Board on October 15, 2019 and covers the years 2020—2024. EID's extensive CIP program is delineated into seven main categories: 1) FERC, 2) Water, 3) Wastewater, 4) Recycled Water, 5) Hydroelectric, 6) Recreation, 7) General District. Over the course of five years from 2020 to 2024 EID plans to invest a total of \$209,472,494 into capital improvement projects.
54. For FY18, EID reported approximately \$112 million in cash and cash equivalents, investments and restricted reserves in the CAFR.
55. At December 31, 2019, EID had \$315.60 million in debt and loans outstanding, a net decrease of \$32.9 million or 9.4% from the prior year.
56. EID's debt service ratio was calculated using the amount debt service divided by operating expenses (minus depreciation). EID's debt service ratio declined by 3.58% between the year 2017 to 2018 as shown in Figure 8-9. EID has a significant capital investment and debt associated with its aging hydroelectric, water, and sewer facilities. As debts associated with EID's facilities are paid off, the debt service ratio is expected to improve. The MSR consultants are collecting additional data from similar districts in northern California to create a more comprehensive comparison.

-
57. EID's Liquidity has been declining for each of the four years studied because total cash and cash equivalents have been declining while Total Current Liabilities have been increasing. Although this is not a fiscally sustainable trend, the metric result is expected to improve as EID pays off its debt. It is recommended that LAFCO continue to monitor this metric.
58. As of December 31, 2016, EID had a net pension liability of \$57 million and this liability increased to \$61 million as of December 31, 2017. FY 2019 saw an increase in net pension liability to \$63.8 million. The pension payment metric measures the percentage of funds dedicated to pension contributions in comparison to covered-employee payroll. At 30.80 percent in FY 2019, the higher percentage reflected that a greater percentage of funds was dedicated to pension contributions in comparison to covered-employee payroll as shown in Figure 8-11. During the fiscal years 2015 through 2019 the percentage is stabilized around 28.6% on average. Ideally, LAFCO will continue to monitor this metric to consider long-term fiscal trends as a larger time series of data becomes available.
59. EID's Board of Directors annually reviews and adopts a bi-annual budget in December.
60. Rates are adopted by the EID Board of Directors during a public hearing. For example, on December 9, 2019, EID's Board adopted the revised 2019–2020 Mid-cycle Operating Budget and 2020–2024 Financial Plan, including the implementation of previously approved 3% rate increases for 2020 for water and recycled water, with 0% increase for wastewater for 2020.
61. Current rates are displayed on the District's website at: <<https://www.eid.org/customers/billing-forms-and-rates>>. Historical rates can be located in the annual Comprehensive Annual Financial Reports on the District's website at: <<https://www.eid.org/about-us/document-library>>.
62. EID Board of Directors adopted the 2019 –2020 Mid-Cycle Operating Budget and 2020 - 2024 Financial Plan was approved by the Board on December 9, 2019. This four-year financial plan projects future conditions and reflects revised utility revenue projections. This Financial Plan is available on EID's website.
63. In compliance with Proposition 218, EID Board of Directors adopted changes to rates including increases on April 27, 2020 with less than a 1% protest rate. Approved changes to the rates go to into effect January 1, 2021 and continue through 2025.

64. The EID Board of Directors has considered multiple year future projections of financial conditions. Specifically, the Board adopted the 2019–2020 Mid-Cycle Operating Budget and the 2020-2024 Financial Plan on December 9, 2019. This four-year financial plan projects future conditions and reflects revised utility revenue projections. This financial plan is available on EID’s website.

E. Status of, and opportunities for, shared facilities.

65. EID utilizes a sufficient range of cost avoidance opportunities; including bidding of contracted services and utilizing contract services to reduce costs.

66. EID effectively collaborates with multiple other agencies for the delivery of public services as demonstrated by its participation in the 2018 American River Basin Integrated Regional Water Management Plan, CABY IRWM and other regional water resources planning efforts.

67. Due to topographic and other constrains, opportunities to share the costs of capital improvements are limited. EID should coordinate with nearby agencies that also have infrastructure within proposed project areas to determine the feasibility of sharing some costs during capital projects.

68. If projects or delivery of services do involve other agencies, EID should formalize any coordination in a shared facilities/services agreement, or other appropriate instrument, in order to provide details and conditions for how services delivery will be conducted and shared between the agencies.

F. Accountability for community service needs, including governmental structure and operational efficiencies.

69. EID Board meetings are typically held twice per month and are open to the public and are ADA compliant. Regularly scheduled District Board meetings provide an opportunity for residents to ask questions of elected representatives and help ensure service information is effectively communicated to the public. The meetings are noticed and conducted according to the Brown Act.

70. EID provides effective services through its Board-Manager form of government, and utilizes other governmental advising bodies, private and public organizations, and the general public to participate and to help inform its decision-making process. Through this structure, public engagement is encouraged, and District plans and programs reflect citizen input. Additionally, to gauge customer satisfaction, the District performs a satisfaction survey in its retail service area every two years. In 2019, the survey found that 89% of customers are very satisfied or satisfied with EID's water service. Survey results can be found on the District's website at: < <https://www.eid.org/about-us/document-library>>.
71. California's Brown Act aims to have government business conducted in open public forums and therefore closed sessions may be held only as specifically authorized by the Act's provisions. During the year 2019, the District Board held thirteen "Closed Sessions" noted on its agenda, primarily concerning property acquisition, litigation, and labor negotiations. The stated rationale for the closed sessions appears consistent with the provisions of the Brown Act. Additionally, the number of closed sessions for EID is comparable to that of PCWA and NID.
72. District Board member's contact information, including phone numbers and email addresses, are available on the District's website.
73. The terms of office and next election date for each Board member are disclosed to the public on the District's website.
74. Committee appointments are made available to the public on the District's website.
75. The District provides Board resolutions, and agenda packets from January 12, 2015 to present on its website. In addition, navigation of the website to this information is easy and straight forward. Improvements are needed to ensure that the website's links to damage claims, complaint forms, and instructions for disputes and appeals, be made more prominent to allow easier access to these forms by customers.
76. The District tracks all service-related customer reports/complaints. In 2017, the EID received 2,352 water service complaints, and in 2018 the District received 2,387 water service-related complaints as detailed in Table 4-2. As EID continues to complete infrastructure improvements, the number of customer reports is anticipated to decline. This metric's trend should be included in the next MSR that LAFCO prepares for EID.

77. The District practices strategic planning and has adopted and published its Mission Statement which is: *The El Dorado Irrigation District is a public agency dedicated to providing high quality water, wastewater treatment, recycled water (irrigation), hydropower, and recreation services in an environmentally and fiscally responsible manner.* EID's planning documents and guiding principles are published on the District website.
78. The EID Board adopted and regularly updates the formal policy document entitled "Board Policies and Administrative Regulations." This policy document was most recently updated on November 21, 2019 and it is available on EID's website¹. Additionally, financial policies are clearly described in the District's budget and certified financial statements.
79. The District's organization chart reflects the operation of the agency and shows that the 221 employees are organized into six departments including: Human Resources, Operations, Communications, Finance, Engineering, and Information Technology. EID regularly updates the organization chart and it is available on EID's website² and is presented as Figure 4-3.
80. Board Policy (BP) 12050 requires the Board of Directors to provide ongoing review and evaluation of current programs, services, and activities of the District. In addition, the General Manager conducts regular assessments of the services and activities of the District and reports same to the Board.
81. During the years 2018 and 2019, the District received six awards in the areas of finance, communications, public works, water operations, and parks & recreation as listed in Table 4-3.

G. The potential effect of agency services on agricultural and open space lands.

82. Farmland and grazing land totals 163,448 acres within the EID boundary and another 179,883 acres are in the SOI as shown in Figure 5-2. Open Space within the EID boundary calculates to 6,728 acres with an additional 12,555 acres in the District's SOI as described in Chapter 5 of this MSR.

¹ EID's Board Policies and Administrative Regulations is available at the following web link <https://www.eid.org/about-us/document-library>.

² EID's organization chart is available at the following web link <https://www.eid.org/home/showdocument?id=12803>

83. Under Option 2 of the SOI Analysis, the proposed removal of unincorporated areas from EID's SOI include agriculture and open-space lands. These were identified by EID as areas where services and infrastructure could not be feasibly extended in the future. Removal of these areas from the SOI indirectly reduces the opportunity for these land uses to be developed in the near-term.

SOI DETERMINATIONS

In determining the sphere of influence for each local agency, Government Code §56425(e) requires the Commission to consider and prepare a written statement of determinations with respect to four factors. LAFCO's Executive Officer has reviewed the following determinations for amending the sphere for the EID and recommends them for the Commission's consideration:

A. The present and planned land uses in the area, including agricultural and open space lands.

1. Land uses in the SOI were evaluated in Chapters 5 and 10 of this MSR/SOI Update. Within the SOI, land uses consist primarily of natural resource and agricultural land.
2. Existing and planned land uses in the SOI, such as natural resource and agricultural land, are not expected to require municipal water or sewer service extensions in the near future. However, agricultural areas may have a need for raw water for irrigation from private wells or other sources in the future.
3. The County of El Dorado's General Plan includes development patterns and areas of growth in existing Community Regions and Rural Regions, establishing urban limit lines where urban and semi-urban lands will be developed. These urban limit lines can only be modified through the General Plan amendment process; thereby controlling the ability of existing rural areas to be developed.
4. Proposed future developments listed in Chapter 7 will occur in areas that can be served by District infrastructure.
5. Extension of service to areas within the SOI will be evaluated on a case-by-case basis as the need arises and as the District's infrastructure allows.
6. Chapter 10 of this MSR/SOI Update offers three SOI Update options for consideration as listed below.
 - o Option No. 1 – Retain Existing SOI
 - o Option No. 2 – Reduce SOI as Proposed by EID & LAFCO
 - o Option No. 3 – Reduce the SOI to Include Community Regions and Rural Regions Only

An analysis of land-use factors for each of these three options presented in Chapter 10 was carefully considered.

7. Based on the analysis of the three SOI Update options, Option No. 2 is recommended to reduce EID's SOI to more accurately match with the geographic areas where EID can reasonably extend services in the foreseeable future.
8. Potential effects on agricultural and open-space lands were evaluated for each of the three SOI Update options presented in Chapter 10.
9. In SOI Update Option No. 2, the proposed removal of SOI areas include agriculture and open-space lands. These areas were identified by EID as areas where services and infrastructure could not practically be extended in the future. Removal of these areas from the SOI further reduces the opportunity for these land uses to be developed and is thereby protective of agricultural soils and open space.
10. LAFCO is the Lead Agency under CEQA.
11. Reduction of the SOI under Option No. 2 qualifies as an Exemption from CEQA under Section 15061(b)(3).

B. The present and probable need for public facilities and services in the area.

12. The District currently provides for adequate services to meet the needs of the existing 41,396 water connections and 23,191 sewer connections within the District. Services provided by EID include water, sewer, hydroelectric power and recreation as described in Chapter 7.
13. There is no present or probable need for EID services to the area proposed for removal from the SOI under Option No. 2.
14. Property proposed for removal from the SOI under Option #2 currently does not receive water or wastewater services from EID. Any development existing in these areas would rely on groundwater wells and individual septic systems for water and wastewater systems.
15. No future development is proposed to occur in the SOI proposed for removal under Option No. 2, consistent with the County's General Plan.
16. There are no sewer or water facilities or infrastructure in the area proposed for removal from the SOI, under Option No. 2.
17. Two satellite areas currently within the District boundary (Outingdale and Fair Play), as well as the satellite water reservoir areas within the District boundary (Echo, Aloha and Silver Lakes) are proposed to remain within the Option No. 2 SOI.

C. The present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide.

18. Based on the data and analysis presented in Chapter 7 of the MSR/SOI Update, the present capacity of EID's public facilities and the adequacy of public services related to water, wastewater, recreation and hydroelectric services are determined to be adequate for existing demand.
19. Three options to update EID's SOI were carefully considered and the properties proposed for removal from the SOI under Option No. 2 currently do not receive water or wastewater services from EID. Any development existing in these areas would rely on groundwater wells and individual septic systems for water and wastewater services. There is no present or probable need for EID services to the areas proposed for removal from the SOI under Option No. 2.
20. No future development is proposed to occur in the SOI removal area of Option No. 2, consistent with the County's General Plan.
21. Implementation of the SOI Update Option No. 2 is not expected to affect other agencies or service providers within the region.
22. EID has acknowledged that there are significant challenges in providing infrastructure to the proposed SOI reduction areas due to steep terrain, distance from existing infrastructure, and ability for these areas to be developed in the future. Additionally, developing infrastructure in some SOI areas would likely be expensive. Given these geographic and infrastructure constraints, it is not practical for EID to provide service to these areas within the next 10 to 20 years.
23. There are no existing municipal services in geographic proximity to the proposed SOI reduction areas described in Option No. 2. The nearest existing water line to the SOI proposed reduction area is roughly 12 miles north of the southernmost SOI boundary.

D. The existence of any social or economic communities of interest in the area if the Commission determines that they are relevant to the agency.

24. There are a number of social and economic communities in the area served by the District, including El Dorado Hills, Cameron Park, El Dorado, Diamond Springs, Shingle Springs, the City of Placerville, Mosquito, Cedar Grove, Pollock Pines, Pleasant Valley, Rescue, Coloma, and Lotus. Also, disadvantaged unincorporated areas are analyzed in Chapter 6 of this MSR/SOI Update.
25. Each of the three SOI Update options considers the existence of any social or economic communities of interest in the area. The proposed reduction of the SOI proposed by Option #2 is not anticipated to adversely affect any adjacent social or economic community of interest.
26. The proposed reduction of the EID's SOI under Option No. 2 will result in an SOI that is more aligned with the County General Plan and will not divide any existing communities.

27. There is limited potential for consolidations or other reorganizations at this time.

- E. For an update of a sphere of influence of a city or special district that provides public facilities or services related to sewers, municipal and industrial water, or structural fire protection, that occurs pursuant to subdivision (g) on or after July 1, 2012, the present and probable need for those public facilities and services of any disadvantaged unincorporated communities within the existing sphere of influence.**

28. DUCs are analyzed in Chapter 6 of this document.

29. There is a large disadvantaged area (Block Group 314023 as shown on Figure 6-1) in the southeast portion of the existing SOI, which includes portions of Somerset and Fair Play. As proposed, these fringe areas would remain in the District boundary and within the reduced SOI.

30. The present and probable need for water, sewer and structural fire protection of any DUC within the existing EID SOI are considered in Chapter 6 of this MSR/SOI document. The proposed reduction of the SOI per Option No. 2 is not anticipated to adversely affect any adjacent disadvantaged community.

CHAPTER 3: INTRODUCTION



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3.1: ROLE AND RESPONSIBILITY OF LAFCO

Local Agency Formation Commissions (LAFCOs) are independent agencies that were established by state legislation in 1963 in each county in California to oversee changes in local agency boundaries and organizational structures. It is LAFCO’s responsibility to:

- oversee the logical, efficient, and most appropriate formation of local cities and special districts;

- provide for the logical progression of agency boundaries and efficient expansion of municipal services;
- assure the efficient provision of municipal services; and
- discourage the premature conversion of agricultural and open space lands. (Government Code [GC] §§ 56100, 56301, 56425, 56430, 56378).

The Cortese-Knox-Hertzberg (CKH) Local Government Reorganization Act of 2000 (CKH Act) requires each LAFCO to prepare a Municipal Service Review (MSR) for its cities and special districts. MSRs are required prior to and in conjunction with the update of a Sphere of Influence (SOI). This review is intended to provide El Dorado LAFCO with the necessary and relevant information related to EID.

3.2: ABOUT EL DORADO LAFCO

Each LAFCO works to implement the CKH Act and there is flexibility in how these state regulations are implemented so as to allow adaptation to local needs. As a result, El Dorado LAFCO has adopted Policies and Guidelines that guide its operations, which were adopted on November 7, 1988 and regularly updated with the most recent update on February 27, 2019. LAFCO's Policies and Guidelines can be found on El Dorado LAFCO's website (<https://www.edlafco.us/>). This MSR & SOI Update was written under the auspices of El Dorado LAFCO. The mission of El Dorado LAFCO is to coordinate logical and timely changes in local governmental boundaries (§56001); conduct special studies which review ways to reorganize, simplify and streamline governmental structures (§56301); and prepare spheres of influence for each city and special district within the County (§56425). The Commission promotes provision of efficient and economical services while encouraging protection of agricultural and open space lands (§56001, §56300). Further efforts include discouraging urban sprawl and encouraging orderly formation and development of local agencies based upon local conditions and circumstances (§56301) (El Dorado LAFCO, 2019).

An MSR is an information tool that can be used to facilitate cooperation among agency managers and LAFCO to achieve efficient delivery of services. Describing existing efficiencies in service deliveries and suggesting new opportunities to improve efficiencies is a key objective of this MSR, consistent with El Dorado LAFCO's purpose. Since this MSR & SOI Update will be published on the LAFCO website, it also contributes to El Dorado LAFCO's principle relating to public accessibility and accountability. A public hearing will be conducted by El Dorado LAFCO on this MSR/SOI Update in summer 2020, thereby contributing to the aim of encouraging an open and engaged process.

Commissioners

El Dorado LAFCO is composed of seven regular Commissioners: two members from the Board of Supervisors; two members who represent cities; two members who represent special districts; and one public member who represents the public as a whole. There are four alternate Commissioners; one from each of the above membership categories. County representatives (regular and alternate) to LAFCO are selected as part of the Board of Supervisors' committee assignment process. City representatives (regular and alternate) to LAFCO are selected by the mayors of both cities. They decide which members of their city councils will serve on LAFCO.

Special district representatives (regular and alternate) to LAFCO are nominated and elected by the special districts in the County of El Dorado. The LAFCO Executive Officer first coordinates a nomination process whereby all special districts may nominate one of their own directors (or the director of another special district) to appear on the ballot. Once the nomination period closes, the Executive Officer then coordinates an election where all special districts are eligible to vote. Special rules adopted by special districts govern this election process. The regular county, city and special district members of LAFCO select one person to represent the public at large and one person to serve as his/her alternate. The public member and alternate cannot be an elected or appointed official of any public agency in the County of El Dorado. Commissioners are listed in Table 3.1, below.

Table 3.1: Members of LAFCO		
Commissioner Name	Position	Date Term Expires
Shiva Frentzen	Chair. Representative, County of El Dorado	May 2022
John Hidahl	Commissioner. Representative, County of El Dorado	May 2022
Mark Acuna	Commissioner. City Representative	May 2022
Cody Bass	Commissioner. City Representative	May 2022
Tim Palmer	Commissioner. Special District Representative	May 2021
Holly Morrison	Commissioner. Special District Representative	May 2023
Michael Powell	Commissioner. Public Member Representative	May 2022
tbd	Alternate Commissioner. Public Member Representative	tbd
Michael Saunders	Alternate Commissioner. Special District Representative	May 2023
Brian Veerkamp	Commissioner. Representative, County of El Dorado	May 2024
Kara Taylor	Alternate Commissioner. City Representative	May 2024

Staff / Administrative

LAFCO's staff ¹ includes an Executive Officer, Assistant Executive Officer, and LAFCO Counsel as listed below. LAFCO staff can be contacted at the Office at 530-295-2707. LAFCO staff includes:

- Jose Henriquez, Executive Officer
- Erica Sanchez, Assistant Executive Officer
- Kara K. Ueda, Legal Counsel

3.3: PURPOSE OF THE MUNICIPAL SERVICE REVIEW AND SPHERE OF INFLUENCE

MSRs are intended to provide a comprehensive analysis of services provided by each of the special districts and other service providers identified within an MSR, and that fall under the legislative authority of the LAFCO. This review studies the El Dorado Irrigation District. This review also provides technical and administrative information to support El Dorado LAFCO's evaluation of the existing boundary and sphere of influence for the El Dorado Irrigation District. Although EID is under the auspices of El Dorado LAFCO as the principal LAFCO, a small portion of Sacramento County is annexed into its service area (as of the date of this MSR, EID has no customers in Sacramento County). With this MSR & SOI Update, El Dorado LAFCO can make informed decisions based on the best available data for the service provider and area. Written determinations, as required by law, are presented following the analysis in Chapters 4 to 10. LAFCO is ultimately the decision maker on approval or disapproval of any determinations, policies, boundaries, and discretionary items.

This updated document makes determinations in each of seven mandated areas of evaluation for MSRs and each of the five topic areas for evaluation of the SOI. The analysis provided in Chapter 4 to 10 provide the basis for El Dorado LAFCO to review proposed changes to EID's boundaries or SOI. An SOI is defined in GC § 56425 as "a plan for the probable physical boundary and service area of a local agency or municipality as determined by the Commission." LAFCO is required to adopt an SOI for each municipality and each agency in its jurisdiction. When reviewing and determining SOI for EID, LAFCO will consider and make recommendations based on the following information:

¹ Two LAFCO staff positions are currently vacant: Assistant Policy Analyst and Administrative Assistant.

- The present and planned land uses in the area, including agricultural and open-space lands;
- The present and probable need for public services and facilities in the area;
- The present capacity of public facilities and adequacy of public services that the agency provides;
- The existence of any social or economic communities of interest in the area if LAFCO determines that they are relevant to the service provider; and
- The presence of disadvantaged unincorporated communities for those agencies that provide water, wastewater, or structural fire protection services.

In addition to the above, El Dorado LAFCO's Policies and Guidelines include special criteria for review of sphere of influence amendments (§56425) including the following:

- The service capacity, level and types of services currently provided by the agency and the areas where these services are provided, topographic factors, financial capabilities, costs of service, and social and economic interdependencies;
- Existing and planned land uses, land use plans and policies; consistency with county and city general plans; projected growth in the affected area, and potential effects on agricultural and open space lands;
- A description of the services that will be provided to any areas which may be added to the sphere, the timing and method for funding expansion of facilities or services; and
- An analysis of the effects a proposed sphere of influence on other agencies and their service capabilities.

Ideally, an MSR will support LAFCO and will also provide the following benefits to the subject agencies:

- Provide a broad overview of agency operations including type and extent of services provided;
- Serve as a prerequisite for a sphere of influence update;
- Evaluate governance options and financial information;
- Demonstrate accountability and transparency to LAFCO and to the public; and
- Allow agencies to compare their operations and services with other similar agencies.

3.4 METHODOLOGY FOR THIS MSR /SOI UPDATE

The CKH Act indicates that LAFCO should review and update a sphere of influence every five years, as necessary, consistent with GC § 56425(g) and § 56106². The MSR for the EID was last updated in January 2008 as part of the Water, Wastewater and Power Municipal Services Review and approved as part of LAFCO Resolution No. L-2008-01. EID was also included in the General Services I MSR approved in February 2008 and approved as part of LAFCO Resolution No. L-2008-10. EID's SOI was adopted in March 2008 with the approval of LAFCO Resolution L-2008-25.

This 2020 MSR/SOI Update evaluates the structure and operation of EID and determines the capacity of EID to serve existing customers and accommodate additional service demands. Key references and information sources for this study were gathered and include: published reports; review of agency files and databases (agendas, minutes, budgets, contracts, audits, etc.); master plans; capital improvement plans; engineering reports; environmental impact reports; finance studies; general plans; and state and regional agency information (permits, reviews, communications, regulatory requirements, etc.).

The consulting team, in coordination with the El Dorado LAFCO Executive Officer, sent the El Dorado Irrigation District a Request for Information (RFI) in August 2019. Members of the consultant team also visited with the El Dorado Irrigation District and personally interviewed District representatives during a kick-off meeting held on August 7, 2019. The District's response to LAFCO's request for information is a key information source utilized in this analysis. This MSR forms the basis for specific judgments, known as determinations, about each agency that LAFCO is required to make (GC § 56425, 56430). These determinations are described in the MSR Guidelines from the Office of Planning & Research (OPR) as set forth in the CKH Act, and they fall into seven categories, as listed below:

1. Growth and population projections for the affected area;
2. Location and characteristics of any disadvantaged unincorporated communities within or contiguous to the sphere of influence;
3. Present and planned capacity of public facilities and adequacy of public services including infrastructure needs or deficiencies;
4. Financial ability of agency to provide services;
5. Status of, and opportunities for, shared facilities;

² The CKH Act (GC § 56106) states that all timeframes are directives. Any provision governing the time in which Commission is to act, is deemed directory rather than mandatory.

6. Accountability for community service needs, including government structure and operational efficiencies; and
7. Any other matter related to effective or efficient service delivery, as required by commission policy.

An MSR must include an analysis of the issues and written determination(s) for each of the above determination categories.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) is contained in Public Resources Code § 21000, et seq. Under this law, public agencies are required to evaluate the potential environmental effects of their actions. Typically, MSRs are exempt from CEQA under a Class 6 categorical exemption. CEQA Guidelines §15306 states that “Class 6 consists of basic data collection, research, experimental management, and resource evaluation activities that do not result in a serious or major disturbance to an environmental resource.” Chapter 10 of this document includes an option to update the SOI for the EID. In this particular option, it is suggested that CEQA exemption 10561(b)(3) would be applicable because modification to reduce the size of the SOI is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. In this case, it is certain that the option under consideration to reduce the size of the SOI would be protective of open space and consistent with General Plan policies for the County of El Dorado.

Water Quality and State Databases

The protection of agricultural resources and open space is one of LAFCO’s key purposes as noted in the CKH Act. Natural streams and rivers are part of our system of open space, and water quality is an important factor in their protection. Since water systems all have a risk of water quality problems, several water quality databases were queried for the western part of the County of El Dorado. The results of these database queries are presented in Chapter 7.

Other Service Providers

Residents of the EID service area also receive public services from an array of service providers such as The County of El Dorado, City of Placerville, several school districts, El Dorado Transit, Cameron Park Airport District, several community service districts, private utility companies, and several state and regional agencies as described in detail in Appendix K. This list shows that residents interact with networked array of private and public service providers. Understanding and documenting EID’s place within this network is one of the objectives of this MSR/SOI Update.

LAFCO may utilize this information to support its determination regarding accountability for community service needs, including government structure and operational efficiencies.

3.5: PUBLIC PARTICIPATION

LAFCO will conduct a public workshop on the Preliminary Draft MSR/SOI Update in summer 2020. Comments from the public will be solicited. The Commission will hold a public hearing on the Final MSR/SOI during the fall of 2020.

After this MSR/SOI Update is finalized, it will be published on the Commission's website (<https://www.edLAFCO.us/>), thereby making the information contained herein available to anyone with access to an internet connection. A copy of this MSR/SOI Update may also be viewed during posted office hours at LAFCO's office located at 550 Main Street, Suite E, Placerville, CA 95667. In addition to this MSR/SOI Update, LAFCO's office maintains files for each service provider, including EID, and copies of many of the planning documents and studies that were utilized in the development of this MSR/SOI. These materials are also available to the public for review.

CHAPTER 4: District Governance and Accountability



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This chapter describes how the public’s trust in local government requires an examination of its performance, accountability, transparency, and public engagement. LAFCO is required to make specific determinations regarding a district’s government structure and accountability. A summary of these determinations is provided in Table 4-4, at the end of this Chapter.

4.1 GOVERNMENT STRUCTURE

The El Dorado Irrigation District (EID) is a local government agency structured as an Irrigation District consistent with its Principal Act: California Water Code, Division 11, Section 20500 *et seq.* EID provides the following services to the western portion of the County of El Dorado.

- Water treatment and distribution for residential, commercial, municipal and agricultural purposes
- Raw untreated water for agricultural irrigation
- Wastewater collection, transport, treatment, and disposal
- Recycled water production and distribution for irrigation purposes
- Recreation
- Hydropower

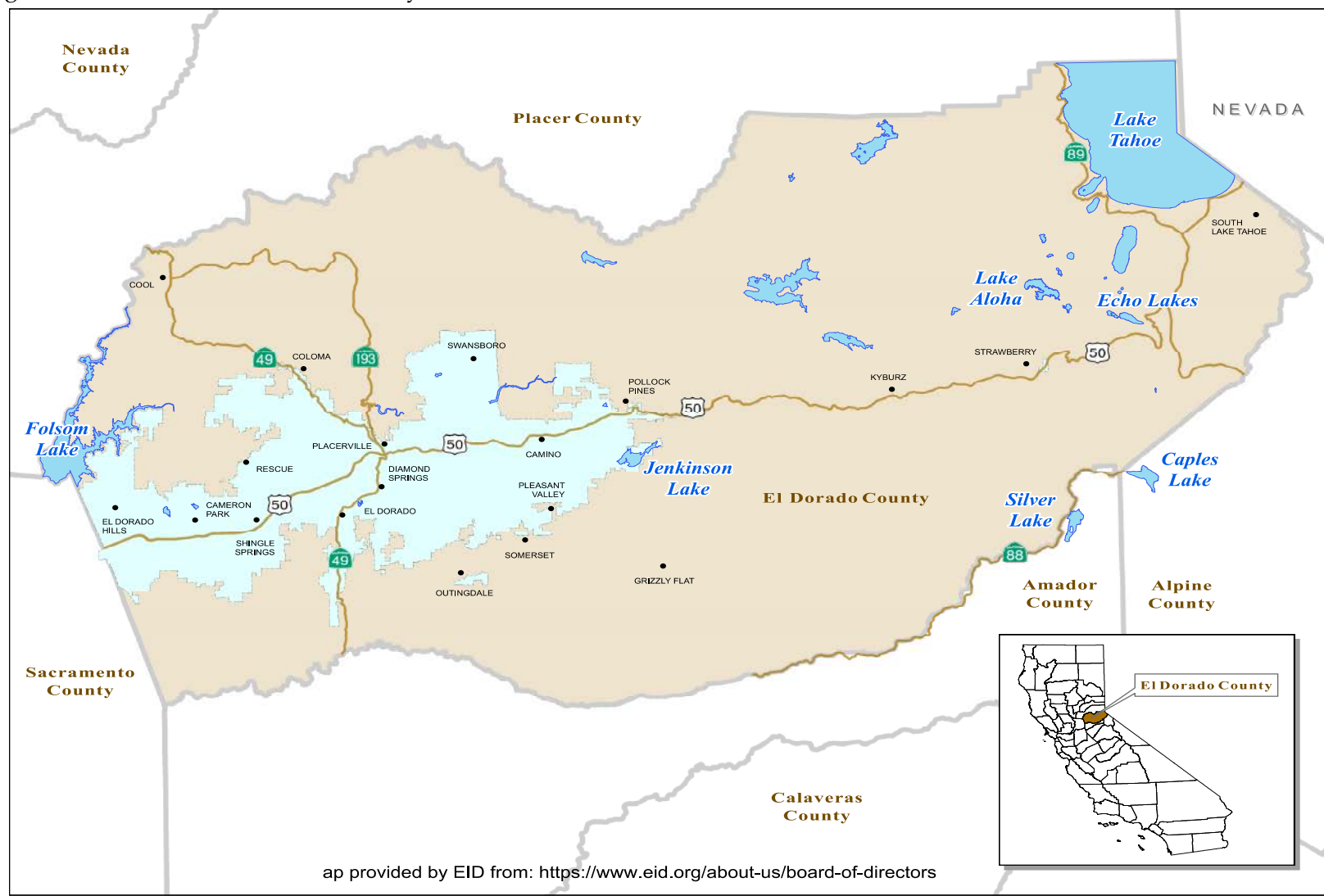
EID provides the above services to a defined geographic area and its boundary encompasses 147,465 acres as shown in Figure 4-1 (next page).

EID has a Board-Manager form of government, with five Board Members elected to represent the service territory’s five political divisions. All registered voters, irrespective of ratepayer status, who reside within EID’s political divisions, are eligible to vote for and/or run for a seat on the District Board of Directors. The District Board appoints the General Manager (GM) and the General Counsel. Department heads are appointed by the GM. Along with the Office of the General Manager and Office of the General Counsel, the District is organized into the following six departments: Communications, Engineering, Finance, Human Resources, Information Technology, and Operations.

4.1.a: District Board

EID’s Board of Directors is elected to staggered four-year terms. EID contains five political divisions, and the five Board members are each elected from one of the separate divisions as shown in Figure 4-2. Elections are held in even years to coincide with general elections. Board members then elect their officers – President and Vice-President – to a one-year term of office that is effective January 1st through December 31st. The current Board of Directors members and the expiration dates of their terms are shown in Table 4-1 (next page).

Figure 4-1: EID's Location in the County of El Dorado



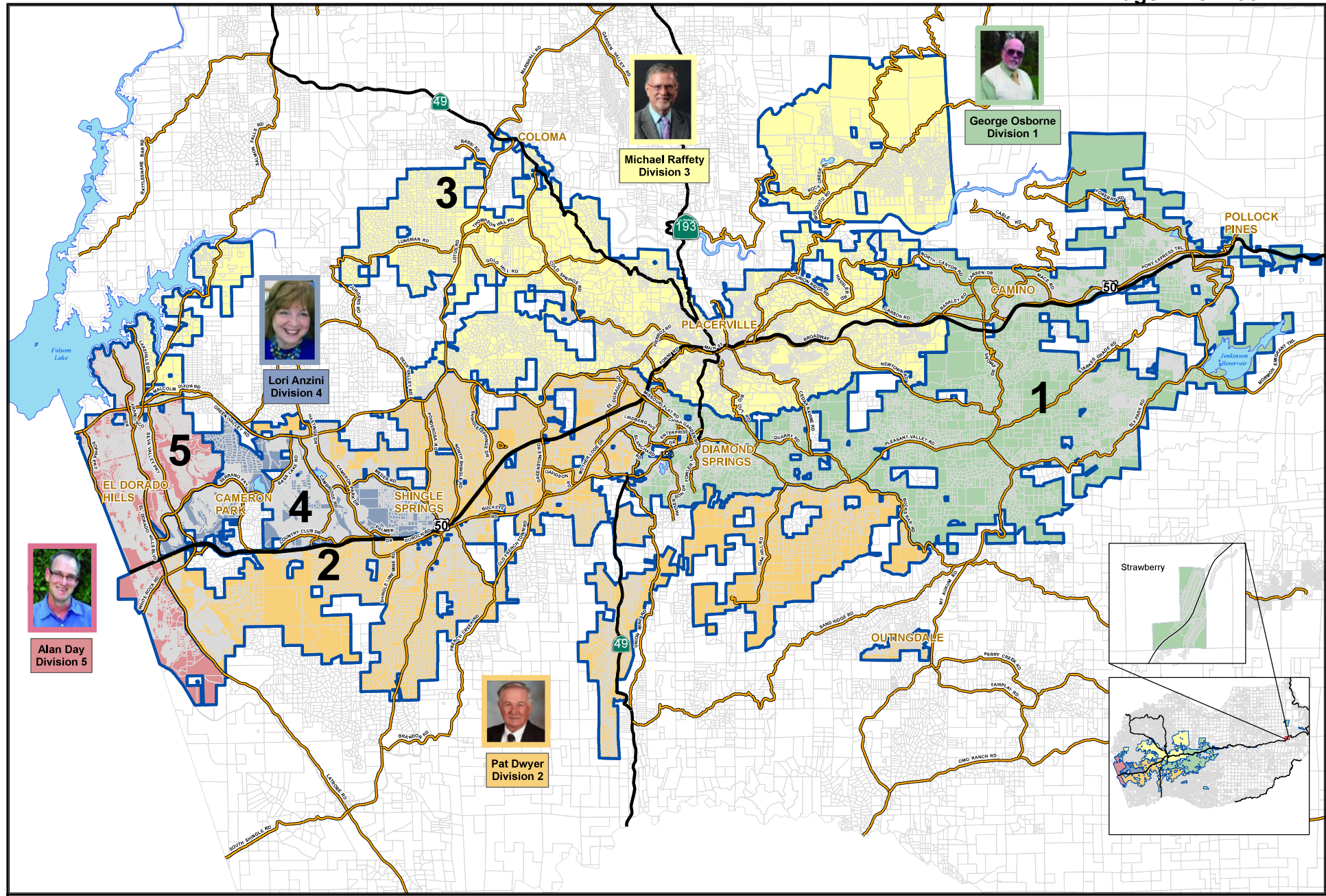


Figure 4-2
El Dorado Irrigation District
Board of Directors

- Division**
- 1 - George Osborne
 - 2 - Pat Dwyer
 - 3 - Michael Raffety
 - 4 - Lori Anzini
 - 5 - Alan Day



Map provided by eid. <https://www.eid.org/about-us/board-of-directors>

Date Saved: 1/21/2019 8:45:35 AM
Document Path: M:\GIS\Board\Directors\Map\enr.d
Coordinate System: NAD 1983 StatePlane California FIPS 402 Foot
Sources: ESRI, El Dorado Irrigation District, El Dorado County Surveyors' Office, and El Dorado Elections Department

Division	Name of EID Board Member	Title	Elected Term End
1	George Osborne	President	2020
2	Pat Dwyer	Vice President	2022
3	Michael Raffety	Board Member	2020
4	Lori Anzini	Board Member	2022
5	Alan Day	Board Member	2020

The District Board holds regular public meetings generally on the second and fourth Mondays of each month at 9:00 AM. Meetings are held at EID Main Headquarters at 2890 Mosquito Road, Placerville, California. The location is Americans with Disabilities Act (ADA) compliant (EID, 2019e).

The District Board is directly responsible to the voters and citizens of EID as shown in the Organization Chart, Figure 4-3, provided in Section 4.3, Management Efficiencies and Staffing. Board duties include adopting the annual operating budget and financial plan, which is used to establish necessary costs for operations, maintenance, and debt service. The Board is also responsible for approving annual construction projects; the capital improvement plan; master plans; water management plans; water and sewer rates; and numerous policies and projects related to District business. The Board can appoint Commissions and Ad-Hoc Committee members. The El Dorado Irrigation District prides itself on being an accessible government body and having open communications with its customers and residents. EID provides an annual report on the District's accomplishments as they relate to previously identified strategic priorities and action plans along with providing a transparent budget. The EID Board held a public meeting on December 9, 2019 and adopted new water and recycled water rates as described in Chapter 8, Finances.

The Ralph M. Brown Act¹ was originally adopted in 1953 to assure the public has access to information on the actions under consideration by public legislative bodies and that the actions are conducted in open public forums. Closed sessions may be held only as specifically authorized by the provisions of the Brown Act because California believes it is important to avoid being perceived as unresponsive and untrustworthy and therefore, the number of closed sessions a local agency has is an indicator of accountability. During the year 2019, the District Board held thirteen "Closed Sessions" noted on its agenda, primarily concerning property acquisition, litigation, and labor negotiations. The dates of EID 2019 Board meetings with a "closed session" are listed below:

¹ In the initial legislation for the Brown Act, and through amendments adopted over the years, provisions were included to permit the legislative bodies to meet in closed session for very specific purposes. These included personnel matters, labor negotiations, existing litigation, potential litigation, and real property negotiations. The closed sessions are not open to public participation, but the general topics to be discussed must be publicly announced in advance. Also, if any final action is taken by the legislative body in closed session, the action and any vote must be reported to the public in an open meeting immediately following the closed session.

- January 14, 2019
- February 11, 2019
- February 25, 2019
- March 11, 2019
- April 8, 2019
- April 22, 2019
- May 13, 2019
- June 10, 2019
- July 22, 2019
- August 26, 2019
- October 15, 2019
- October 28, 2019
- December 9, 2019

EID held a total of 27 Board meetings during 2019 and 13 of those (48%) included a closed session. Although thirteen closed sessions appear to be a large number, EID does have on-going litigation which would reasonably require closed sessions. Additionally, the District successfully negotiated two new labor agreements with its employee associations in 2019, which were the subject of a significant portions of the authorized closed sessions. Also, the numbers of closed sessions are comparable to those for the Placer County Water Agency (PCWA) and the Nevada Irrigation District (NID)².

4.1.b: Advisory Boards, Commissions, and Committees

The EID Board can establish local advisory bodies (committees) to assist with its decision-making processes. Specific responsibilities for each advisory body are established by their respective ordinance or resolution. Board Policies and Administrative Regulations updated on August 19, 2019 cites the following: “The following standing committees, composed of the entire membership of the Board, have been established:

1. Engineering and Operations
2. Insurance and Personnel
3. Finance, Rates, and Charges
4. Legal and Legislation
5. Recreation and Property Management (EID, 2019b)

² PCWA had a total of 25 meetings during the year 2019. 15 of those meetings had "closed sessions". This equates to 60% of the meetings. NID's Board of Directors held a total of 24 public meetings during the year 2019. Fifteen of these meetings (63%) of these meetings included a closed session

The Board President, with the Board approval, may appoint two chairs to each Board Standing Committee.

The following are county-wide or regional boards, committees or associations on which EID currently has a representative as authorized by Board Policies and Administrative Regulations (EID. 2019b):

1. Association of California Water Agencies, Region 3 Board
2. Association of California Water Agencies, Board of Directors
3. Association of California Water Agencies/Joint Powers Insurance Authority
4. Cosumnes American Bear and Yuba Joint Powers Authority
5. El Dorado County Citizens for Water
6. El Dorado County Fire Chiefs Association
7. El Dorado Local Agency Formation Commission
8. Mountain Counties Water Resources Association
9. Regional Water Authority
10. Taxpayers' Association of El Dorado County
11. El Dorado County Water Agency (EDCWA) [Note: EID has a seat on EDCWA board every other term.]

4.2 Accountability

Governing bodies such as a District Board are required to comply with specific state laws including:

- CA Government Code §53235 requires that if a District provides compensation or reimbursement of expenses to its board members, the board members must receive two hours of training in ethics at least once every two years, and the District must establish a written policy on reimbursements.
- CA Political Reform Act (Government Code §81000, *et seq.*) requires state and local government agencies to adopt and promulgate conflict of interest codes. The Fair Political Practices Commission (FPPC) has adopted a regulation (California Code of Regulations §18730), which contains the terms of a standard conflict of interest code, which can be incorporated by reference in an agency's code.
- Government Code §87203 requires persons who hold office to disclose their investments, interests in real property and incomes by filing appropriate forms with the FPPC each year.

All meetings of the District Board, and other advisory boards are open to the public in accordance with the Brown Act. The agenda for each District Board meeting includes a public comment period for items not on the agenda. Additionally, the Board meetings minutes reflect that the public is invited to speak on all items included on the agenda. The District adopted *Robert's Rules of Order Newly Revised, 2011*, on November 10, 2014, and utilizes these rules as its parliamentary procedure. All meeting agendas are publicly posted on the EID website at: <https://EID.org>. Agendas are also distributed via email upon request. The District and its representatives have a solid record of adherence to the requirements of the Brown Act, the Political Reform Act, and similar laws (EID, 2019e).

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. The compensation and/or benefits offered to District Board members are made available to the public through EID's website and is described as follows:

- \$1,250 stipend per month;
- Healthcare Insurance - Effective January 1, 2016, the District pays the lowest cost HMO plan premium for the Directors and 85% of the lowest cost HMO plan premium for eligible dependents;
- Medical Reimbursement Program - Reimbursement of no more than \$5,000 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;
- Life Insurance Death benefit of \$20,000. Premiums are paid by the District (EID, 2016).

4.3 MANAGEMENT EFFICIENCIES AND STAFFING

The District operates under the direction of the elected District Board. The District General Manager is appointed by and reports to the Board, and is responsible for directing District operations, and overseeing and implementing policies on behalf of the District Board. The District General Manager serves at-will and oversees EID's six departments: Communications, Engineering, Finance, Human Resources, Information Technology, and Operations. Within these six departments, as of August 2019, there are 221 full-time equivalent (FTE) employees. A basic organizational chart for the District is shown in Figure 4-3, Organizational Chart.

An important part of management effectiveness is having a District-wide mission and vision statement that appear regularly in District documents, and which serve to guide the District's strategic decisions. The EID Mission Statement is: *The El Dorado Irrigation District is a public agency dedicated to providing high quality water, wastewater treatment, recycled water (irrigation), hydropower, and recreation services in an environmentally and fiscally responsible manner* (EID 2019a).

The District's Guiding Principles are simply stated as follows:

- 100% Safety;
- Respect for the Individual;
- Excellent Customer Service; and
- Fiscal Responsibility.

Source: <https://www.eid.org/about-us/mission-and-guiding-principles>

The ability to identify and address customer reports (i.e. complaints) is a key indicator of management efficiency and accountability. EID works to address all service-related customer reports received and EID staff notes that many "complaints" are really simple customer requests for further inquiry or investigation. The District tracks the number of service related customer reports including water quality. In 2017, EID received 2,352 water service related customer reports, and in 2018 the District received 2,387 water service related customer reports as detailed in Table 4-2, below (EID, 2019t).

EID CONTACT INFORMATION:

Jim Abercrombie

General Manager

admin@eid.org

530-642-4055

2890 Mosquito Road, Placerville,
California, 95667

Type of Complaint	2017 (Year)	2018
Taste & Odor	29	39
Color	14	23
Turbidity	16	9
Visible Organisms	0	0
Pressure	135	105
Outages	156	164
Illnesses: (All found to be unrelated to drinking water)	5	0
Other: (running water, leaks, and customer assistance)	1,997	2,047
Total	2,352	2,387

Data Source: EID, October 2019t. EID's Response to LAFCO's Request for Information as Related to the 2019 Municipal Service Review and Sphere of Influence Update for the El Dorado Irrigation District (page 4).

Although the number of water service related customer reports that EID received in 2017 to 2018 was high compared to other local water districts³, EID is in a unique situation such that its existing water infrastructure is aged while physical improvements are being actively completed as detailed in Chapter 7 of this MSR. As EID continues to improve its physical infrastructure, it is anticipated that the number of water customer reports will decrease in future years. The consulting authors of this MSR recommend that when LAFCO next updates the MSR for EID that the number of water service related complaints be monitored as a metric to determine the numerical trend. The type of customer reports listed in Table 4-2 above are typical for a water district.

The District is committed to continuous improvement to meet its Mission and Goals. Part of the continuous improvement process is obtaining feedback and suggestions from customers who rely upon EID's services. To gauge customer satisfaction, the District performs satisfaction surveys every two years in its retail service area. The 2019 Customer Satisfaction Survey Results utilized

³ To compare the number of customer reports, data from other local water districts for which data was readily available was utilized and mathematically indexed to equalize for the population size (variable) of each districted. The number of customer reports per resident population for the El Dorado Irrigation District, Donner Summit Public Utility District, Truckee Donner PUD, Alpine County Water District, Squaw Valley Public Service District, was calculated to be 0.0217, 0.0136, 0.0002, 0.0006, and 0.0011, respectively.

two formats: 1) on-line only and 2) multi-model (phone and on-line) (EID, 2019w). The results from EID's 2019 Customer Satisfaction Survey are as follows:

- 88.2% of those surveyed said they are very satisfied or satisfied with EID's overall public service.
- 96.8% said that EID's customer service response is excellent, very good, average, or had no need of a response.
- 55.9% said EID's water rates are very reasonable or reasonable.
- 31.7% responded that the sewer rates are very reasonable or reasonable.

The positive scores received in the 2019 Customer Satisfaction Survey indicate that the number of water quality complaints received is probably related to infrastructure rather than customer service.

4.3.a: EID Departments

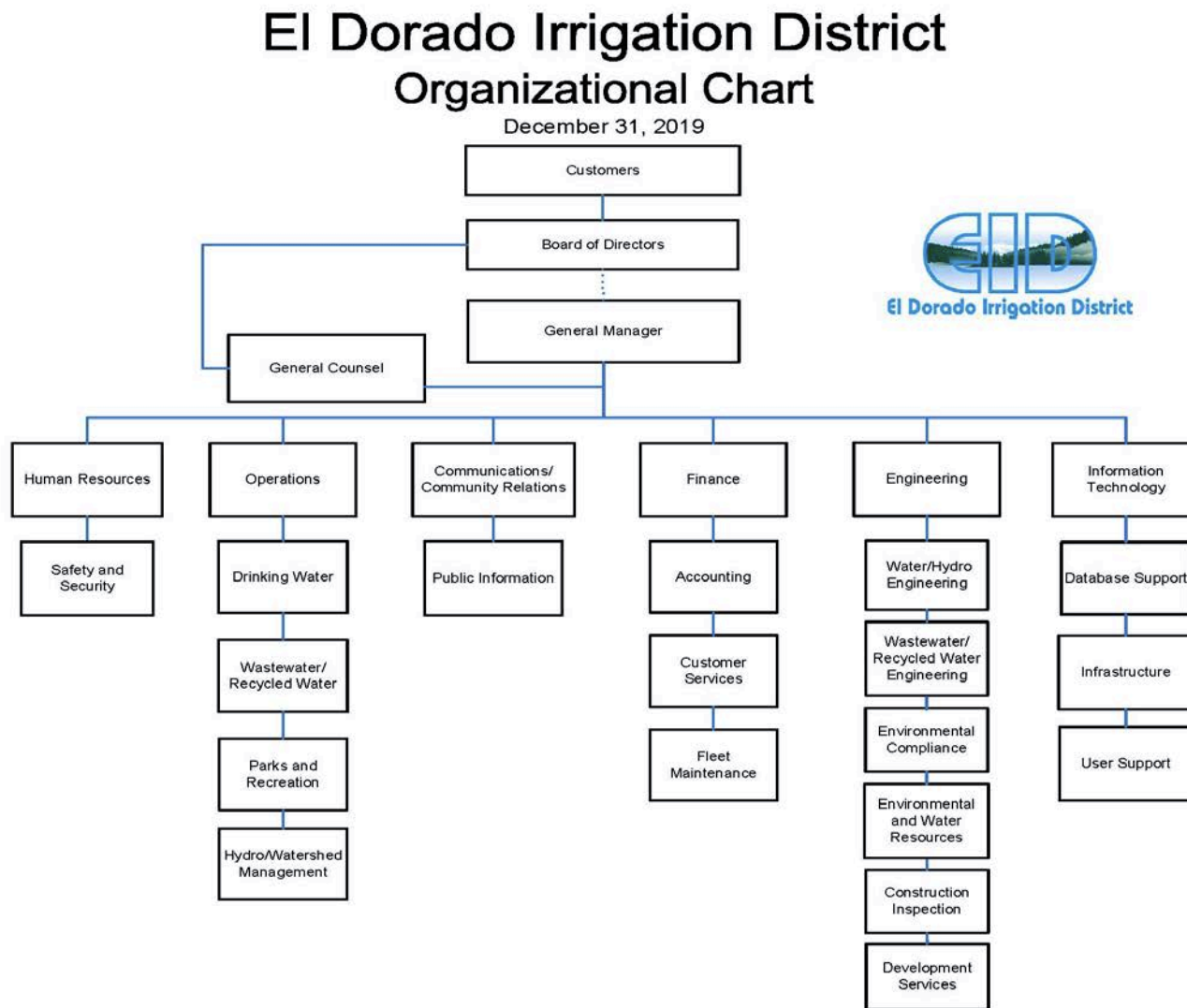
EID's 221 employees are organized into the following six departments: Human Resources, Operations, Communications, Finance, Engineering, and Information Technology. Department heads are appointed by the GM as shown in Figure 4-3, Organization Chart. An overview of each department's responsibility is provided below.

Human Resources Department

This department is responsible for managing the District's human resources, including oversight and coordination of new employee orientation; staffing; compensation and benefits administration; payroll; employee and organization development; workforce planning; safety and security; employee relations; and labor negotiations.

The Human Resources Department ensures fair and equitable treatment of all employees through administering federal and state law, EID Board policies, administrative regulations, and procedures in an impartial and just manner. Employees may individually, or through the representation of their respective association, the Association of El Dorado Irrigation District Employees (EIDEA) or the El Dorado Irrigation District Managers and Supervisors Employee Association (EIDMSA), request a review of any perceived injustice or discrimination in the application of these rights and obligations. They may also review the scope and procedures that are governed by the Memorandum of Understandings between the District and EIDEA, EIDMSA, Board policy and administrative regulations, and or state and federal law.

Figure 4-3: El Dorado Irrigation District Organizational Chart, 2019



Operations Department

EID's Operations Department personnel perform wide-ranging services for a large portion of the population in western El Dorado County. These services include Water and Irrigation (44 employees), Wastewater and Recycled Water (40 employees), Hydropower Generation (30 employees), and Parks and Recreation (7 employees).

Employees from the Operations Department cover EID's 230-square-mile contiguous service area, as well as satellite water systems for the communities of Strawberry and Outingdale. They work around the clock in all weather conditions in extreme terrain -- from 500 feet in elevation at the Sacramento County Line along the EID's western boundary, to more than 8,000 feet in the Sierra Nevada range at the highest water storage reservoirs.

The District's complex water system covers approximately 4,000 feet in elevation change, requiring 200 pressure-regulation zones to operate reliably; and more than 1,295 miles of pipeline, 27 miles of ditches, four water treatment plants, 36 storage reservoirs, and 37 pumping stations.

The District's four wastewater treatment plants treat an average of five million gallons of wastewater per day, ensuring compliance with California's very stringent tertiary treatment standards. EID operates 560 miles of wastewater collection pipes, which includes sewer mains and laterals. The District also operates 64 lift stations to help move the wastewater within the challenging terrain. Much of the treated wastewater becomes recycled water, which is used to irrigate more than 5,000 front and back yards of homes, as well as commercial and public landscape areas within the western portion of EID's service area.

The Parks and Recreation Division manages Sly Park Recreation Area (SPRA) (along with other facilities such as Silver Lake West Campground and Forebay Day Use Area) that are associated with EID's hydroelectric power generation system (Project 184). The Parks and Recreation Division aims to meet the requirements of the Federal Energy Regulatory Commission permits by engaging the community in programs, facilities, and services that foster active and healthy lifestyles, support positive social interaction, and enhance the community's quality of life. Recreation employees are responsible for overseeing continued maintenance of all EID recreation facilities, and managing visitors as they enjoy various activities, including camping, picnicking, swimming, boating, fishing, hiking, biking, and horseback riding.

Communications Department

The Communications Department is responsible for the District's public information, community outreach, and media relations functions. This department is responsible for the design and maintenance of the District's website; publishes the bi-monthly EID customer newsletter, *The Waterfront*; and authors and distributes news releases and feature stories to a broad audience across the County and the wider region. Maintaining informative and effective communications with customers, the general public, and other stakeholders throughout EID's service areas and the wider region is a primary function of this department.

The District's website (<https://www.eid.org/>) is an important communication tool. Customers of the EID can utilize the website to pay bills online, fill out applications for services, turn service on or off, apply for rebates, and obtain information regarding water use and leaks. In addition, customers can contact customer service for comments or complaints regarding water, sewer, or recycled water services. Presently, the website's links to damage claims, complaint forms, and instructions for disputes and appeals are not readily available on the website. These links need to be more prominent to allow easier access to these forms by customers.

Finance Department

The Finance Department is responsible for managing EID's financial resources, including financial control, accounting, customer services, utility billing, meter services, water efficiency, treasury, purchasing, warehousing, fleet planning, and maintenance. In recognition of the quality work the department provides, EID has received both the national Government Finance Officers Association Comprehensive Annual Financial Report Award and the Association of Public Treasurers' Certification of Excellence in Investment Policy throughout the years. The Department is managed by the Finance Director.

Engineering Department

The Engineering Department is divided into five divisions.

The Engineering/GIS Division is responsible for the planning, design, and construction of public works projects to maintain and improve the reliability of District's water, wastewater, recycled water and hydroelectric facilities. Engineering staff manage a variety of projects, and are primarily responsible for implementation of the District's Capital Improvement Program (CIP), including establishing and prioritizing the CIP, and ensuring that the components of the program are managed in a fiscally responsible manner that meets or exceeds all applicable state and federal standards. The Division is also responsible for management of the dam safety program, ,

development and maintenance of the geographic information system (GIS), and right-of-way services.

The two Environmental Divisions assist in District operations and engineering project compliance with both the California Environmental Quality Act (CEQA) and its federal counterpart, the National Environmental Policy Act (NEPA), facilitating the acquisition of approvals and compliance with environmental permits. They also assist Operations Department staff in meeting regulatory requirements for standards related to drinking water quality, recycled water program compliance, industrial pretreatment, and Project 184's hydroelectric licensing requirements. Other responsibilities include participation and support in water marketing and water rights initiatives.

Development Services Division staff work with developers, builders, residential customers, and property owners who wish to obtain or expand District services. Development Services also works with LAFCO on annexations. The Construction Inspection Division inspects all new utility construction, including District capital improvement projects and developer constructed and funded subdivisions.

Information Technology Department

The IT Department is responsible for managing the District's information resources, including secure computer and communications networks, databases, and applications that link employees, processes, and facilities to information required to fulfill the District's mission. The IT systems and information management programs save district ratepayers millions of dollars each year through automation, and by ensuring the reliability, quality, efficiency, and safety of the water and wastewater services provided by EID.

4.3.b: Awards to District in 2018 and 2019

EID was recently honored with its third "Transparency Certificate of Excellence" from the Special District Leadership Foundation. These awards, effective for two-years, require transparent access to important documents, and require EID to meet increasingly stringent rules pertaining to the District's communications with ratepayers. In 2018, EID acted urgently on behalf of its ratepayers and the community to counteract the often times onerous bills that are introduced in the state legislature. EID staff and legislative advocates conducted an education outreach program with regional legislators. As a result, proposed bills were pulled, and in November 2018, EID's efforts were recognized by the Association of California Water Agencies (ACWA) for an Outreach

Award highlighting EID's efforts to defeat the water tax legislation that would have added additional financial and community burden to water bills state-wide. The premise of the initiative was sound - safe, reliable drinking water for all Californians - however, the water tax was determined not to be an effective way to fund it.

The El Dorado Irrigation District has been recognized for its ongoing efforts to provide District services in a financially-competent and environmentally-sensitive manner. EID has received both the National Government Finance Officers Association Comprehensive Annual Financial Report Award and the Association of Public Treasurers' Certification of Excellence in Investment Policy for several years. The District has received numerous awards in 2018 & 2019 as listed in Table 4-3 (next page).

EID was awarded the Certificate of Achievement for Excellence in Financial Reporting by the National Government Finance Officers Association of the United States and Canada (GFOA). The GFOA is a nonprofit professional association serving approximately 19,000 government finance professionals. The Certificate of Achievement was awarded for EID's 2017 Comprehensive Annual Financial Report (CAFR). The CAFR is a thorough and detailed presentation of EID's financial condition. It includes a financial overview, an independent auditor's report, management's discussion and analysis, and audited basic financial statements and other statistical information. This achievement award marks 22 consecutive years that EID has earned the Certification, issued by the GFOA's panel jury, which judged and declared that that the EID CAFR demonstrated a constructive spirit of full disclosure to clearly communicate its financial story. The Certificate of Achievement is the highest form of recognition in the area of governmental accounting and financial reporting, and its attainment represents a significant accomplishment by a government and its management (GFOA, 2018).

Over the years, EID employees have been recognized for contributions to safety at EID and other contributions to the community. For example, EID employees have been recognized for receiving the H.R. LaBounty Safety Award. This award is given by the Association of California Water Agencies-Joint Powers Insurance Authority for contributions to workplace safety.




Table 4-3: Summary of Awards – El Dorado Irrigation District (Not a Comprehensive List)

Department	Award	Organization
2018		
Finance	Certificate of Achievement for Excellence in Financial Reporting for 2017 Comprehensive Annual Financial Report	Government Finance Officers Association of the United States and Canada (GFOA)
Communications	Transparency Certificate of Excellence	Special District Leadership Foundation
2019		
Public Works	H.R. LaBounty Safety Award to Skip Haskell	Association of California Water Agencies-Joint Powers Insurance Authority
Water Operations	District 3 Volunteer of the Year to Kurt Mikkola	Board of Supervisors, County of El Dorado
Parks & Recreation	Best Recreation Facility	<i>Mountain Democrat</i> , Reader’s Choice Award. 2019.
Finance	Association of Public Treasurers' Certification of Excellence in Investment Policy	Association of Public Treasurers'
<i>Data Sources: 1) El Dorado Irrigation District, March-April 2019, Waterfront Newsletter. 2) El Dorado Irrigation District, November-December 2018, Waterfront Newsletter. And 3) Mountain Democrat, 2019.</i>		





4.4: DETERMINATIONS:

Government Structure and Accountability

Based on the information included in this report, the following written determinations make statements involving this service factor (Government Structure and Accountability) which the Commission must consider as part of a municipal service review. The determinations listed below are based upon the data presented in this Chapter and are recommended to the Commission for consideration. The Commission’s final MSR determinations will be part of a Resolution which the Commission formally adopts during a public meeting.

Table 4-4: Summary of Government Structure and Accountability Determinations		
Topic: Accountability		
Indicator	Score	Determination
District Board meetings are held on a regular basis and meetings are open to the public. Board and related public meetings are noticed and conducted in accordance with the Brown Act, with agendas published for each meeting. A meeting calendar posted on the District website discloses the time and location of public meetings.		District Board meetings are typically held twice per month and are open to the public, and are ADA compliant. Regularly scheduled District Board meetings provide an opportunity for residents to ask questions of elected representatives, and help ensure service information is effectively communicated to the public. The meetings are noticed and conducted according to the Brown Act.
Public outreach and participation are encouraged, and District plans and programs reflect citizen input.		EID provides effective services through its Board-Manager form of government, and utilizes other governmental advising bodies, private and public organizations, and the general public to participate and to help inform its decision-making process. Through this structure, public engagement is encouraged, and District plans and programs reflect citizen input. Additionally, to gauge customer satisfaction, the District performs a satisfaction survey in its retail service area every two years. In 2019, the survey found that 89% of customers are very satisfied or satisfied with EID’s water service. Survey results can be found on the District’s website at: < https://www.eid.org/about-us/document-library >.
Number of Closed sessions during the past year.		California’s Brown Act aims to have government business conducted in open public forums and therefore closed sessions may be held only as specifically authorized by the Act’s provisions. During the year 2019, the District Board held thirteen “Closed Sessions” noted on its agenda, primarily concerning property acquisition, litigation, and labor negotiations. The stated rationale for the closed sessions appears consistent with the provisions of the Brown Act. Additionally, the number of closed sessions for EID is comparable to that of PCWA and NID.

Contact information, including email, is available for all District Board members.	◆	District Board member’s contact information, including phone numbers and email addresses, are available on the District’s website.
Terms of office and next election date are disclosed.	◆	The terms of office and next election date for each Board member are disclosed to the public on the District’s website.
Committee appointments are online.	◆	Committee appointments are made available to the public on the District’s website.
The agency website facilitates communication with customers and contains meeting minutes, board agendas for the current year, and other customer service information.	◆	The District provides Board resolutions, and agenda packets from January 12, 2015 to present on its website. In addition, navigation of the website to this information is easy and straight forward. Improvements are needed to ensure that the website’s links to damage claims, complaint forms, and instructions for disputes and appeals, be made more prominent to allow easier access to these forms by customers.
Number of customer complaints	↓	The District tracks all service-related customer reports/complaints. In 2017, the EID received 2,352 water service complaints, and in 2018 the District received 2,387 water service-related complaints as detailed in Table 4-2. As EID continues to complete infrastructure improvements, the number of customer reports is anticipated to decline. This metric’s trend should be included in the next MSR that LAFCO prepares for EID.
Topic: Management Efficiency		
Indicator	Score	Determination
The District’s Mission and Vision statements are published and utilized in District documents.	↑	The District practices strategic planning and has adopted and published its Mission Statement which is: <i>The El Dorado Irrigation District is a public agency dedicated to providing high quality water, wastewater treatment, recycled water (irrigation), hydropower, and recreation services in an environmentally and fiscally responsible manner.</i> EID’s planning documents and guiding principles are published on the District website.
District policies and procedures communicate important and reasonable information about management’s expectations for each Department.	◆	The EID Board adopted and regularly updates the formal policy document entitled “Board Policies and Administrative Regulations.” This policy document was most recently updated on November 21, 2019 and it is available on EID’s website at: https://www.eid.org/about-us/document-library . Additionally, financial policies are clearly described

		in the District’s budget and certified financial statements.
An organization chart is published which reflects the general operation of the agency.	◆	The District’s organization chart reflects the operation of the agency and shows that the 221 employees are organized into six departments including: Human Resources, Operations, Communications, Finance, Engineering, and Information Technology. EID regularly updates the organization chart and it is available on EID’s website ⁴ and is presented as Figure 4-3.
District staff are held accountable to report performance data, and to work toward continuous improvement.	◆	Board Policy (BP) 12050 requires the Board of Directors to provide ongoing review and evaluation of current programs, services, and activities of the District. In addition, the General Manager conducts regular assessments of the services and activities of the District and reports same to the Board.
Awards		
Indicator	Score	Determination
The District has been recognized by its counterparts and/or by the state for its ongoing efforts to provide District services in a fair manner.	↑	During the years 2018 and 2019, the District received six awards in the areas of finance, communications, public works, water operations, and parks & recreation as listed in Table 4-3.
Key to score:		
 Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated)		

⁴ EID’s organization chart is available at following web link <https://www.eid.org/home/showdocument?id=12803>

Chapter 5: District Overview, Population and Growth



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5.1: DISTRICT OVERVIEW

The El Dorado Irrigation district (EID) is a multi-county special district because its boundaries encompass portions of both The County of El Dorado and Sacramento¹ Counties. El Dorado LAFCO is the Principal LAFCO for EID because the greater portion of the assessed value of all taxable property within the District boundaries is located within The County of El Dorado consistent with state law (Government Code (GC) § 56066). As an Irrigation District, EID operates consistent with its principal act, the California Water Code, Division 11, Section 20500 *et seq.* which regulates irrigation districts as described in Chapter 3 of this MSR/SOI Update. EID also operates under two special provisions within Chapter 6 of the California Water Code: Section 22975 pertaining to the provision of wastewater and drainage services; and Section 22976 that provides for an alternative procedure for forming improvement districts within EID. Additionally, many other state and federal regulations apply to the water, sewer, hydroelectric, and recreation services provided by EID. EID's main office is located at 2890 Mosquito Road, Placerville, CA 95667. The District's General Manager is Mr. Jim Abercrombie, who can be reached at this e-mail address: admin@eid.org. An alternate contact is Mr. Brian Mueller, Director of Engineering, who can be reached at this e-mail address: bmueller@eid.org. EID shares information with the public at its web site URL: <http://www.eid.org/>.

5.1.a Services and Location

Type and Extent of Services

EID provides the following services to its customers:

- Water treatment and distribution for municipal and agricultural purposes;
- Raw untreated water for agricultural irrigation;
- Wastewater collection, transport, treatment, disposal;
- Wastewater recycling, distribution, and discharge;
- Recreation and parks services; and
- Hydropower.

Detailed information about the water, sewer, recycled water, hydroelectric, and parks and recreation services that EID provides is described in Chapter 7 of this MSR/SOI Update.

The District's existing service area is limited to its formal boundary area, with a limited number of exceptions. EID's boundary encompasses 147,465 acres and its existing sphere of influence

¹ As of the date of this MSR, EID has no customers in Sacramento County.

covers an additional 237,065 acres. EID’s boundary is located primarily in western The County of El Dorado, with approximately 191 acres located in far eastern Sacramento County. The topography is diverse with elevations ranging from 500 feet to more than 4,000 feet above sea level. Additionally, some of EID’s water source facilities are located in Alpine County and Amador County as described in Chapter 7 of this MSR/SOI Update.

5.1.b Formation

The County of El Dorado was one of the original 27 California counties, created on February 18, 1850, some two years after gold was discovered at Sutter’s Mill on the South Fork of the American River. The formation of the El Dorado Irrigation District took place on October 5, 1925, and was the culmination of the competing interests for the use of water in The County of El Dorado. The use of old mining ditches and flumes for conveyance of adequate water for domestic needs and agricultural irrigation was in direct competition with hydropower generation. In 1925, residents of The County of El Dorado voted to form the El Dorado Irrigation District to: protect the early (pre-1914) water filings; ensure a secure water supply; keep irrigation rates reasonable; and increase the value of agricultural lands. During the EID Board of Directors’ first meeting in 1925, “The question arose as to the water shortage for the coming irrigation season, and it was the consensus of the Board that every effort be made to bring about immediate relief.” (EID, 2011a)

Several years later, EID purchased the water storage and distribution system of the financially troubled El Dorado Water Corporation, which was formed in 1919 to control water and associated facilities. Those facilities and infrastructure comprised approximately 70 miles of main laterals and ditches, as well as Weber Reservoir, which the water corporation completed in 1924. For the next few decades, EID continued to search for new water supplies to meet the demands of a growing population. Faced with the Great Depression and other weather-related challenges, finances were constrained. Demand for water continued to rise, spurred by more land being placed in agricultural production, and an ever-growing population. By the 1950s, there were nearly as many people in The County of El Dorado as there were during the height of the 1850s–1860s mining days (EID, 2011a). Today, El Dorado Irrigation District is an independent special district operating under an elected Board of Directors.

5.1.c Boundary

The District serves approximately 230 square miles on the western slope of the Sierra Nevada mountains in The County of El Dorado, and a small portion of Sacramento County (see Figure 5-1). EID’s service area is generally bounded by Sacramento County on the west and the Pollock

Pines/Sly Park area to the east. The area north of Coloma and Lotus establishes the northern-most part of the service area, while the communities of Pleasant Valley and South Shingle Springs establish the southern boundary. EID's boundary area contains approximately 59,236 Assessor Parcels.

Since the year 2005, there have been 22 annexations of property into the District, thereby expanding the boundary area, as detailed in Table 10-1 in Chapter 10, Sphere of Influence. Nevertheless, there remain service area holes within EID's service boundary as shown in Figure 5-1. These service area holes are areas that do not currently receive water, sewer, or other services from EID. Some of these gaps came about by internal decisions regarding lands to annex prior to the establishment of LAFCO. From 1963 to 2000, El Dorado LAFCO strictly interpreted GC 56426 & 56426.6 to not annex lands under Williamson Act contract to any agency. Thus, other service area holes came into existence. At this time, there are no plans for LAFCO or EID to annex these service holes (unless the property owner makes a specific request).

EID's boundary also includes ten non-contiguous areas. These areas are within EID's boundaries but are somewhat separated from its primary service area. As a Special District, EID is allowed to have non-contiguous areas per state law. The ten non-contiguous boundary areas include the unincorporated areas of Outingdale, Fair Play, Rock Creek, El Dorado Ditch west, El Dorado Ditch east, Sands Flat Campground area, Strawberry, Echo Lake, Lake Aloha, and a small portion of the Silver Lake shoreline. Echo Lake, Lake Aloha, and Silver Lake function as water reservoirs for EID and therefore serve as an important part of the District's infrastructure². The District provides for two satellite water systems, one each in the non-contiguous communities of Strawberry and Outingdale.

Overlapping Boundaries

The boundaries of EID overlap with several adjacent agencies, such as the El Dorado Hills Community Services District, Cameron Park Community Services District, the City of Placerville, and other community services districts and fire protection districts. Appendix K provides a list of other public service providers that offer services to residents within EID's boundary and SOI area.

² Caples Lake is also an EID Reservoir; however, EID does not have a boundary area near Caples Lake. Please see Chapter 7 for additional details on reservoirs.

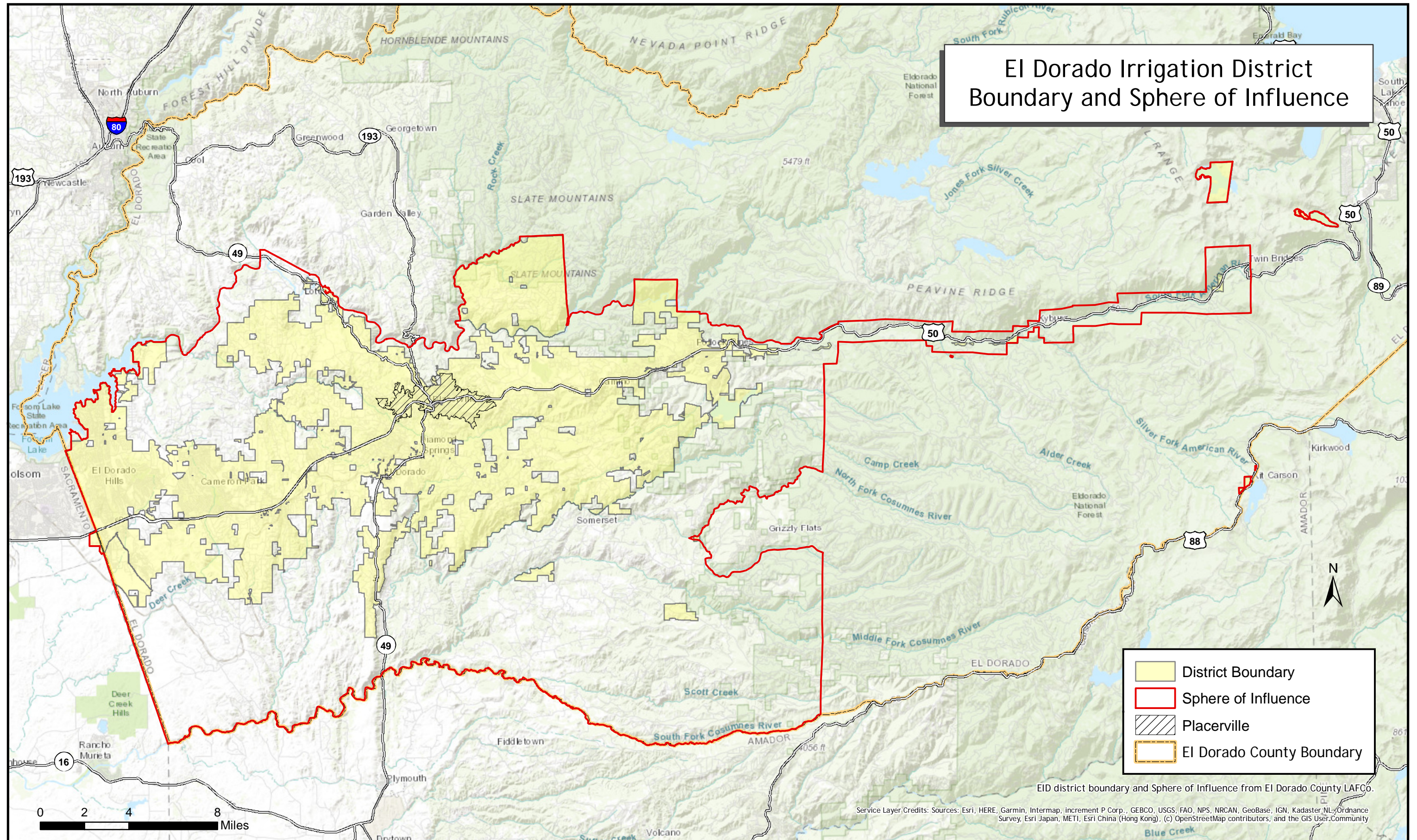


Figure 5-1

Extra-territorial Services

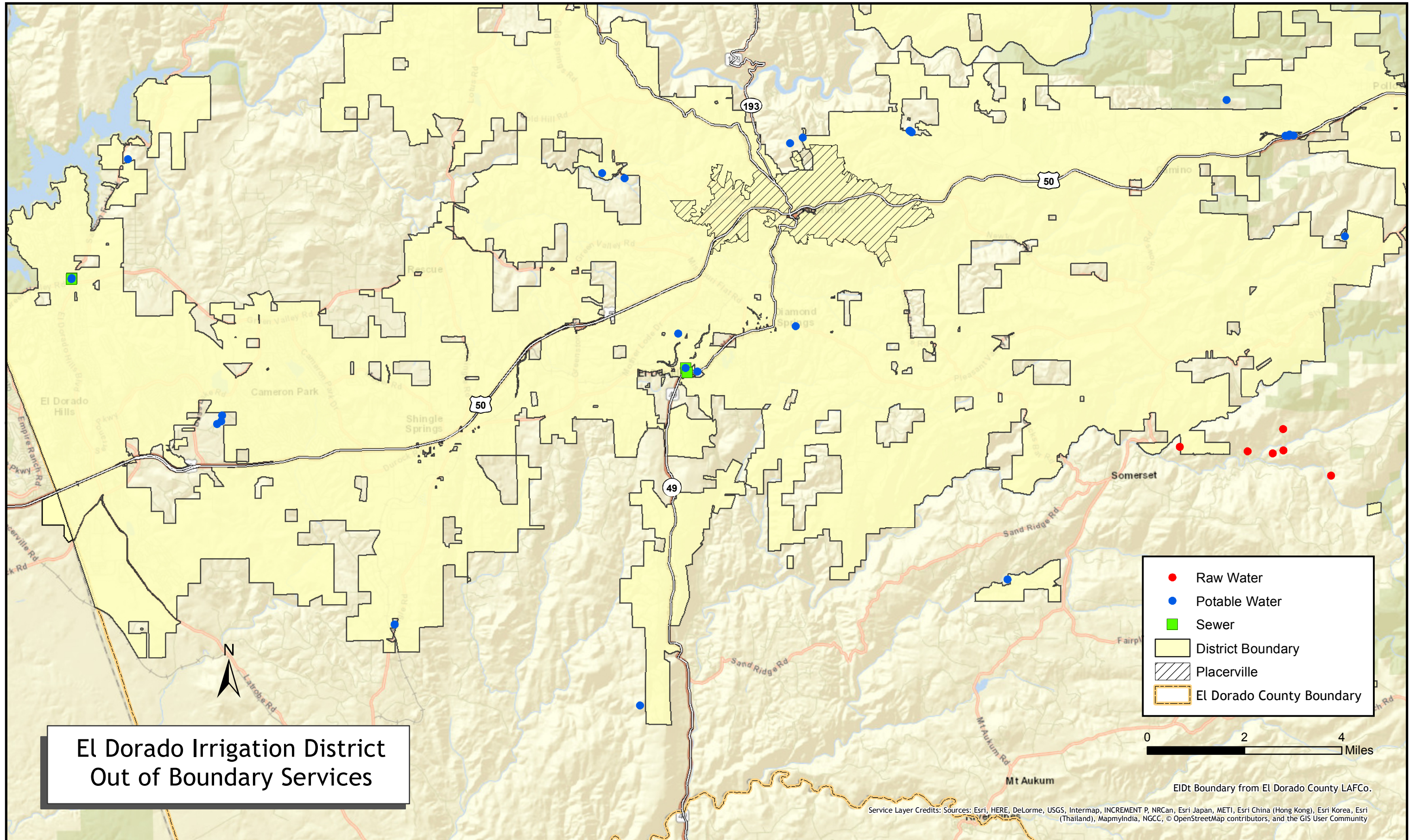
EID requires that parcels be within District boundaries to be eligible for service. An application for annexation is made to both EID and El Dorado LAFCO (EID, 2019t). However, EID will not process an annexation until LAFCO approval has been secured³. EID's approved policy, BP 9030, states that "The 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."

There are a few existing customers located outside the District boundaries, as shown on Figure 5-2 (next page), including the following:

- Wastewater, four (4) customers [APN's 331171014; 110321056; 110321058; and 331115003]
- Raw water, nine (9) customers [APN's 093021007; 093021019; 093021020; 093021022; 093060048; 093080009; 093090016; 093021023; and 093021048-002]
- Treated water, twenty-nine (29) customers [APN's 100130001; 076270003; 097010042; 076270005; 329171074; 331115003; 048440056; 048440055; 048440054; 048440053; 050220020; 087270067; 323030009; 050020039; 050020039; 331221009; 092040059; 119090069; 119090057; 317160005; 110321056; 046431022; 076270006; 077101056; 119090059; 076270009; 110321056; 110321058; and 126040020]

The District has recreation facilities that are located outside its established boundary; specifically, the recreation sites at Silver Lake in Amador County and Caples Lake in Alpine County. Please note that the recreation facilities that the District provides are open to the general public including those who reside outside the District boundaries. For example, park visitors may include local people from The County of El Dorado, and/or people from other counties, states or international countries.

³ EID staff will work on pre-annexation tasks (such as preparing the Facility Improvement Letter), prior to LAFCO approval.



**El Dorado Irrigation District
Out of Boundary Services**

Figure 5-2

Service Layer Credits: Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

5.1.d Sphere of Influence

El Dorado Irrigation District’s Sphere of Influence (SOI) was originally established by the Commission in the early 1970’s. The Commission voted to reaffirm the existing EID SOI on March 26, 2008 as described in Resolution L-2008-25. EID’s existing sphere of influence generally encompasses the southwestern portion of The County of El Dorado, extending east from the Sacramento County-The County of El Dorado Line between Folsom Lake on the north and the South Fork of the Consumnes River on the south. It is bounded on the north by Folsom Lake and Coloma, curving southeast along State Highway 49 to just north of Placerville and then northerly to cover communities from Mosquito to Pollock Pines. On the south, the existing SOI line extends along the South Fork of the Consumnes River to near State Highway 88 whereupon it traverses north past Grizzly Flats to an area east of Pollock Pines, thence easterly along the US Highway 50 corridor to Strawberry. In addition, there are a handful of satellite SOI and District Boundary areas within the eastern portion of The County of El Dorado surrounding the EID water supply reservoirs of Silver Lake, Echo Lake, and Lake Aloha. There is a small portion of the District Boundary outside of the SOI, located along the western portion of the County of El Dorado line and crossing into Sacramento County adjacent to Highway 50 (El Dorado LAFCO, 2008). Figure 5-1 shows the District Sphere of Influence and Boundary. There are 69,459 parcels located in the District’s SOI and boundary as described in Table 5-1, below.

Table 5-1: Geographic Summary (2018) for El Dorado Irrigation District

	<i>District Boundary</i>	<i>Sphere of Influence</i>	<i>Total Boundary & SOI</i>
Total Acres	147,465	237,065	384,530
Square Miles	230	370	600
Number of Assessor Parcels	59,236	10,223	69,459
<i>Data Source: GIS data from EID and The County of El Dorado</i>			

5.2: POPULATION

Growth and population projections for the affected area is a determination which LAFCO is required to describe, consistent with the MSR Guidelines from the Office of Planning and Research, and as set forth in the CKH Act. This section provides information on the existing population and future growth projections for the El Dorado Irrigation District, including the SOI. Appendix A at the end of this MSR/SOI Update provides detailed demographic and socio-economic information for The County of El Dorado, Sacramento County, and the City of

Placerville. Economic forecasts for The County of El Dorado are provided in Appendices B and C.

5.2.a Existing Population

EID currently has approximately 110,000 persons residing within its boundaries, and the District also provides water supply to the City of Placerville, which has an additional 11,048 persons. A total of 58 percent of The County of El Dorado residents reside within EID boundaries. Table 5-2 below shows the historic and existing population of EID, The County of El Dorado, and the City of Placerville. Population data for Sacramento County is not provided in Table 5-2 because the portion of EID that is located within Sacramento County is now within the City of Folsom and will be developed as part of the Folsom Ranch development project. However, detailed demographic information about Sacramento County is provided in Appendix A.

Table 5-2: Historic & Existing Population			
Year	2000	2010	2018
The County of El Dorado^{1,2}	158,288	181,058	190,678
City of Placerville¹	9,610	10,389	11,048
EID^{3,4}	84,243	107,470	110,000
Data Source: 1: Appendix A, Demographic Report for The County of El Dorado by Cubit Planning 2: California Department of Finance. July 2019. E-2. California County Population Estimates and Components of Change by Year—July 1, 2000-2010 3: EID Comprehensive Annual Financial Report for FY 17 and 18 4: EID 2015 Urban Water Master Plan. June 27, 2016. 280 pages			

Between 2000 and 2018, the population increased for all three population areas, with the largest increase occurring for The County of El Dorado as a whole. Within EID’s boundaries, the population increased by 25,757 persons between the years 2000 to 2018 which equates to an average annual growth rate of 1.4 percent. It should be noted that census tracts designated by the U.S. Census do not directly correspond to EID’s boundaries. Therefore, estimating the population within EID’s boundaries requires calculations based on data for the County as a whole and based on the number of EID customers.

Table 5-3: Population Details, El Dorado Irrigation District

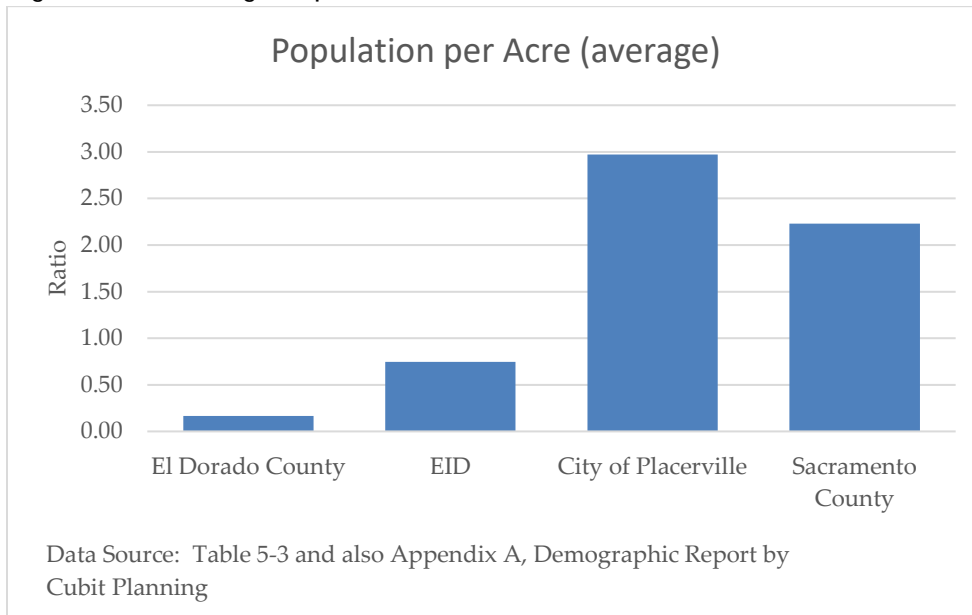
	2010	2018
Total population in Boundary	107,470	110,000
Total population in SOI only ⁴	n/a	19,015
Land area (acres)	140,800	147,465
# of Residential Units ²	n/a	~51,785
EID Water Customers	39,674	41,420
EID Sewer Customers ¹	n/a	23,191
<i>Data Source: 1) EID, 2019e, Response to LAFCO’s RFI. 2) Appendix A and 2015 Urban Water Management Plan Final. 280-pages.</i>		
<i>n/a indicates data was not available</i>		

Table 5-3 above provides a summary of population details for the El Dorado Irrigation District as of 2018. As described in Appendix A, the County of El Dorado contains a total of 89,286 housing units, which includes houses, apartments, mobile homes, group of rooms or single rooms that serve as separate living quarters. There are 68,084 households in the County. The difference between the number of housing units compared to the number of households may be indicative of vacation homes whose owners reside elsewhere and are not counted as a “household”. Assuming that 58 percent of the County housing units are located within EID’s boundaries, it is calculated that there are approximately 51,785 housing units, as listed in Table 5-3, above. The U.S. Census Bureau estimates that The County of El Dorado has an average of 2.55 persons per household.

Historically, communities such as Cool, Georgetown, Mt. Aukum, and Placerville were small, mixed-use communities where residents lived, worked, and shopped. Recently in the unincorporated area of The County of El Dorado, large lot, low-density residential development has introduced a more rural lifestyle throughout the County and has slowly transformed into areas characterized with dispersed residential uses. Figure 5-3 below shows the average number of residents per acre in each of the three studied population areas, The County of El Dorado, EID, and the City of Placerville. LAFCO consultants utilize the population per acre number as a metric because agencies that have a higher population per acre tend to have higher tax revenue as a result of more optimal leverage of land-use economics (Badger, 2012). The higher tax revenue relates to the financial determinations that LAFCO is required to make as described in Chapter 8, Finances, in this MSR.

⁴ Within EID’s boundary, there is an average of 1.86 persons per Assessor’s Parcel as shown in Table 5-1. 1.86 was multiplied by 10,223 Assessors Parcels within EID’s SOI to calculate 19,015 persons.

Figure 5-3: Average Population Per Acre



Existing Population in SOI

The population in EID’s SOI and outside the District Boundary is estimated to be 19,015 people based upon an average number of 1.86 persons per Assessor’s Parcel, shown in Table 5-1 and Table 5-3.

5.2.b Projected Population Growth

As a special district, the El Dorado Irrigation District does not have land-use authority. Therefore, population growth in the District is dependent upon the General Plan policies and land use designations of the land use agencies within its service area, including the City of Placerville and the County of El Dorado. Projecting future population growth for a District is complicated due to unknown factors associated with the annexation rate and census tracts that do not match up with District boundaries. For purposes of this MSR, several data sources⁵ were utilized to project

⁵ Sacramento Area Council of Governments (SACOG) is an association of local governments in the six-county Sacramento Region, including The County of El Dorado. Please note that the SACOG prepares population projections at the County and jurisdictional level to the year 2036. The authors of this MSR reviewed the SACOG projections and determined that they were mostly consistent with the projections prepared by the California Department of Finance (DOF). Since the DOF projections extend to the year 2060 and utilize a consistent methodology Table 5-4 reflects the DOF population estimates.

future population growth, including data from the California Department of Finance (DOF) and other data from EID's 2015 UWMP as shown in Table 5-4, below.

Table 5-4 below, provides two estimates of future growth within EID's boundaries. The first estimate was calculated based on historical data showing that 58 percent of The County of El Dorado's residents reside within EID's boundaries and DOF future population estimates. This predicts that in the year 2040, EID will contain 123,559 persons within its boundary and this represents an average annual growth rate of 0.5 percent between the years 2020 to 2040. The second estimate is based on a 1.03 percent average annual growth rate which is consistent with the projections provided in EID's 2015 UWMP (See Table 5-5) and with the April 8, 2014, Board of Supervisors directive to use a 20-Year housing and employment growth forecast that assumes a 1.03% annual housing growth rate. This 1.03 percent growth rate calculates that EID will contain 137,470 persons within its boundary by the years 2040.

5.3 LAND-USE AND DEVELOPMENT

5.3.a Existing Land Use

EID does not have the legal authority to make land use decisions. Most land-use decisions, initiated by private property owners over the last decade, are secured via entitlements and land-use permits from the County and other agencies. To some extent, population growth in the District is dependent upon land use, General Plan designations, and zoning of properties. This section summarizes existing land-uses, as the CKH Act requires LAFCO to make a specific determination regarding population and land use.

The County of El Dorado

Population growth in the El Dorado Irrigation District is dependent upon land use, general plan designations, and property zoning established by the County of El Dorado⁶. Because the vast majority of EID's service area is located within the boundaries of unincorporated portions of The County of El Dorado, much of the future growth for the EID area will be defined by the County's land use policies. The County encompasses 1,786 square miles. The County of El Dorado is centrally located between Sacramento County on the west and Lake Tahoe on the east. The County of El Dorado encompasses the foothill area into the Sierra Nevada Mountains and the terrain is characterized by rolling hills and mountains.

⁶ Less than 0.3 square miles, 191 acres, in Sacramento County are included within the EID service territory.

Table 5-4: Total Estimated and Projected Population: 2020 to 2060									
	Projections								
Year	2020	2025	2030	2035	2040	2045	2050	2055	2060
County Population per DOF¹	193,098	201,041	207,496	211,537	213,033	212,176	210,986	211,601	214,614
EID Population based on DOF²	111,997	116,604	120,348	122,691	123,559	123,062	122,372	122,729	124,476
EID Population based on 1.03 percent growth rate	111,997	117,885	124,080	130,605	137,470	144,700	152,305	160,315	168,740

¹Data Source: California Dept of Finance Demographics (DOF) Unit. 2020. P-1: State Population Projections (2010-2060) in 1-year Increments. Retrieved on January 21, 2020 from: <http://dof.ca.gov/Forecasting/Demographics/Projections/>.

²EID’s future population estimate was calculated based on historical data showing that 58 percent of The County of El Dorado’s residents reside within EID’s boundaries and DOF future population estimates.

Table 5-5: Projected Number of Housing Units: 2020 to 2045						
	Projections					
Year	2020	2025	2030	2035	2040	2045
New Housing Units Added in EID Boundaries	2,859	7,855	12,622	17,695	21,778	25,406
Total Housing Units in EID Boundaries	57,503	65,358	77,980	95,675	117,453	142,859

Data Source: EID, 2015 UWMP, Table 2-4

The northeast corner is in the Lake Tahoe Basin, which is considered part of the Great Basin, including a portion of the Lake itself. The El Dorado National Forest comprises approximately 43% of the County's land area, primarily on the western slope (The County of El Dorado. 2019). A portion of Folsom Lake is in the northwest corner of the County. Approximately 19 percent of the total land area in the County lies within the two incorporated cities: Placerville and South Lake Tahoe. Land-uses in The County of El Dorado includes single family residential, multi-family residential, commercial/institutional, industrial, agricultural, public uses, and recreational.

The County of El Dorado General Plan: The County plans for its future growth through its General Plan, which is a long-term comprehensive framework to guide physical, social, and economic development within the community's planning area. On July 19, 2004, the County of El Dorado Board of Supervisors adopted a new General Plan for the County. The General Plan was upheld by the voters in March 2005. The 2004 General Plan includes ten elements as listed below:

- Land Use
- Circulation
- Housing
- Public Services and Utilities
- Public Health, Safety and Noise
- Conservation and Open Space
- Agriculture and Forestry
- Parks and Recreation
- Economic Development
- Tahoe Basin Element
- Glossary

A new Housing Element was adopted in October 2013. Subsequently, on April 8, 2014, the Board of Supervisors directed staff to use a 20-Year housing and employment growth forecast, which assumes a 1.03% annual housing growth rate, with 75% of residential growth occurring within Community Regions and 25% occurring outside of Community Regions. The General Plan's Land Use Element was updated in August 2019. The 2019 General Plan Land Use Element provides five land use principles as follows:

- The General Plan establishes a land use development pattern that makes the most efficient and feasible use of existing infrastructure and public services;
- The General Plan provides guidelines for new and existing development that promotes a sense of community;
- The General Plan defines those characteristics which make the County "rural" and provides strategies for preserving these characteristics;

- The General Plan provides opportunities for positive economic growth such as increased employment opportunities, greater capture of tourism, increased retail sales, and high technology industries; and
- The General Plan provides guidelines for new development that maintains or enhances the quality of the County.

The General Plan Land Use Element provides four generic land-use categories, including rural/open-space, commercial/industrial, residential, and other, as listed in Table 5-5, below. The spatial distribution of the General Plan Land Use designations is shown in Figure 5-4.

Table 5-5: Land Use Categories in The County of El Dorado			
Generic Land Use Category	County General Plan Designation	~Acres Within Category	Percentage of Acreage
Rural, Open Space, Resource	RR, RL, A, NR, TR, OS	95,471	8.3%
Commercial, Industrial, Research	C, RD, I	6,700	0.6%
Residential	MFR, HDR, MDR, LDR	220,000	19.2%
Other Local Land Use	PF, AP, Roads	27,983	2.4%
Water		50,397	4.4%
City of Placerville		3,712	0.3%
City of So Lake Tahoe		10,623	0.9%
El Dorado National Forest		492,516	43.0%
Other State/Federal Land/Misc.		237,983	20.8%
Total Acres in The County of El Dorado		1,145,385	100%
<i>Data Source: The County of El Dorado. July 19, 2004. EDC GP EIR as modified in Response to Comments by Chapter 5.0 and Appendix D as published in the Exhibit B, CEQA Findings of Fact. 141-pages. Retrieved on January 22, 2020 from: <https://www.edcgov.us/government/planning/staffreport7-2004/documents/Att1_ExB_Findings.pdf>. Map of zoning Districts <https://edcapps.edcgov.us/maplibrary/html/ImageFiles/gi0072501.pdf></i>			

The 2004 General Plan for The County of El Dorado (as amended) aims to acknowledge that the County will continue to grow but will attempt to retain the qualities of its natural resource base in order to maintain its customs and culture and to assure its long-term economic stability. On December 15, 2015, The County of El Dorado updated its zoning ordinance to be consistent with its General Plan. The 2015 Zoning Ordinance Update consisted of targeted amendments to certain General Plan policies (TGPA) and land use designations, and a comprehensive update to

the Zoning Ordinance (ZOU) to bring it into conformance with the General Plan as required by Gov Code Section 65860. All changes to the ZOU were consistent with the existing General Plan land use designations and existing policies, or with the proposed amended policies and minor land use diagram corrections.

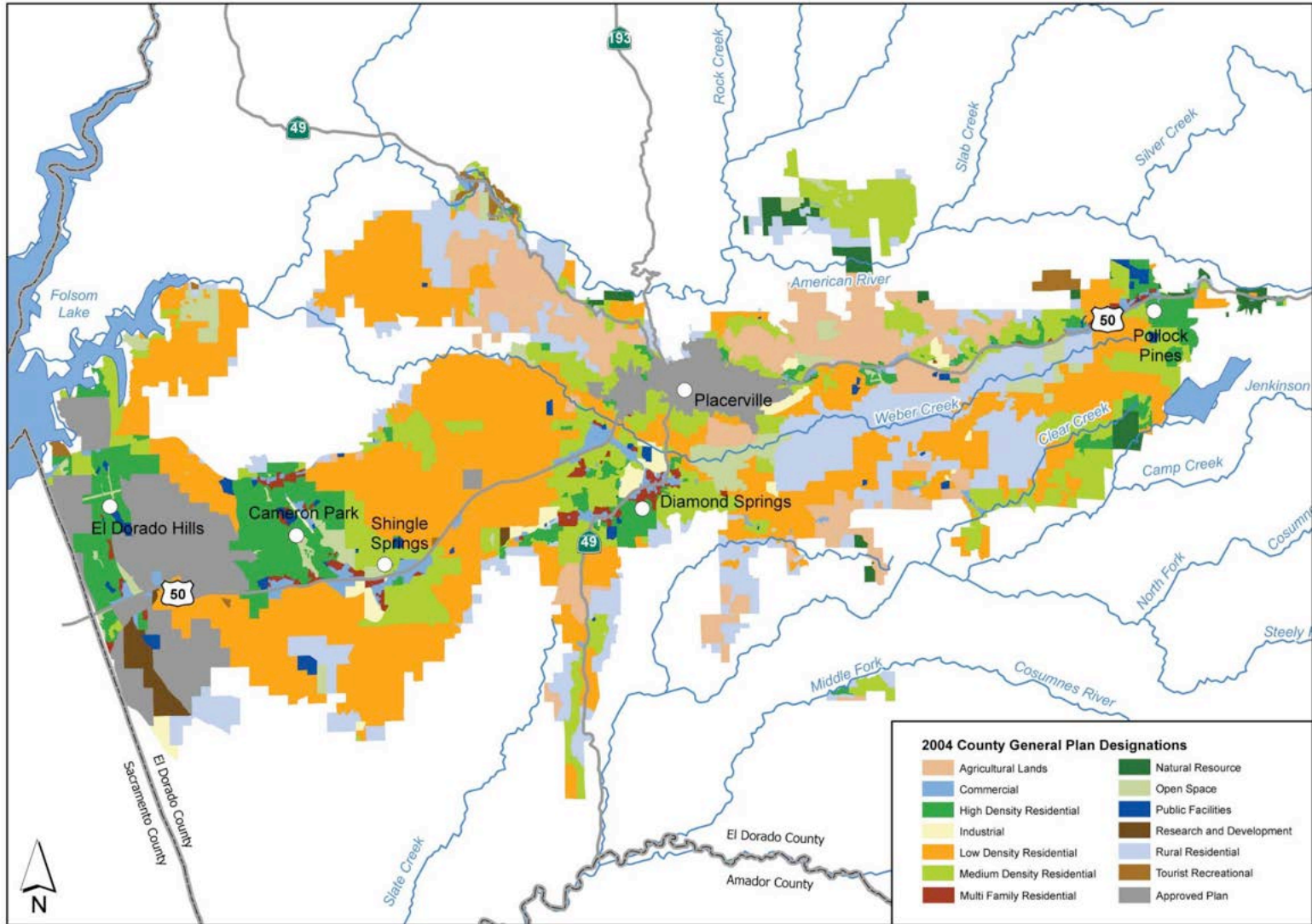
The County of El Dorado Traffic Control Measures: Local ballot measures to address traffic concerns are an indirect way to monitor and/or control growth associated with implementation of the County General Plan. The County of El Dorado has had several traffic control measures passed by voters in the past. Most recently, Measure E was approved by voters on June 7, 2016 by 52.35% of the voters. Measure E was a traffic control initiative seeking to enact or reinstate certain restrictions and policies concerning roads and traffic congestion, especially traffic issues related to new development. Subsequently, a lawsuit against Measure E was filed and The County of El Dorado Superior Court Judge Warren Stracener heard the case regarding the constitutionality of Measure E. Judge Stracener found that certain provisions of Measure E were unconstitutional because they would require developers to pay more than a project's fair share of costs to improve roads to mitigate the impacts of a project. He also held that another provision would interfere with the Board of Supervisors' ability to manage financial affairs of the County. At the same time, Judge Stracener upheld other provisions of Measure E, including its extension of the General Plan's prohibition of a project resulting in Level of Service (LOS) F to multi-unit residential projects, not just single-family projects. Judge Stracener's decision was subsequently appealed to California's 3rd District Court of Appeals and the parties await a court date to provide oral arguments.

Land Use in EID's SOI:

Within EID's existing sphere of influence, The County of El Dorado's General Plan⁷ provides land-use designations and planning policies. The County of El Dorado General Plan Land Use Element, as amended in August 2019, provides land use designations for parcels within the County. The SOI includes lands that are designated Natural Resources, Rural Residential, Open Space, Agriculture, and small clusters of Low Density Residential. There are 10,223 parcels located in EID's SOI (i.e. outside of the District boundary). Additional details regarding land use within EID's SOI is provided in Chapter 10 of this MSR.

⁷ EID has prepared a comprehensive list of the County General Plan policies that relate to EID's services and operations. This list can be found in a document entitled "Appendix C: Opportunities And Constraints Analysis of The County of El Dorado General Plan On The Sly Park Recreation Area Master Plan" 19-pages, written as part of the Sly Park Recreation Area Master Plan and found on the following website: <<https://www.eid.org/Home/ShowDocument?id=363>>.

Figure 5-4: General Land Use Map - The County of El Dorado



Source: 2013 Integrated Water Resource Management Plan, El Dorado Irrigation District.

City of Placerville

The City of Placerville was incorporated in 1854 and is located within The County of El Dorado, encompassing roughly 5.82 square miles. The junction of State Routes 49 and 193, and U.S. Highway 50 intersect at Placerville. The City is the County of El Dorado seat and the regional center for transportation, business, commerce, and tourism. The City's established historic downtown provides for a mix of commercial, industrial, public, and residential land-uses. Placerville's existing population of 11,048 persons is described in Table 5-1 with detailed demographic information provided in Appendix A. This population equates to an average of 2.97 persons per acre as shown in Figure 5-3. Placerville lies within EID's eastern service region. The City owns and maintains local water lines and water meters. The City purchases approximately 1,200 acre-feet of potable water annually from EID through several bulk water meters and then the City distributes that water to its customers (EID, 2016b). In 2006, the City had 3,064 water service accounts of which 85 percent were residential, 14 percent were commercial and multi-family residential, and 1 percent were City connections. This distribution is expected to remain relatively constant through 2030. EID provides direct water service to a small portion of the City. LAFCO approved a MSR and SOI Update for the City of Placerville on August 23, 2017.

City of Placerville General Plan: The City of Placerville General Plan was adopted in January 1990 via Resolution No. 5133, with the Land Use and Housing Elements were subsequently amended, most recently on October 2016. The City's General Plan serves as the overall guiding policy document for land use, development, and environmental quality for the City. The Land Use Element of the General Plan designates the general distribution and intensity of all present and future uses of land in the community. As part of the General Plan, the General Plan Diagram is the site-specific map that illustrates the desired arrangement and location of land uses. The City's updated General Plan contains a number of policies that serve to promote development on vacant and underdeveloped properties.

Sacramento County

Approximately 191 acres (0.3 square miles) of EID's service area is located within Sacramento County, specifically within the City of Folsom, south of Highway 50. Sacramento County consists of approximately 994 square miles of diverse geography with 965 square miles of land and 29 square miles of water. Sacramento County extends from the low delta lands, north to about ten miles (16 km) beyond the State Capitol and east into the foothills of the Sierra Nevada Mountains. The western portion of Sacramento County lies within the primary zone of the Sacramento-San Joaquin Delta. The County's existing population of 1,567,975 persons is described in Appendix

A and this population equates to an average of 2.33 persons per acre as shown in Figure 5-3 (CA DOF, 2019). On November 9, 2011, the Sacramento County Board of Supervisors adopted an updated General Plan. The updated General Plan's planning horizon looks out to 2030. This General Plan includes a new growth management strategy, a stronger focus on addressing existing communities and revitalizing aging commercial corridors, a new Economic Development Element, and strategies to reduce greenhouse gas emissions consistent with state law (Sacramento County, 2019).

City of Folsom

The El Dorado Irrigation District boundary includes 191 acres (0.3 square miles) within the City of Folsom, south of Highway 50. This 191-acre area was annexed to the District in the early 1980s. EID has indicated that it has adequate supply and treatment capacity at both water and wastewater plants to serve this area, including a planned development project called Folsom Heights. To finance the service provision to this project, EID's Board of Directors approved a resolution authorizing a joint Community Facilities Financing Agreement with the City of Folsom for the 530 residential and commercial unit development called Folsom Heights. Under this Agreement, the City of Folsom will finance the design, construction and installation of capital facilities within the Community Facilities District #22 (Mello-Roos) through the sale of bonds. The water and wastewater facilities will be operated and maintained by EID. A specific plan approved by the City of Folsom covers the 191 acres located within EID's boundary and the specific plan establishes land-uses for this area as residential, commercial, and open space (Folsom, 2017).

Regional Transportation Plans & Sustainable Community Strategies

All regions in California must complete a Sustainable Communities Strategy (SCS) as part of a Regional Transportation Plan (RTP), consistent with the requirements of state law, Senate Bill (SB) 375. Senate Bill 375 requires California's 18 metropolitan areas to integrate transportation, land-use, and housing as part of an SCS to reduce greenhouse gas emissions from cars and light-duty trucks. Senate Bill 215 (Wiggins) was approved by the California legislature in 2009 and chaptered in 2010 as part of Government Code Section 56668, relating to local government. This bill requires LAFCOs to consider regional transportation plans and sustainable community strategies developed pursuant to SB 375 before making boundary decisions. In the Sacramento Area Council of Governments (SACOG), the Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS) for the Sacramento region pro-actively links land use, air quality, and transportation needs. SACOG works together, along with local governments, to develop the MTP/SCS that meets greenhouse gas reduction targets adopted by the California Air

Resources Board. The SACOG board adopted the 2020 MTP/SCS and accompanying documents at a special board meeting on November 18, 2019.

The following is excerpted from the Draft 2020 MTP/SCS and is relevant for the EID's projected growth. "Nearly two-thirds of the region's new housing and 85 percent of its job growth is expected to be in Centers and Corridors, and Established Communities (i.e., existing suburbs, downtowns, commercial corridors, and the buildout of today's existing suburbs). The remaining third of new housing and 15 percent of job growth is expected to be in more than two-dozen new Developing Communities (i.e., greenfield areas), mostly located at the edge of established communities and in scattered rural residential areas. With more homes and jobs in existing communities, it is anticipated the region will look different in 2040. Today's new suburbs will build-out to become tomorrow's mature neighborhoods. New suburban development will occur more slowly in the next 20 years compared to the last 40 years. And, today's aging suburban commercial corridors and old downtowns will transform with new business uses, homes, and amenities" (SACOG, February 2016).

SACOG works in coordination with the County of El Dorado Transportation Commission (EDCTC) to ensure consistency between the county-specific plans and the broader region-wide plan. The EDCTC is responsible for coordinating regional transportation planning for the western slope of The County of El Dorado. Being the State-mandated Regional Transportation Planning Agency, EDCTC prepares the Regional Transportation Plan and Improvement Program for the Western Slope. EDCTC will coordinate any active transportation plans with the County of El Dorado Regional Transportation Plan and the Sacramento Area Council of Governments Metropolitan Transportation Plan/Sustainable Communities Strategy.

5.3.b Open Space & Agriculture

El Dorado LAFCO's policies require that a MSR/SOI offer a determination about the effect that a district's service provision will have on open space and agricultural lands. To analyze this factor, geographic data was collected. Farmland and grazing land totals 163,448 acres within the EID boundary and another 179,883 acres are in the SOI as shown in Figure 5-5, next page. For purposes of this MSR analysis, Open Space data was derived from the County General Plan land-use data, and the GIS map (Figure 5-5) was clipped to show EID's boundary and SOI. Open Space within the EID boundary includes approximately 6,728 acres with an additional 12,555 acres in the District's SOI.

Similar to most irrigation districts in California, EID's effect on open space and agricultural lands is a tradeoff among both positive and negative effects. Positive effects on open space and agriculture includes careful management of water resources and the support of farms and parks through delivery of raw and treated irrigation water. Many types of farms, such as orchards, do require irrigation water in order to be productive and these farms may have access to groundwater through private wells or access to surface water. Other types of farmland such as grazing or dryland farming do not require irrigation water. EID also protects watershed lands near its reservoirs and offers recreation experiences consistent with its FERC permit as described in Chapter 7 of this MSR. Potential negative effects of an irrigation district's operations include the consumptive use of water, such as the diversion of surface water from local rivers and other aquatic habitats, and air quality emissions from district vehicles and equipment. EID's water diversions and operations are in accordance with applicable licenses and permits from regulatory agencies, with corresponding environmental analysis.

LAFCO also has an interest in documenting the conversion of agricultural and open space lands to other land use types, such as residential use. Municipal government agencies, such as The County of El Dorado and the City of Folsom, make the land-use decisions consistent with their General Plan and zoning. EID plays an indirect role in these types of land-use conversions through the provision of water, sewer and other services to specific geographic regions within its boundary. For example, EID may sometimes be classified as a responsible agency under CEQA. EID and LAFCO consult regarding decision about whether lands may be added to the boundary and/or SOI and follow the procedures in existing ordinances and laws such as the CKH.

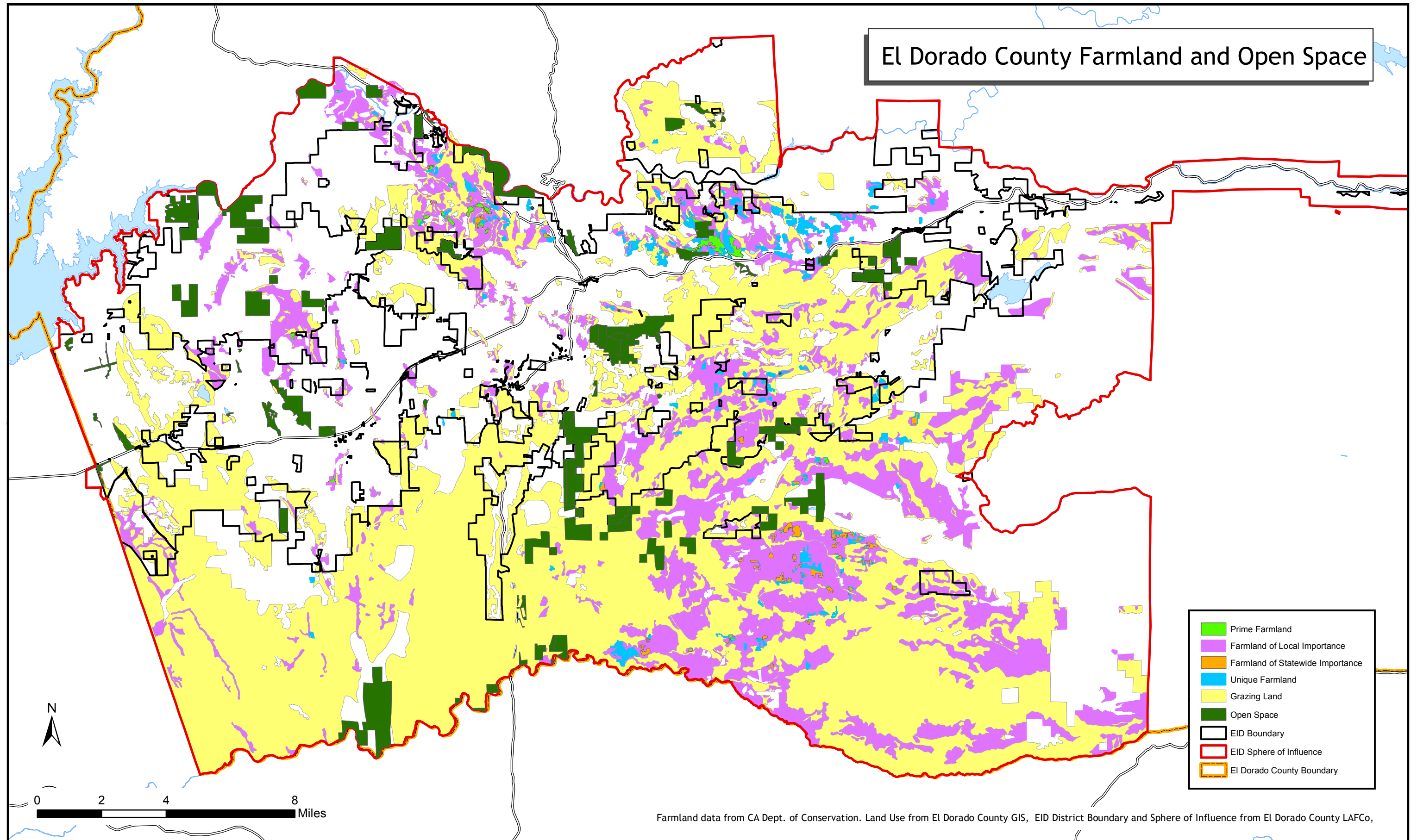










Figure 5-5

5.4: DETERMINATIONS: DISTRICT OVERVIEW, POPULATION, AND GROWTH

Table 5- 6: Summary of District Overview, Population, & Growth Indicators and Determinations		
Indicator	Score	Determination
Existing Boundary	◆	<p>Within its 147,465-acres (230 square mile existing boundary area, the El Dorado Irrigation District (EID) provides the following public services:</p> <ul style="list-style-type: none"> ▪ Raw untreated water for agricultural irrigation; ▪ Water treatment and distribution for residential, commercial, municipal and agricultural purposes; ▪ Wastewater collection, transport, treatment, disposal; ▪ Recycled water production, and distribution for irrigation purposes ▪ Recreation and parks service; and ▪ Hydropower.
Existing Sphere of Influence	◆	<p>EID’s SOI was initially established by LAFCO, in consultation with EID, around 1973. EID’s SOI was last affirmed in 2008. In addition to its 147,465-acre boundary area, EID’s existing sphere of influence covers an additional 237,065 acres. EID’s boundary area and SOI encompass a total of 384,530 acres.</p>
Extra-territorial Services	◆	<p>Parcels within District boundaries are eligible for service. An application for annexation is made to both EID and El Dorado LAFCO. There are a few existing water service customers located outside the District boundaries including 10 raw water customers and approximately 30 potable water customers.</p>
Existing population	◆	<p>The existing population in the EID service area is estimated to be 110,000 persons (as of year 2018). EID experienced an average annual growth rate of 1.4% between the years 2010 to 2018 as detailed in Table 5-2.</p>

<p>Projected population in year 2040.</p>		<p>Between the years 2020 to 2040, an additional 11,562 persons are expected to reside within EID’s boundaries as shown in Table 5-4. This represents an overall ten percent increase in projected future population (or 0.5% per year). This will bring the total population within EID’s service area in the year 2040 up to approximately 123,559 persons.</p>
<p>District boundaries contain sufficient land area to accommodate projected growth.</p>		<p>Currently, EID’s boundary area supports an average of 0.75 persons per acre which is considered to be a very low population density. The existing data described in this MSR suggests that the El Dorado Irrigation District has capacity to accommodate the population growth until 2040</p>
<p>The County of El Dorado adopts and maintains a General Plan that is sufficient to inform LAFCO actions and sufficient to provide EID with information about anticipated future growth for purposes of infrastructure planning.</p>		<p>The County of El Dorado’s General Plan was adopted in 2004. Individual elements have been updated on an individual basis. The 2013-2021 Housing Element was adopted in October 2013, with the most recent update occurring to the Land Use Element in August 2019. The County of El Dorado General Plan is sufficient to provide EID with information about anticipated future growth for purposes of infrastructure planning.</p>
<p>Effect that the District’s service provision will have on open space and agricultural lands.</p>		<p>Farmland and grazing land totals 163,448 acres within the EID boundary and another 179,883 acres are in the SOI as shown in Figure 5-5. Open Space within the EID boundary calculates to 6,728 acres with an additional 12,555 acres in the District’s SOI.</p>
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

CHAPTER 6: DISADVANTAGED UNINCORPORATED COMMUNITIES

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Disadvantaged unincorporated communities¹ may sometimes be overlooked during the comprehensive infrastructure and land use planning processes due to their socioeconomic status. A Disadvantaged Unincorporated Community (DUC) is generally an area of inhabited territory located within an unincorporated area of a County in which the annual median household income (MHI) is less than 80 percent of the statewide MHI. This Chapter considers the basic infrastructure requirements for a DUC, such as water, sewer, and structural fire protection, as they relate to disadvantaged unincorporated communities in the boundary and sphere of influence for the EID.

6.1: LEGAL CONTEXT OF DUCS

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH Act) requires LAFCO to make a determination regarding the location and characteristics of any disadvantaged unincorporated communities within or contiguous to the Sphere of Influence of a City or Special District. State law considers an area with 12 or more registered voters to be an inhabited territory.

¹ Communities that meet the criteria for a “disadvantaged” community, may be eligible for grants to assist with infrastructure improvements and these grants and programs are described in Appendix H.

Senate Bill (SB) 244 (Wolk), which became effective in January 2012, requires LAFCO to consider the presence of any DUCs when preparing a Municipal Service Review (MSR) or Sphere of Influence (SOI). The elements of the bill that impact LAFCO operations and authority have been codified into two sections of State Law: Section 56430(3) requires that prior to preparing or updating a SOI, LAFCO shall determine the adequacy of sewers, municipal and industrial water, and structural fire protection within any DUC; and Section 56425(e)(5) which requires LAFCO to consider the present and probable need for sewers, municipal and industrial water, and structural fire protection for any DUC within the existing SOI prior to updating the SOI. One intent of SB 244 is to encourage local agencies to bring services to the disadvantaged communities up to the same standard as surrounding communities.

SB 88 (Committee on Budget and Fiscal Review), Chapter 27, Statutes of 2015, authorized the State Water Resources Control Board to order a consolidation of neighboring drinking water systems where it is economically feasible in order to address public health threats.

SB 1215 (Hertzberg) allows Regional Water Quality Control Boards to order the provision of sewer service to a disadvantaged community that has inadequate onsite sewage treatment systems. Signed—Chapter 982, Statutes of 2018.

Assembly Bill (AB) 600 (Chu) was introduced in February 2019 and later amended in April 2019. The Bill was approved by the Governor, filed with the Secretary of State on October 8, 2019, and then chaptered in CA Government Code Section 56375. AB 600 addresses annexation of areas 10 acres or more within or near DUCs.

As previously mentioned, SB 244 requires LAFCO to consider the presence of any DUC when preparing a MSR that addresses agencies that provide water, wastewater or structural fire protection services. The Wolk Bill created several definitions related to DUCs, in both LAFCO and planning law, including²:

1. “Community” is an inhabited area within a city or county that is comprised of no less than 10 dwellings adjacent to or in close proximity to one another;
2. “Unincorporated fringe community” is any inhabited and unincorporated territory that is within a city’s SOI;

² State of California, Senate Bill 244 (Wolk Bill) (October 7, 2011).

³ Baseline Data used is for 2016

3. “Unincorporated island community” is any inhabited and unincorporated territory that is surrounded or substantially surrounded by one or more cities or by one or more cities and a county boundary or the Pacific Ocean;
4. “Unincorporated legacy community” as a geographically isolated community that is inhabited and has existed for at least 50 years; and
5. “Disadvantaged unincorporated community” is inhabited territory of 12 or more registered voters that constitutes all or a portion of a community with an annual MHI that is less than 80 percent of the statewide annual MHI.

This state legislation is intended to ensure that the needs of these unincorporated communities are met when considering service extensions and/or annexations, in particular, water, wastewater, drainage, and structural fire protection services. El Dorado LAFCO does not have adopted policies relating to DUCs other than 6.10.4(c), specific to project time extensions.

6.2: MEDIAN HOUSEHOLD INCOME

To understand the geographic distribution of disadvantaged communities within the EID’s boundaries and SOI, seven sources of data were considered:

- El Dorado LAFCO data;
- CALAFCO DUC on-line mapping tool;
- U.S. Census;
- The County of El Dorado Housing Element (a Chapter of the General Plan) (2013);
- CA Department of Water Resources Disadvantaged Communities On-Line Mapping Tool;
- Geographic Information System (GIS) data; and
- Population and demographic data for El Dorado and Sacramento Counties as presented in Appendix A.

Relevant data were reviewed for The County of El Dorado including the relevant census tracts and census blocks. The statewide annual median household income (MHI) in California³ for the year 2016 was \$63,783 (U.S. Census, 2019). The year 2016 is utilized as the baseline year for this DUC analysis because it is the most recent year for which numerical and spatial (GIS) data is consistently available. Eighty percent of the statewide MHI (2016) equals \$51,026 and this is the

³ Median income data from: <<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>>.

threshold used to determine which geographic areas qualify for classification as disadvantaged communities.

A census tract is a geographic area defined by the United States Census Bureau and used for the census. The geographic size of census tracts varies widely depending on the density of population; a census tract typically has around 4,000 residents, but can range from 1,200 to 8,000. Census tracts are further divided into census block groups, generally defined to contain between 600 and 3,000 people. Guidance from CALAFCO, as presented in their 2016 Annual Conference proceedings, recommends using Census Block Groups because it is the most uniform income data available statewide. Data for this report was collected from the 2012-2016 American Community Survey 5-Year Estimates, at the census block group level. Census tracts were examined and the applicable census block information was extracted to attempt to avoid redundant counts.

6.3: ANALYSIS OF DISADVANTAGED COMMUNITIES IN OR NEAR EID BOUNDARY & SPHERE

There are several disadvantaged unincorporated areas located fully or partially within the EID service territory and Sphere of Influence, including four Census tract areas and 13 Census block areas, as shown in Table 6-1 and Table 6-2 below. There is overlap between the census tracts and the census block groups as shown on the map of DUCs presented in Figure 6-1. Table 6-1 provides demographic details for the four census tracts: 310, 311, 313.02, and 320.

Identification #	Name of Tract	Population	# of Households	Median Income (2016)
310	Census Tract 310	5,686	2,247	\$41,993
311	Census Tract 311	5,023	2,125	\$48,398
313.02	Census Tract 313.02	4,932	1,946	\$38,627
320	Census Tract 320	793	322	\$43,482

Census Tract 310 is located north of Highway 50 and includes a portion of the northwest portion of the City of Placerville and the surrounding unincorporated area. Census Tract 310 contains 2,247 households with an annual median household income of \$41,993. Within Census Tract 310 is Block Group 310002. Block Group 310002 contains 586 households with a median household income of \$47,667.

Census Tract 311 is located north of Highway 50 and includes a portion of the northeast part of the City of Placerville and the surrounding unincorporated area. Census Tract 311 contains 2,125 households with an annual median household income of \$48,398. Within Census Tract 311 are two block groups 311003 and 311001. Block Group 311003 contains 670 households with a median household income of \$39,700. Block Group 311001 contains 953 households with a median household income of \$46,831.

Census Tract 313.02 is located in the center of the county and near the eastern part of the EID Service area. Census Tract 313.02 contains 1,946 households with an annual median household income of \$38,627. Within Census Tract 313.02 is Block Group 313023 located near Pollack Pines. Block Group 313023 is classified as severely disadvantaged with an annual median household income of \$24,583, which is the lowest household income listed in Table 6-1, below.

Census Tract 320 is located north of Highway 50 in the eastern part of EID’s service area. Census Tract 320 contains 322 households with an annual median household income of \$43,4823.

In addition to the census tracts listed above, Census Tracts 306, 308, 312, 314, and 315, contain block groups that meet the DUC threshold and are therefore classified as disadvantaged unincorporated communities as listed in Table 6-2, below.

Identification #	Census #	Block Group #	Population	# of Households	Median Household Income (2016)
306033	030603	3	1,226	606	\$48,571
308033	030803	3	1,666	797	\$49,280
308101	030810	1	2,557	952	\$41,471
310002	031000	2	1,274	586	\$47,667
310004	031000	4	1,454	502	\$32,829
311001	031100	1	2,192	953	\$46,831
311003	031100	3	1,532	670	\$39,700
312002	031200	2	2,294	945	\$38,594
313023	031302	3	1,789	819	\$24,583
314023	031402	3	1,401	529	\$48,414
315021	031502	1	2,654	925	\$36,528
315041	031504	1	1,574	672	\$40,227
315043	031504	3	834	370	\$42,045

The spatial distribution of the census tracts and census block groups within the EID boundaries is shown in Figure 6-1. EID's boundary encompasses mostly unincorporated land which has been developed over the years with small unincorporated subdivisions and rural neighborhoods. The City of Placerville also contains areas that meet the disadvantaged median household income threshold. However, because Placerville is an incorporated municipality, LAFCO is not required to make determinations about Placerville's disadvantaged areas in relation to services provided by EID.

The unincorporated areas are provided with numerous public services as listed in Table 3-1: Local Agency Service Providers, in Chapter 3 of this MSR. Water service to the DUCs shown in Figure 6-1 is provided by the El Dorado Irrigation District or by individual private wells. The installation of private wells is overseen by the County of El Dorado Health Department. Data about the current or long-term functioning of these wells was not readily available. However, the consulting team is anecdotally aware that some parcels located within the DUC area or SOI may have wells that do not provide sufficient water supply or quality. Individual property owners have trucked in water due to poor wells or lack of well. This issue could be further studied. When LAFCO next updates the MSR for EID, consideration of the status of private wells within EID's boundary or SOI is recommended. Appendix E, Regulatory Requirements for Municipal Water, contains additional detail about the regulatory issues associated with using groundwater, such as the Sustainable Groundwater Management Act and County permit requirements. Please note that Georgetown Divide PUD also provides water to portions of census block 306033. Wastewater services are provided either by EID or by individual septic systems.

Fire protection services are provided by local fire departments such as the El Dorado County Fire Protection District, Cameron Park CSD, Diamond-Springs FPD, Mosquito FPD, and Pioneer FPD. The California Department of Forestry and Fire Protection (Cal Fire) also provides fire protection services to the wildland areas located within the State Responsibility area. Placerville receives public services from the City of Placerville and from EID and the other service providers. Appendix K, Local Agency Service Providers, provides a map of water districts and fire districts in the County of El Dorado that provide public services to DUCs and other areas.

In summary, there are areas currently within the EID's boundary that may be considered disadvantaged unincorporated communities based upon the median household income being below 80 percent of the statewide average median household income. Due to the identified areas receiving essential municipal services of water, waste water and structural fire protection, there are not any communities within the existing EID boundary that lack public services, and no health or safety issues have been identified.

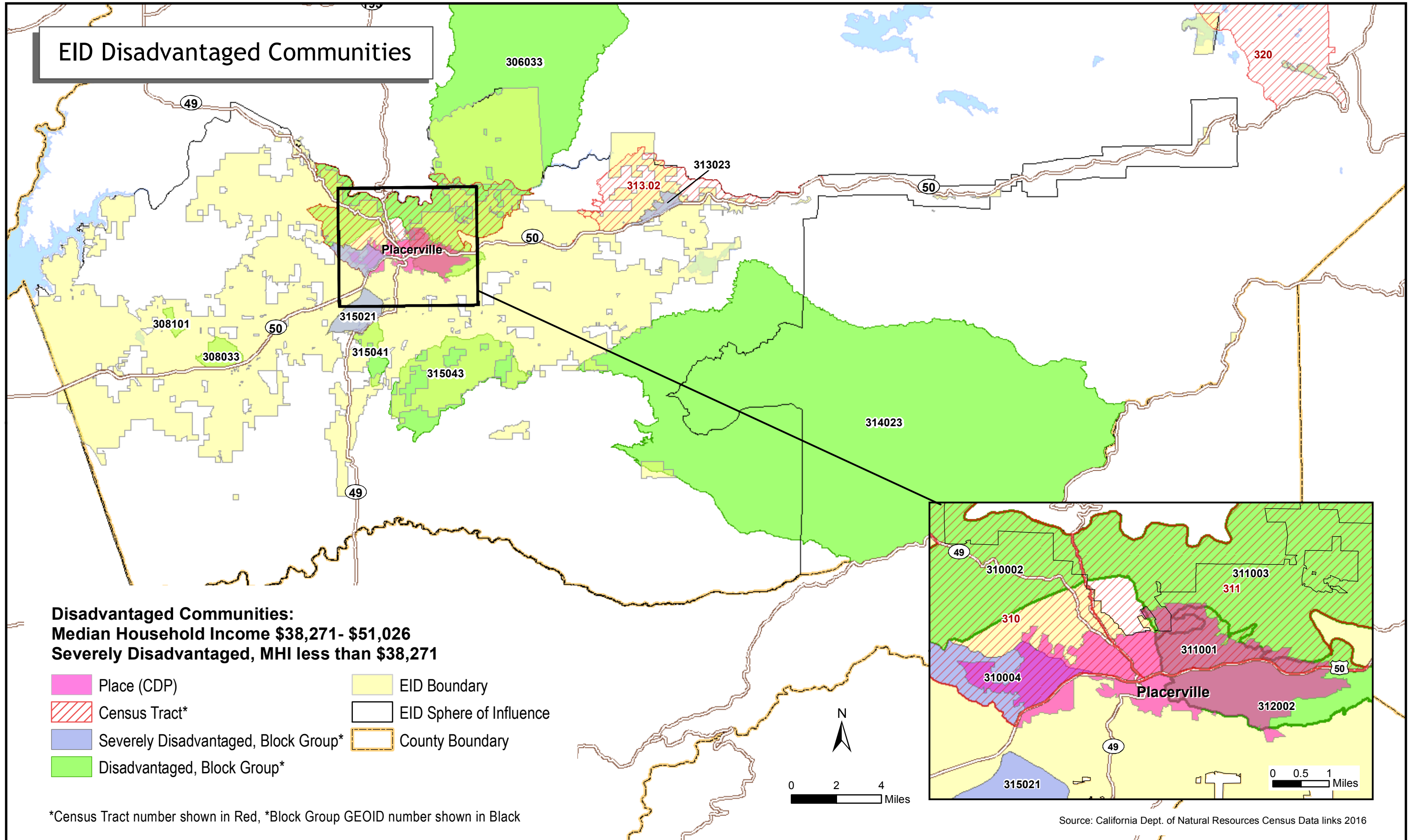








Figure 6-1

6.4: FINDINGS & DETERMINATIONS - THE LOCATION AND CHARACTERISTICS OF ANY DISADVANTAGED UNINCORPORATED COMMUNITIES WITHIN OR CONTIGUOUS TO THE SPHERE OF INFLUENCE

Table 6-3: Summary of Disadvantage Communities Findings & Determinations

Indicator	Score	Findings & Determination
<p>The median household income (MHI) is identified. The DUC threshold MHI (80 percent of the statewide MHI) is clearly stated. The MHI in the Agency’s boundary is described.</p>		<p>California’s median household income was \$63,783 in 2016. This yields a DUC threshold MHI of less than \$51,026. There are several census tracts and census block groups that meet the DUC threshold within EID’s boundary as shown in Figure 6-1.</p>
<p>Potential DUCs are considered. The provision of adequate water, wastewater, and fire protection services to DUCs is considered.</p>		<ul style="list-style-type: none"> • There are Disadvantaged Unincorporated Communities within or contiguous to the EID boundary and sphere of influence, including 13 Block Groups and four Census Tracts, some of which overlap the blocks as listed in Tables 6-1 and 6-2. • The DUCs are provided with numerous public services as listed in Table 3-1: Local Agency Service Providers, in Chapter 3 of this MSR. Wastewater services are provided to DUC areas either by EID or by small septic systems. Fire protection services to the DUCs described in this chapter are provided by local fire departments such as the El Dorado County Fire District and those described in Appendix K. No public health and safety issues have been identified. • Some of the DUCs described in this chapter do receive adequate water service from EID (as described in Chapter 7), Georgetown

	<p>PUD, or private wells. The installation of private wells is overseen by the County of El Dorado Health Department. The current or long-term functioning of these wells has not been comprehensively studied. Groundwater in these areas is sometimes located within fractured rock. It is possible that some property owners in DUC's may not have a well or may not have a non-functioning well, thereby necessitating a purchase of water from an outside source or delivery by truck. Within EID's boundaries, property owners are eligible to apply to EID for water service. However, the cost and feasibility of infrastructure extension is dependent on a range of variables and cannot be estimated at this time. To date no health or safety issues have been identified.</p> <ul style="list-style-type: none"> • The City of Placerville also has areas that meet the income threshold to be considered as disadvantaged.
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 	

CHAPTER 7: PUBLIC SERVICES AND INFRASTRUCTURE

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Flume 48 (a 60-year-old wooden flume with spillway)



7.1: WATER SERVICES

7.1.a: Water Supply, Conservation, and Treatment

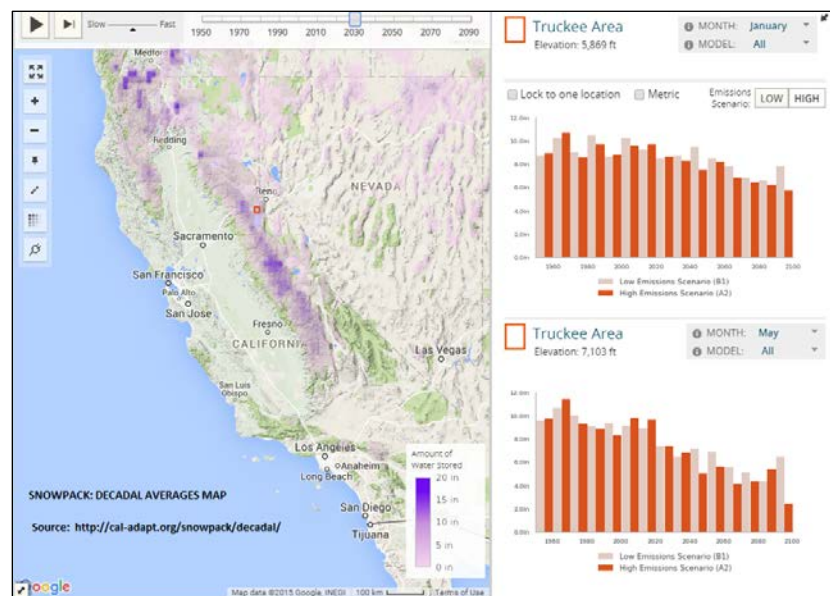
Overview of Water Service

The El Dorado Irrigation District (EID) is located mostly on the western slope of The County of El Dorado, with a small portion extending into Sacramento County. EID’s boundary areas are located within three different hydrologic regions: 1) the San Joaquin River Hydrologic Region; 2) the Sacramento River Hydrologic Region; and 3) the North Lahontan Hydrologic Region. A map and description of the watersheds is provided in Appendix J. All EID water is supplied from surface water as opposed to groundwater. EID’s raw water comes from storage reservoirs at Jenkinson Lake, Caples Lake, Silver Lake, Echo Lake, Lake Aloha, and direct diversion from the South Fork American River. EID also provides raw water service to customers on the Crawford Ditch, which diverts water from the North Fork Cosumnes River. A small satellite water system in Outingdale receives water from the Middle Fork Cosumnes River. Five of these reservoirs are utilized for recreation which is detailed in Section 7.4 - Recreation Services and Infrastructure. EID utilizes its water to generate clean energy with a 21-megawatt hydroelectric powerhouse detailed in Chapter Section 7.3, Hydroelectric Power, in this MSR/SOI. In addition, EID’s service boundary is described in Chapter 5 and is depicted in Figure 5-1: EID Existing Boundary and Sphere of Influence. In addition to EID, the County of El Dorado has several other water agencies including the Grizzly Flat CSD, South Tahoe Public Utilities District, McKinney Water District, and Georgetown Divide Public Utility District. However, the focus of this MSR/SOI is on EID only.

Water Resource Planning

Protecting water quality and maintaining an adequate water supply are critical for the future of the County of El Dorado region. Given this importance, EID and other regional and statewide agencies prepare a range of water resource management plans as described in the following paragraphs.

SNOW PACK NEAR TRUCKEE



Urban Water Management Plans (UWMPs) are prepared by California's urban water suppliers to support their long-term resource planning and ensure that adequate water supplies are available to meet existing and future water demands. The Urban Water Management Planning Act (CWC §10610 – 10656 supplemented by CWC §10608 et seq) specifies the requirements for UWMPs. EID adopted the District 2015 UWMP on June 27, 2016. This UWMP describes EID's existing water facilities, system water use, baselines, water system supplies, contingency plans, and water demand management measures. It is a comprehensive water planning document which describes existing and future supply reliability, forecasts future demands, presents demand management progress, and identifies local and regional cooperative efforts to meet projected water use (EID, 2016b).

EID adopted an Integrated Water Resources Master Plan (IWRMP) on March 31, 2013. This Plan provides a comprehensive program that optimizes the use of potable water and recycled water resources for the District. This plan provides a roadmap for the development of future infrastructure and maintenance of existing water and recycled water facilities for EID (EID, 2013).

EID is also required by the United States Bureau of Reclamation (USBR) to produce a Five-Year Water Management Plan, which was most recently updated in October of 2017. This plan is



prepared for water used pursuant to Central Valley Project (CVP) Water Service Contract No. 14-06-200-1357A-LTR1 (USBR, 2017). This document provides a detailed summary of the District, an inventory of water resources, and provides best management practices (BMPs) for agricultural and urban contractors (EID, 2016b).

The County of El Dorado Water Agency (EDCWA), a water agency authorized under Chapter 96 of the 1959 California Water Agency Act, developed the 2014 West Slope Update: Water Resources Development and Management Plan (WRDMP). This 2014 Update of the WRDMP includes projections for future water demand for West Slope water purveyors, including EID, for the year 2030 and build-out conditions, which were estimated for low, medium, and high growth rate scenarios. This document also includes a discussion of the current and potential future water conservation measures that could be implemented to further reduce projected demand (EDCWA, 2014a).

In 2014, EID prepared the 2014 Drought Action Plan, which serves as a detailed work plan for EID staff during drought conditions and includes specific actions for management of the District's

water supply and demand; addresses the impacts associated with drought; and facilitates the timely implementation of effective drought responses (EID, 2014b).

The 2018 American River Basin (ARB) Integrated Water Management Plan (IRWMP) is a comprehensive document which builds upon the IRWMP “Framework” and tools developed as part of the 2006 and 2013 IRWMPs, as well as local and regional planning efforts. This includes the North American Basin Regional Drought Contingency Plan; Regional Water Reliability Plan; Sacramento and San Joaquin Rivers Basin Study; and local climate action and sustainability plans. The 2018 ARB IRWMP Update also addresses the 2016 IRWMP Standards; highlights regional accomplishments in IRWM planning; and identifies actions to adapt to and mitigate the impacts of climate change.

Water Supply

The primary water sources for EID encompass approximately 77,590 acre-feet of water from various sources in the Sierra Nevada Foothills (EID, 2016b). All of EID’s water supplies come from surface water sources; no groundwater sources are utilized. The District maintains an interconnected potable water system that is divided into 12 primary service zones. There are also two satellite zones located within the main EID boundary and SOI. The EDH Supply Area of the primary interconnected potable water system obtains water supplies under rights and entitlements from Folsom Reservoir. The Western/Eastern Supply Area receives water from sources under rights and entitlements emanating from higher elevation alpine streams and lakes in the South Fork American River watershed and the Cosumnes River watershed (EID, 2016c). EID’s water system contains more than 1,105 miles of pipeline, 27 miles of ditches, 5 treatment plants, 36 storage tanks and reservoirs, and 38 pumping stations (EID, 2019x).

El Dorado Hills Supply Area

The El Dorado Hills Supply Area is one of three supply areas (Eastern Supply Area and Western Supply Area) that EID services (EID, 2019x). The water supply available to the El Dorado Hills Supply Area is estimated at 23,775 AF (EID, 2019x). This water is delivered from Folsom Reservoir consisting of 7,550 acre-feet (AF) from the USBR Water Service Contract; 4,560 AF from the ditch/Weber Reservoir Warren Act Contract; and 17,000 AF from the Warren Act Contract for Permit 21112 supplies (EID, 2016c). The El Dorado Hills Supply Area also receives water from Jenkinson Lake and Forebay via the Golden Hills Intertie. Wate supply for this area is included in Table 7-1 below.

Under California Water License 2184 and Pre-1914 Water Rights, EID diverts water from Weber Reservoir, Weber Creek, Slab Creek, Hangtown Creek and Mill Creek at Folsom Reservoir under

a long-term Warren Act Contract, with up to 4,560 AF available each year combined from these sources. The water is authorized for use for municipal and industrial purposes in the El Dorado Hills and lower Cameron Park areas (EID, 2016a).

El Dorado Hills County Water District (EDHCWD) entered into a USBR Contract in 1964 for water supply from Folsom Reservoir. EID bought the USBR Contract from EDHCWD in exchange for EID annexing the EDHCWD's service area and providing water services to those residents. In 1983 USBR increased the maximum annual supply quantity under this contract. The District also annexed and succeeded to the USBR Contract for 50 AF per year to supply the Lakehills area in El Dorado Hills. In 2006, these two contracts were consolidated into a single 40-year USBR Contract (USBR CVP Contract 14-06-200-1375A-LTR1) with a maximum diversion of 7,550 AF per year (EID, 2016b).

In 2001, the State Water Resources Control Board (SWRCB) granted EID the right to 17,000 acre-feet per year of water under water right Permit 21112, allowing the District to divert and store water supplies in Caples, Silver, and Aloha Lakes and then to redivert the water released from storage from the South Fork of the American River at Folsom Reservoir. There are no cutback provisions to this supply, meaning the full 17,000 acre-feet per year is considered a safe yield even during drought periods (EID, 2016b).

Western/Eastern Supply Area

The water supply for the Western/Eastern Supply Area consists of water from the South Fork of the American River, water stored and released from Project 184 reservoirs, and Jenkinson Lake.

California Water Licenses 11835 and 11836 allow EID to divert water from the upper Cosumnes River watershed to be stored at Jenkinson Lake, the largest storage reservoir in the District. Jenkinson Lake's maximum capacity is 41,033 AF, while 33,400 AF per year is allowed to be diverted from the Cosumnes River watershed to Jenkinson Lake. The District plans for roughly 23,000 acre-feet to be utilized per year. About half of the main system's water supply comes



Jenkinson Lake from Jenkinson Lake and is treated at the Reservoir A Water Treatment Plant (WTP) in Pollock Pines.

The District acquired Project 184 from Pacific Gas and Electric Company (PG&E) in 1999. Project 184 includes reservoirs and associated dams, 22 miles of canals, flumes and tunnels, and a 21-Megawatt powerhouse, and other ancillary facilities. The sources of this water supply include natural flows in the South Fork of the American River and its tributaries, and water stored in Silver Lake, Lake Aloha, Echo Lake, and Caples Lake. The supply is diverted from the South Fork of the American River at Kyburz and is conveyed via the El Dorado Canal to the El Dorado Forebay. At the El Dorado Forebay, water is used for hydropower purposes pursuant to the EID’s existing pre-1914 and hydropower appropriative water rights. Water used for hydropower is then returned to the South Fork below the powerhouse. At the El Dorado Forebay, EID also conveys up to 15,080 AF per year to the Main Ditch for treatment at the Reservoir 1 WTP for consumptive use.

Reservoir Name	Average Year Planned Supply (Acre-feet)	Maximum Water Assets Available (Acre-feet)
License 2184 and Pre-1914 Water Rights	4,560	4,560
Licenses 11835 and 11836	23,000	33,400
USBR Contract 14-06-200-1375A-LTR1	7,550	7,550
Project 184	15,080	15,080
Permit 21112	17,000	17,000
Total	67,190	77,590
<i>Source: EID UWMP, 2016b</i>		

Additional Water Supplies

The Outingdale Service Area was transferred to EID in 1970 when the subdivision was annexed to the District. The water supply is an independent satellite potable system and does not contribute to the two main systems. The water right (1933 appropriative water right Permit 4071) allows for a total diversion of approximately 104 acre-feet per year from the Middle Fork of the Cosumnes River to serve the Outingdale Subdivision. The subdivision is not yet at buildout conditions. Water rights from the Middle Fork of the Cosumnes River are subject to curtailment orders from California’s State Water Resources Control Board and DWR with the most recent reduction experienced in June 2014 which significantly reduced water delivered to this subdivision (SWRCB, 2014). During the water curtailment, EID trucked in potable water to meet public health and safety needs. In the 2018 Water Quality Report for the Outingdale system, there were no water quality violations from any sampling data (EID, 2018a).

The Strawberry Service Area is serviced by a small portion of the Project 184-related pre-1914 water rights. This water is diverted from the upper South Fork of the American River before being treated at the Strawberry WTP. Deliveries range from 30 acre-feet to 60 acre-feet per year. In the 2018 Water Quality Report for the Strawberry system, there were no water quality violations from any sampling data (EID, 2018b).

Water Treatment

EID operates three water treatment plants in its main system including the El Dorado Hills Water Treatment Plant (WTP), Reservoir A WTP, and the Reservoir 1 WTP. The three water treatment plants in the system have a total capacity of 116 million gallons per day (mgd) as of 2013 (EID, 2013). Raw water is filtered and disinfected at the El Dorado Hills WTP for use by customers located in the EDH Supply Area. Water for the Western/Eastern Supply Area is treated at two water treatment plants:

- Reservoir A WTP treats water released from Jenkinson Lake;
- Reservoir 1 WTP treats water derived from upstream American River watershed direct diversion and storage reservoirs via the Forebay Reservoir (EID, 2012).

As of 2013, the water treatment plants could operate at capacities with an excess of 36.0 million gallons per day (mgd) capacity when compared to production as described in Table 7-2 below. The “Capacity” column in Table 7-2, below, includes filtration limitations for the lower value and also indicates current design capacity at the higher value.

Water Treatment Plant	Capacity (mgd)	Max Day Production (mgd)	Excess Capacity (mgd)
Reservoir A	56 to 64	43	21
Reservoir 1	26	22.6	3.4
El Dorado Hills	19.5 to 26 ^[a]	14.3	11.7
Total	101.5 to 116	79.9	36.1
<i>Note [a]: As of the year 2020, capacity at the El Dorado Hills treatment plant is 19.5 mgd due to a filter limitation. At buildout, capacity at this plant will increase to 26 mgd (personal communication, EID’s D. Corcoran, July 2020)</i>			
<i>Source: Integrated Water Resources Master Plan (page 43, Table 2-2, 2013 and associated Appendices</i>			

Water from upstream diversions can be delivered by gravity feed to the El Dorado Hills Area. However, water from Folsom Reservoir cannot be delivered outside of the El Dorado Hills Area.

The 2013 Integrated Water Resources Master Plan (IWRMP) conducted modeling to review the capacity of EID’s water treatment plants at buildout consistent with the County of El Dorado

General Plan. Because there is limited ability to expand the existing water treatment plants, the IWRMP anticipates a new water treatment facility, supplied by the White Rock Diversion, would be constructed in the future as demands increase. The 2013 IWRMP estimated this to be needed by 2025, however demands have since slowed significantly and has delayed any near term need for a new water treatment plant. The new water treatment plant, initially with an estimated capacity of 10 mgd, would be located near the center of the District’s service area and uphill from areas with the highest demand growth, thereby facilitating gravity distribution of treated water in the future. In addition, the IWRMP recommends the development of Alder Reservoir to provide a significant new water source to the District as well as increase system reliability in the long term. The future reservoir would have a capacity of 31,700 acre-feet and a safe yield of 11,250 acre-feet. Water from Alder Reservoir could be taken from Jenkinson Lake via the Hazel Creek Tunnel; Forebay Reservoir; downstream at Folsom Reservoir; or at the proposed new point of diversion, the White Rock Diversion. Figure 7-1 below shows the forecasted demand and water production capacity for EID through buildout (EID, 2013). Increased growth and need for additional water have not occurred as fast as projected in the 2013 IWRMP. As a result, EID has not needed to construct the improvements discussed above and they are not included in the current CIP.

Figure 7-1: Forecasted Demand and Water Production Capacity – System-Wide to Buildout

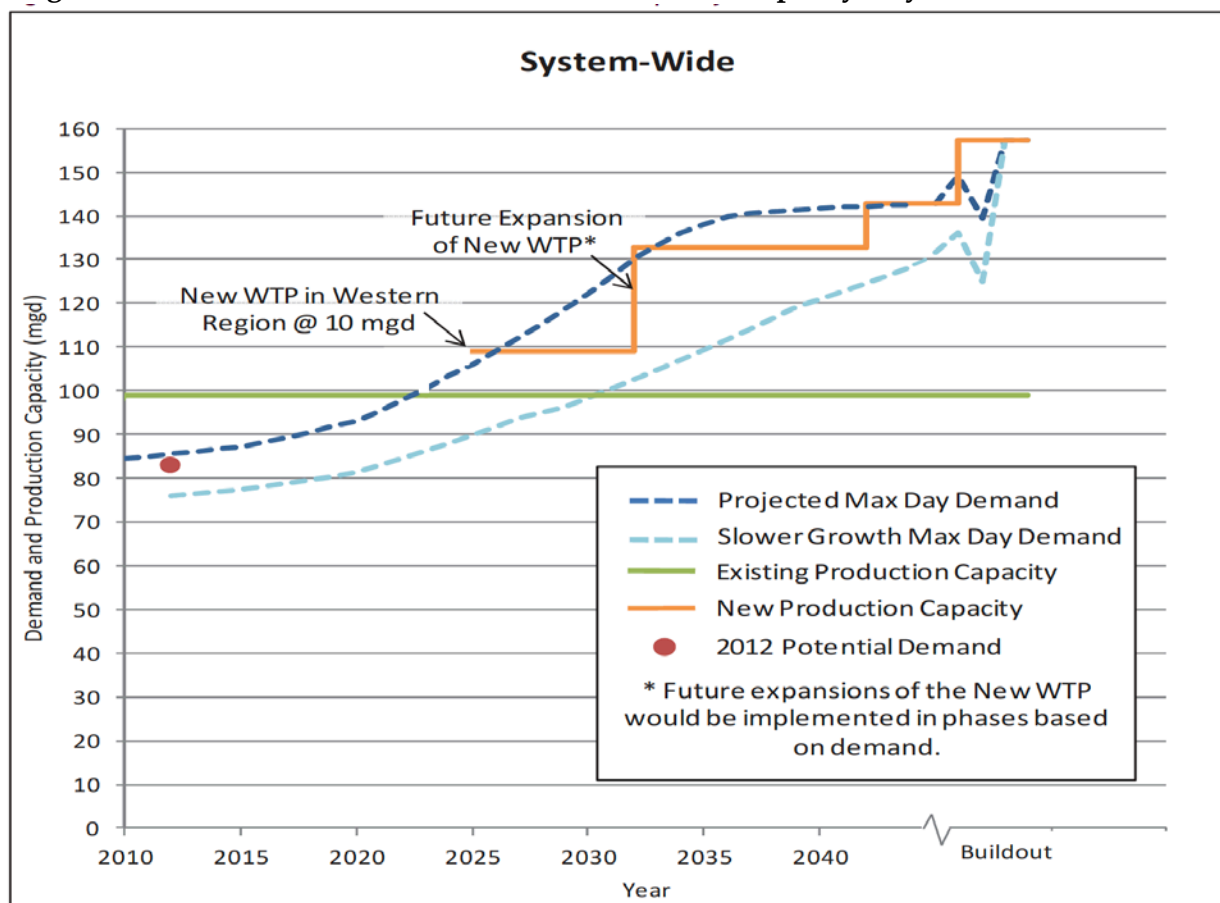


Figure 7-1 Source: EID IWRMP, 2013



EL DORADO HILLS WATER TREATMENT

Water Supply and Demand forecasts

According to the most recent UWMP, EID's forecast for existing and future planned average year water supplies is estimated to be 108,190 acre-feet by 2045 (EID, 2016b). When needed, EID has plans to expand existing water supplies to add an additional 37,500 acre-feet. Average year water demand is forecasted to be 58,815 acre-feet in 2045. Therefore, in an average year, EID's existing and planned supplies is estimated to exceed demands (EID, 2020c). However, based on water demand projections within the District's service area (reflecting a combination of continued conservation by existing customers and the addition of new customers over the planning horizon) under a multiple dry year

scenario, EID's existing and planned supplies will be cut back or reduced due to hydrologic factors, but will be adequate to meet forecasted demand in 2045 by approximately 7,262 acre-feet (EID, 2016 UWMP, Table 7-3). There are some seasonal variations in demand for municipal water services due to increases in the visitor population who are attracted to the area for popular skiing and winter recreation, as well as summer recreation opportunities. The biggest seasonal demand fluctuations are due to the high summer demand for irrigation.

EID's ability to meet future increases in demand beyond the year 2045 is uncertain as the El Dorado County Water Agency has found that for the entire west slope that "The preliminary results from applying the demand projection and climate hydrology in 2070 suggest a significant water supply-demand imbalance, especially during drought conditions, based on existing facilities and operations. Additional adaptation strategies are required for sustaining the socioeconomic conditions and way of life in the West Slope." (EDCWA, 2019)

Water Quality

The State Water Board requires water providers to conduct a source water assessment to help protect the quality of water supplies. This assessment describes where a water system's drinking water comes from, the types of polluting activities that may threaten the quality of the source water, and an evaluation of the water's vulnerability to these threats. Updated assessments of

EID's drinking water sources were completed in 2018. EID's source water is considered most vulnerable to recreation, residential sewer septic systems, and urban runoff activities, which are associated with constituents detected in the water supply. EID source water is also considered most vulnerable to illegal activities, dumping, fertilizer, pesticide and herbicide application, forest activities, and wildfires, although constituents associated with these activities were not detected.

To help ensure that safe water is delivered to customers, EID's water quality monitoring program includes taking samples of raw and treated water throughout the year from many locations in the District's service area. Analyses cover more than 100 different constituents. Analysis of the water is performed at state-certified commercial labs. The State of California allows EID to monitor for some contaminants less than once a year because the concentrations of the contaminants do not change frequently. In the 2018 Water Quality Report for the Main Water System, there were no water quality violations from any sampling data (EID, 2018c).

Existing Water Demand

Demand for municipal water service is primarily comprised of residential, commercial, agricultural and recreational turf water sales, other authorized uses such as operational flushing, water losses, and flows needed for fire prevention and other emergency services. EID's most recent 2015 Urban Water Management Plan, adopted in 2016, analyzed reliability of water sources during "average year," "single year" and "multi-dry years" to plan for "worst-case" water supply situations. In addition, the Plan includes a Water Shortage Contingency Plan which includes a four-stage response program to deal with water shortages over an extended period of time. Long term storage allows EID to calculate single dry year and multiple dry year values into planning priorities. As of 2015, single family water use accounted for the highest demand of potable water followed by losses (EID, 2016b).

Under a drought scenario, it is possible that available water supplies from Jenkinson Lake would diminish each successive year; and significant reduction of supplies available from the El Dorado-Sacramento Municipal Utility District (SMUD) Cooperation Agreement could also occur during dry years. A drought scenario also forecasts potential reductions in the CVP entitlements for Folsom Reservoir. It is anticipated that the water shortage contingency plan would be triggered in the second year of any future drought.

Table 7-3 shows a breakdown in number of connections and volume of water supplied to each water system within EID in 2015, and Table 7-4 details demands for potable and raw water as of 2015.

(Caples Lake)

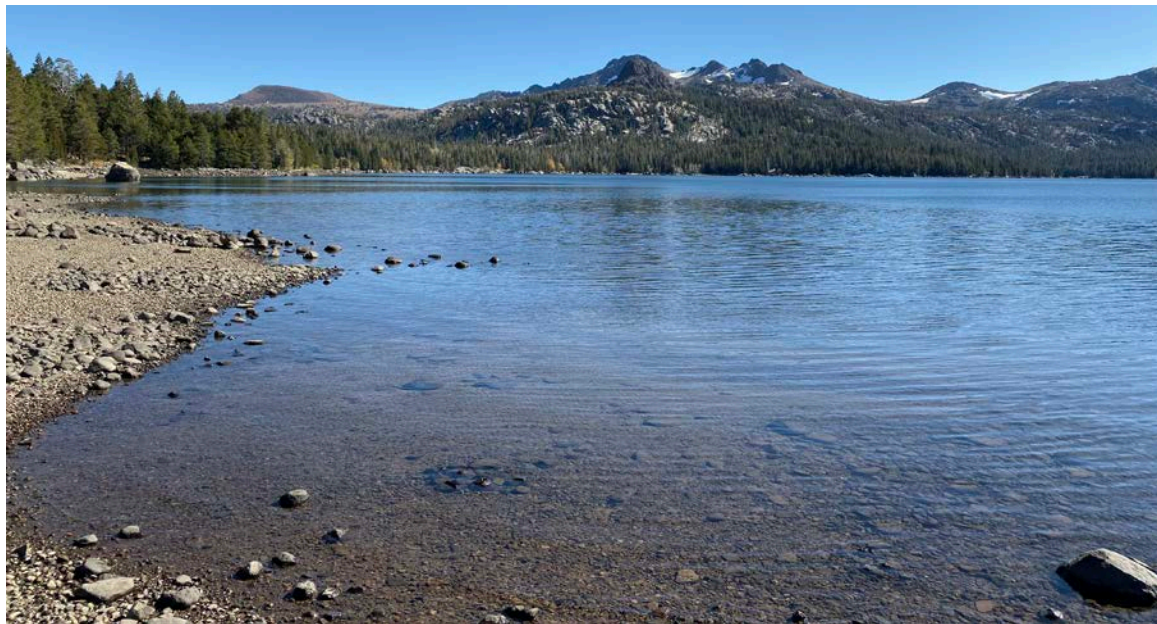


Table 7-3: Public Water System Connections & Supply Volume, 2015

Public Water System	Number of Municipal Connections	Volume of Water Supplied (in acre-feet)
Strawberry	148	24
Outingdale	190	14
El Dorado Irrigation District	46,684	22,543
Total	47,022	22,581

Source: EID UWMP, 2015

Table 7-4: Demands for Potable and Raw Water, 2015

Use Type	2015 Actual Volume (in acre-feet)
Single Family	10,680
Single Family (dual plumbed)	622
Multi-family	1,158
Commercial	2,267
Agricultural irrigation	4,358
Other	812
Sales/Transfers/Exchanges to other agencies	909
Losses	7,040
Total	27,846

Source: EID UWMP, 2015

The water demand data presented in Table 7-4, above, is informative because it compares water demand in relation to land-use type. However, the year 2015 was a drought year and demand in

this case is not indicative of long-term trends. EID’s annual consumption report is a timely resource for studying water demand. In August 2019, the District presented the 2019 Water Supply and Demand Report to the Board of Directors. This Report provides the most updated information regarding water supply and potential demand for both the El Dorado Hills Supply Area and the Western/Eastern Supply Area. Table 7-5 below shows 2019 water meter availability for the District in equivalent dwelling units (EDUs). The water supply is calculated using annual acre-feet (AF), then converted to EDUs. An EDU corresponds to one single-family residential dwelling served by a ¾-inch water meter. However, an EDU is not all single-family homes because commercial uses and multi-family uses can be converted through EID’s mathematical calculations to an EDU.

Table 7-5: 2019 Water Meter Availability	
El Dorado Hills Supply Area	Western/Eastern Supply Area
Water supply = 23,775 AF	Water Supply =36,000 AF
Total Potential Demand = 11,734 AF	Total Potential Demand = 27,299 AF
Unallocated Water Supply = 12,041 AF	Unallocated Water Supply = 8,701 AF
Water Meter Availability = 20,068 EDUs	Water Meter Availability = 22,162 EDUs
<i>Source: EID 2019x (Water Supply and Demand Report)</i>	

Board Policy 5010, Water Supply Management, states that the District will not issue any new water meters if there is insufficient water supply. Water meter availability listed in Table 7-5 is the difference between the available water supply and the total potential demand for each respective area (EID, 2019x). As demonstrated in Table 7-5 above, both supply areas have enough water supply to add roughly 20,000 additional EDUs in both regions.

Fire Flows

Fire safety experts often describe two types of fires: 1) structural fires in urban and suburban locations, and 2) wildfires in rural and natural areas. For the first type of fire in urban and suburban locations, structural fire protection within EID Sphere of Influence is provided by the El Dorado County Fire Protection District – District 2, the Diamond Springs-El Dorado Fire Protection District, Rescue Fire Protection District, Pioneer Fire Protection District, Mosquito Fire Protection District, and the El Dorado Hills County Water District. LAFCO has prepared MSRs and adopted SOIs for these local fire districts. Water is the primary tool that local fire fighters use to suppress fires and to protect homes and businesses within local communities. Fire hydrants are one way (along with numerous lakes and ponds) that fire fighters access water. A generally accepted fire flow standard is 1,500 gallons per minute (gpm). The State Fire Code contains requirements regarding placement and functionality of fire hydrants.

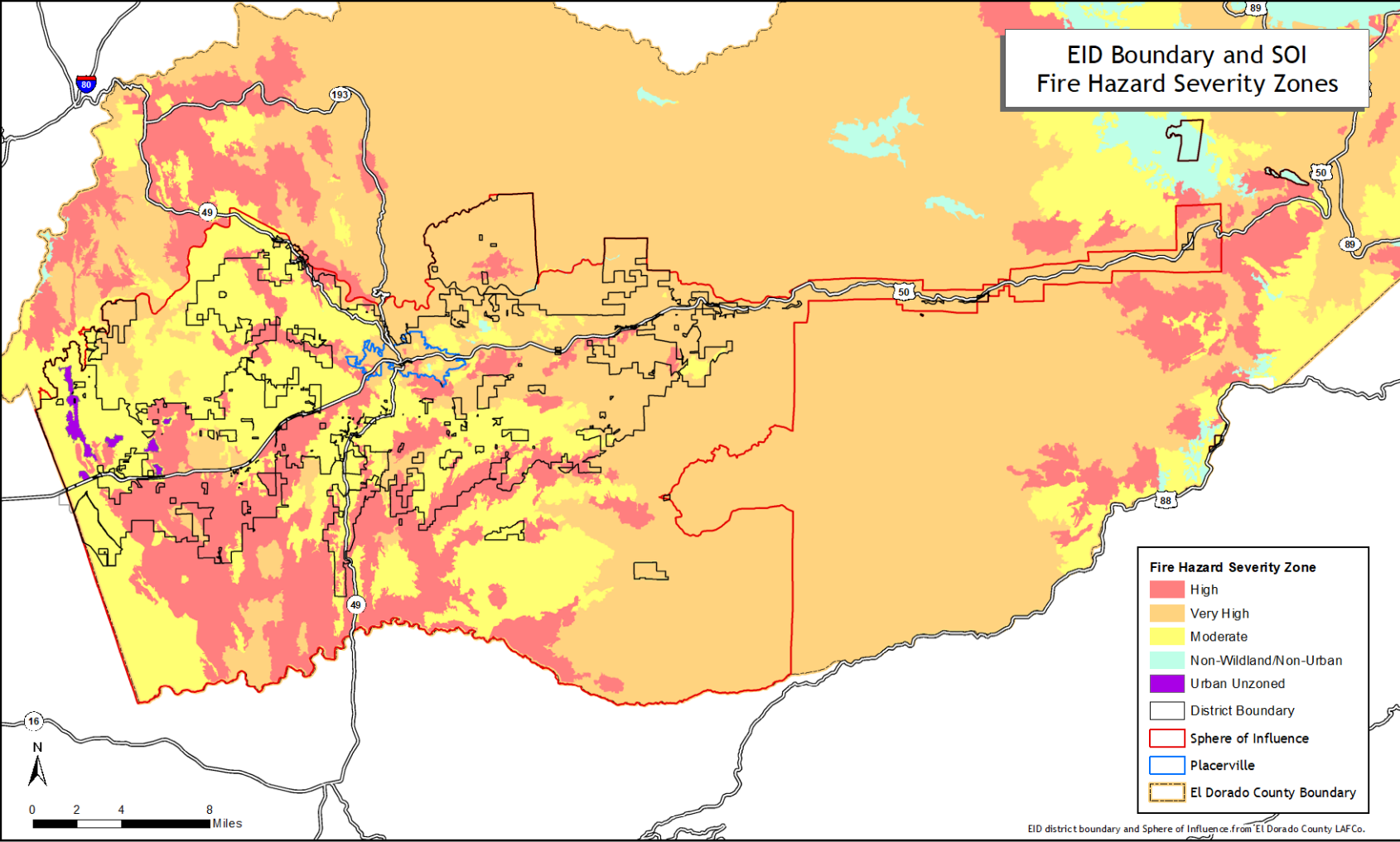
The second type of fire is wildland fires. EID's service area is located on the west slope of the Sierra Nevada mountain range and does contain rural areas and wildlands as shown in Figure 7-2. The west facing slopes are forested, while nearby valleys may contain meadows, grasses, shrubs, and riparian areas. The forest is comprised of Ponderosa pine, cedar, Douglas fir, oak, and other trees. Woodlands often have a dense understory of small trees, brush and downed woody material. These coniferous forests are a fire-dependent ecosystem and naturally occurring fires from lightning strikes and those set intentionally by Native Americans have shaped the structural components of the forest by mixing and improving the availability of key nutrients. Historically, fires had a light intensity which removed fuel from the forest floor. Modern management methods have altered the fire regime. Wildland fires mostly fall under the responsibility of Cal Fire and the U.S. Forest Service.

These state and federal agencies use a variety of tools to combat wildland fires including:

- Dirt (moved by bulldozers and personnel wielding fire axes and hoes etc.);
- Foam;
- Red fire-retardant chemical dropped by aircraft; and
- Water.

Both Cal Fire and the U.S. Forest Service will utilize water since it is an excellent firefighting tool, as it is both efficient and relatively inexpensive. Although water from lakes and rivers is their primary source, the agencies will sometimes utilize fire hydrants when they are available. However, fire hydrants are not designed to fight wildland fires. Another risk for EID is that wildfires could create water quality impacts for local watersheds or create physical damage to EID's water and other infrastructure.

Figure 7-2: EID Boundary & SOI, Fire Hazard Severity Zones



Future Water Demand

EID currently has available raw water rights to accommodate an additional 20,000 acre-feet of demand as shown in Table 7-5. Figure 7-3 shows water supply and demand forecast to 2045 for the “worst case” scenario or “multiple dry year” with anticipated development of the new water treatment plant occurring when needed. Assuming future raw water supplies become available, EID’s data and reports indicate it can serve projected County General Plan growth through the year 2045, including the Water Supply Assessments (WSA) approved for four separate projects, the Lime Rock Valley, Dixon Ranch, Central El Dorado Hills, and Marble Valley Specific Plans. This is in addition to anticipated requests for annexations, increased agricultural demand, the known projects, growth in future potable deliveries to the City of Placerville and “other authorized uses” including: environmental augmentations, private fire services, temporary water use permits, bulk water stations (permanent and temporary), lift stations, collection system flushing, and waterline break and system flushing. Future water demand resulting from the need to protect communities from structural fires and wildfires and increased demand resulting from climate change could potentially increase future demand projections. Although EID has sufficient water supply to meet demand to the year 2045, beyond that timeframe additional supplies may be needed to meet buildout of the County’s General Plan, according to the EDWPA water rights application for the SMUD water. Additionally, the WRDMP identifies that 53 percent of the land in the West Slope that is identified by the General Plan for economic development lacks adequate water supply for intended land use and this is particularly relevant when considering potential future service to the SOI.

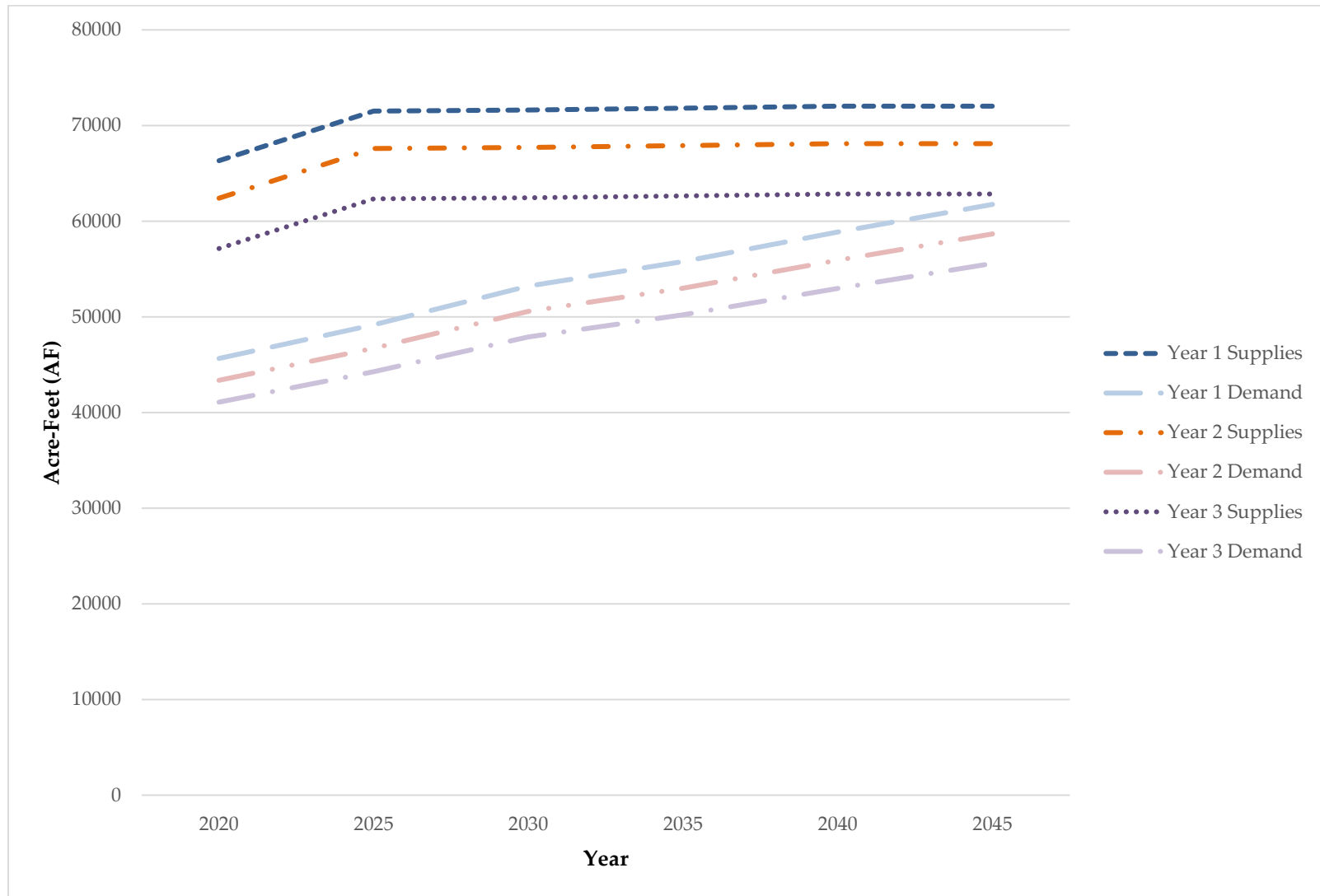
Future Water Supplies

New Water Service Contract for Folsom Reservoir. P.L. 101-514, signed into law in 1992, directs the USBR to enter into a long-term water service contract with the El Dorado County Water Agency (the “EDCWA”) for 15,000 acre-feet per year of water from Folsom Reservoir or upstream on the American River. EDCWA certified an Environmental Impact Report for this project in 2011 and EDCWA-USBR contract negotiations concluded in 2019. The final Environmental Impact Statement was published on May 10, 2019 and the Record of Decision was issued in October 2019. EDCWA and USBR signed the long-term water service contract on October 23, 2019 for a term of 40 years. Though the District and EDCWA have not yet negotiated a contract that will enable the District to utilize this supply, the District expects that, pursuant to a prior contract with the EDCWA, the District will receive at least one-half, or 7,500 acre-feet, of the water subject to future negotiation of repayment costs. This contract entitlement, if secured, will be in addition to the current Folsom Reservoir Water Service Contract entitlement of 7,550-acre feet of water, the Ditch/Weber Warren Act Contract entitlement of 4,560 acre-feet of water, and the Permit 21112 Warren Act Contract entitlement of 17,000 acre-feet of water.

Storage and Delivery from Sacramento Municipal Utility District Reservoirs. In October 2005, the District, EDCWA, the El Dorado Water and Power Authority (“EDWPA”) and other parties (together, the “El Dorado Parties”) executed a Cooperation Agreement with Sacramento Municipal Utility District (“SMUD”). Among the Cooperation Agreement’s provisions were an entitlement for the El Dorado Parties to store and withdraw up to 30,000 acre-feet per year of water supplies from SMUD’s Upper American River Project (“UARP”) reservoirs through 2025, and up to 40,000 acre-feet per year thereafter. The El Dorado Parties are also entitled under the Cooperation Agreement to carry over up to 15,000 acre-feet of water supplies from year to year. In 2009, EDWPA, on behalf of its member agencies including the District, filed applications with the State Water Resources Control Board for sufficient water rights to take advantage of these contractual entitlements. In 2010, EDWPA released a Draft Environmental Impact Report for the water rights project. The water rights applications and environmental analysis are still pending, but in 2013, EDWPA began reformulating the newly named El Dorado Water Reliability Project, to include groundwater banking opportunities and other regional project partnerships in the Sacramento Valley. In 2019, EDWPA was dissolved after the withdrawal of both The County of El Dorado and the El Dorado County Water Agency. The District cannot predict whether or when the El Dorado Water Reliability Project may be approved.

Water Supply	2020	2025	2030	2035
License 2184 & Pre-14 Rights	4,560	4,560	4,560	4,560
Licenses 11835 & 11836	23,000	23,000	23,000	23,000
CVP Contract	7,550	7,550	7,550	7,550
Project 184	15,080	15,080	15,080	15,080
Permit 21112	17,000	17,000	17,000	17,000
CVP Fazio	7,500	7,500	7,500	7,500
El Dorado – SMUD Agreement	-	30,000	30,000	30,000
Recycled Water	2,800	3,000	3,100	3,300
Total	77,490	107,690	107,790	108,190
<i>*Supplies are shown in acre-feet per year Source: EID UWMP, 2015</i>				

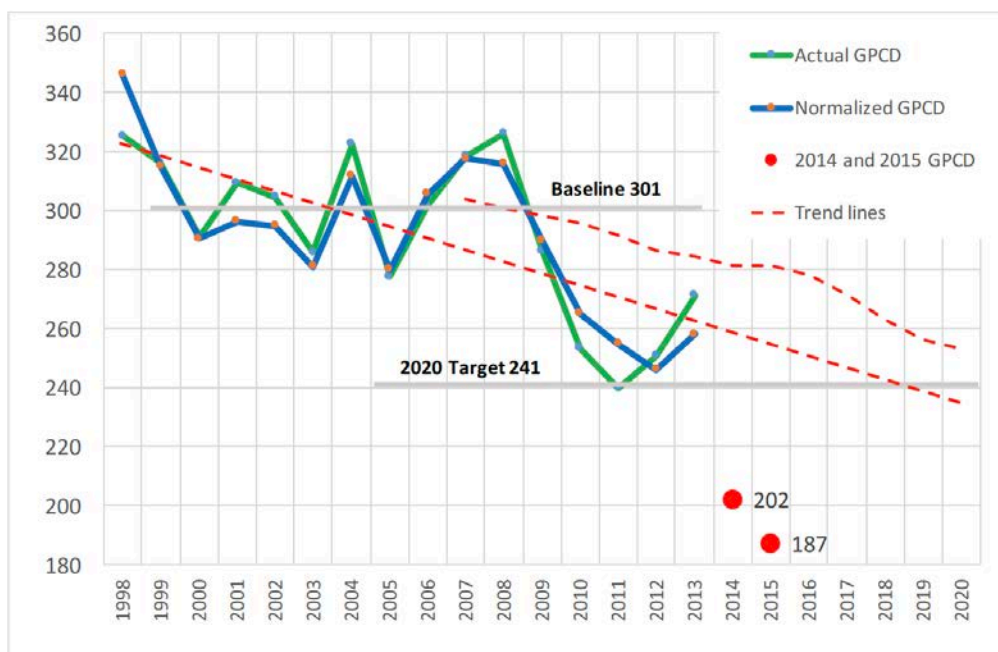
Figure 7-3: Water Supply and Demand Forecast – “Multiple Dry Years”



For the purposes of Table 7-6, EID accommodated the natural variability in water supply by using conservative numbers in calculating future water supply availability. For example, water supplies actually available to EID at Jenkinson Lake is 33,400 acre-feet per year; however, the District only allowed for 23,000 acre-feet when calculating projected average water supply, roughly 10,000 less than what is allowed to be diverted. (EID, 2016b).

Figure 7-3, shown on the previous page, shows the Water Supply and Demand Forecast – Multiple Dry Years. This Figure is excerpted from the 2015 Urban Water Management Plan (EID, 2016b). To comply with California’s requirement to reduce per capita water usage by 20% by 2020, EID analyzed its historic water use data to calculate a baseline usage of 301 gallons per capita per day (GPCD) as shown in Figure 7-4, below. The interim target for 2015 was a 10 percent reduction to 271 GPCD. The 2020 target is a 20 percent reduction or 241 GPCD. In 2015, EID used 187 gallons per capita per day, a 36 percent reduction from the baseline water use per person, meeting and exceeding the 2020 threshold (EID, 2016b). EID will continue to implement programs to monitor water savings and continue to implement sound water conservation practices.

Figure 7-4: Analysis of Annual GPCDs and Potential Trends



Source: EID, 2016b

Recycled Water

EID operates a tertiary treated recycled water system from the Deer Creek and El Dorado Hills wastewater treatment plants to serve the western portions of the service area that are plumbed

for recycled water. Recycled water produced at El Dorado Hills has been used for industrial purposes and golf course irrigation since 1979. At the El Dorado Hills Wastewater Treatment Plant, a 61.9 -million-gallon storage reservoir is used to store recycled water when production exceeds demand. Non-potable water from the El Dorado Hills Water Treatment Plant is used for landscaping including residential yards and recreational turf as well as for commercial use. As of 2018, the District had 5,298 single-family metered accounts for landscape irrigation, 169 commercial metered accounts for landscape irrigation, and 12 dedicated irrigation metered accounts for large landscape turf for a total of 3,483 ac-ft.

EID has considered expansion projects for the recycled water supply, however, as of the 2015 UWMP, does not anticipate pursuing expansion due to economic feasibility. Figure 7-5 shows existing recycled water service areas and infrastructure.

The water recycled at the Deer Creek plant has been used for road median irrigation systems, industrial purposes, and golf course irrigation. In 1997, the distributions systems were connected to allow recycled water to be transferred between systems. Since then, the District has expanded the use of recycled water to include commercial and residential irrigation uses.

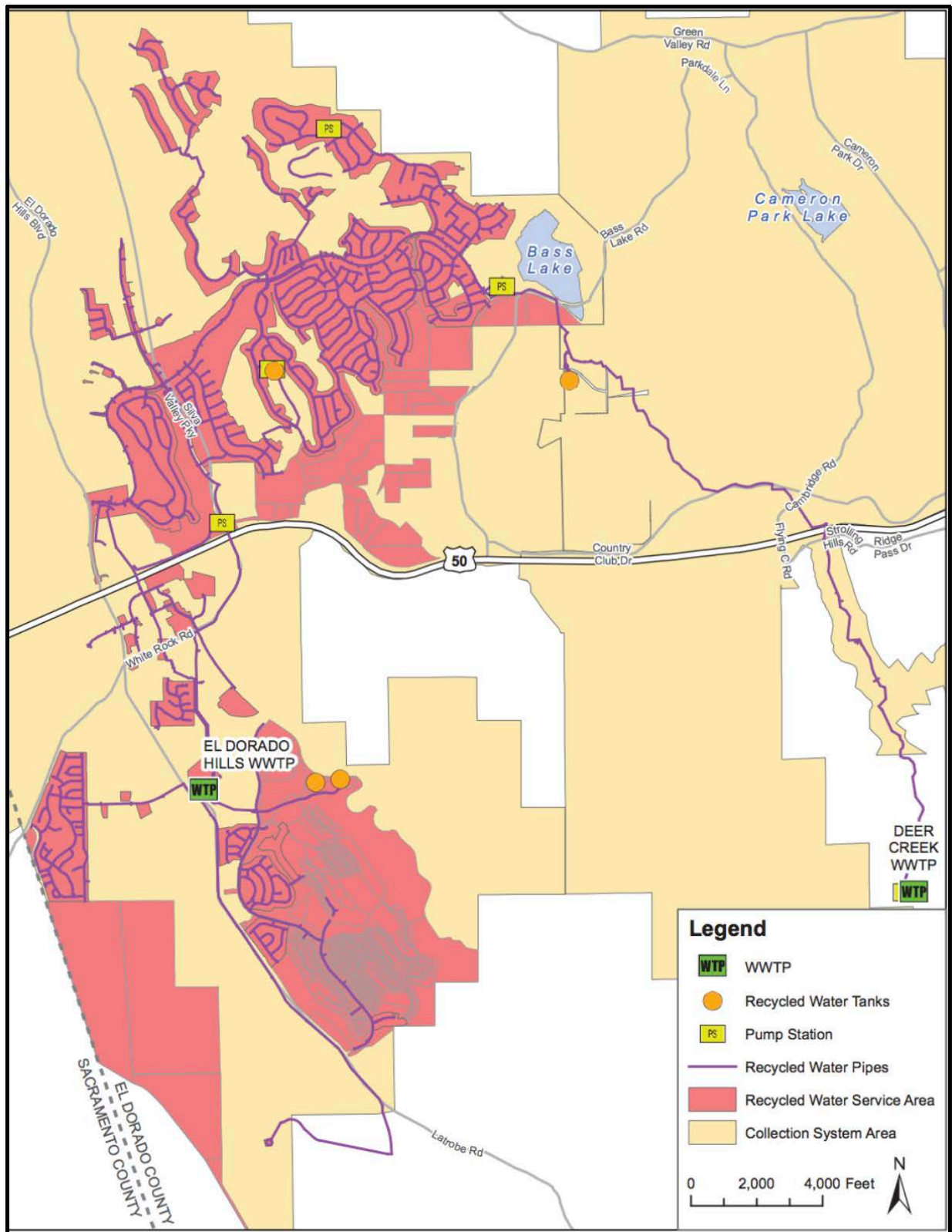
At present, peak season demand for recycled water exceeds the available quantity, requiring the recycled water supply to be supplemented with potable water as needed during the summer. With the existing infrastructure, the District is able to provide roughly 2,400 acre-feet per year of recycled water and is projected to expand to 3,500 acre-feet annually by 2040.

Water Supply, Conservation, and Treatment Service to the District's Service Area

EID's existing Service Area comprises 140,800 acres. EID plans to provide water to future projects approved by The County of El Dorado and within the EID service area. The current list of projects is as follows:

- East Ridge – 701 homes above Blackstone in El Dorado Hills
- Bass Lake North – 90 homes off of Sienna Ridge in El Dorado Hills
- Alto – 23 homes in El Dorado Hills off of Malcolm Dixon Road
- Vineyards – 42 homes in El Dorado Hills off of Malcom Dixon Road
- La Canada – 47 homes in El Dorado Hills off of Malcom Dixon Road
- Malcom Dixon – 8 homes in El Dorado Hills off of Malcom Dixon Road
- Serrano J7 – 65 homes in El Dorado Hills off Bass Lake Road

Figure 7-5: Existing Recycled Water Service Areas & Infrastructure, 2015



Source: EID UWMP, 2015

The District anticipates that most future growth will occur in areas that can be served by utility infrastructure such as water and highway access, therefore the majority of anticipated growth within the County is expected to occur within EID's existing SOI. In addition to the County's General Plan, additional growth has historically occurred and will continue to occur as a result of lot splits, land use changes and new services to existing parcels. For this type of growth, landowners request EID to prepare Facility Improvement Letters (FIL) to initiate a request for water service, which may result in a General Plan amendment as determined by the County.

With FILs, the District assesses whether infrastructure is adequate or available to serve the proposed project. In some cases, the FILs include projects not calculated as part of EID's water demand projects. The District maintains FILs as "open" for a period of approximately 3 years, assuming either the project will move forward and pay the corresponding fees, or the project will not occur. Within its projections for future supplies and services within the SOI, the District estimates an increment of one percent of General Plan growth for these types of projects.

Although additional annexations of land to EID has the potential to increase water demand, EID does not anticipate any additional major annexations not included within the General Plan within the next 20 years. Any new annexations would be determined on a case-by-case basis with a full review of anticipated water demand, conservation measures, and updated inventories of supplies in the form of Water Supply Assessments (WSA), as required. In 2013, the District approved four separate WSAs totaling over 5,600 new housing units. All new development that occurs within EID's boundary area must provide for its appropriate share of infrastructure, including pipelines, pump stations, storage tanks etc. Chapter 5 of this MSR describes anticipated growth, including that allowed by the County General Plan, FILs, and known projects.

The District expects growth in future water services to the City of Placerville and other authorized users. For example, the District anticipates that the City of Placerville will add approximately 930 additional connections (EID, 2016b, pg. 4-14). The City of Placerville is not located within the District's SOI; however, EID provides water to the City for purchase under a wholesale contract. The City is then responsible for distributing retail water to its customers. Growth in future water services to other authorized uses, including environmental augmentations, private fire services, temporary water use permits, bulk water stations, lift stations, collection system flushing, and water line breaking and system flushing is also expected.

7.1.b: Water Infrastructure and Public Facilities

Infrastructure development and maintenance is an important part of the service that EID provides. EID's key water facilities include 1,105 miles of pipeline, 27 miles of ditches, 5

treatment plants, 36 storage tanks & reservoirs, and 38 pumping stations. EID adopts a Capital Improvement Plan as part of its annual budget development. EID has \$880 million in net assets (i.e. those assets that exceed liabilities) (EID CAFR, 2018).

Existing Water Supply and Treatment Facilities

EID's water system includes five water treatment plants, 27 miles of ditches, 34 storage reservoirs, 38 pump stations, and approximately 1,200 miles of distribution lines. Figure 7-6 provides a diagram of the system. EID reported that approximately 20.5 percent of total water diversions is unaccounted for or lost (EID, 2016b, page 4-16). According to the EPA, average water loss in systems within the United States is roughly 16 percent (EPA, 2013). The primary loss of water for EID was identified from the unlined Main Ditch as a result of seepage. Other losses include inaccurate and under-recorded amounts of water flowing through the meters, unmetered consumption, unauthorized consumption, and systematic data handling errors. In most cases, the predominant source of system losses was from leaks that inevitably exist throughout the system (EID, 2016b).

Water Line Infrastructure

El Dorado Irrigation District maintains significant drinking water infrastructure including water transmission, distribution and service lines. The age and condition of this infrastructure varies, but portions of the water system have reached or is nearing the end of its useful life. EID maintains an annual Capital Improvement Plan to address replacement of aging infrastructure. Significant water line breaks, including a disruptive break in El Dorado Hills in 2018, highlight the aging infrastructure and the ongoing need for reinvestment and replacement. Table 7-7 below lists the age for the 120 miles of drinking water transmission mains in the District. Major transmission mains include the Camino Conduit, El Dorado Main No. 1 (EDM1), El Dorado Main No. 2 (EDM2), Pleasant Oak Main (POM), Diamond Springs Main (DSM), Sly Park Intertie (SPI), Moose Hall Main (MHM), and Gold Hill Intertie (GHI), all delivering East/West Service Area supplies; and transmission mains in Francisco Drive, El Dorado Hills Boulevard, and Silva Valley Parkway providing water to the El Dorado Hills Service Area from Folsom Reservoir. Based on the CIP, the District has not prioritized transmission main replacements and will need to make significant investments in the future.

Table 7-7: Transmission Main Details					
Main	Miles	Year Installed	Service Life	Breaks	Years in Service
East/West Service Area					
Camino Conduit	7.34	1953	75	1	66
El Dorado Main No. 1	18.11	1960	75	2 & 17	59
Diamond Springs Main	12.03	1961	75	4 & 13	58
Pleasant Oak Main	13.79	1970/2005	75	2 & 5	49/14
El Dorado Main No. 2	13.68	1970	75	0 & 2	49
Sly Park Intertie	4.93	1978	Inoperative	Inoperative	41
Moose Hall Main	3.51	1989	85	1	30
Gold Hill Intertie	15.27	1988	85	6 & 2	31
El Dorado Hills Service Area					
Main 960	9.2	1960/1994	75/85	3	59/25
Main 820	3.46	1960/2003	75/85	N/A	59/16
Main 1140	2.09	1960/1990	75/85	N/A	59/29
White Rock Main	5.87	1985/2006	85	N/A	34/13
Valley View Parkway Main	1.26	2006	85	N/A	13
Blackstone Main	1.92	2006	85	N/A	13

Source: AIS-Information Item, State of District Drinking Water Pipes, 2019

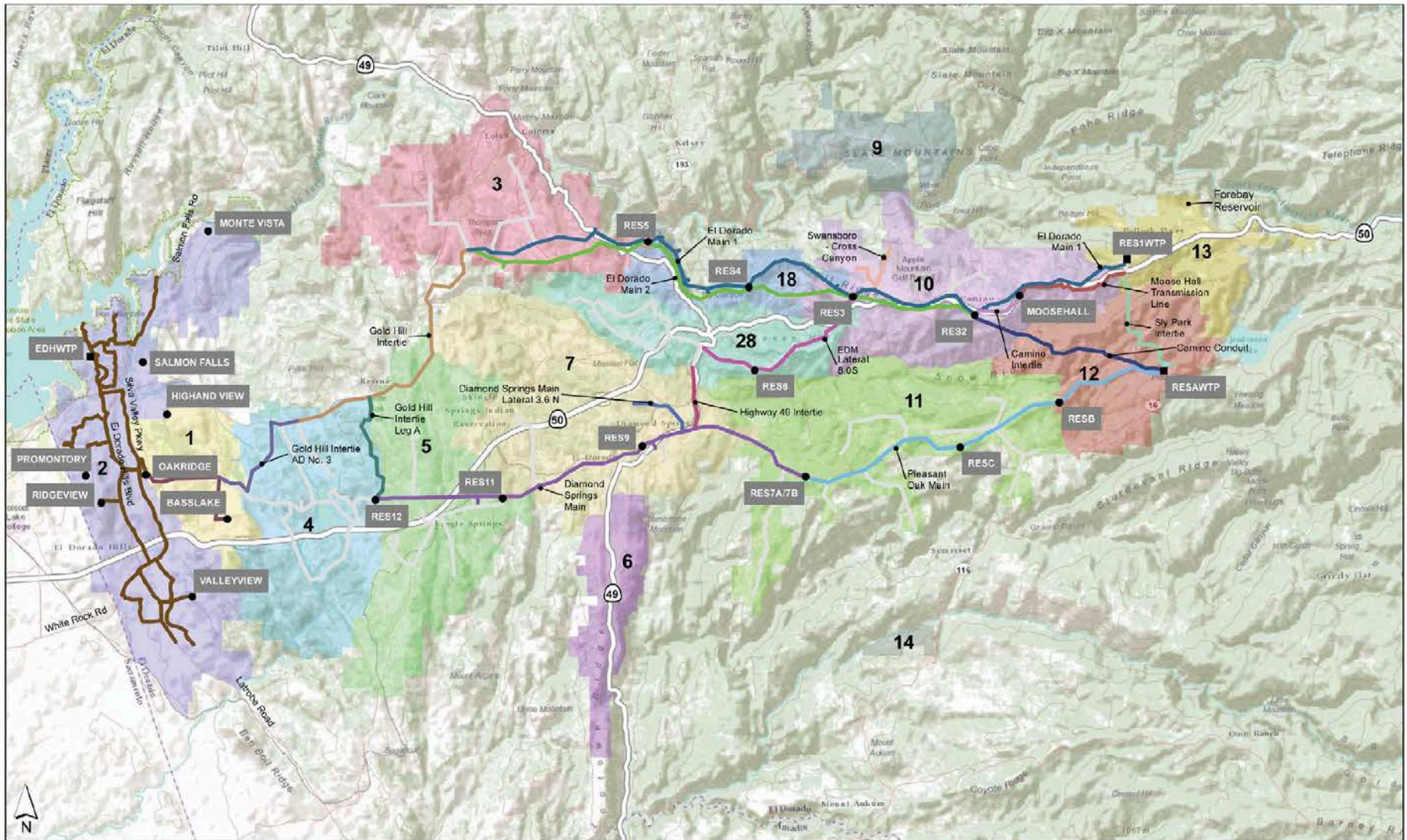
There are over 907 miles of water distribution lines throughout the District. The materials for these lines include Outside Diameter Steel (ODS), Asbestos Cement (AC), Polyvinyl Chloride (PVC), and Ductile Iron Pipe (DIP), Mortar Lined Concrete Coated Steel (MLCC), as well as galvanized pipe and copper pipe. From 2016 to 2019, the District has averaged 137 distribution line breaks per year. The District acknowledges that the ODS pipelines are critically compromised, and that the AC pipes will require replacement in the next 10 to 20 years. The majority of the District’s distribution lines have reached half of their life span. Table 7-8 shows details regarding the distribution lines in 2019 (EID, AIS, 2019y).

Table 7-8: Distribution Line Details			
Materials	Miles	Year Installed	Service Life
PVC	406	1959 to 2019	75
AC	344.5	1959 to 2006	75
DIP	56.6	1973 to 2017	85
ODS	16.6	1954 to 1997	50
MLCC	86.6	1960 to 2005	75
Unknown	203	1953 to 2017	N/A
Galvanized	12	1961 to 2009	75
<i>Source: AIS-Information Item, State of District Drinking Water Pipes, August 12, 2019y</i>			

Service lines within the District provide water from distribution mains to single family homes, multi-family residential units, and commercial buildings. There are three service line pipe materials in the system including copper, polyethylene, and galvanized steel. The majority of the Districts lines are made of polyethylene. Polyethylene lines in the District have been experiencing a life span between 15 and 30 years, greatly inferior to copper piping with a life span between 60 and 100 years. It is anticipated that the life expectancy of the remaining polyethylene lines will decrease, causing a greater number of leaks. The District has discovered that relatively new subdivisions have a failure rate at nearly 25 percent. Table 7-9 below provides details regarding the services lines in 2019 (EID, 2019).

Table 7-9: Service Line Details		
Material	Number of Services	Life Span
Polyethylene	25,918	15-30
Copper	15,335	60-100
Galvanized	16	50
Transient	8	50
Unknown	45	N/A
<i>Source: AIS-Information Item, State of District Drinking Water Pipes, August 12, 2019y</i>		

Figure 7-6: EID Water Distribution System Service Area Map



Source: EID IWRMP, 2013

The District has completed a few waterline replacements projects in the last 15 years. Approximately 5.5 miles of the POM main transmission line was replaced between Reservoir A Water Treatment Plant and Reservoir C in 2005. An older section of the POM is still in service. The District also completed the installation of 550 linear feet of PVC along Morrene Drive, 510 linear feet of DIP in Sleepy Hollow Drive, 240 linear feet of DIP in Union Ridge Road, 120 linear feet of DIP in Forest Road, and 10,000 linear feet of DIP in Gilmore Road, Polaris Street, and Ridgeway Drive.

On August 12, 2019, District staff provided the Board of Directors with a detailed analysis of the sustained funding required for EID to meet contractual obligations, maintain adequate reserves, maintain its waterlines, and invest in the upgrade and modernization of treatment plants, reservoirs and pump stations to ensure continued service reliability and delivery of high quality water. The proposed action summary was presented as information only. The District financial plan identifies water revenue needed to fund capital improvement projects, both on a pay-as-you-go basis through annual revenues and through debt issuance for larger projects. On December 9, 2019, EID adopted a rate increase for water services based on a five-year financial plan that is designed to ensure that high-quality water is reliably delivered. Additionally, EID may issue bonds to facilitate financing. The rate increase and other financing mechanisms are designed to facilitate adequate funding for the capital projects listed in Table 7-10.

Water Treatment Plants

Reservoir 1 Water Treatment Plant (WTP) was constructed in 1962 and had a filter upgrade in 1988. This WTP treats water from the South Fork of the American River via Forebay Reservoir and supplies up to 26 million gallons per day (MGD) of potable water to customers throughout the East/West Service Area. The District has the ability to use the Moose Hall pump station to move treated water to Reservoir 1 from Reservoir A. Treatment processes at the Reservoir 1 WTP include a manually cleaned trash screen, automatically cleaned bar screen, flocculation tanks, sedimentation basin, dual-media gravity filter, and chlorination. Sludge from the sedimentation basin is pumped to the sludge lagoons for thickening and drying, and filter backwash is pumped to the backwash storage tank for recycling to the front of the WTP.

Table 7-7: 2020-2024 Capital Improvement Plan Water Projects

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
16005	Diamond Springs Parkway/Highway 49 Improvements	1	\$ 150,000	-	-	-	-	\$ 150,000
17035	Green Valley Bridge Relocation	1	\$ 425,000	-	-	-	-	\$ 425,000
18025	Department of Transportation Construction Projects - Water	1	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 25,000	\$ 125,000
19007	EDM 1/ EDM 2 Intertie	1	\$ 400,000	-	-	-	-	\$ 400,000
19008	EDM 2 Relocation/Camino Safety	1	\$ 700,000	-	-	-	-	\$ 700,000
Planned	Diversion Gauging Measurement & Reporting Requirements	1	\$ 65,000	-	-	-	-	\$ 65,000
Planned	Placerville Drive/Hangtown Creek Bridge Replacement	1	\$ 25,000	\$ 50,000	\$ 275,000	-	-	\$ 350,000
Planned	Water Arc Flash Risk Assessment Program	1	\$ 65,000	\$ 65,000	\$ 65,000	\$ 65,000	\$ 65,000	\$ 325,000
06004G	SMUD/El Dorado Agreement Water Rights	2	\$ 50,000	-	-	-	-	\$ 50,000
11032	Main Ditch - Forebay to Reservoir 1	2	\$ 5,580,000	\$ 3,860,000	-	-	-	\$ 9,440,000
15009	Sly Park Intertie Improvements	2	\$ 5,000	\$ 100,000	\$ 500,000	\$ 500,000	\$12,750,000	\$ 13,855,000
15024	Folsom Lake Intake Improvements Project	2	\$ 6,650,000	\$11,050,000	-	-	-	\$ 17,700,000

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
16003	Permit 21112 Change in Point of Diversion	2	\$ 300,000	\$ 200,000	-	-	-	\$ 500,000
16048	Outingdale Water Intake Replacement	2	\$ 305,000	-	-	-	-	\$ 305,000
17011	Crestview Pump Station Replacement Project	2	\$ 25,000	\$ 250,000	-	-	-	\$ 275,000
17014	Green Valley Pressure Reducing Station No. 2	2	\$ 80,000	-	-	-	-	\$ 80,000
17015	Lakeview Pressure Reducing Station No. 1	2	\$ 90,000	-	-	-	-	\$ 90,000
17016	El Dorado Main No. 1 Pressure Reducing Station No. 5	2	\$ 550,000	-	-	-	-	\$ 550,000
17031	Forest Road Waterline Relocation	2	\$ 90,000	-	-	-	-	\$ 90,000
17048	Strawberry Raw Water Pump Station	2	\$ 25,000	\$ 75,000	\$ 350,000	-	-	\$ 450,000
18002	Sanders Road Waterline Replacement	2	-	\$ 70,000	-	-	-	\$ 70,000
18007	Pony Express 8-Inch Waterline Replacement Project	2	\$ 100,000	-	-	-	-	\$ 100,000
18018	Easy Street Waterline Replacement	2	-	\$ 50,000	\$ 1,400,000	-	-	\$ 1,450,000
18036	Francisco Pressure Reducing Station No. 1 Upgrade	2	\$ 80,000	-	-	-	-	\$ 80,000
18040	Forebay Road Waterline Replacement	2	-	\$ 50,000	\$ 1,850,000			\$ 1,900,000

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
18048	Critical Water Facility Generators	2	\$ 350,000	-	-	-	-	\$ 350,000
18065	El Dorado Hills Water Treatment Plant Automation Rehabilitation	2	\$ 50,000	\$ 1,700,000	-	-	-	\$ 1,750,000
19006	Automatic Meter Reading (AMR) and Small Meter Replacement	2	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 150,000	\$ 750,000
19009	Integrated Water Resources Master Plan Update	2	\$ 250,000	-	-	-	-	\$ 250,000
19010	Valley View Pump Station No. 3	2	\$ 100,000	-	-	-	-	\$ 100,000
19016	Main Ditch Litigation	2	\$ 100,000	-	-	-	-	\$ 100,000
19019	Strawberry Self Cleaning Screens	2	\$ 35,000	-	-	-	-	\$ 35,000
Planned	Construction Equipment	2	\$ 395,000	-	-	-	-	\$ 395,000
Planned	Folsom - EDH Water Treatment Plant Improvement Program	2	-	-	\$ 100,000	\$ 100,000	\$ 100,000	\$ 300,000
Planned	Meter Test Bench Replacement	2	\$ 250,000	\$ 30,000	-	-	-	\$ 280,000
Planned	Pressure Reducing Station Rehabilitation & Replacement Program	2	\$ 150,000	\$ 910,000	\$ 250,000	\$ 600,000	\$ 315,000	\$ 2,225,000
Planned	Pump Station Rehabilitation & Replacement Program	2	\$ -	\$ 100,000	\$ 250,000	\$ 100,000	\$ 850,000	\$ 1,300,000

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
Planned	Reservoir A Water Treatment Plant Programmable Logistic Controllers (PLC) Replacement	2	\$ 110,000	\$ 335,000	-	-	-	\$ 445,000
Planned	Reservoir 1 Water Treatment Plant Improvements Program	2	-	\$ 100,000	\$ 45,000	\$ 225,000	-	\$ 370,000
Planned	Supervisory Control & Data Acquisition (SCADA) Water Hardware Replacement Program	2	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 250,000
Planned	Service line Replacement Program	2	\$ 4,050,000	\$ 4,850,000	\$ 4,850,000	\$ 4,850,000	\$ 4,850,000	\$ 23,450,000
Planned	Sly Park Dam Facility Improvements	2	-	\$ 65,000	-	-	-	\$ 65,000
Planned	Sly Park - Reservoir A Water Treatment Plant Improvements Program	2	-	\$ 345,000	\$ 350,000	\$ 100,000	\$ 100,000	\$ 895,000
Planned	Storage Replacement & Rehabilitation Program	2	\$ 100,000	\$ 450,000	\$ 3,600,000	\$ 1,850,000	\$ 2,900,000	\$ 8,900,000
Planned	Waterline Replacement Program	2	-	\$ 50,000	\$ 50,000	\$ 5,050,000	\$ 5,050,000	\$ 10,200,000
Planned	Water Distribution Radio Path Design	2	-	-	\$ 140,000	\$ 170,000	-	\$ 310,000
Planned	Wholesale Meter Replacement	2	\$ 15,000	\$ 150,000	-	-	-	\$ 165,000

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
Planned	Main 960 El Dorado Hills No. 1 Transmission Line Replacement Project	2	-	-	\$ 100,000	-	-	\$ 100,000
Study03	Wastewater Treatment Plants Assessments	2	\$ 345,000	\$ 500,000	-	-	-	\$ 845,000
Planned	Construction Storage Facility	3	-	\$ 40,000	\$ 750,000	-	-	\$ 790,000
Planned	El Dorado Main Flow Integration	3	\$ 57,500	\$ 143,750	\$ 143,750	\$ 143,750	\$ 143,750	\$ 632,500
Planned	Lower Ditch Water Rights SCADA Upgrades	3	-	-	\$ 10,000	\$ 45,000	\$ 12,000	\$ 67,000
	TOTAL		\$22,342,500	\$25,813,750	\$15,303,750	\$14,023,750	\$27,360,750	\$104,844,500

Source: EID 5-year Capital Improvement Plan 2020-2024, Approved October 2019

Reservoir A WTP was constructed in 1974. Expansion and modifications were completed in 1988 and 2000. Reservoir A WTP treats water from Jenkinson Lake and has a production capacity of up to 56 MGD of potable water. Annual supply for Jenkinson Lake during a normal year is limited to approximately 23,000 AF, therefore, annual production for the Reservoir A WTP is limited to 21 MGD, with a maximum daily production of approximately 42 MGD. Treatment processes include chemical addition, a rapid mix vault, dual-media gravity filters, and chlorination. Filter backwash wastewater is piped to an equalization basin and pumped to settling/dry beds.

The El Dorado Hills Water Treatment Plant (EDHWTP) was constructed in 1960 with a capacity of approximately 6 MGD. The plant underwent several incremental expansions over the years and currently has a permitted capacity of 19.5 mgd. The plant is forecasted to undergo an expansion to eventually increase the plant’s capacity to 26 MGD when demand dictate. EDHWTP processes include raw water pumping, chemical addition facilities, clarifiers/filters, and disinfection in a clear well. Treatment backwash from the filters includes storage, chemical addition, and plate settlers. A series of high service water pumps distribute potable water to the distribution system. EID is currently underway with a large project to replace the raw water intake at Folsom Lake to improve the reliability of the raw water delivery to the EDHWTP and provide temperature control capability.

Existing Water Storage Facilities

Table 7-11 below shows the amount of storage available for each reservoir and storage tank. The District’s 26 water storage facilities have a current total max capacity of just over 81 MG. It is anticipated that EID can expand existing reservoirs, or add new reservoirs or storage tanks as needed so as to not constrain development based on water storage capacity needs.

Storage	Storage Capacity (MG)	Year Constructed
Reservoir 11	4.80	1962
Dolomite Reservoir	3.90	1962
Reservoir 1	2.80	1961
Moose Hall Reservoir	0.80	1977
Reservoir A	2.30	1975
Reservoir B	1.50	1975
Reservoir C	1.50	1977
Valley View Tank Lower	2.00	1997

Table 7-8: Treated Storage Facilities, 2013		
Storage	Storage Capacity (MG)	Year Constructed
Valley View Tank Upper	0.84	2008
Monte Vista Tank	0.13	1960
Oak Ridge Tank 1	3.00	1987
Oak Ridge Tank 2	5.00	2006
Ridgeview Tank	1.00	1960
Salmon Falls Tank	2.00	1992
Tank 2	5.50	2004
Tank 2A	5.50	2003
Swansboro Tank	0.40	2001
Tank 3	1.50	1999
Tank 4	0.50	2000
Tank 5	1.00	2000
Tank 6	3.50	2000
Tank 7A	3.50	2004
Tank 7B	2.80	2004
Tank 9	2.00	2001
Tank 12A	4.20	2005
Tank 12B	4.20	2005
Bass Lake Tank 1	4.10	2005
Bass Lake Tank 2	4.10	2006
Rancho Del Sol Tank	0.30	2010
Greenstone Tank	0.50	1988
Sly Park Hills Tank	0.75	1997
Pollock Pines Tank	2.60	1962
Promontory Tank	2.60	2010
TOTAL	81.12	

Source: EID, IWRMP, 2013

Relationship of Water Supply and Infrastructure to the SOI

The El Dorado Irrigation District SOI encompasses unincorporated territory and is within the jurisdiction of The County of El Dorado. Currently, large portions of the eastern side of the County are designated Eldorado National Forest. Along the southeastern portion of EID's SOI, parcels are designated as natural resources or agricultural lands and do not receive municipal (treated) water. Under present land-use practices, there is not currently a demand for water

supply within these SOI areas. However, it is possible that in the future new agricultural areas or rural residential land-uses could be developed in the SOI if allowed under the County General Plan. If these types of land-uses are developed in the future, property owners continue to have the option to utilize groundwater accessed via private wells. Alternatively, they could petition to be annexed to EID.

Upon any subsequent proposed annexations to the District, the extension of EID water service to these annexation areas could be under consideration to provide water supply and associated facilities. Although additional annexations of land to EID has the potential to increase water demand, EID does not anticipate any additional major annexations (not included within the County of El Dorado General Plan) within the next 20 years. Any new annexations would be determined on a case-by-case basis with a full review of anticipated water demand, conservation measures, and updated inventories of supplies in the form of Water Supply Assessments¹ (WSA), if required.






7.1.c: Determinations for Water Supply and Infrastructure:



Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies





Based on the information included in this report, the following written determinations make statements involving this service factor (Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies) which the Commission must consider as part of a municipal service review². The determinations listed below are based upon the data presented in this Chapter and are recommended to the Commission for consideration. The Commission's final MSR determinations will be part of a Resolution which the Commission formally adopts during a public meeting.

¹ . For example, WSAs have been approved for four separate projects, the Lime Rock Valley, Dixon Ranch, Central El Dorado Hills, and Marble Valley Specific Plans for a total of 5,600 housing units.

² The service factors addressed in this report reflect the requirements of California Government Code §56430(a)

Table 7-12: Summary of Water Services & Infrastructure		
Topic: Water - Public Services		
Indicator	Score	Determination
The District has been diligent in developing plans to accommodate the service needs of current and future customers. The District regularly reviews and updates its service plans to help ensure that infrastructure needs and deficiencies are addressed in a timely manner.		EID has been diligent in developing plans to accommodate the service needs of current and future customers and generally reviews and updates service plans when necessary. EID service departments provide reports and updates to EID Board of Directors and the general public to ensure needs are reviewed and addressed. Some reports are not being updated in accordance with anticipated scheduling such as the Integrated Water Resources Master Plan, last updated in 2013.
The District collaborates with multiple other agencies for the delivery of services within EID service area.		For water services, EID often works with neighboring agencies and other partners to provide adequate water supplies and service. For example, EID cooperates with SMUD, USBR, the County of El Dorado, and the El Dorado County Water Agency.
Has the District made a significant investment over the last several years in funding various capital improvements that reflects a concerted effort by EID to enhance the level and range of its public services?		In general, EID takes steps to ensure that adequate funding is available for future projects to enhance public services. The District maintains a robust Capital Improvement Plan to address system deficiencies and enhance the level of its public services.
<u>Water Services:</u> <ul style="list-style-type: none"> Local municipal average annual water demand is well understood and managed. The District has a plan to deal with potential future shortfalls in water supply during dry or extremely dry water years 		EID’s 2015 Urban Water Management Plan (UWMP) and its Water Resources and Service Reliability Report sufficiently details annual and future water demand for EID with detailed analysis of available water supply during “average year,” “single year,” and “multi-dry years” events. In addition, the UWMP includes an extensive Water Shortage Contingency Analysis and Plan. EID evaluates options to increase water supplies, including constructing new reservoirs and pursuing new water rights.
<u>Water Facilities:</u>		EID recently approved rate increases to fund capital improvement projects to replace or

<ul style="list-style-type: none"> ▪ The District has planned for replacement of aging water facilities. ▪ The District has preventative maintenance measures to ensure adequate supply. 		<p>upgrade aging water facilities and systems. In general, EID is facing higher costs for replacement of aging infrastructure. EID’s UWMP discusses contingency planning, including catastrophic supply interruption.</p>
<p>Is there sufficient capacity to provide water service to the existing SOI?</p>		<ul style="list-style-type: none"> ▪ EID currently provides adequate services to meet the needs of its existing customers, currently 41,396 water connections. EID provides potable water service that meets all public health requirements. Services provided by EID directly to paying customers include potable water that meets all public health requirements. ▪ It is not practical for EID to provide public services for water to southeastern portions of the SOI due to elevation changes and distance from existing infrastructure.
<p>Are there sufficient facilities to provide water service to the existing SOI?</p>		<ul style="list-style-type: none"> ▪ EID’s physical water facilities are currently extensive within the District boundary. However, portions of the physical infrastructure for water services, including pipelines, are nearing the end of its useful life. EID’s CIP aims to address infrastructure deficiencies within the current boundary. The future provision of water infrastructure to the SOI will be evaluated through the development and project application process. ▪ Though EID has sufficient water supply capacity to meet projected water service demands to its current boundary area though the year 2045, it is not clear whether EID would have sufficient water supply to provide service to the entire SOI in the future. Reducing the geographic size of the SOI would allow EID to pace the development of new water supplies and water conservation to support planned growth in the SOI area in a geographically efficient manner. ▪ Similar to the 2008 MSR/SOI update, it is not practical for EID to expand water services in the next 10 to 20 years to encompass all of the geographic area contained within its existing

		SOI, given current constraints on physical infrastructure and other resources.
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

7.2: WASTEWATER SERVICES

7.2.a: Wastewater Collection and Treatment

Existing Wastewater Collection and Treatment, District-wide

The El Dorado Irrigation District (EID) provides wastewater collection, wastewater treatment, wastewater and sludge disposal, and water recycling services to approximately 77 square miles within EID’s existing boundary. This service area includes El Dorado Hills, Cameron Park, and other smaller unincorporated areas of Placerville, Kingsville, Shingle Springs, Rescue, El Dorado, Pollock Pines, Diamond Springs, and Camino Heights, plus small neighborhoods off of Green Valley Road. EID currently provides wastewater collection services to approximately 62,000 residents (EID, 2019 CAFR), with a total of 23,652 wastewater connections. Of these 23,652 wastewater connections, approximately 96 percent are residential users. A small fraction of residential customers lives in multi-family units (i.e. condominiums or apartments). The largest sewer customer for the District is the Lake Oaks Senior Mobile Home Park with 293 units. In 2018, the District regulated approximately 882 commercial and industrial businesses including two Categorical and two Non-Categorical Significant Industrial Users (SIUs) (EID, 2018e; 2019a).

While EID has been in existence since 1925, in 1960 EID began wastewater collection and treatment activities pursuant to its principal act (California Water Code, Division 11), and in the 1970s added water recycling services for major population centers within the El Dorado Hills area. EID does not provide wastewater service to customers outside its jurisdictional boundaries. The District is located within three different hydrologic regions: 1) the San Joaquin River Hydrologic Region; 2) the Sacramento River Hydrologic Region; and 3) the North Lahontan

Hydrologic Region. Treated wastewater from the El Dorado Hills Wastewater Treatment Plant (WWTP) is discharged into Carson Creek, while the Deer Creek Wastewater Treatment Plant discharges into Deer Creek. Both are tributaries of the Cosumnes River. The District approved a Sewer System Management Plan Update (SSMP) in 2019 that guides the proper management, operation, and maintenance of all parts of EID's sanitary sewer system under its control. The SSMP aims to reduce and prevent sanitary sewer overflows (SSOs) and mitigate SSOs if they occur. The 2019 SSMP is available for review in the District office (EID, 2019e).

EID completed an Integrated Water Resources Master Plan in March of 2013. This document provides a comprehensive program that optimizes the use of potable water and recycled water



resources for EID. A separate report was prepared for the Wastewater Facilities Master Plan (WWFMP). Together, these plans provide a roadmap for development of future infrastructure and maintenance of existing water, wastewater, and recycled water facilities (EID, 2013).

The County of El Dorado General Plan Public Services and Utilities Element lists the rural centers of communities of Camino, Cedar Grove and Pollock Pines as areas where long term development of public sewer service shall be encouraged. The County of El Dorado anticipates high-density and multi-family residential, commercial, and industrial projects may occur in the listed rural communities that would require connections to public wastewater collection facilities if reasonably available as a condition of approval. Rural Center boundaries establish areas of higher intensity development throughout the rural areas of the County based on the availability of infrastructure, public services, existing uses, parcel development, impact on natural resources, etc. (The County of El Dorado, 2005).

Wastewater Collection, Treatment, & Disposal

EID collects wastewater from four permitted wastewater collection systems: El Dorado Hills, Deer Creek, Camino Heights, and Gold Ridge Forest. These collection systems are comprised of separate sewer connections for residents, businesses, and others within their respective collection systems. One EID connection may serve many individual customers. EID provides wastewater services to 22,284 residential connections, which is the largest category of service type. There are

882 commercial and industrial connections, and 25 school connections which also receive wastewater collection services from EID.

El Dorado Hills Collection System

The El Dorado Hills Collection System service area encompasses approximately 24.9 square miles within EID boundary along the far west side of The County of El Dorado as seen in Figure 7-7 (next page). In 2019, there were approximately 12,000 sewer connections equating to approximately 13,600 equivalent dwelling units (EDUs) within the service area. The system is comprised of 30 lift stations and 285 miles of pipeline with gravity sewers, force mains, and portions of laterals owned by the District. Most of the lift stations for this service area were developed in the 1970s and 80s when most of the construction for this area of the County took place. Wastewater from this system is treated at the El Dorado Hills Wastewater Treatment Plant (EDHWWTP).

The EDHWWTP services the community of El Dorado Hills with an estimated population of 45,104 people, including approximately 12,000 wastewater service connections (EID, 2013; U.S. Census, 2017). The EDHWWTP is located adjacent to Latrobe Road and is situated south of Carson Creek. The plant contains a 61.9 million-gallon (MG) storage reservoir (CVRWQCB, 2018). Treated effluent is recycled or discharged into Carson Creek, a tributary to the Cosumnes River, during the wet season; typically discharging to Carson Creek between November and April. All of the treated effluent is recycled for beneficial reuse between May and October. EDHWWTP has an average dry weather flow (ADWF) buildout capacity of 4.0 million gallons per day (mgd).

Recycled water produced at the EDHWWTP is distributed for irrigation of residential landscape areas, commercial landscape areas, and recreational turf. Treated effluent specifications and the use of recycled water is permitted under Master Reclamation Permit Order No. 5-01-146 issued by the Central Valley Regional Water Quality Control Board. The District's Carson Creek surface water discharge is regulated by Order No. R5-2017-0085-002 and National Pollution Discharge Elimination System (NPDES) Permit No. CAG585001, adopted October 1, 2018.

Deer Creek Collection System

The Deer Creek Collection System abuts the El Dorado Hills Collection System and services the Western and Mother Lode areas within the County, encompassing 15 and 8 square miles respectively. Through 2015, there were approximately 10,000 sewer connections equating to approximately 11,075 EDUs located within the system boundary. The collection system includes

roughly 204 miles of pipeline and 30 lift stations. Pipelines are comprised of gravity sewers, force mains, and District owned laterals. The Deer Creek collection system can be seen in Figure 7-8 below (EID, 2018e. Wastewater from this collection system is treated at the Deer Creek Wastewater Treatment Plant (DCWWTP).

Figure 7-7: El Dorado Hills Wastewater Collection System.

Source: El Dorado Irrigation District Sewer System Management Plan

The DCWWTP receives flow from portions of Placerville, Diamond Springs, El Dorado, Shingle Springs, and Cameron Park. The plant is located in an area bordered by Deer Creek to the north and a smaller tributary creek to the south. The Plant has an ADWF buildout capacity of 3.6 mgd. Treated effluent is discharged to Deer Creek, with a portion of the flow recycled for irrigation. EID is required to monitor the temperature of treated effluent discharged to Deer Creek in order to maintain downstream riparian habitat and provide water for beneficial use under Water Rights Order No. R5-2014-0081 (NPDES No. CA0078662).

As of 2008, approximately 35 percent of the treated effluent produced by the DCWWTP was recycled and distributed for irrigation of residential landscape areas, commercial landscape areas, and recreational turf. Recycled water is also utilized for fire suppression and dust control in a few areas.

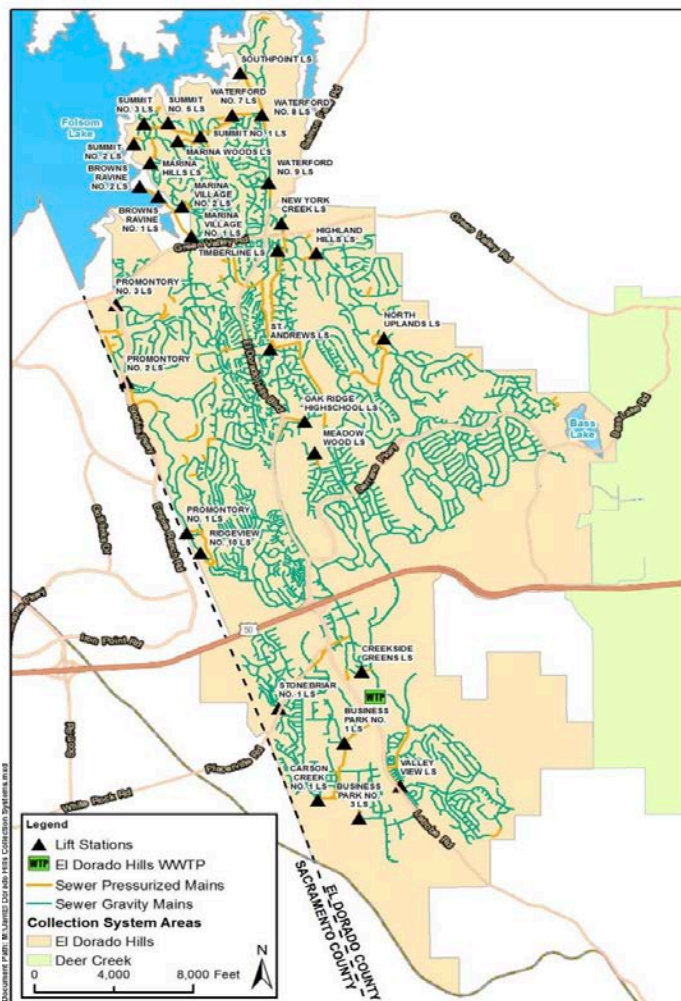
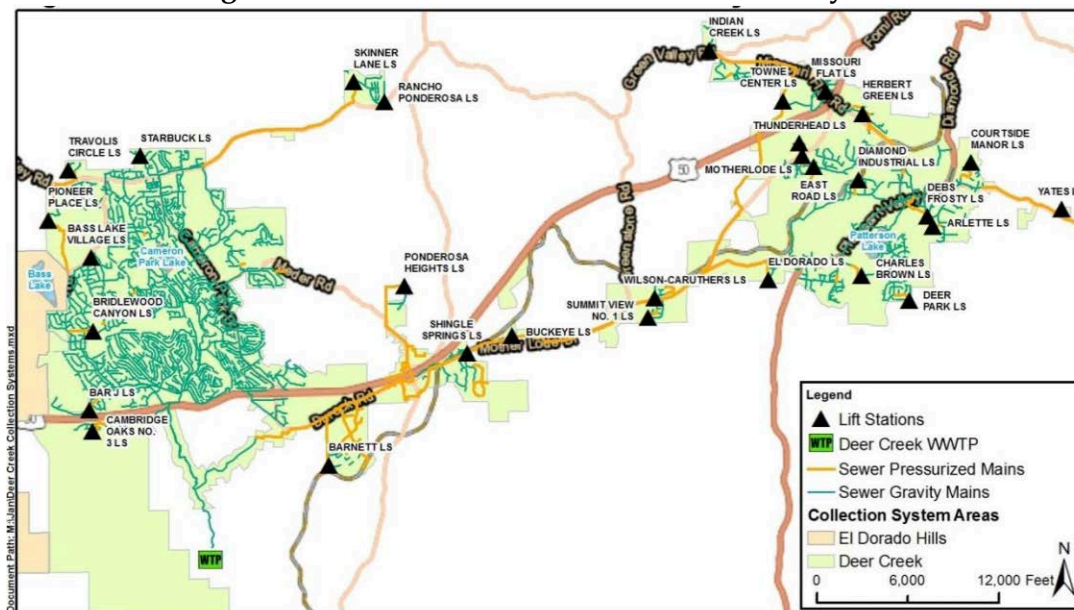


Figure 7-8: Deer Creek Wastewater Collection System

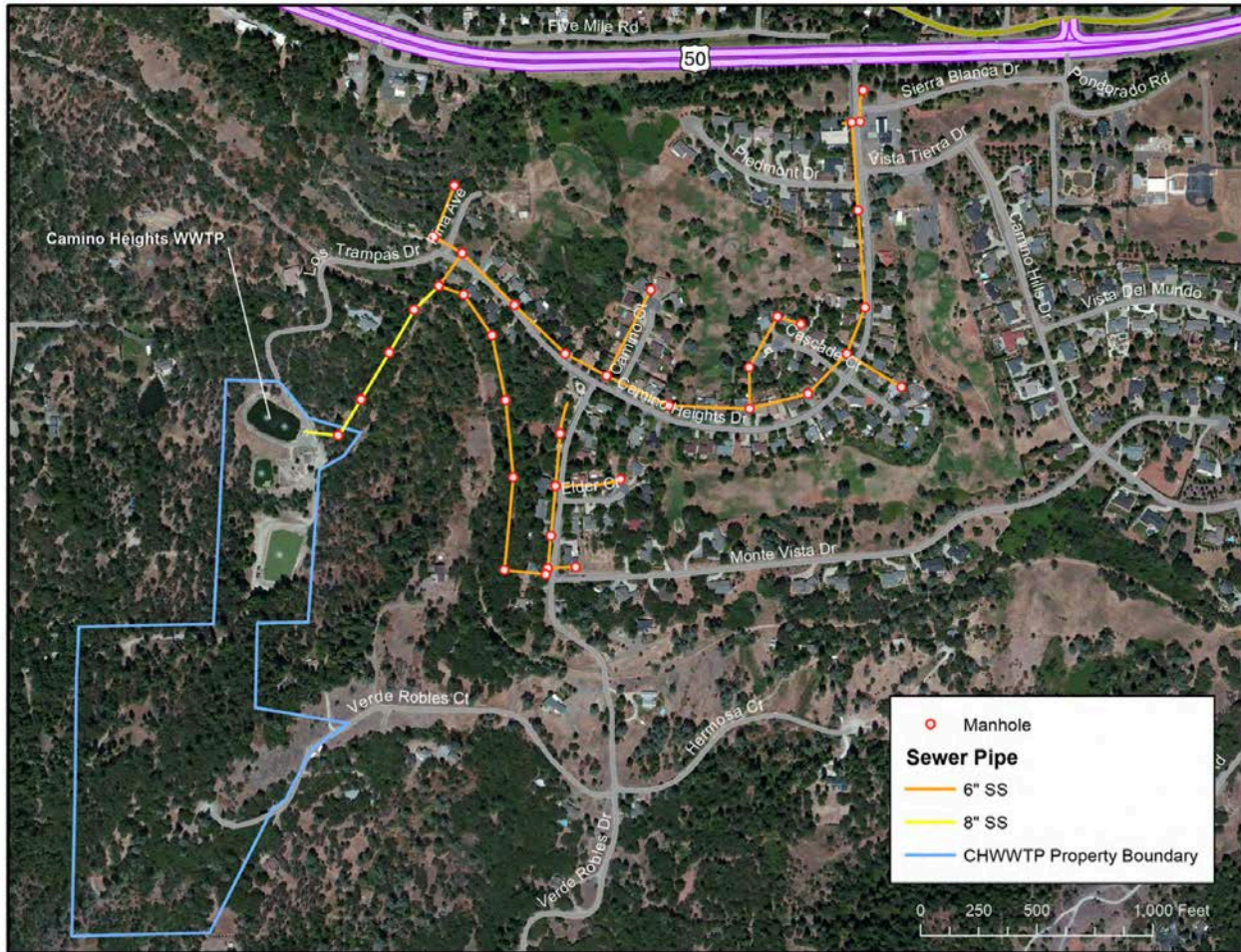


Source: El Dorado Irrigation District Sewer System Management Plan

Camino Heights Collection System

The Camino Heights service area encompasses approximately 0.3 square miles (13,068 acres) along Highway 50, just four miles east of the City of Placerville. The collection system has approximately 9,000 feet of gravity sewers and no lift stations. The Camino Heights Wastewater Treatment Plant (CHWWTP) serves a community of approximately 280 people with roughly 121 active sewer connections located within the sewer collection area. The CHWWTP receives domestic wastewater generated from residential homes located within the community and a few commercial locations. The plant currently has a rated ADWF capacity of 60,000 gallons per day (gpd) and wet weather designed flow of 76,000 gpd. The collection system, treatment plant, ponds and land application areas are regulated under Waste Discharge Requirements, Order No. R5-2012-0045 (EID, 2013). The Camino Heights Collection System location can be seen in Figure 7-9 below.

Figure 7-9: Camino Heights & Gold Ridge Forest Location



Gold Ridge Forest Leach Field System

The Gold Ridge Forest Subdivision is made up of homes in a small, densely populated area in Pollock Pines. A portion of this subdivision sits atop impervious agglomerate, called lava caprock. The adverse characteristics of the geology in the area warranted a community leach field outside of the lava caprock area to service the subdivision. The Gold Ridge Forest wastewater system services a community of approximately 45 single family residential homes with an estimated service population of approximately 120 people (EID, 2013). The system is comprised of a gravity collection system, septic tank battery, and disposal facilities. Treatment and disposal facilities provide an ADWF capacity of 12,500 gpd (EID, 2013). The Gold Ridge Forest wastewater system is currently regulated by Order No 5-00-135, which was adopted June 1, 2000. The Gold Ridge Forest Subdivision location can be seen in Figure 7-9 above.

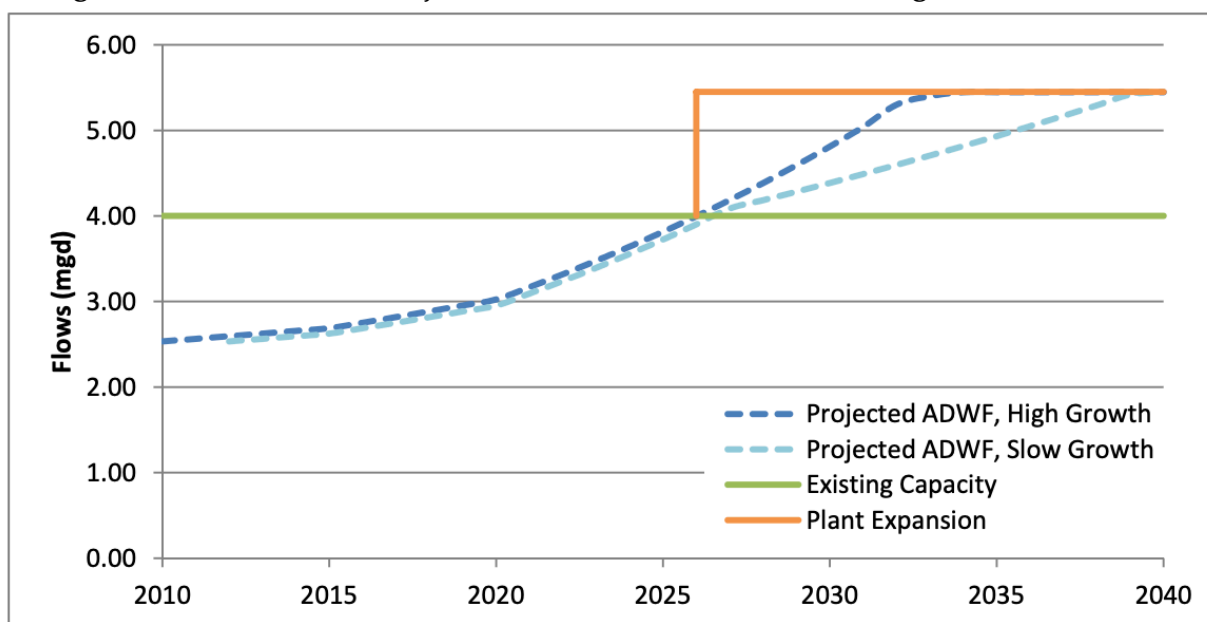
Wastewater Capacity/Demand

Demand for sewer services are influenced by population and land-use as well as any new development occurring within the District. Because the District does not have the legal authority

to make land use decisions, wastewater capacity needs and demand is anticipated through new developments and residential subdivisions approved by The County of El Dorado. Prolonged drought and associated water conservation measures can also result in inflow reduction to EID collection and treatment systems. The Wastewater Facilities Master Plan (WFMP) for the District was last updated in 2013. Growth rates used to project future development in the wastewater service areas as part of the WFMP are consistent with those used to project future water demands (EID, 2013). It is important to note that since the WFMP document was developed, the County adopted a lower 1.03% growth rate.

As of 2013, the projected average dry weather flow (ADWF) in the El Dorado Hills Collection system is expected to approach the existing EDHWWTP rated capacity by 2026. To accommodate future growth in the system, the Wastewater Facilities Master Plan recommends expansion of the EDHWWTP to 5.45 mgd. Projected flows and future expansion for EDHWWTP can be seen in Figure 7-10 below. The Plan recommends the District expand the EDHWWTP by 2025, however actual flows have been less than forecast in 2013 and EID has no near-term current plans to expand the capacity.

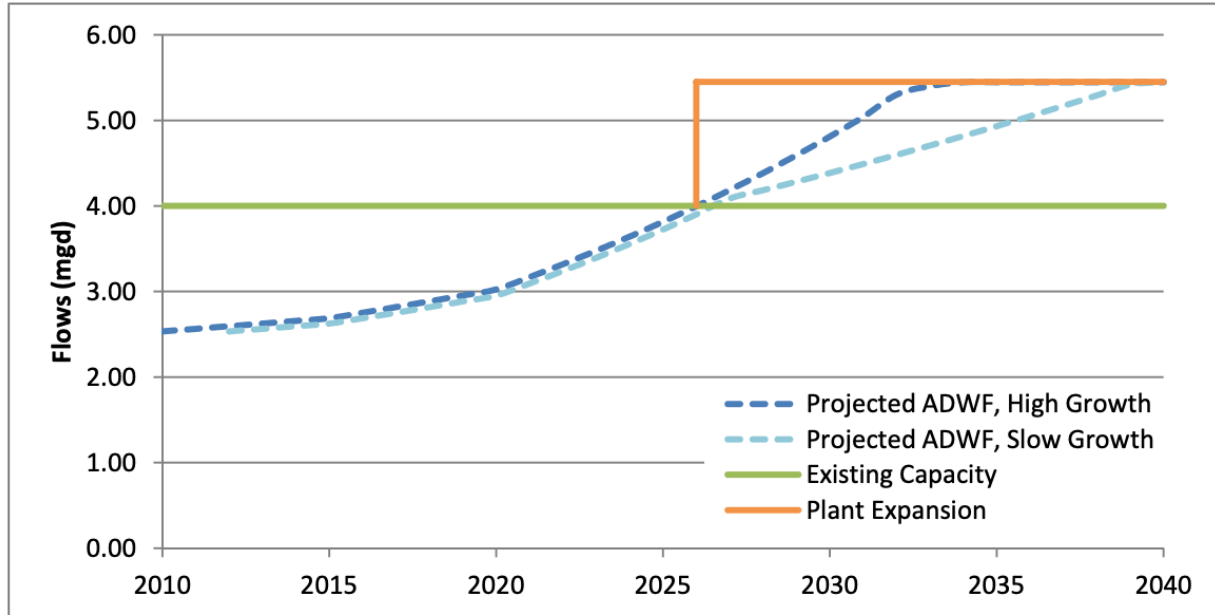
Figure 7-10: EDHWWTP Projected ADWF for Slow Growth & High Growth Scenarios



Source: EID Wastewater Facilities Master Plan, 2013

For the Deer Creek Collection System, the 2013 Wastewater Facilities Master Plan recommends expansion of the EDCWWTP to 5.0 mgd as the system is expected to reach capacity between 2022 and 2032 as shown in Figure 7-11 below. The Plan recommends the District expand the DCWWTP by 2029. Actual flows have been less than forecast in 2013 and EID has no near-term current plans to expand the capacity.

Figure 7-11: DCWWTP Projected ADWF for Slow Growth & High Growth Scenarios



Source: EID Wastewater Facilities Master Plan, 2013

The 2013 Wastewater Facilities Master Plan utilized a hydraulic model to identify and evaluate deficiencies in the District’s existing collection system. Developers will be responsible for providing new systems servicing new developments; however, the District is responsible for providing sufficient capacity in the trunk sewers and force mains to convey future flows under buildout conditions. EID’s infrastructure has been designed to accommodate growth within its District boundaries as outlined in the County of El Dorado General Plan. EID does not reserve wastewater treatment capacity for new development. The District maintains various levels of unused capacity at the WWTPs for additional hookups, but these are evaluated on a first come first serve basis. EID estimates that the population served will grow over the next five years at an average of 0.5 percent per year (see Chapter 5, Population and Growth).

Projected wastewater flows for the District’s El Dorado Hills and Deer Creek Collection Systems are based on the County’s General Plan Land Use designations; and the number of planned connections included in the Specific Plans for the communities of Bass Lake Hills, Carson Creek, El Dorado Hills, Northwest El Dorado Hills, Promontory, and Valley View. This information was combined with the District’s wastewater generation rates. Projected wastewater flows will impact both the extent and timing of wastewater collection, treatment plant operations, and treated effluent disposal improvements, as well as the availability of additional recycled water supplies. Table 7-13 below shows future flow projects for EDHWWTP and DCWWTP.

Table 7-13: Future Flow Projects for EDHWWTP & DCWWTP		
	EDHWWTP (mgd)	DCWWTP (mgd)
Existing Average Dry Weather Flow*	2.65	2.64
Future Additional Flow at Buildout	2.80	2.36
Total Projected Average Dry Weather Flow	5.45	5.00
*Equal to the average of 2006 through 2009 average dry weather flow (ADWF). Per the District's discharge permits, ADWF is based on the average daily flow over three consecutive dry months (e.g., July, August, and September)		
<i>Source: EID Wastewater Facilities Master Plan, 2013</i>		

Although EID's collection, treatment, and disposal infrastructure are generally sized to accommodate anticipated growth for the next 5-10 years, incremental planning is required on a project-by-project basis to ensure adequate capacity. This requires close coordination between EID and the County for planning future growth. When a new residential neighborhood is constructed, the private developer typically builds the sewer pipeline collection system, sized only to serve the specific new neighborhood. As mentioned previously, a Facility Improvement Letter Request (FIL) is required to allow District engineering staff to determine if the existing system has adequate capacity to serve the proposed development, and will identify improvements and upgrades to EID infrastructure that may be required to serve the new project (EID, 2019b). Management and maintenance of these pipelines is typically specified in the project conditions of approval in which property owners have sole responsibility for clearing stoppages, inspecting, maintaining, and repairing the upper lateral, while the District owns and is responsible for clearing stoppages and for inspecting, maintaining, and repairing the lower lateral (EID, 2006b). EID also utilizes several best management practices to continue the adequate provision of public services and infrastructure.

Wastewater Relocation Project

The District is currently looking to relocate and consolidate wastewater collection and treatment operations from the Bass Lake Wastewater Collections Operations Facility to the El Dorado Hills Wastewater Treatment Plant site. The District's wastewater collection and maintenance facility located at Bass Lake has been in operation for several decades. In light of the constraints and costs associated with continuing operations at the Bass Lake site, the District has sold the property and is preparing plans to relocate the wastewater collections and maintenance operations to the EDHWWTP site.

In June of 2017, EID Board of Directors authorized a purchase and sale agreement with the El Dorado Hills Community Services District (EDH CSD) for the sale of EID's Bass Lake parcel that currently supports EID's wastewater collections operations and maintenance. The purchase and sale agreement are contingent upon the successful relocation of the EID's operations, including

completion of environmental review, obtaining necessary County land use approvals, and construction of facility improvements at the EDHWWTP site.

The sale of the Bass Lake property will allow the District to utilize the sale proceeds to help develop improvements at the EDHWWTP to support the District's wastewater collection and maintenance operations together with the existing wastewater treatment operations and maintenance activities already existing at the EDHWWTP. The purpose of the proposed relocation project is to consolidate the wastewater collection and treatment operations in the El Dorado Hills area, while concurrently addressing facility improvement costs and the increasingly constrained operations of the current Bass Lake property.

In order for the EDHWWTP site to accommodate the relocated operations, the District is proposing to make various site improvements, including:

- improved parking and access;
- construction of a new multi-use building; and
- construction of additional equipment and storage buildings.

The District has received a Conditional Use Permit with The County of El Dorado, to allow for the relocated operations and site improvements at the EDHWWTP.

In addition to the relocation project, the District has also completed odor control upgrades at the EDHWWTP facility. The District has entered into an agreement with Borrego Solar to expand the existing solar photovoltaic array located at the facility to reduce energy costs associated with wastewater treatment (EID, 2019b; 2019c).

Relationship of Wastewater Collection and Treatment Service to the SOI

The provision of wastewater services to the SOI is anticipated to be minimal. Future demand forecasts are very low for the District, although a few projects may annex to the District and receive services. Total combined permitted average dry weather flow is 7.6 mgd while the average dry weather daily plant flow from both plants in 2018 was 3.17 mgd. The District does not reserve wastewater capacity for new development. Additional connections are evaluated on a first come first serve basis. EID's WWTPs have been able to treat all influent; at no time was peak flow capacity exceeded. The District does not issue service letters as services are not guaranteed until purchased (EID, 2019a). EID Wastewater Facilities Master Plan conducted modeling and capacity analysis out to the year 2030. However, this document was completed in 2013 and does not reflect any recent collection and treatment service upgrades.

7.2.b: Infrastructure and Public Facilities

Infrastructure development and maintenance is an important part of the service that EID provides. EID has a Capital Improvement Plan as part of its FY 18/19 Budget. EID has \$880 million in net assets (i.e. those assets that exceed liabilities) (Financial Report CAFR, 2018).

Existing Wastewater Facilities

EID sewage collection system consists of approximately 443 miles of sewer lines, 61 lift stations, and 4 sewage treatment facilities. As mentioned in the previous section, the District has four permitted wastewater collection systems: El Dorado Hills, Deer Creek, Camino Heights, and Gold Ridge Forest. Of those, the El Dorado Hills and Deer Creek collection systems are the largest and are served by a series of lift stations, forced mains, and gravity mains to convey water to the respective wastewater treatment plants, the El Dorado Hills Wastewater Treatment Plant (EDHWWTP) and the Deer Creek Wastewater Treatment Plant (DCWWTP).

El Dorado Hills Wastewater System

The collection system for the El Dorado Hills wastewater system is comprised of 34 lift stations and 285 miles of pipeline ranging between 2-inches and 36-inches in diameter. Pipes are gravity sewers, force mains, and customer laterals owned by the District with materials consisting of polyvinyl chloride (PVC), ductile iron, asbestos cement (AC), and vitreous clay that were installed between 1960 and 2012. Table 7-14 summarizes the pipelines for the El Dorado Hills wastewater system. The system also includes 34 lift stations constructed from 1973 to 2012, as summarized in Table 7-15 below.

Pipe Diameter	Force Main^{*(a)}	Gravity Sewer^{*(a)}	Total Pipe Length^{*(b)}
4	7,010	-	7,010
6	8,130	737,546	745,676
8	14,200	168,020	182,220
10	2,890	26,180	29,070
12	19,610	26,760	46,370
14	1,900	-	1,990
15	-	18,870	18,870
18	3,570	27,970	31,540
20	6,640	-	6,640
21	-	13,650	13,650
24	-	1,350	1,350

Pipe Diameter	Force Main ^{*(a)}	Gravity Sewer ^{*(a)}	Total Pipe Length ^{*(b)}
27	-	1,840	1,840
30	-	1,660	1,660
36	-	650	650
Total	64,040	1,024,496	1,088,536

*Measured in linear feet

Notes for Table 7-14: ^{a)}Length of pipe by diameter is based on the collection system hydraulic model for gravity pipelines 8 inches and larger and all force mains. Length of gravity pipeline less than 8 inches in diameter is estimated based on CAD data provided by the District.

^{b)}Total pipe length does not include District-owned laterals. Source: EID Wastewater Facilities Master Plan, 2013

Lift Station	Year Constructed	No. of Pumps	Storage Capacity (gal) or Backup	Generator	Rehab
Brown's Ravine 1	1974	2	Wetwell only	NA	
Brown's Ravine 2	1974	2	Wetwell only	NA	
Business Park 1	1985	2	Standby Power	200kW Diesel	2013
Business Park 2	1985	2	Standby Power	100 kW Diesel	2014/2015
Business Park 3	1985	2	Standby Power	100 kW Diesel	2015/2016
Creekside Greens	2002	2	Standby Power	10 kW Diesel	
Highland Hills	2003	2	Standby Power	60 kW Diesel	
Lakeridge Oaks	2012	2	2,700	NA	
Marina Hill	1995	2	Wetwell only	NA	
Marina Village 1	1973	4	20,000 + Standby Power	265 kW Diesel	
Marina Village 2	1980	2	16,000	NA	
Meadow Wood	2004	2	4,000	NA	
Mormon Island	1984	2	Standby Power	40 kW Diesel	(a)
New York Creek	1983	3	Standby Power	200 kW Diesel	2006
North Uplands	1994	2	Standby Power	209 kW Propane	
Oak Ridge High School	1981	2	Standby Power	40 kW Diesel	
Promontory No. 1	2001	4	Standby Power	240 kW Diesel	
Promontory No. 2	2001	4	Standby Power	240 kW Diesel	

Lift Station	Year Constructed	No. of Pumps	Storage Capacity (gal) or Backup	Generator	Rehab
Promontory No. 3	2001	4	Standby Power	60 kW Diesel	
Ridgeview No. 7	1987	2	Standby Power	110 kW Propane	(a)
Ridgeview No. 10	1988	2	Standby Power	35 kW Propane	
St. Andrews	1985	6	4,000 + Standby Power	510 kW Diesel	
Southpoint	1991	2	Standby Power	100 kW Diesel	2015/2016
Stonebriar No. 1	2001	2	Standby Power	135 kW Diesel	
Summit 1	2009	2	Standby Power	75 kW Propane	(a)
Summit 2	1988	2	Standby Power	20 kW Propane	
Summit 3	1988	2	Standby Power	100 kW Diesel	2012
Summit 5	1988	2	Standby Power	40 kW Diesel	
Summit 6	1996	2	10,000	NA	
Timberline	2011	2	Standby Power	480 kW Diesel	2013
Valley View	2006	3	Standby Power	150 kW Diesel	
Waterford 7	1988	2	Standby Power	100 kW Diesel	2014/2015
Waterford 8	1988	2	Standby Power	35 kW Propane	
Waterford 9	1988	2	Standby Power	35 kW Propane	
(a) The District is investigating the potential elimination of these lift stations. Source: EID Wastewater Facilities Master Plan, 2013					

The EDHWWTP was constructed in 1961 and over the years the infrastructure has been improved to meet growing demands and to produce recycled water. The wastewater treatment plant processes influent from the El Dorado Hills collection system. Liquid treatment processes consist of headworks, screening and grit removal, primary clarifiers, biological nutrient removal basins, activated sludge basins with nitrification, secondary clarifiers, tertiary filters, and ultraviolet light (UV) disinfection. Solids handling processes consist of waste activated sludge (WAS), dissolved air flotation thickeners, anaerobic digesters, and belt filter presses. Dewatered biosolids are hauled offsite for use in biosolids land applications. The plant was expanded in 2010 to an average dry weather flow (ADWF) capacity of 4.0 million gallons per day (mgd). As of 2018, the ADWF for the plant was 1.80 mgd. Table 7-16 shows historic ADWF for the plant.

Year	ADFW (mgd)*
2007	2.70
2008	2.74
2009	2.44
2010	2.13
2011	2.12
2012	2.17
2013	2.07
2014	1.85
2015	1.80
2016	2.30
2017	2.50
2018	2.60
2019	2.50

*Average dry weather flow is based on the average daily flow over three consecutive dry weather months, per the District’s discharge permit.
 Source: EID Wastewater Facilities Master Plan, 2013; EID CAFR, 2019

Deer Creek Wastewater System

The collection system for the Deer Creek wastewater system consists of approximately 280 miles of pipeline, ranging from 4-inch to 36-inches in diameter, and 30 lift stations as shown in Tables 7-17 and 7-18. Pipelines are a combination of gravity sewers, force mains, and District owned laterals installed between 1961 and 2012. Pipe materials include asbestos cement, vitreous clay, PVC, and high-density polyethylene. The Mother Lode Force Main is critical infrastructure for the District as it is the only means for routing wastewater from the Mother Lode Service Area to the DCWWTP for treatment and disposal.

Pipe Diameter	Force Main^{*(a)}	Gravity Sewer^{*(a)}	Total Pipe Length^{*(a,b)}
4	670	-	670
6	16,450	604,162	620,612
8	19,830	161,220	181,050
10	-	27,460	27,460
12	43,240	30,110	73,350
14	-	780	780
15	70	4,520	4,590
18	-	14,050	14,050
20	1,080	-	1,080

Pipe Diameter	Force Main ^{*(a)}	Gravity Sewer ^{*(a)}	Total Pipe Length ^{*(a,b)}
21	-	3,070	3,070
24	-	22,580	22,580
27	-	1,550	1,550
30	-	870	870
36	-	6,370	6,370
Total	81,340	876,742	958,082

*Measured in linear feet
^(a)Length of pipe by diameter is based on the collection system hydraulic model for gravity pipelines 8 inches and larger and all force mains. Length of gravity pipeline less than 8 inches in diameter is estimated based on CAD data provided by the District.
^(b)Total pipe length does not include District-owned laterals. *Source: EID Wastewater Facilities Master Plan, 2013*

Lift Station	Year Constructed	No. of Pumps	Storage Capacity (gal) or Backup	Generator	Rehab
Arlette	1996	2	960	NA	
Bar J	1987	2	Standby Power	40 kW Diesel	
Barnette	2009	2	Standby Power	62 kW Diesel	
Bass Lake Village	1994	2	Standby Power	30 kW Propane	
Bridlewood Canyon	1989	2	Standby Power	100 kW Propane	2014/2015
Buckeye	1977	2	-	NA	
Cambridge Oaks	2003	2	-	NA	
Charles Brown	1965	2	Standby Power	60 kW Diesel	
Courtside Manor	1999	2	-	NA	
Deb's Frosty	1989	2	Standby Power	80 kW Diesel	
Deer Park	1986	2	Standby Power	40 kW Diesel	
Diamond Industrial	1981	2	Standby Power	26 kW Diesel	
East Road	1965	2	Standby Power	80 kW Diesel	
El Dorado	1977	4	4,630,000	350 kW Diesel	2013-2015
Herbert Green	1967	2	Standby Power	100 kW Diesel	
Indian Creek	1988	2	Standby Power	75 kW Propane	
Missouri Flat	2004	2	6,390	40 kW Diesel	
Mother Lode	2008	2	2,400	NA	

Lift Station	Year Constructed	No. of Pumps	Storage Capacity (gal) or Backup	Generator	Rehab
Pioneer Place	2000	2	Standby Power	100 kW Propane	
Ponderosa Heights	2004	2	20,000	NA	
Rancho Ponderosa	1964	2	-	NA	2014/2015
Shingle Springs	2006	3	Standby Power	100 kW Diesel	
Skinner Lane	2009	4	Standby Power	155 kW Diesel	
Starbuck	1982	2	6,900	NA	
Summit View No. 1	2009	2	18,800	NA	
Thunderhead	1979	2	1,900	NA	
Town Center	1993	2	38,900	NA	
Travolis Circle	1993	2	-	NA	
Wilson-Caruthers	2000	4	10,000	135 kW Propane	
Yates	1948	2	Standby Power	26 kW Diesel	2013

Source: EID Wastewater Facilities Master Plan, 2013

The DCWWTP receives flows from the towns of Diamond Springs, El Dorado, Shingle Springs, and Cameron Park. Liquid treatment at the DCWWTP includes influent headworks with manual bar screen, automated fine screening, grit removal, primary clarifiers, biological nutrient removal, flow equalization, activated sludge basins, secondary clarifiers, tertiary filtration, and ultraviolet disinfection. Solids handling processes include gravity thickeners, aerobic digestion/storage tanks, belt filter press dewatering, lime treatment, and sludge hauling. Dewatered biosolids are applied to local farmland or hauled to a landfill. Wastewater routed to the emergency storage basin or equalization tanks is returned to the headworks. The plant had an average dry weather flow (ADFW) capacity of 3.6 million gallons per day (mgd) in 2013. As of 2018, the ADFW was 1.90 mgd and this increased slightly to 2.10 in the year 2019. Table 7-19 shows historic ADFW for the plant.

Table 7-19: DCWWTP Historic ADFW	
Year	ADFW (mgd)*
2007	2.69
2008	2.60
2009	2.39
2010	2.45
2011	2.47
2012	2.23
2013	2.19
2014	2.07
2015	1.90
2016	1.70
2017	1.90
2018	1.90
2019	2.10
*Average dry weather flow is based on the average daily flow over three consecutive dry weather months, per the District’s discharge permit. Data Source: EID, CAFR for FY2019 published in 2020 and EID Wastewater Facilities Master Plan, 2013;	

Camino Heights Wastewater System

The Camino Heights collection system is comprised of approximately 9,000 feet of gravity sewers between 6-inches and 8-inches in diameter. There are no lift stations located in the service area. Pipe materials consist of PVC and asbestos cement, which were installed around 1964.

The Camino Heights Wastewater Treatment Plant (CHWWTP) receives wastewater from mostly single-family homes located within Camino Heights and a few commercial properties. Liquid treatment processes consist of mechanical screening, two oxidation and one polishing pond, as follows:

- Pond 1: An approximately 3.7-acre-foot clay lined oxidation pond equipped with two 7.5 horsepower (HP) mechanical aerators;
- Pond 2: An approximately 1.3-acre-foot oxidation pond equipped with one 7.5 HP mechanical aerator; and
- Pond 3: An approximately 6.8-acre-foot polishing pond equipped with one 7.5 HP mechanical aerator.

The ponds are operated in series with effluent from Pond 3 pumped to a contact tank for disinfection by sodium hypochlorite. Disinfected wastewater flows through sand filters and treated effluent is disposed of via application to a 4.4-acre spray field and 1.5-acre subsurface drip

irrigation field. A tailwater collection system located at the downhill end of the spray field is used to collect surface run-off, which is then returned to Pond 3 (EID, 2013). In 2018, average dry weather daily plant flow was 0.009 mgd.

Gold Ridge Forest Wastewater System

The Gold Ridge Forest wastewater system serves 45 single family residential homes. The gravity collection system routes wastewater to a 19,200-gallon septic tank battery which is comprised of twelve 1,600-gallon septic tanks arranged in three parallel lines (EID, 2013). The tanks are designed to provide treatment prior to gravity flow to 800 linear feet of leach lines. Unlike the previous three wastewater systems, which are owned by the District, the Gold Ridge Forest Owners Association owns the land associated with the wastewater system. EID is only responsible for operation of the wastewater treatment facilities.

Recycled Water System

Recycled water is produced at the EDHWWTP and the DCWWTP and delivered to customers through 93 miles of interconnected transmission and distribution lines, six pump stations, four storage tanks, pressure reducing stations, and appurtenant facilities located within the El Dorado Hills and Cameron Park communities. Recycled water is used for irrigation of residential developments, schools, parks, golf courses, and commercial/industrial landscaping within these communities. The existing recycled water infrastructure system can be seen in Figure 7-5 in the previous section. Details on the six pump stations are listed in Table 7-20, below.

Table 7-20: Recycled Water Pump Stations			
Pump Station	No. & Type of Pumps	Pipe Diameter	Pump Flows
EDHWWTP Recycled Water Pump Station	2 pumps - 200 HP turbine	8-,10-, and 18-inch	Between 1,000 and 1,900 gpm
DCWWTP Recycled Water Pump Station	3 pumps – 100 HP & 2 pumps - 200 HP	18-inch	100 HP between 350 and 700 gpm, 200 HP between 750 and 1,250 gpm
Silva Valley Booster Pump Station	3 pumps – 100 HP	NA	3,900 gpm
Village C Booster Pump Station	2 pumps – 200 HP & 1 pump – 125 HP	NA	2,600 gpm
Village K Booster Pump Station	1 pump – 10 HP & 2 pumps – 30 HP	NA	840 gpm
Bass Lake Booster Pump Station	2 pumps – 250 HP	NA	5,500 gpm
<i>Source: EID Wastewater Facilities Master Plan, 2013</i>			

Recycled water produced at the EDHWWTP is pumped through an 18-inch transmission main to the Vineyard Court, Whiterock Village Apartments, Town Center, Carson Creek and customers along Silva Valley Parkway and within the Serrano Development. Recycled water is also available to Creekside Greens and El Dorado Estates. A 10-inch transmission main parallels Latrobe Road leading to the former Wetzel-Oviatt property and serves the Euer Ranch Development. Recycled water produced at the DCWWTP is pumped through an 18-inch transmission main to Highway 50 then through a 16-inch main to the Bridlewood Tank which serves areas located at the highest elevations within the Serrano Development.

Located at the EDHWWTP is an approximately 61.9-million-gallon storage reservoir to balance the rate of wastewater generated with recycled water demands, and to allow the plant to operate without discharging into Carson Creek during the dry season. The reservoir is unlined and is contained on the west side by a rock berm designated as a dam by the California Division of Safety of Dams (<https://water.ca.gov/damsafety/>). A reservoir effluent pump station allows the reservoir to be drawn down to low levels and the majority of the storage capacity to be used during the dry season.

The District has installed several storage tanks to address the daily imbalance between recycled water production and demand. The storage tanks allow the EDHWWTP and DCWWTP to produce recycled water during the day so that flows are available for use at night when peak recycled water demand occurs. The four existing recycled water storage tanks are detailed in Table 7-21 below.

Tank Location	Base Elevation (ft above MSL)	Tank Diameter (ft)	Volume (mg)
Valley View Tank	775	122	2.0
Valley View Tank	915	122	2.0
Village C Tank	1,125	120	2.0
Bridlewood Tank	1,410	150	4.0
Total Storage Capacity			10.0
<i>Source: EID Wastewater Facilities Master Plan, 2013</i>			

Wastewater Facilities, Operations and Maintenance

EID currently provides wastewater collection services to approximately 77 square miles and approximately 62,000 residents (EID, 2018e) with a total of 23,652 wastewater connections. The District’s pump stations, force mains, and related equipment are operated and maintained by the District’s Operations Department. Operations personnel are responsible for preventative,

corrective, and predictive maintenance of pump stations and associated force mains (EID, 2019b). EID administers several routine maintenance programs as well as constructs capital improvement projects to identify, diagnose, and resolve wastewater conveyance deficiencies. EID performs closed-circuit television inspections, occasional smoke testing, and monitors flow meter data to catch deficiencies. To ensure pipes remain open and flowing, EID performs regular hydro cleaning as well as targeted root abatement chemical applications. Known structural deficiencies are addressed by either in-house construction staff or by contracted capital improvement projects with construction activities based on the most critical deficiencies to maximize efforts.

EID's 2013 Master Plan and Master Plan Environmental Impact Report (EIR) describe proposed improvements to the collection system and treatment plant needed to accommodate planned development within EID service area through the year 2030. Capital Improvements planned for the five-year period 2020 – 2024 relating to expanding the WWTP and associated infrastructure to increase the rated capacity are listed in Table 7-22, next page.

The age of facilities and infrastructure on which EID depends varies. EID replaces and repairs infrastructure on a regular basis. In addition, EID has implemented collection system best management practices (BMPs) and addresses preventative maintenance and scheduled replacement of aging infrastructure. Generally, new development occurring within the District's existing boundaries could result in an increase in demand for sewer services and the need for additional infrastructure.

Risks to wastewater infrastructure and service: Wastewater systems are critical to every community. Protection of the wastewater system is important to EID to ensure proper sanitation. General risks to wastewater infrastructure and service includes employee safety, compliance with regulations, reliability, disease prevention, maintenance, and carbon management. Sources of risk related to our natural environment include drought, earthquake, extreme cold or hot weather, and wildfire. Risks created by humans include terrorist acts, vandalism, pranks, or cyber-attack (Johansen, 2007). Micro-plastics and nano particles potentially entering the system are a water quality related risk (Cotruvo, 2020). The U.S. Environmental Protection Agency

Table 7-22: 2020-2024 Capital Improvement Plan Wastewater Projects

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
17023	Rancho Ponderosa Lift Station Relocation	1	-	\$ 480,000	-	-	-	\$ 480,000
PLANNED	DOT Construction Projects	1	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 10,000	\$ 50,000
PLANNED	Wastewater Arc Flash Risk Assessment Program	1	\$ 65,000	\$ 65,000	\$ 65,000	\$ 65,000	\$ 65,000	\$ 325,000
STUDY09	Camino Heights WWTP Study	1	\$ 50,000	-	-	-	-	\$ 50,000
15036	Silva Valley - EDH Sewer line	2	\$ 130,000	-	-	-	-	\$ 130,000
16008	South Point Lift Station Rehab	2	\$ 1,918,108	-	-	-	-	\$ 1,918,108
16030	Solar Assessment and Design	2	\$ 483,385	-	-	-	-	\$ 483,385
17020	WW Collection System Pipeline Replacement	2	-	-	\$ 900,000	-	-	\$ 900,000
17033	DCWWTP Process Control Design	2	\$ 1,200,000	-	-	-	-	\$ 1,200,000
17034	Wastewater Collections Facility Relocation	2	\$ 1,480,000	\$2,225,000	-	-	-	\$ 3,705,000
17046	Strolling Hills Pipeline Improvements	2	\$ 25,000	\$ 25,000	\$ 200,000	\$1,400,000	\$1,400,000	\$ 3,050,000
18003	Wastewater Lift Station Communication Upgrade	2	\$ 480,000	\$ 580,000	\$ 580,000	\$1,080,000	\$1,080,000	\$ 3,800,000
18027	El Dorado Lift Pipeline Replacement	2	\$ 550,000	-	-	-	-	\$ 550,000
18035	EDHWWTP [WAS DRAFT]? Rehabilitation	2	\$ 300,000	\$ 930,000	\$ 930,000	-	-	\$ 2,160,000
18053	EDHWWTP Belt Press Programmable Logic Controller (PLC) Replacement	2	-	\$ 280,000	-	-	-	\$ 280,000

Project No.	Project Description	Priority	Planned 2020	Planned 2021	Planned 2022	Planned 2023	Planned 2024	2020-2024 TOTAL
18063	EDHWWTP Solar Inverters	2	\$ 330,000	-	-	-	-	\$ 330,000
19005	Town Center Force Main Phase 4	2	-	-	-	\$ 100,000	\$2,850,000	\$ 2,950,000
PLANNED	Closed Circuit Television Sewer Inspection Equipment	2	\$ 425,000	-	-	-	-	\$ 425,000
PLANNED	Collections Master Radio PLC Replacement	2	\$ 150,000	-	-	-	-	\$ 150,000
PLANNED	Collections Radio Path Design	2	\$ 215,000	\$ 200,000	-	-	-	\$ 415,000
PLANNED	EDHWWTP PLC Replacement Project	2	\$ 85,000	\$ 225,000	\$ 275,000	\$ 275,000	-	\$ 860,000
PLANNED	SCADA Wastewater Hardware Replacement Program	2	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 50,000	\$ 250,000
PLANNED	Wastewater Asset Replacement Program	2	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 200,000	\$ 1,000,000
PLANNED	Wastewater Lift Station Upgrade Program	2	\$ 80,000	\$ 300,000	\$1,500,000	\$ 300,000	\$1,500,000	\$ 3,680,000
PLANNED	Wastewater Pipeline Replacement & Rehabilitation Program	2	\$ 100,000	\$ 100,000	\$1,050,000	\$1,050,000	\$1,050,000	\$ 3,350,000
PLANNED	WWTP Assessments	2	\$ 200,000	\$ 200,000	-	-	-	\$ 400,000
PLANNED	WWTP Process Improvement Program	2	\$ 175,000	\$ 325,000	\$ 325,000	\$ 325,000	\$ 325,000	\$ 1,475,000
TOTAL			\$ 8,701,493	\$6,195,000	\$6,085,000	\$4,855,000	\$8,530,000	\$34,366,493

Source: EID 5-year Capital Improvement Plan (2020-2024) Approved Oct. 2019

provides a wastewater utility risk assessment called the Vulnerability Self-Assessment Tool (VSAT) 6.0 and it is available on-line at: https://19january2017snapshot.epa.gov/waterriskassessment/conduct-drinking-water-or-wastewater-utility-risk-assessment_.html . Wastewater utilities have used the VSAT to enhance their security and resiliency and to find the most cost-effective measures to reduce those risks. EID has several plans and practices that work to reduce the potential for future risk to sewer infrastructure and service. EID's Sewer System Management Plan analyses several risks and provides an asset management plan to address these risks. EID's security measures aim to prevent loss of service. EID's Capital Improvement Plan is updated annually and it factors in infrastructure priorities, deficiencies, and input from operations staff. Risk assessment, financing, and staffing are also considered in the long-term management of District facilities.

Relationship of Wastewater Facilities to the SOI




Parcels within the SOI, but outside EID's boundary, are currently unincorporated and are located within the jurisdiction of The County of El Dorado. These parcels do not currently receive municipal sewer service. New development occurring within the SOI would be evaluated in relation to potential impacts on the provision of sewer services. Currently, actual sewage flow is significantly less than total design capacity, suggesting that EID's WWTPs have adequate capacity to accommodate existing and future customers from existing sewer systems (EID, 2019d). According to the County of El Dorado General Plan, Public Services and Utilities Element; Policy 5.3.1.1 states that long term development of public sewer service is encouraged for the communities of Camino, Cedar Grove, and Pollock Pines. These communities currently receive water services from EID, but utilize individual on-site septic systems for wastewater disposal. At this time, there is no indication that EID is looking into expanding wastewater services to these communities. Generally, new development is responsible for construction of all sanitary sewer lines serving each development. However, the cost to provide sewer service to potential development areas has not yet been determined by EID.

7.2.c: Wastewater Determinations:





Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies







Based on the information included in this report, the following written determinations make statements involving this service factor (Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies) which the

Commission must consider as part of a municipal service review³. The determinations listed below are based upon the data presented in this Section and are recommended to the Commission for consideration. The Commission’s final MSR determinations will be part of a Resolution which the Commission formally adopts during a public meeting.

Table 7-23: Summary of Wastewater Services & Infrastructure		
Topic: Wastewater - Public Services		
Indicator	Score	Determination
The District has been diligent in developing plans to accommodate the wastewater and recycled water service needs of current and future constituents. Regularly reviews and updates its wastewater and recycled water service plans to help ensure that infrastructure needs and deficiencies are addressed in a timely manner.		EID approved the most recent Sewer System Management Plan Update (SSMP) in 2019 that guides the proper management, operation, and maintenance of all parts of EID sanitary sewer system under its control. The SSMP aims to reduce and prevent sanitary sewer overflows (SSOs) and mitigate SSOs if they occur. EID’s Wastewater Facilities Master Plan (WFMP) was updated in 2013. The Wastewater Facilities Master Plan recommends expansion of the EDHWWTP to 5.45 mgd when growth dictates and also recommends other infrastructure improvements. EID service departments provide reports and updates to EID Board of Directors and the general public ensure needs are reviewed and addressed.
The District collaborates with multiple other agencies for the delivery of wastewater and recycled water services within EID service area.		EID has cooperated with the El Dorado Hills Community Services District (EDHCSD) by authorizing the sale of EID’s Bass Lake parcel—a part of EDHCSD’s plans for a regional park. EID will continue to cooperate with neighboring agencies and other partners to provide adequate water and sewer services.
Has the District made a significant investment over the last several years in funding various wastewater and recycled water capital improvements that reflects		The District maintains a robust Capital Improvement Plan and corresponding financial plan to enhance the level of its wastewater and recycled water services. For example, In FY2019 EID made investments to

³ The service factors addressed in this report reflect the requirements of California Government Code §56430(a)

<p>a concerted effort by EID to enhance the level and range of its public services?</p>		<p>rehabilitate the wastewater lift station, replace the force main, and rehabilitate the collection systems pipeline. Under the lift station program the District has contracted for the rehabilitation of the Southpointe lift station, which will be complete in fall 2020 and has scheduled the construction of a bypass pipeline to eliminate the Rancho Ponderosa lift station in fall 2020 or spring 2021.</p>
<p><u>Wastewater Services:</u></p> <ul style="list-style-type: none"> ▪ Local municipal dry weather influent flow is sufficient to meet dry weather capacity. ▪ The District has a plan to increase capacity to meet future demand. 		<p>EID’s wastewater services are provided by four separate wastewater systems. EID’s Wastewater Facilities Master Plan and budget includes projects to provide additional infrastructure capacity to accommodate planned growth. However, the modeling for the plan was conducted using data prior to 2013 and should be updated based on current growth projections.</p>
<p><u>Wastewater Facilities in Boundary Area:</u></p> <ul style="list-style-type: none"> ▪ The District has planned for replacement of aging wastewater facilities. ▪ The District has preventative maintenance measures to ensure adequate capacity. 		<ul style="list-style-type: none"> ▪ EID currently provides for adequate services to meet the needs of the existing customers of approximately 23,652 sewer connections. ▪ EID provides wastewater treatment services to 62,000 residents and 882 businesses. ▪ The age of EID’s facilities and infrastructure varies. EID replaces and repairs critical infrastructure on a regular basis. In addition, EID has implemented collection system BMPs and addressed preventative maintenance and scheduled replacement of aging infrastructure.
<p>Is there sufficient capacity to provide wastewater services to the existing SOI?</p>		<p>Extending sewer service to the SOI area would require extensive facilities and infrastructure expansion and this expansion is not practical in the near-term.</p>
<p>Are there sufficient facilities to provide wastewater, services to the existing SOI?</p>		<ul style="list-style-type: none"> ▪ The provision of sewer service to the existing SOI would be coordinated between The County of El Dorado, the private landowner, LAFCO, and EID. Additionally, future public sewer services are suggested by the County of El Dorado General Plan to the communities of Camino, Cedar Grove, and Pollock Pines.

		<ul style="list-style-type: none"> Similar to the 2008 MSR SOI update, it is not practical for EID to expand wastewater services in the next 10 to 20 years to encompass all of the large geographic area contained within its SOI given elevation changes, distance from existing infrastructure and given constraints on its current capacity.
Does the District offer recycled water services?		<p>EID operates a tertiary treated recycled water system from the Deer Creek and El Dorado Hills wastewater treatment plants to serve the western portions of the service area that are plumbed for recycled water. During the past several years, the District has expanded the use of recycled water to include commercial and residential irrigation uses.</p>
Description of recycled water supply and demand		<p>At present, peak season demand for recycled water exceeds the available quantity, requiring the recycled water supply to be supplemented with potable water as needed during the summer. With the existing infrastructure, the District is able to provide roughly 2,400 acre-feet per year of recycled water and is projected to expand to 3,500 acre-feet annually by 2040. EID has considered expansion projects for the recycled water supply, however, does not anticipate pursuing further expansion due to economic feasibility.</p>
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

7.3: HYDROELECTRIC SERVICES

Overview of Hydroelectric Service

Hydroelectric Service is the generation of electricity using flowing water (typically from a reservoir held behind a dam or other barrier) to drive a turbine that powers a generator. The El Dorado Irrigation District currently provides hydroelectric power generation service. Hydroelectric power is classified as a renewable energy resource since it is naturally replenishable and can be used for electric generation on an on-going basis. The District is authorized by the Federal Energy Regulatory Commission (FERC) to sell power generated by its facilities to PG&E. EID is not authorized to provide retail sale⁴ of electricity. EID operates and maintains four storage reservoirs (Lake Aloha, Echo Lake, Silver Lake, and Caples Lake) and the water in these reservoirs (in addition to direct diversion rights) is utilized to generate 21-megawatts of hydroelectric power.

7.3.a: Electric Power Generation

The El Dorado Irrigation District (EID) generates electric power using two different methods:

1. EID'S primary hydroelectric facility is the 21 MW El Dorado Powerhouse located on the South Fork American River below Forebay Reservoir. EID currently sells the power generated to Pacific Gas and Electric Company (PG&E) under a power purchase agreement and does not provide any retail electric utility service.
2. A solar field is located at the El Dorado Hills wastewater treatment plant. Wastewater treatment plants are energy intensive and EID uses the electricity generated at the solar plant to offset a portion of the power cost at this facility. EID's 1-megawatt solar facility saves up to \$250,000 a year on the District's electricity costs (EID, 2011b). EID is in the process of expanding the existing solar at EDHWWTP and constructing a new solar facility at the DCWWTP under power purchase agreements. Since the solar generated electricity is utilized internally for EID operations, and power from this resource is not sold, this MSR does not discuss further details on this solar facility.

⁴An irrigation district that provides wholesale electricity may not begin providing retail electric service without approval of the Local Agency Formation Commission, according to a 2008 ruling from the Third District Court of Appeal. Providing retail electric service would be an exercise of a latent power for a special district such as EID. (Source: California Planning & Development Report. Jul 15, 2008. Court Calls LAFCO Approval Necessary for Special District Service Expansion. Retrieved on January 23, 2020 from: <http://www.cp-dr.com/articles/node-2072>).

3. A small in-conduit hydro generator is connected to one of EID's main water lines at Reservoir 7 facility in Diamond Springs. The station produces electricity to the grid, and EID receives bill credits at other locations based on the amount of power generated at this facility.

EID is both a provider of electricity and a customer for electricity. The District has many facilities that utilize electricity. For example, the energy required to pump water from Folsom Reservoir uphill to EID customers is significant. However, the power used at EID's facilities is separate from the power generated by the hydropower plant. For example, EID's water and wastewater treatment plants purchase electricity from PG&E and participate in the 'Flex Power' program. EID operates these plants as efficiently as possible to save on energy costs (EID, Response to RFI, 2019t). The solar plant at the wastewater treatment plant reduces the utility bill paid to PG&E.

Hydroelectric License - Project 184

EID's hydroelectric facilities are licensed by FERC as Project 184 -- also referred to as the El Dorado Hydroelectric Project. FERC is described on page 7-69 in this MSR section entitled "Regulatory Agencies". Project 184 was initially licensed to PG&E in 1922. Project 184 was subsequently transferred to EID on April 2, 1999, and EID filed an application for new license (relicensing) to FERC in 2001. Details about the FERC License History is provided by EID on its website⁵.

On October 18, 2006, FERC issued a new license to EID to operate and maintain El Dorado Hydroelectric Project No. 184 for a forty-year term (117 FERC §62,044). The new license, which expires October 1, 2046, contains requirements for operating the 21-megawatt El Dorado hydroelectric power generation project. These requirements⁶ include provisions such as:

- Operational conditions
- Minimum streamflow requirements and ramping rates
- Target lake-levels
- Pulse flow releases
- Limitations to spill at Caples Lake and Lake Aloha
- Streamflow and reservoir storage gaging

Resource monitoring

- Adaptive management monitoring program

⁵ FERC License History is provided by EID on the following web link <https://www.eid.org/our-services/hydroelectric/project-184>.

⁶ FERC requirements are complex, and EID has created a document library which provided public access to FERC related compliance documents at: <https://www.eid.org/our-services/hydroelectric/project-184/project-184-document-library/>

- Fish, amphibians, geomorphology, macroinvertebrates, riparian vegetation, water quality, water temperature, trout monitoring at Lake Aloha, wildlife mortality, cultural resources, recreation, and target lake-levels

Restoration conditions

- Esmeralda Creek stabilization
- Oyster Creek stabilization
- Caples spillway channel stabilization

Recreation conditions

- Facility capital improvements
- Operation and/or maintenance of recreation facilities

A discussion of the FERC license conditions that relate to recreational services and facilities may be found in Section 7-4, Recreation Services, in this MSR Chapter.

7.3.b: Hydroelectric Power Infrastructure

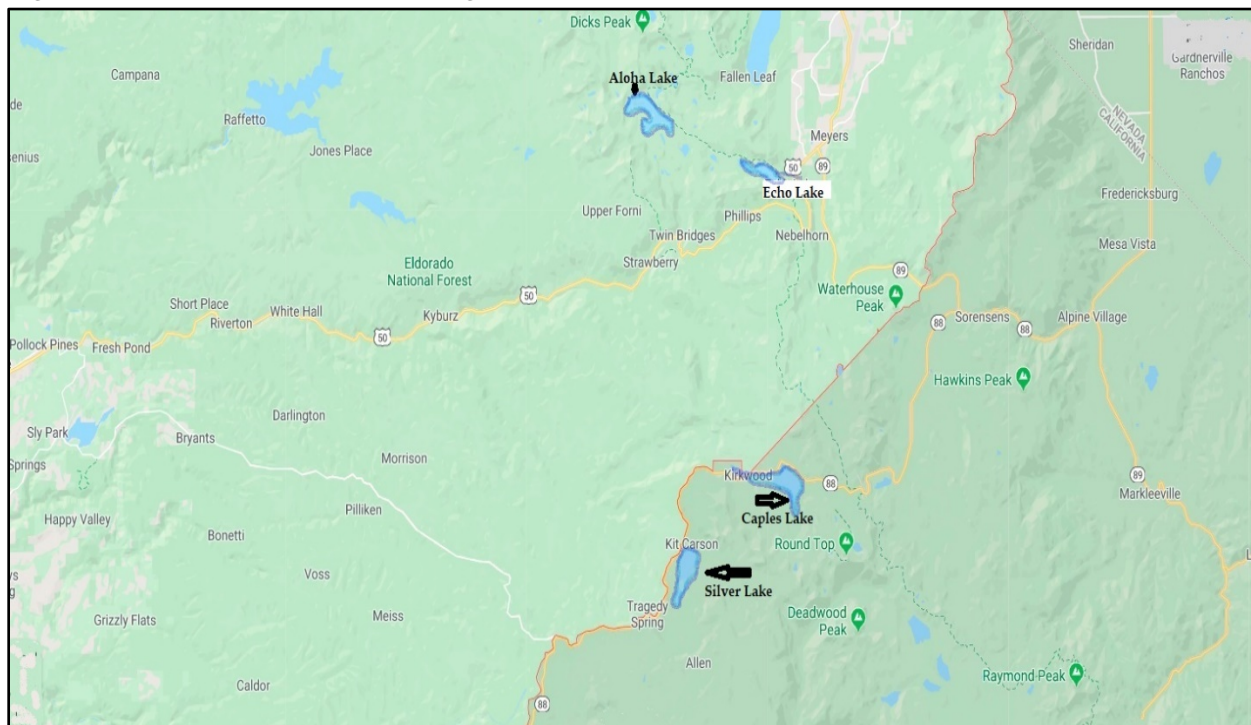
Project 184 is primarily a water supply project, with ancillary power generation benefits. The infrastructure for Project 184 includes four storage reservoirs (Echo, Aloha, Caples, and Silver Lakes); a main diversion dam and four smaller diversions on tributaries; water conveyance facilities consisting of canals, flumes and tunnels; the Forebay Reservoir near Pollock Pines; a penstock and the powerhouse that has two generators. The project does not include any transmission lines. The powerhouse was badly damaged in the 1997 floods. EID completed repairs, and in 2003 the District started generating power from the project (LAFCO, 2008). EID's hydroelectric generation facilities produce electricity that is sold wholesale. Project 184 is located on the South Fork of the American River and its tributaries, and also on Echo Creek, a tributary to the Upper Truckee River, in three Counties, including El Dorado, Alpine, and Amador. The Project components occupy both private lands and land administered by the Eldorado National Forest (FERC, 2003).



Reservoirs

Project 184 includes four storage reservoirs, Echo, Aloha, Caples, and Silver Lakes as shown in Figure 7-12 and listed in Table 7-24, below. These reservoirs enable the District to store adequate amounts of water during the wet season for release throughout the year. The reservoirs function as man-made lakes that were created by a dam built across a river or its tributaries.

Figure 7-12: Location of Four Storage Reservoirs



Map created with Google Maps

Name of Reservoir	Type	County Located	Watershed
Lake Aloha	Water Storage	El Dorado	South Fork American
Echo Lake	Water Storage	El Dorado	Upper Truckee
Caples Lake	Water Storage	Alpine County	South Fork American
Silver Lake	Water Storage	Amador County	South Fork American
Forebay Reservoir	Forebay for Hydro	El Dorado	Off-stream, but in South Fork American

Lake Aloha

Lake Aloha (formerly known as Medley Lakes) covers a surface area of 590 acres. This reservoir provides usable water storage of 5,004 acre-feet. Lake Aloha is located approximately five miles southwest of South Lake Tahoe in The County of El Dorado, at elevation (spillway crests) of approximately 8,114 feet above mean sea level (msl). Lake Aloha is located in the Desolation Wilderness Area and is accessible by foot or horseback over a seven-mile trail from Echo Lake Dam. At Lake Aloha, the main dam is located on Pyramid Creek, about ten miles southwest of South Lake Tahoe. The reservoir is contained in a broad, intensely glaciated basin by the main, modest sized dam, and eleven auxiliary – very small dikes – located on the perimeter of the reservoir (FERC, 2003).

The Lake Aloha main dam is a 113-foot-long, 20-foot-high rubble and masonry main dam with a 32-inch by 32-inch discharge conduit controlled by a 30-inch by 30-inch steel slide gate that releases flows to Pyramid Creek, a tributary of the South Fork of the American River. Additionally, there are eleven auxiliary dams along Lake Aloha, composed of rock or rock with earth fill, that range from 1.3 to 8.5 feet high and from 9 to 140 feet in length (EID, 2003).

Echo Lake

Echo Lake covers a surface area of 335 acres. This storage reservoir has a usable water storage of 1,943 acre-feet. Echo Lake is located approximately five miles southwest of South Lake Tahoe in The County of El Dorado, at elevation (spillway crests) of approximately 7,405 feet above msl. Echo Lake is accessed from Highway 50 and a short access road. The original earth and rock filled dam was replaced in 1992 with a roller compacted concrete dam. Before Project 184 was constructed, water from Echo Creek spilled into Lake Tahoe and then into the Upper Truckee River. Beginning in 1876 a portion of the water stored in the Echo Lake system was diverted into the American River basin via the Echo Lake conveyance system which is comprised of a pipeline,

flume, and tunnel. The water is not released until after Labor Day annually pursuant to FERC license terms.

Caples Lake

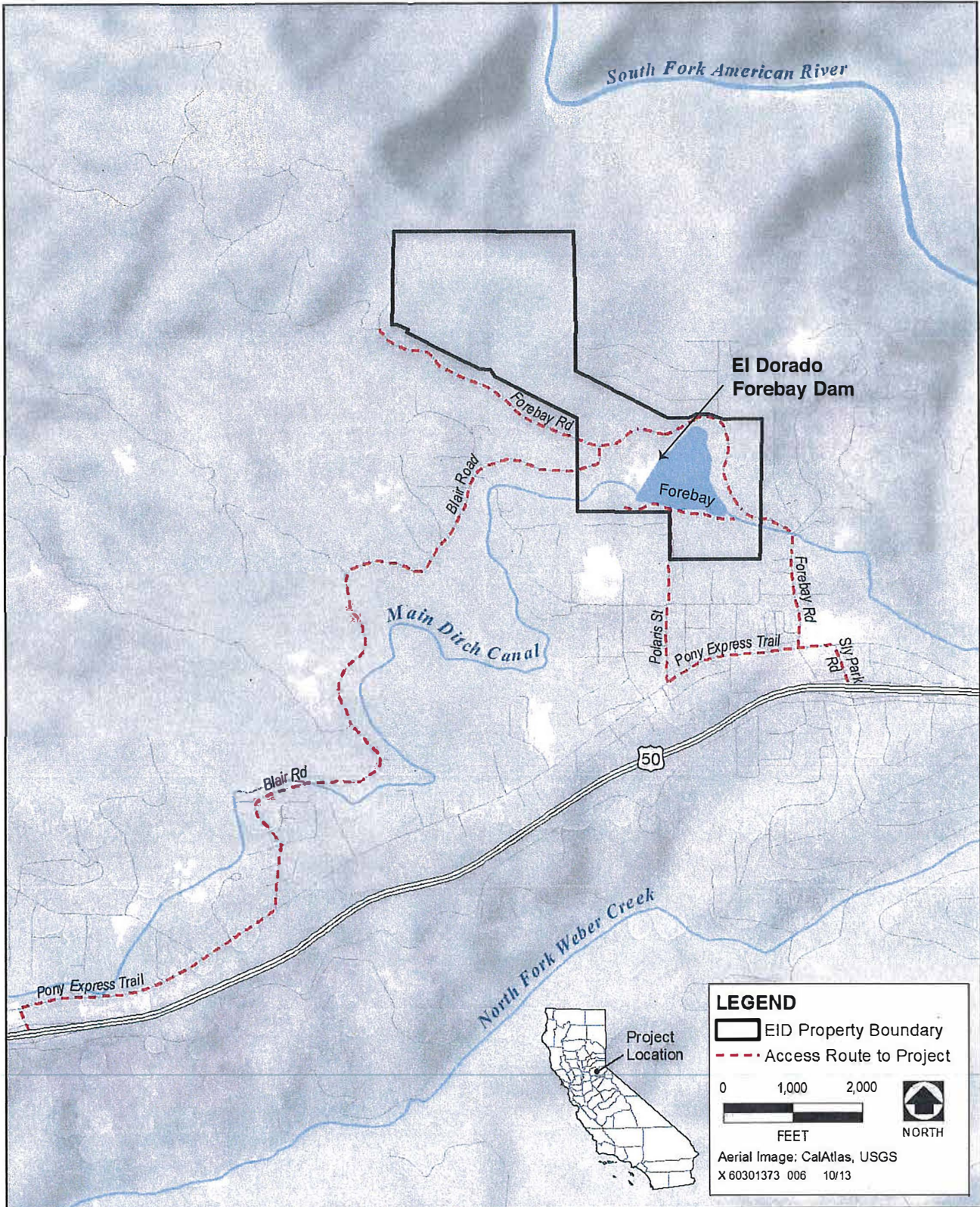
Caples Lake covers a surface area of 624 acres. This reservoir has active usable water storage of 22,338 acre-feet. The Lake is located in Alpine County at an elevation of about 7,794 feet above msl. Woods Creek and Emigrant Creek both flow into Caples Lake which drains into Caples Creek. Caples Lake dam is a 1,200-foot-long, 84.5-foot-high gunite-core, earth filled main dam with a 403-foot-long, 4.5-foot horseshoe-shaped discharge tunnel that releases flows to Caples Creek, then the Silver Fork of the American River. Additionally, one auxiliary dam on Caples Lake is constructed of a concrete gravity and arch section that is 164 feet long. There are also several wooden flashboards associated with this dam (EID, 2003).

Silver Lake

Silver Lake covers a surface area of 502 acres and has usable water storage of 8,640 acre-feet. The lake is located in Amador County at an elevation of about 7,250 feet above msl. Silver Lake Dam is located approximately 19 miles south of Lake Tahoe and is a 280-foot-long, 30-foot-high rock and earth-filled dam with a 55-foot-wide spillway structure with radial gates and two 6-foot-wide flashboard bays and an intake structure with a 36-inch gate, which controls flows through a 26-inch-diameter pipe that discharges to the Silver Fork of the American River. (EID, 2003).

Forebay Reservoir

The Forebay Reservoir was constructed in 1923 and is an off-stream reservoir that regulates water for drinking water and hydroelectric power purposes. Water supplied to Forebay Reservoir is diverted from the South Fork of the American River at Kyburz and is conveyed via the El Dorado Canal to the El Dorado Forebay. This Forebay Reservoir regulates water into a penstock into the El Dorado Powerhouse. The Forebay Reservoir is located above the South Fork of the American River at an elevation of 3,713 feet above msl as shown in Figure 7-13 (next page). Power generated at the El Dorado Powerhouse is delivered to the PG&E transmission and distribution system at the Powerhouse switchyard. Water is also conveyed via the penstock to El Dorado Powerhouse and, after flowing through two turbines that can produce up to 21 megawatts of power, returns to the South Fork of the American River above the Sacramento Municipal Utility District (SMUD) Slab Creek Reservoir. The Forebay Reservoir also regulates water for consumptive water supply into EID's Main Ditch (FERC, 2003).



Source: EID 2013 Draft

EIR Figure 7-13

EID Forebay Map

Source of Map:

El Dorado Forebay Dam Modification Project
El Dorado Irrigation District

The Forebay Dam creates the Forebay Reservoir and is located near the town of Pollock Pines at 3,713 feet above MSL. Water from the El Dorado Canal is released at the Forebay Dam to help meet EID's consumptive demand, and for hydroelectric power production at the powerhouse (FERC, 2003).

Improvements were recently made to the Forebay Dam as part of the El Dorado Forebay Dam Modification Project⁷. The project was required to satisfy specific regulatory mandates issued to EID by both the California Department of Water Resources Division of Safety of Dams (DSOD) and FERC to meet current dam safety standards. The Project was also designed to improve the reliability of the drinking water supply and minimize impacts on EID ratepayers through optimized power generation revenue. The Project involves constructing an earthen stability buttress on the dry side of the Forebay Dam, raising the Forebay Dam 10 vertical feet, and remediating associated facilities. Project activities were initiated in fall 2017 and are anticipated to be completed in summer 2020.

Dams and Other Infrastructure

In addition to the dams associated with Aloha, Echo, Caples, and Silver Lakes described in the preceding paragraphs, EID also operates a diversion dam, a powerhouse, and a canal.

Diversion Dam

The El Dorado Diversion Dam is a 165-foot-long, 12-foot-high steel crib dam structure composed of steel bins filled with rock and gravel. It's anchored to the river channel on one end by a concrete abutment and on the other by a large boulder. The dam is located on the South Fork of the American River, approximately 1.5 miles downstream of the community of Kyburz, at an elevation of 3,910 feet above msl. The Diversion Dam has a fish ladder and an intake structure with fish screens on the entrance. The dam diverts water from the South Fork of the American River into the 22-mile long El Dorado Canal (EID, 2003).

Powerhouse

The powerhouse is a steel frame structure with reinforced concrete walls, decks, and roof. The powerhouse contains two horizontal shaft electric generators (12,500 kilovolt-ampere, 10,000

⁷ Details on the El Dorado Forebay Dam Modification Project are available at this website: <https://www.eid.org/about-us/project-updates/forebay-dam-project> or at: <https://ceqanet.opr.ca.gov/2013032036/2>

kilowatts each). Each generator is driven by a 14,000 HP single impulse wheel turbine. The turbines employ a 28-inch diameter, balanced plunger type, hydraulically operated turbine shutoff valve. Peak output of the plant is twenty-one megawatts. The estimated average annual potential output is 115 million kilowatt-hours. EID maintains the powerhouse and in 2003, a \$2.5 million restoration of the powerhouse was completed.

El Dorado Canal

The 22-mile-long El Dorado Canal is made up of a series of man-made structures mostly consisting of concrete-lined earthen canal, interspersed with wooden and concrete flumes, tunnels and steel pipe sections. The El Dorado Canal conveys water from the El Dorado diversion dam to the El Dorado forebay (EID, 2003).

Other Project 184 Infrastructure

Several other smaller dams are associated with Project 184 and divert water to the El Dorado Canal as listed below:

- Alder Creek diversion dam;
- Bull Creek diversion dam;
- Ogilby Creek diversion dam;
- Esmeralda Creek diversion dam; and
- No Name Creek diversion dam.

The Creeks associated with these smaller dams are all tributaries to the South Fork of the American River.

In addition to EID's owned facilities described above, there is also an array of infrastructure owned by other entities such as Pacific Gas and Electric Company (PG&E) and other retail providers such as transmission and distribution facilities, including transmission (kV) lines connecting hydroelectric generation in the Sierras to numerous substations and transformers, and the distribution system serving retail customers. In this case, PG&E is the entity that owns these transmission facilities.

Sale of Power

EID sells the power generated at its hydroelectric facilities at a wholesale power cost to PG&E under a contract which will expire in May 2021. EID is under contract to generate a certain amount of power depending on the water year type (i.e. drought or above average water year).

Water available from the canal is first used to meet consumptive needs to the Reservoir 1 water treatment plant and the balance is utilized to generate power (EID, 2019t).

EID is evaluating potential new power purchase agreement options and plans to negotiate a new power purchase agreement prior to expiration of the existing agreement with PG&E in the year 2021 (EID, 2019t). The future sale of hydroelectric power may be dependent upon several factors, such as new power rules/programs approved by the California Energy Commission and Public Utilities Commission, or such as the Community Choice Aggregation program. The Community Choice Aggregation (CCA) program is not currently provided to The County of El Dorado. However other CCAs in California could be a potential future partner to purchase power from EID (EID, 2019t).

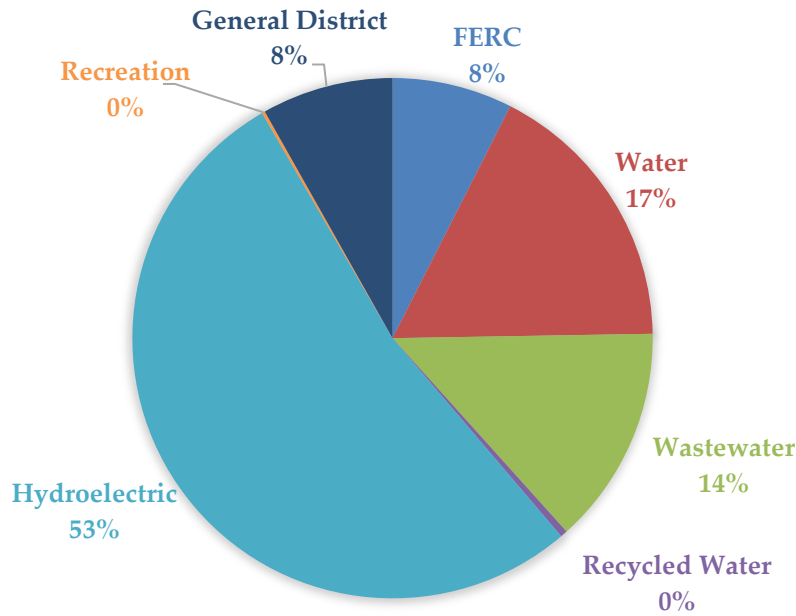
Revenue from Sale of Hydroelectric Power

The District receives a significant source of non-rate revenue from the sale of hydroelectric power. However, these revenues to EID are dependent upon short-term energy market price fluctuations which are driven by weather, seasonal hydroelectric potential, transmission availability, fuel price, and equipment outages. The revenues generated by the sale of electricity help offset the costs of operation and maintenance of the water supply and hydroelectric project, as well as other District operations and facilities. Per the terms of its license from FERC, EID has legal obligations with respect to maintaining a reliable water supply, water quality, in stream flows, and other environmental concerns, as well as reporting requirements. In September 2007, Project 184 was certified as eligible for California's Renewable Portfolio Standard, which allows EID to market all power generated by the system as "renewable." Thus, EID is eligible to receive an estimated annual premium of \$100,000 depending on market price and how much power is generated.

Improvement Projects

The Five-Year Capital Improvement Plan (CIP) for 2019-2023 estimates expenditures associated with improvements to hydroelectric facilities will be \$27.8 million in 2019 which equates to 53 percent of the total capital improvement budget for the year 2019 as shown in Figure 7-14, below. FERC related expenditures will be approximately \$3.9 million which equates to eight percent of the total planned capital improvement budget for the year 2019.

Figure 7- 14: Capital Improvement Planned Expenditures
By Sector 2019



EID's Ability to Meet Power and Energy Demand

LAFCO typically considers the ability of a service provider to meet future demand for services. When addressing electricity demand, it is important to understand the difference between units of power (e.g., kilowatt) and units of energy (e.g., kilowatt-hour). Power is the capacity of infrastructure to generate or distribute electricity. Energy is defined as electricity supplied over time, expressed in kilowatt-hours. Capacity is the maximum amount of electricity that a generating unit, power plant, or transmission or distribution line can deliver under specified conditions. Capacity is measured in megawatts.

Electric system reliability has two components: adequacy and security. Adequacy is the ability of the electric system to supply the aggregate electrical demand and energy requirements of the customers at all times, taking into account scheduled and unscheduled outages of system facilities. Security is the ability of the electric system to withstand sudden disturbances, such as electric short circuits or unanticipated loss of system facilities.

It is possible that in the future, demand for electricity may increase because electric motors are more efficient than fossil fuel motors at converting primary energy into useful work. Additionally, concerns about climate change may result in incentives to transition existing

demands from fossil fuels to electricity, thereby increasing the demand for electricity. EID's hydroelectric infrastructure is positioned to contribute towards meeting this future demand.

Regulatory Agencies

Several state and federal agencies have regulatory authority over hydroelectric power generation as described in the following paragraphs. The regulations are designed to protect the public's interest in safety, water use, security, and power supply.

California Energy Commission (CEC): The State agency established by the Warren-Alquist State Energy Resources Conservation and Development Act of 1974 (Public Resources Code, Section 25000, *et seq.*) is responsible for:

- Forecasting future statewide energy needs;
- Licensing power plants;
- Promoting energy conservation and efficiency measures; and
- Developing renewable and alternative energy resources.

California Independent System Operator (CAISO): CAISO is the FERC regulated control area operator for most of the transmission assets in California. Its responsibilities include providing non-discriminatory access to the electrical grid, managing congestion, maintaining the reliability and security of the grid, and providing billing and settlement services. CAISO has no affiliation with any market participant.

California Public Utilities Commission (CPUC): A State agency created by constitutional amendment in 1911 to regulate the rates and services of more than 1,500 privately-owned utilities and 20,000 transportation companies. The CPUC is an administrative agency that exercises both legislative and judicial powers; its decisions and orders may be appealed only to the California Supreme Court. The major duties of the CPUC are to:

- Regulate privately-owned utilities from customer service to construction activities;
- Ensure adequate utility service at rates that are just and reasonable to both customers and shareholders;
- Evaluate infrastructure developments and issue Certificates of Public Convenience and Necessity (CPCN);
- Forecast electric and natural gas resource needs; and
- Analyze and plan energy supply and resources.

Federal Energy Regulatory Commission (FERC): FERC is an independent regulatory commission within the U.S. Department of Energy that has authority to:

- Regulate energy producers that sell or transport fuels for resale in interstate commerce;
- Set oil and gas pipeline transportation rates, and set the value of oil and gas pipelines for ratemaking purposes; and
- Regulate wholesale electric rates and hydroelectric plant licenses.

FERC issues licenses for the operation of hydropower projects under provisions of the Federal Power Act. FERC licensing procedures involve a comprehensive review of a water project's environmental impacts via coordination with a project proponent, state and federal agencies, and other stakeholders, often during a collaborative process. Licenses contain requirements as conditions that are presented as a series of license articles with which the licensee must comply. A licensee cannot modify project operations or works prescribed by the license without prior approval by FERC. FERC and other agencies expect a licensee to understand, observe, and monitor license compliance requirements throughout the life of the license.

Hydroelectric Power: Constraints and Risks

All hydroelectric power generation facilities and operations in California face several risk factors. EID staff are experienced in managing risks and EID maintains insurance to provide financial protection in case an unforeseen event occurs. Although hydroelectric power generation is considered an affordable and renewable source of electricity, it does have systemic constraints. For example, the quantity of power coming from hydroelectric generators every hour, day, month and year is variable and is driven by a number of factors. Precipitation in the form of snow and rain are the lifeblood for hydroelectric supply. If it is a wetter than normal water year, then the quantity of hydroelectric generation is higher than expected. However, during severe droughts, generation supply can become very tight. Additionally, several non-power constraints including flood control, irrigation, recreation, fish needs, etc. can impact power generation. Every method of electrical power generation has constraints and EID is experienced at balancing the constraints and benefits associated with hydroelectric power generation.

Risks could affect the viability of a hydropower project and affect the revenue generated by the hydroelectric project. One potential risk is climate change since mountain snowpack is essential to provide a steady flow of snowmelt water to hydroelectric reservoirs. Higher temperatures will mean that more precipitation falls as rain instead of snow, with the remaining snowpack melting and running off earlier in the year. A series of severe storms in December 1996 and January 1997 damaged Project 184, causing landslides that wiped out some of the project's canals. The potential



for future landslides is also a service/infrastructure risk. Drought is another risk, and during a drought there would be less water available and lower capacity to generate hydroelectric power. Wildfire is a risk since an unmanaged fire could possibly burn facilities. There is also a risk that a post-fire rainstorm could result in sediment deposition to lakes and facilities, thereby reducing storage capacity.





In response to wildfire risks, the local retail provider, PG&E, implemented plans to shut energy down during times of high wildfire risk in 2019, and will continue this program for the next several years. This results in electric power blackouts which affects many private electricity consumers in The County of El Dorado as well as within the PG&E service area, for a significant period of time. PG&E has named this program the Public Safety Power Shutoff (PSPS) program. EID Board of Directors recognizes the critical need to ensure uninterrupted power and the need to adapt to the difficulties associated with the PSPS program. EID Board unanimously approved over \$800,000 in the past year alone for the purchase and installation of a number of back up electrical generators at critical sites (*EID*, 2019d). The El Dorado Powerhouse routinely shuts down annually for maintenance between October 1st through December 15th and during this timeframe, EID Powerhouse is not affected by PG&E's PSPS program (*EID*, 2019t). Prior to October 1st, the powerhouse operates as long as PG&E maintains power to their 115 kV transmission lines. If power to the lines is shutdown, then there will be a loss of powerhouse revenue. The hydro water supply feeding the Pollock Pines water treatment plant will continue regardless of the power situation (*EID*, 2019t). For long term critical needs, District staff is also working with the Governor's Office of Emergency Services to obtain more than \$1.4 million in grants through the Federal Emergency Management Agency Hazard Mitigation Grant Program to acquire additional generators and increase the resiliency of critical infrastructure (*EID Waterfront*, 2019d).

Risk Reduction: EID staff aim to manage existing risks associated with hydroelectric power generation through careful operations and through the purchase of insurance. For example, EID successfully won a grant to manage vegetation in the watershed, thereby reducing the risk of catastrophic wildfire. The MSR consultants recommend that EID continue to consider a broad approach to risk reduction including implementation of projects that may reduce utility costs, such as expanded use of renewable resources including solar or pumped storage. Pumped storage is a type of hydro project which generates power by moving large amounts of water between two reservoirs, one located upgradient from the other, so the fall of the water from the upper reservoir drives turbines that generate electricity as it moves to the lower reservoir. The water is then pumped back up to the upper reservoir overnight or during off-peak times to start the process all over again. There are closed loop systems that recycle the same water over and over again and open loop systems that use primarily new water for each generation cycle.

7.3c: Hydroelectric Determinations: Present and Planned Capacity of Public Facilities and Adequacy of Public Services, including Infrastructure Needs or Deficiencies

Hydroelectric Power Generation and Supply

Table 7-25: Summary of Hydroelectric Services & Infrastructure		
Topic: Hydroelectric - Public Services		
Indicator	Score	Determination
<p><u>Hydroelectric Services:</u></p> <ul style="list-style-type: none"> ▪ Demand for hydroelectric service is well understood and managed. ▪ The District has a plan to deal with changing conditions such as variability in water supply. 		<p>The hydroelectric power generated by EID is not sold directly to consumers within The County of El Dorado. Instead EID has a contract to sell power to PG&E which distributes electricity to retail customers via the electric grid. This contract will expire in the year 2021 and EID is researching various options to either renew this contract or to find suitable alternative contracts.</p> <p>EID has studied the vulnerability of its hydropower systems to changing conditions and has acknowledged the various risks to these facilities. The MSR consultants recommend that EID continue to consider a broad approach to risk reduction including implementation of projects that may reduce utility costs, such as expanded use of renewable resources including solar or pumped storage. Another example of a risk reduction strategy is the vegetation management program that EID is implementing in the watershed which will contribute towards a reduction in risk of catastrophic wildfire and therefore reduce risks to hydroelectric facilities.</p>
<p><u>Hydroelectric Facilities:</u></p> <ul style="list-style-type: none"> ▪ The District has planned for replacement of aging hydroelectric facilities. ▪ The District has preventative maintenance measures to ensure 		<p>In general, EID is facing higher costs for replacement of aging infrastructure. EID’s Capital Improvement Plan addresses future improvements to hydroelectric facilities which address the issues of replacing aging infrastructure and preventative maintenance.</p>

hydroelectric facilities are well maintained.		
<p>Key to score:</p> <ul style="list-style-type: none"> <li> Above average (compared to similar irrigation districts) <li> Average <li> Needs improvement <li> Statement of Fact (Not rated) 		

7.4: PARK AND RECREATION SERVICES & INFRASTRUCTURE

EID’s park and recreation services were previously described in El Dorado LAFCO’s “West County Parks and Recreation Services MSR” published in 2004 and available on-line at: <https://www.edlafco.us/files/59173b4fd/West+County+Parks+and+Recreation+Services+MSR.pdf> . This section provides updated information about the park and recreation services and associated infrastructure provided by the EID. This section has three parts: A) recreation programs and services, B) park and recreation infrastructure, and C) determinations for parks and recreation services and infrastructure. The park and recreation services and infrastructure that the El Dorado Irrigation District manages, provides numerous health, economic, and conservation benefits to the general public (El Dorado County, 2012). The District has a wide range of powers to finance, construct, and operate facilities for recreation purposes, and it has full authority to set rates use of its recreation facilities.

In addition to EID, many other local, state, and federal agencies manage recreation services and park/open space lands within the region. For example, The County of El Dorado plays an important role in the provision of park and recreation services including activities of the County Parks and Recreation Commission and including the goals and policies in the 2012 Parks and Trail Master Plan. To provide background information, a list of the other park and recreation service providers in the region is provided in Table 7-26, below:

<i>Name of Service Provider</i>	<i>Website Link</i>
Local	
The County of El Dorado	https://www.edcgov.us/Government/Parks
El Dorado Hills Community Services District	https://www.eldoradohillscsd.org/
Tahoe Paradise Resort Improvement District	http://www.tahoeparadisepark.com/
City of Placerville	https://www.teamsideline.com/sites/placerville/content/7041/PARKS-FACILITIES
Sacramento Municipal Utilities District	https://www.smud.org/en/In-Our-Community/Visit-our-Recreational-Areas
Cameron Park Community Services District	https://www.cameronpark.org/recreation-activity-guide/
Georgetown Divide Recreation District	http://gdrd.org/parks---facilities.html
Rolling Hills Community Services District	https://rollinghillscsd.org/
Cosumnes River Community Services District	https://www.yourcsd.com/541/Parks-Facilities-Stations
State	
California State Parks	https://www.parks.ca.gov/
Federal	
U.S. Bureau of Land Management	https://www.blm.gov/california
U. S. Bureau of Reclamation	https://www.usbr.gov/lands/
U.S. Forest Service	https://www.fs.usda.gov/eldorado/

This MSR/SOI Update focuses only on those park and recreation services and infrastructure provided by the El Dorado Irrigation District.

7.4.a: EID Recreation Programs and Services

As part of its responsibilities under its license for hydroelectric services from the Federal Energy Regulatory Commission (FERC) and as part of its watershed management duties, EID manages open space and park land and provides recreation facilities on that land. EID provides opportunities to experience watershed lands through passive recreation activities such as camping, hiking, photography, biking, and bird-watching. EID's Division of Parks and Recreation aims to meet its FERC requirements by engaging the community in programs, facilities, and services that foster active and healthy lifestyles, support positive social interaction, and enhance the community's quality of life. EID's recreation employees are responsible for overseeing continued maintenance of all EID recreation facilities, and managing visitors as they enjoy various activities, including camping, picnicking, swimming, boating, fishing, hiking, biking, and horseback riding.

EID's Park and Recreation Services have been honored with several significant awards that recognize excellent performance in operational efficiency and industry practices. They include the following:

- Mountain Democrat Newspaper – 2018 and 2015 Readers' Choice Award for "Best Recreational Facility" for EID's Sly Park Recreation Area.
- KCRA 3 A-list – 2018 and 2015 readers' choice winner for "Campground" for EID's Sly Park Recreation Area.

FERC Requirements

EID acquired the FERC-licensed Hydroelectric Project 184 in 1999. The license requires specific conditions related to parks and recreation (EID, 2007a and 2007c). Specifically, Condition 46 of the Settlement Agreement required that, within six months of the effective date of the license, a Recreation Implementation Plan would be developed by the licensee in coordination with the U. S. Forest Service (USFS). The Recreation Plan included a construction schedule for the following recreation facilities:

- 1) Silver Lake East Campground: EID initiated land surveys in 2006. EID to reconstruct the paved surfaces, toilets, and water system at the 62-unit campground (per 117 FERC ¶ 62, 044 (2006)).
- 2) Caples Lake Campground: EID to reconstruct the paved surfaces, toilets, and water system at the 36-unit campground, including upgrading the facilities to meet current USFS design standards as well as American with Disabilities Act (ADA) standards.
- 3) Caples Lake Dam Parking: Commenced collaboration with the USFS to improve the toilets, related ADA parking, and signage; construction of bear-proof and accessible garbage containers. EID and U.S. Forest Service share responsibility of the annual maintenance for the parking at this facility.
- 4) Caples Lake Boat Launching Facility: With the U.S. Forest Service, received grant funding from the California Department of Boating and Waterways to develop and construct a new facility.
- 5) Information Kiosk on Highway 88: Collaborate with USFS for design and construction of the information kiosk.



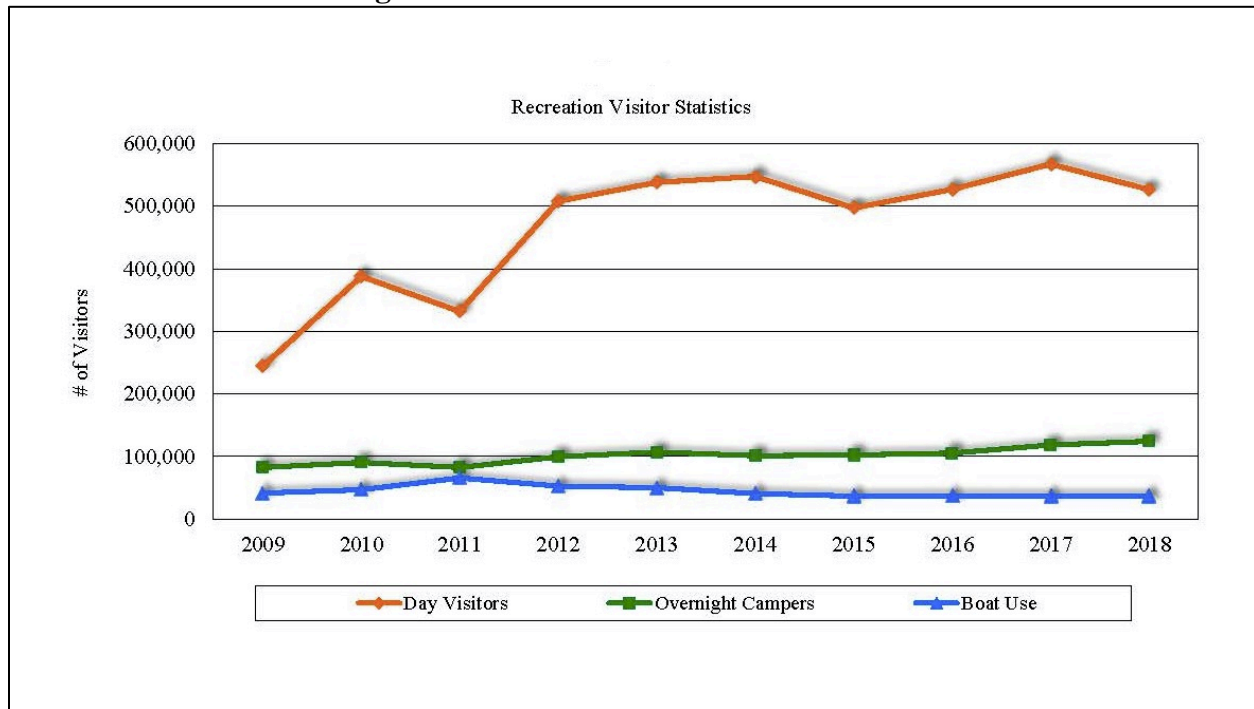
- 6) Martin Meadows Overflow Camping Area: Install barrier rocks to restrict uncontrolled vehicle travel; materials supplied by U.S. Forest Service.
- 7) Echo Lakes Upper Parking Facility: Responsible for the toilet pumping and trash/litter removal.
- 8) Pacific Crest National Scenic Trail Crossing: Collaborate with the USFS for design and construction of the trail crossing.

The Recreation Plan also includes requirements for signage, public information dissemination, a schedule for design of facilities to be reconstructed, and consideration of measures to improve efficiency, in such areas as joint operation or operation of adjacent facilities. EID's FERC license (Condition 47) requires EID to conduct a recreational survey and prepare a report on recreational resources that is approved by the Forest Service every 6 years from the date of license issuance. As specified in the license, the recreational survey shall include, but not be limited to, changes in kinds of use and use patterns, levels of use, user survey as to preferences in recreation activities, kinds and sizes of recreation vehicles, preference for day use versus overnight use, carry capacity information sufficient to indicate changes in capacity, and recreation user trends within the Project area.

In September 2019, EID's Board of Directors approved a contract to begin making improvements to the Eldorado National Forest campgrounds located along Highway 88 at Caples Lake and Silver Lake East. These improvements are on-going requirements of the 40-year hydroelectric operating license issued by the FERC (EID, 2019).

Over the past ten years, the number of day use visitors to EID's recreation facilities has increased from 244,433 visitors in the year 2009 to 526,764 visitors in 2018 as shown in Figure 7-15, below. Boat use declined slightly over the ten-year time period with 41,690 boaters in the year 2009 down to 37,245 boaters in 2018. These data from EID's CAFR for FY2018 include all of EID's recreation facilities, both the FERC related facilities and the Sly Park facility (EID, 2019h).

Figure 7-15: Recreation Visitor Statistics



(*Data Source for Figure 7-15, EID, 2019h)

Please note that the recreation facilities that the District provides are open to the general public including those who reside outside the District boundaries. For example, park visitors may include The County of El Dorado residents, U.S.A residents, and international visitors.

7.4b: Park and Recreation Infrastructure

EID owns/manages four reservoirs that are utilized for purposes of public park and recreation facilities including: 1) Sly Park Recreation Area at Jenkinson Lake, 2) Silver Lake, 3) Caples Lake, 4) Forebay Reservoir. Each reservoir is surrounded by EID watershed lands that contain a variety of recreation facilities such as trails and/or campgrounds. Table 7-27 below provides a summary of each of the four reservoirs and their associated recreation infrastructure. The location of the four reservoirs is depicted on a map provided as Figure 7-16. Additional geographic detail about the location of specific recreation infrastructure such as trailheads, picnic tables, boat launch, campgrounds, fishing areas, resorts, and park offices is shown on Figure 7-17. The District has recreation facilities that are located outside its established boundary; specifically, the recreation sites at Silver Lake in Amador County and Caples Lake in Alpine County.

Table 7-27: Recreational Lakes Managed by EID				
Number	Recreation Area	Location	Features	Acres
1	Sly Park Recreation Area at Jenkinson Lake	US-50 to the Sly Park Road exit, Exit 60. Turn south onto Sly Park Road. The park entrance is approximately 4.5 miles, on your left.	Swimming, boating, fishing, and water skiing There are 9 miles of trails to accommodate hikers, bikers and horses. There are 190 individual campsites, in addition to group campsites and an event center.	1,010 acres surrounding a 650-acre lake
2	Silver Lake	Off Highway 88, 5 miles southwest of Kirkwood.	Hiking, fishing and boating. A day-use area for picnicking. There are 42 campsites at the Silver Lake West campground. Nearby is the Silver Lake East campground operated by the Eldorado National Forest	76-acre campground
3	Caples Lake	Off Highway 88, 1 mile east of Kirkwood.	Fishing, boating, picnicking, hiking. Trailhead into the Mokelumne Wilderness. Eldorado National Forest operates an adjacent campground.	624-acre lake with adjacent Eldorado National Forest
4	Forebay Reservoir	About 14 miles east of Placerville. Take Highway 50 to exit 60, Sly Park Rd. Turn north at 0.2 miles, then left on Pony Express Trail 0.2 miles, right on Forebay Rd. 0.5 miles	Picnic area, fishing access, birdwatching. No swimming or domestic animals allowed in the water.	20-acre lake, 120 acres, adjacent land for Day Use.

EID’s Parks and Recreation Division (part of the Operations Department) manages each of the four reservoirs described in Table 7-27, above. Additional information is provided on the following pages.

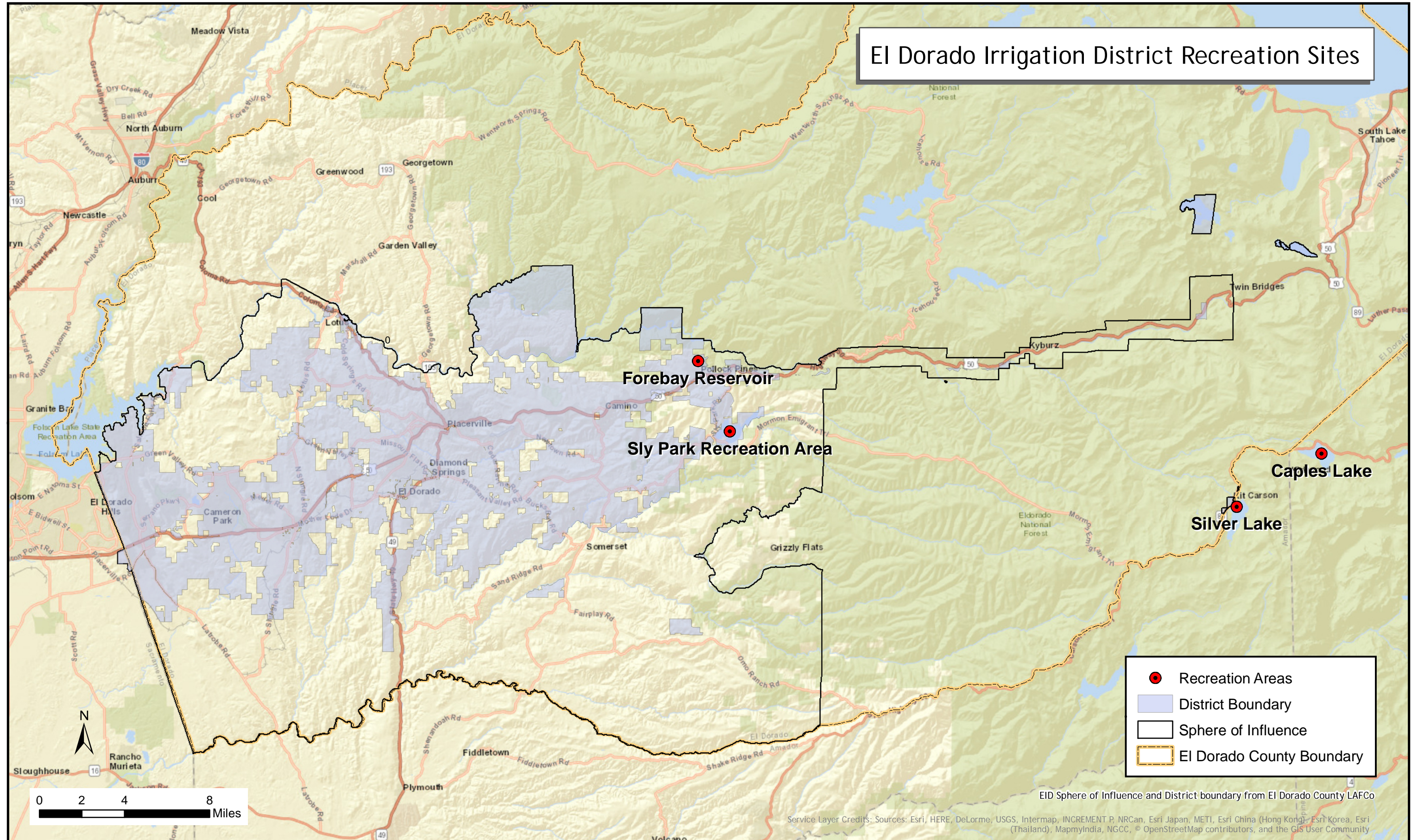
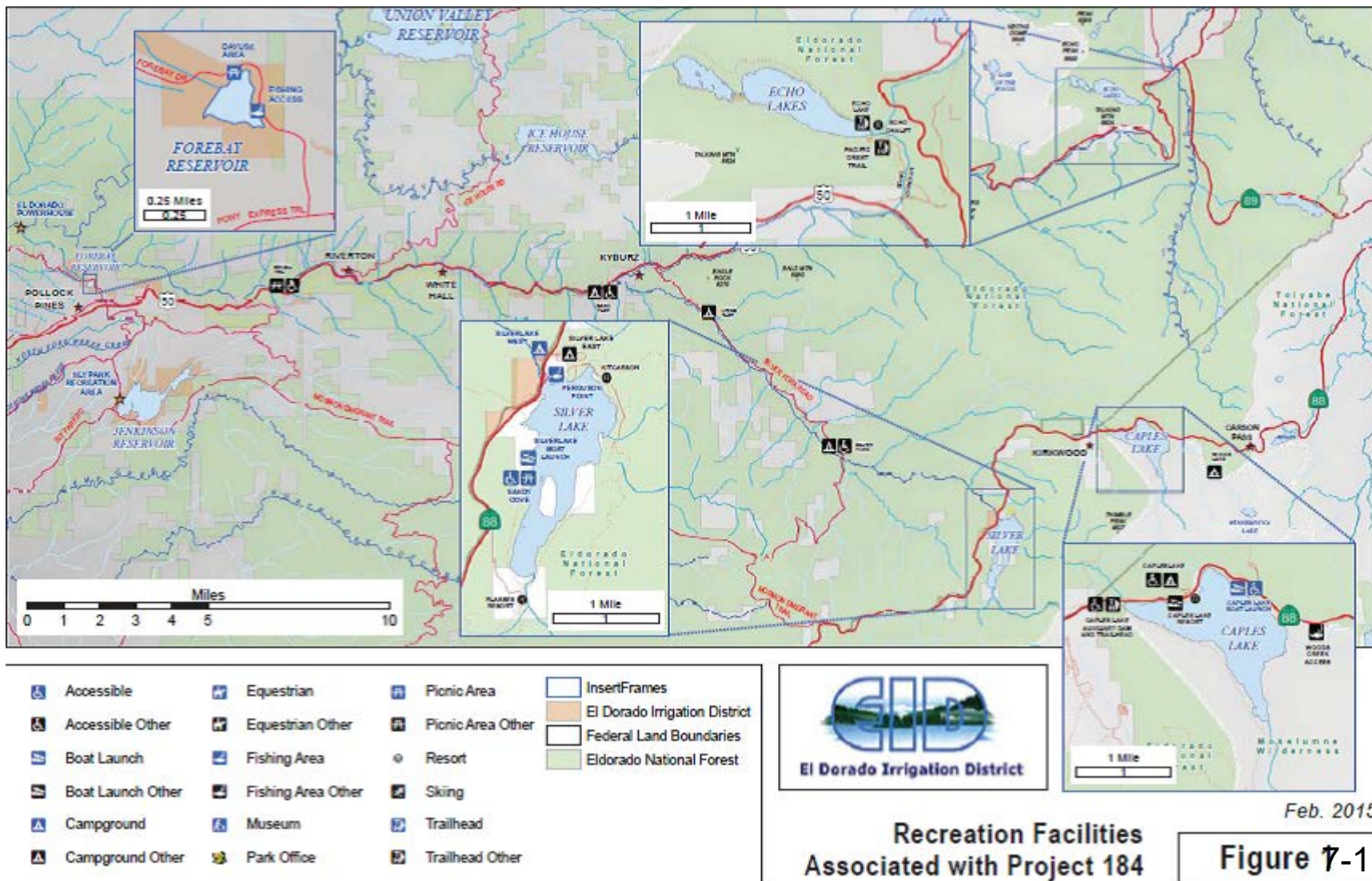


Figure 7-16



Map of EID-Owned Recreation Sites

Sly Park Recreation Area at Jenkinson Lake

The Sly Park Recreation Area (SPRA) site is located in the central part of The County of El Dorado, 17 miles east of Placerville and four miles south of Pollock Pines. Sly Park reservoir, now known as Jenkinson Lake, was originally built in the mid-1950s by the U.S. Bureau of Reclamation as part of California's Central Valley Project. The reservoir and surrounding recreation lands were officially transferred into EID ownership in late 2003. The SPRA surrounds most of Jenkinson Lake which is the primary attraction of the recreation area. Jenkinson Lake is approximately 2.5 miles long and has a surface area of 650 acres (EID, 2007a and 2007c). The reservoir is contained by two large earth-filled dams and the water contained therein is distributed by EID to The County of El Dorado residents as described in this MSR.

SPRA is a popular camping and day-use destination centered on Jenkinson Lake. The SPRA, and offers multiple group and individual camping sites, day use areas, picnic areas; two boat ramps, boat rentals, meeting rooms, and fishing. Nine miles of unimproved hiking, equestrian, and mountain biking trails circle the lake and connect to some of the nearby ridges. A separate equestrian campground provides for horse camping and access to the equestrian trail system. The Mormon Emigrant Trail road crosses over the dams. The SPRA contains a total of 191 overnight camping sites and 9 group camping areas. (EID CAFR, 2020b). The 191 individual camping sites each contain a picnic table, fire ring, and barbecue. Vault toilets and water faucets are located conveniently throughout the campgrounds. Sites can accommodate tents and RVs up to 40 feet. Reservations can be made on-line or via telephone, and are accepted on a year-round basis up to 14 months in advance. The distribution of campgrounds around Jenkinson Lake is shown in Figure 7-18 (next page). For example, the cost for tent camping in the Pinecone area is \$45 per night as shown in Table 7-28, 2019 Fee Schedule. The cost for camping does vary slightly depending on the type and size of camp a visitor chooses.

Figure 7-18: Map of Sly Park
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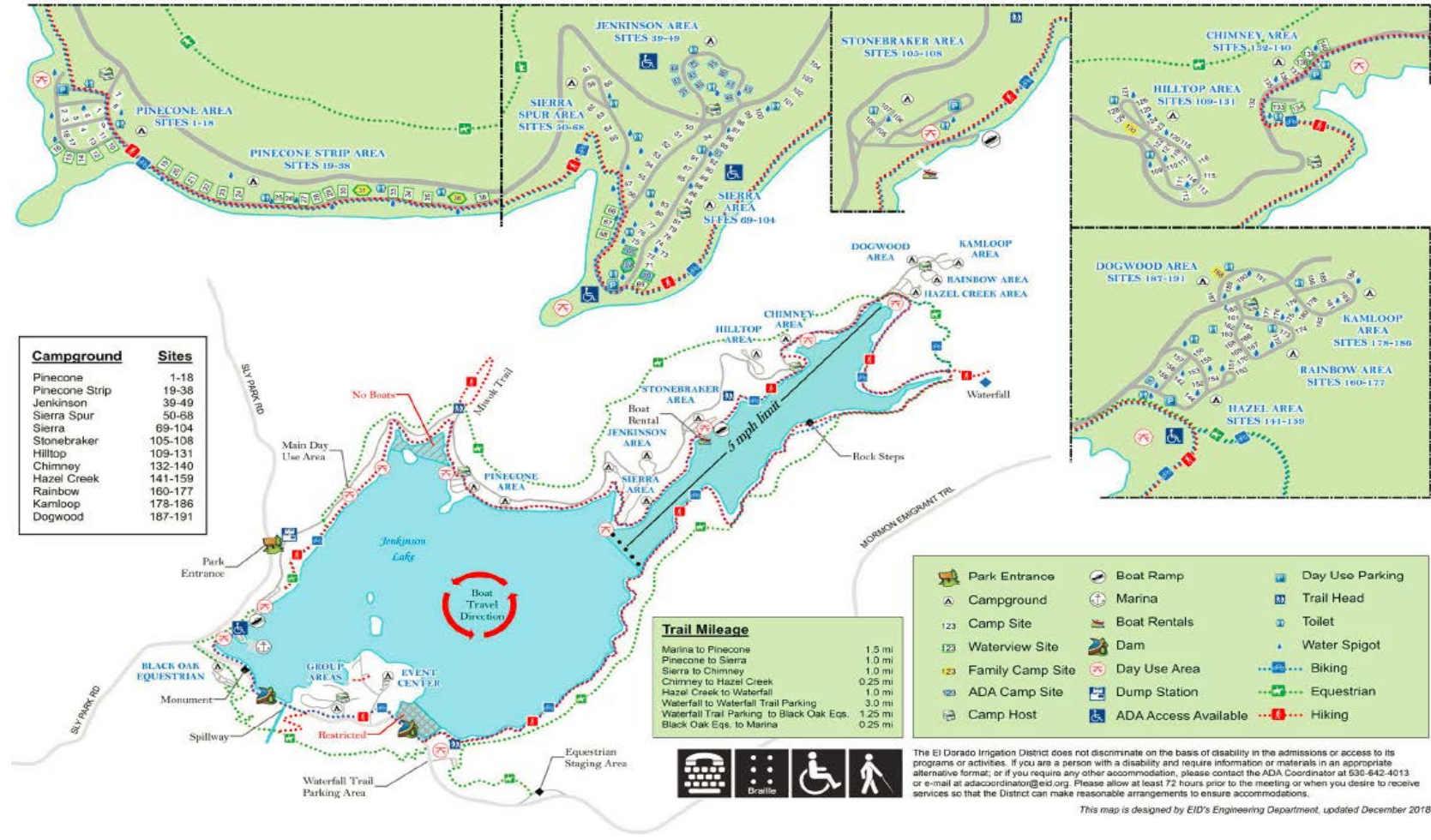


Table 7-28

2019 Fee Schedule

El Dorado Irrigation District - Recreation

Sly Park Recreation Area

Phone: (530) 295-6824

Email: recreation@eid.org

CAMPING	\$ Per Night	DAY USE (Entrance fees)	\$ Per Day
Unless noted Camping fee includes:		Vehicle	13.00 / 15.00 on Holidays
• 1 vehicle and 1 RV Dump		<i>Senior (62) / Military (w/ ID) / Disabled</i>	10.00 / 12.00 on Holidays
• Limit of 8 people per site			
Family Campsite (2 vehicles, 12 people)	80.00	Oversize Vehicle	20.00 / 25.00 on Holidays
Waterview Campsite	50.00	<i>Senior (62) / Military (w/ ID) / Disabled</i>	17.00 / 22.00 on Holidays
Pinecone Strip	45.00		
Black Oak Equestrian	42.00	Boat Launch	10.00
Standard Campsite	35.00	<i>Senior (62) / Military (w/ ID) / Disabled</i>	9.00
<i>Senior (62) / Military (w/ ID) / Disabled</i>	32.00		
Extra Vehicle	15.00	Pet (per pet)	5.00
Boat	10.00		
<i>Senior (62) / Military (w/ ID) / Disabled</i>	9.00		
Pets (per pet, per night)	5.00		
Reservation/Change Fee	9.00	ANNUAL DAY USE PERMITS \$ per Calendar Year	
Cancellation Fee (if more than 4 days prior to arrival, within 4 days there is no refund)	15.00	Vehicle	156.00
Over Limit People Fee- (per person per night subject to approval, maximum 2 people per site)	12.00	<i>Senior (62) / Military (w/ ID) / Disabled</i>	120.00
Late Checkout Fee (if available)	20.00	2nd Vehicle (same owner)	60.00
		Boat	120.00
		<i>Senior (62) / Military (w/ ID) / Disabled</i>	108.00
		2nd Boat (same owner)	60.00
GROUP AREAS	\$ Per Night	OTHER FEES	
Fee includes up to 50 people		Equestrian staging day use fee	\$5 per day
Group Area 1	350-370.00	Walk-in day use fee	\$5 per day
Group Area 2	350-370.00	RV Dump	\$20 per dump
Group Area 3	310-325.00	Firewood (incl. tax)	\$5 per bundle
Group Area 4	310-325.00		
Group Area 5	375-395.00		
Event Center	350-370.00		
<i>Cleaning Deposit</i>	300.00		
Additional People	5.00		
Reservation/Change Fee	25.00		
Cancellation Fee (if more than 14 days prior to arrival, within 14 days there is no refund)	50.00		

Source: EID. 2019. Parks Fee Schedule. Retrieved on October 11, 2019 from: <https://www.eid.org/home/showdocument?id=3191>, 2019 Fee Schedule

Within the past few years, EID has made several improvements to the facilities at the Sly Park Recreation Area. For example, the Hazel Creek and Hazel Creek Campground Restoration, completed by EID in 2013, served to improve and to protect the water quality of Hazel Lake and Jenkinson Lake. The restoration work included stabilization of creek banks, removal of non-native vegetation, creation of riparian areas, protection of re-vegetated areas, and construction of an access bridge over the creek (California Natural Resources Agency. 2014). However, continual maintenance and additional improvement is needed. Specifically, park roads are in varying states of repair and serviceability. The primary entrance to the park is a source of traffic congestion particularly on busy summer weekends. Public safety issues related to road conditions include potential delays in emergency response times, poor visibility, and constraints on visitor evacuation. Electric and water utilities are limited throughout the park, although a new water line with fire hydrants was constructed on the north side of the Lake back to Hazel Campground. Land line phone service is available at the park office.

Sly Park Recreation Area experiences consistently heavy usage throughout the summer season and saw over 700,000 guests during the year 2019 from day visitors and overnight campers. The park provides destination recreational opportunities for visitors from the Sacramento Valley, the surrounding communities, and elsewhere. Recreation use is managed in relation to other existing resources at SPRA such as historical and cultural resources, dramatic scenic vistas, and natural resources. For example, EID's staff face an on-going challenge to provide adequate maintenance and management to protect park resources from the impacts associated with park use. Soil compaction and vegetation damage can be seen in some campgrounds and day use areas. Erosion along trails and the lakeshore also occurs periodically. Careful management of recreation uses to control erosion, runoff, and other pollutant sources is a priority for EID.

Under the 2004 The County of El Dorado General Plan, the park has a land use designation of Natural Resource. Much of the land surrounding the park is similarly designated and owned either by the Forest Service or Sierra Pacific Industries. The exceptions are the privately owned parcels to the west and southwest designated for residential use (EID 2007a and c). In managing Sly Park, EID cooperates with several local and state agencies. For example, during 2018 and 2019, Sly Park Recreation Area, in collaboration with the California Conservation Corps, Tahoe Division, and with grant funding from Caltrans Active Transportation Program (ATP), completed several trail improvements (ibid). As another example of cooperative working relationships, EID collaborated with the California Department of Fish and Wildlife (CDFW) to actively stock fish in Jenkinson Lake and Forebay Reservoir. (EID. 2019h).

Silver Lake

Silver Lake is part of EID Hydroelectric Project 184 System. In 1999, as part of its acquisition of hydroelectric Project 184, EID obtained Silver Lake from PG&E. The campground and day use area are generally open from Memorial Day through October, depending on snow conditions. Facilities operated by EID at Silver Lake include the Ferguson Point Day Use Area, Sandy Cove Day Use Area, and Silver Lake West Campground. A portion of EID's Silver Lake facilities are located in Amador County.

The USFS operates the Silver Lake East Campground located along Highway 88. Infrastructure improvements scheduled to be made in the year 2020 are planned for the Silver Lake East Campground. EID will contribute funding and will conduct the physical improvements since these improvements are required by EID's 40-year hydroelectric operating license issued by the FERC in 2006. Planned improvements include widening campground spurs and enlarging selected campsites to accommodate larger recreational vehicles, repairing and repaving existing campground roads, replacing the existing toilets, changing and relocating all faucets, and upgrading the water systems to meet the most current USFS design and accessibility standards of the Architectural Barriers Act (EID, 2019z).

Caples Lake

In 1999, as part of its acquisition of hydroelectric Project 184, EID obtained Caples Lake from PG&E. Caples Lake is located in Alpine County. The Forest Service operates the Caples Lake campground and trailhead, while EID shares in operating and maintenance costs and upgrades. The campgrounds and day use areas at and near both lakes are generally open from Memorial Day through October, depending on snow conditions. Since Caples Lake is part of EID Hydroelectric Project 184 System, management activities are a component of their license with the FERC. EID works in cooperation with the Eldorado National Forest to ensure recreation services are provided to the public.

Improvements are scheduled in 2020 for the Eldorado National Forest Caples Lake campgrounds. Planned improvements include widening campground spurs and enlarging selected campsites to accommodate larger recreational vehicles, repairing and repaving existing campground roads, replacing the existing toilets, changing and relocating all faucets, and upgrading the water systems to meet the most current USFS design and accessibility standards of the Architectural Barriers Act. Caples Lake campground will re-open when improvements are completed.

Forebay Reservoir

The Forebay Reservoir⁸, located in Pollock Pines on Forebay Road, is owned and operated by EID. At the Forebay Reservoir, EID provides daytime recreational opportunities, including, picnicking, fishing, and a walking trail. The Forebay Reservoir is associated with EID's hydroelectric power generation system (Project 184).

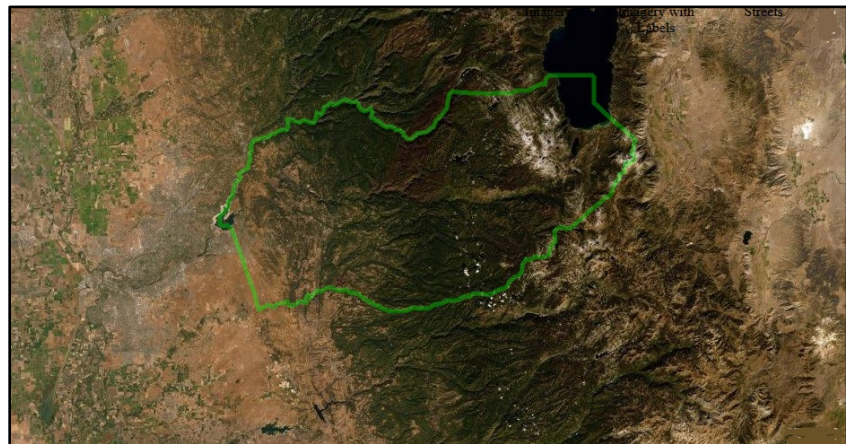
Other Recreation Areas

Bass Lake

Bass Lake is located along Bass Lake Road in El Dorado Hills. Several years ago, EID sold the Bass Lake property and it is no longer an EID asset. The sale of the Bass Lake property to the Rescue Union School District will allow EID to use the sale proceeds to help fund the needed relocation of wastewater collections staff to the EDHWWTP.

Pine Hill Preserve

Although EID does not directly own the Pine Hill Preserve, the District is one of many partners in a cooperative management agreement for this important botanical area, located around the Rescue



community. The partners in this unique project include: U.S. Bureau of Land Management, American River Conservancy, California Department of Fish and Wildlife, CalFire, The County of El Dorado, EID, U.S. Bureau of Reclamation and U.S. Fish and Wildlife Service. In the past, the District contributed funding for the purchase of lands to expand the size of the ecological preserve. In the late 1990s the District implemented a water meter surcharge for rare plant recovery related to the Cameron Park Unit of the Preserve. In 2001, the State Water Resources Control Board issued Permit 21112 to EID and the County of El Dorado Water Agency for the withdrawal of 17,000 acre-feet of water from Folsom Lake. The permit includes as a condition, "EID shall cooperate with The County of El Dorado in establishing preserve sites for eight sensitive plant species known as the Pine Hill endemics and their habitats." For more information on the Preserve, see discussion under Bureau of Land Management, below.

⁸ Across from the Forebay Reservoir Road is a senior center, a Little League ball field, and a number of horseshoe courts which EID recently sold to The County of El Dorado.

Protecting Recreation and Watershed from Catastrophic Fire

EID works to protect its recreation and watershed lands from the risk of catastrophic wildfire. The District's Vegetation Management Project will reduce hazardous fuels by implementing vegetation management activities on approximately 522 acres at four EID facilities to reduce the risk of wildfire, including: Weber Reservoir (365 acres), Sly Park Recreation Area (118 acres), Camp 5 Operations Facility (20 acres), and Flume 46 on the El Dorado Canal (26 acres). On September 9, 2019, EID Board of Directors authorized the allocation of funding of \$1,219,620 for this Vegetation Management Project. The primary source of funding for this project was three grants totaling \$1,963,005 from the California Department of Forestry and Fire Protection (Cal Fire) under the California Climate Investments Fire Prevention Grant Program. Vegetation management will be accomplished through a variety of treatments and prescriptions such as mechanical mastication and hand treatments, removal of fuel ladders, and tree removal and pruning to inhibit vertical fire spread and the potential for crown fire (Cal Fire, 2019).


Challenges Associated with Recreation Services

When considering the provision of public services by a special district, MSRs often articulate any operational challenges anticipated as a region continues to grow. Focusing on recreation and park services, future challenges that EID may face are complex because they are interwoven with its provision of other services (such as water service) and environmental conditions. For example, fishing and boating activities are sensitive to both water quality and water quantity. During a drought, when water levels are low in EID's reservoirs, the number of fish available to be caught by recreational fishermen may decline and boating conditions may also be hampered. Drought conditions can also increase the relative concentration of pollutants in water sources which can affect fishing and boating conditions. Conversely, recreational activities can also affect water quality. For example, the monthly total coliform at the Outingdale WTP tends to be higher during the summer months and this is partially attributed to increased recreation in the watershed (EID, 2018b). Managing the potential for impact from future catastrophic wildfires on EID's recreation infrastructure is also a challenge which EID is working to address through its vegetation management plans.



7.4.c: Recreation Determinations:






Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies

Based on the information included in this report, the following written determinations make statements involving this service factor (Present and Planned Capacity of Public Facilities and Adequacy of Public Services, Including Infrastructure Needs or Deficiencies) which the Commission must consider as part of a municipal service review⁹. The determinations listed below are based upon the data presented in this Section and are recommended to the Commission for consideration. The Commission’s final MSR determinations will be part of a Resolution which the Commission formally adopts during a public meeting.

Table 7-29: Summary of Recreation Determinations		
Topic: Recreation Services		
Indicator	Score	Determination
The District collaborates with multiple other agencies for the delivery of services within EID service area.		<ul style="list-style-type: none"> • The western County of El Dorado region has several recreation service providers including the El Dorado Hills Community Services District, City of Placerville, California State Parks, Bureau of Land Management, and the U.S. Forest Service. EID has cooperative relationships with these park and recreation service providers. El Dorado LAFCO studied park and recreation services in its 2004 “West County Parks and Recreation Services MSR”. In regards to EID’s parks and recreation services, currently, there is no need to further study whether additional efficiencies could be gained through structural or organizational changes at this time. ▪ For recreation services, EID often works with neighboring agencies such as the El Dorado Hills CSD; State Agencies such as CalFire, Federal agencies such as U.S. Bureau of Reclamation and other partners to provide and enhance park and recreation facilities. For example, portions EID’s Vegetation Management Plan is being implemented with grant funding administered by CalFire. As

⁹ The service factors addressed in this report reflect the requirements of California Government Code §56430(a)

		<p>another example, EID has facilitated the creation of a regional park at Bass Lake through the sale of this property to the Rescue Union School District and to El Dorado Hills CSD.</p>
<p><u>Recreation Services:</u></p> <ul style="list-style-type: none"> ▪ Average annual demand for parks and recreation services is well understood. 		<p>As part of its responsibilities under its license for hydroelectric services from the Federal Energy Regulatory Commission (FERC) and as part of its watershed management duties, associated with its drinking water supplies, EID manages open space and park land and provides recreation facilities on that land. EID provides opportunities to experience watershed lands through passive recreation activities such as camping, hiking, fishing, photography, biking, and bird-watching.</p> <p>EID tracks and reports visitation to its recreation facilities. Over the past ten years, the number of day use visitors to EID’s recreation facilities has increased from 244,433 visitors in the year 2009 to 705,524 visitors in 2019.</p>
<p><u>Park Facilities:</u></p> <ul style="list-style-type: none"> ▪ The District has planned for replacement of aging park facilities. ▪ The District has preventative maintenance measures to ensure park facilities remain adequate. 		<p>EID operates a system of reservoirs that provide water for consumptive and hydroelectric uses, as well as recreational opportunities including camping, boating, picnicking, fishing, and hiking. EID owns and operates Jenkinson Lake, located within the Sly Park Recreation Area in Pollock Pines. As part of its FERC license, EID operates Silver Lake and Caples Lake and associated recreational facilities located near Kirkwood in El Dorado, Amador, and Alpine counties. Some facilities are owned by EID and others are located on federal lands within the Eldorado National Forest. EID also owns and operates Forebay Reservoir in Pollock Pines, which provides day-use facilities for picnicking and fishing.</p>

		<p>EID funds capital improvement projects to replace or upgrade aging park facilities. In general, EID is facing higher costs for replacement of aging infrastructure. The maintenance/ improvement projects identified by EID will improve the adequacy and capacity of the parks and recreation facilities and services.</p>
<p>Is there sufficient capacity to provide park and recreation service to the existing SOI?</p>		<p>EID currently provides for adequate park and recreation services to meet the needs of its existing customers and to also meet the needs of visitors from other regions the majority of the time. However, during peak demand season (Memorial Day to Labor Day), all campsites are occupied every weekend during this period and day use will fill to capacity, warranting the closure of the park to incoming traffic for 2-4 hours on 50%-75% of the weekends during this period. EID's park and recreation facilities are open to the general public and are not limited to local residents.</p>
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

Chapter 8.0: Financial Ability To Provide Services

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8.1 INTRODUCTION TO FINANCIAL METRICS

LAFCO is required to make a determination regarding the financial ability of the El Dorado Irrigation District to provide public services. This Chapter provides an overview of financial health and provides a context for LAFCO’s financial determinations. The audited Comprehensive Annual Financial Report (CAFR) from the District for the fiscal years 2016, 2017, 2018, and 2019 are the primary source of information for this Chapter¹. Based on recent recommendations from the Little Hoover Commission, this determination on the financial ability

¹ EID’s audited Comprehensive Annual Financial Report for the fiscal year 2019 was not available at the time this report was written.

to provide services is based upon several key financial performance indicators that LAFCO's throughout the state consider in MSRs including:

- Summary financial information presented in a standard format and simple language
- District has a published policy for reserve funds, including the size and purpose of reserves and how they are invested
- Other financing policies are clearly articulated
- Compensation reports and financial transaction reports that are required to be submitted to the State Controller's Office are posted to the District website
- Revenues exceed expenditures in 50% of studied fiscal years
- Increases or decreases in net position
- Rates were adopted by the Board during a public meeting
- Rates are readily available to constituents
- Liquidity
- Debt Service (governmental)
- Pension Payments

In California, special districts are classified as enterprise or non-enterprise districts, based on their source of revenue:

- Enterprise districts: Finance of district operations is via fees for public service. Under this model, the customers that consume goods or services, such as drinking water or raw water, sewage disposal, or electricity, pay a fee. Rates are set by a governing board and there is a nexus between the costs of providing services and the rates customers pay. Sometimes enterprise districts may also receive property taxes which comprise a portion of their budget.
- Non-enterprise districts: Districts which receive property taxes are typically classified as non-enterprise districts. Services that indirectly benefit the entire community, such as flood or fire protection, community centers, and cemetery districts are often funded through property taxes.

EID generally operates as an enterprise district, charging fees for water supply/treatment, and sewage treatment/disposal services. However, EID does collect and utilize property tax revenue which is used to repay its obligation to the Bureau of Reclamation for the construction of the Sly Park Unit of the Central Valley Project and the District's distribution system and to repay its General Obligation Bonds (EID, CAFR, 2019h).

Enterprise funds are used to account for operations that are financed and operated in a manner similar to private business enterprises – where the intent of the governing body is that the costs (expenses, including depreciation) of providing goods or services to the general public on a

continuing basis be financed or recovered primarily through user charges. The District has two major enterprise funds:

- The *Water Fund* accounts for all revenues collected by the District for the purpose of financing the construction, operation and maintenance of the District’s water storage and distribution systems. Revenues are derived from water service charges, water sales, hydroelectric sales and various installation charges.
- The *Wastewater Fund* accounts for all revenues collected by the District for the purpose of financing the construction, operation and maintenance of the District’s wastewater treatment, disposal and reclamation system. Revenues include, but are not limited to, wastewater service charges and fees.

The District is a member of a financing organization called the “El Dorado Irrigation District Financing Corporation”. EID has one blended component unit consisting of a financing corporation whose respective governing board is comprised entirely of the members of the District’s Board of Directors (EID, CAFR, 2019h). This Corporation is a legal entity that was created to assist the District in the issuance of debt. Although legally separate from the District, the Corporation is reported as if it were part of the primary government because it shares a common Board of Directors with the District, and because its sole purpose is to provide financing to the District under the debt issuance documents of the District. Debt issued by the Corporation is reflected as debt of the District in its annual financial statements. The Corporation has no other transactions and does not issue separate financial statements (EID, CAFR, 2019h). EID was once a member of a second financing organization called the “El Dorado Water and Power Authority”; however, the Authority disbanded in 2019. More information about the Authority may be found at: <http://www.edcgov.us/waterandpower/index.html> (EID, CAFR, 2019h).

8.2 FINANCIAL POLICIES & TRANSPARENCY

The primary policy document for EID is the 280-page Board Policies and Administrative Regulations (BP/AR) updated January 24, 2020 (EID, BP/AR, 2020). The BP/AR describes the rules for the District’s business operations including budget policies, procurement polities, and financial policies. In accordance with Board policy, the District adopts a two-year budget and conducts a mid-cycle review to determine any changes that may be needed in the second year of the cycle. The 2019-2020 Mid-Cycle Operating Budget and 2020-2024 Financial Plan was adopted by the Board on December 9, 2019. Every year the District publishes an audited Comprehensive Annual Financial Report (CAFR). The Government Code and District policy require an annual independent audit of the District’s financial records by a certified public accountant. The independent audit on FY 2018 was performed by Hudson Henderson & Company, Inc.,

independent auditors. The auditors expressed their opinion that the District’s financial statements are presented in conformity with Generally Accepted Accounting Principles (GAAP). The Government Accounting Standards Board (GASB) is responsible for establishing GAAP for state and local governments through its statements and interpretations. The District uses the accrual basis of accounting under which revenues are recognized when earned and expenses are recorded when liabilities are incurred (EID, CAFR, 2019h).

The current and past budgets, financial plans, and CAFR may be viewed on EID’s website under the “document library” tab at: <<https://www.eid.org/about-us/document-library>>. A link to the document library and to financial documents is prominently displayed on the EID homepage. The authors of this MSR carefully reviewed the financial information provided by EID and found it to be presented in a standard format and in simple language thereby making it easily accessible and understandable to its customers.

The California Government Code contains several legal requirements to which EID adheres to in relation to its financial reporting. Additionally, EID has adopted several accounting policies and these policies are described in its annual CAFR under Note 1: Summary of Significant Accounting Policies. A list of these policies is provided below:

- Financial Reporting Entity
- Basis of Presentation
- Basis of Accounting
- Measurement Focus
- Cash and Cash Equivalents
- Restricted Assets
- Investments
- Hydroelectric Deposit
- Receivables
- Due from Other Government Agencies
- Budgets and Budgetary Accounting
- Property Taxes
- Inventory
- Interfund Transfers
- Bond Discounts, Issuance Costs and Deferred Amounts on Refunding
- Pension Plan
- Reserves for Claims and Claims Expense
- Use of Estimates
- Governmental Accounting Standards Update
- Reclassifications
- Subsequent Events

Several of the more prominent policies are summarized in this and the following paragraphs. The District’s financial policy is to charge reasonable rates, fees, and other charges sufficient to

pay for water and wastewater services, the costs of operation and maintenance of its facilities, the general expenses of the District, and principal and interest on all bonds and other obligations of the District. In addition, it is District policy to fix rates and charges sufficient to maintain a debt service coverage ratio in accordance with its bond covenants (EID, CAFR, 2019h).

Accounting System and Internal Control Policies: The Finance Department is responsible for providing financial services for the District, including financial accounting and reporting, accounts payable and receivable, purchasing, custody and investment of funds, billing and collections of water and wastewater charges, taxes, and other revenues. The District accounts for its activities as an enterprise fund and prepares its financial statements on the accrual basis of accounting, under which revenues are recognized when earned and expenses are recorded when liabilities are incurred. It is the intent of the Board to manage the District's operations as a business, thus matching revenues against the costs of providing the services. The District operates within a system of internal controls established and continually reviewed by management to provide reasonable assurance that assets are adequately safeguarded and transactions are recorded in accordance with District policies and procedures, and in accordance with sound accounting practices (EID, CAFR, 2019h).

Budgeting Policies: The two-year operating budget (consisting of total operations, operating projects, and debt service), and the five-year Capital Improvement Plan (CIP) budget (consisting of capital project expenditures), serve as the foundation for the District's financial planning and control. Budgets are adopted on a basis consistent with GAAP. Budgetary controls are set at the department level and maintained to ensure compliance with the budget as approved by the Board of Directors. All budgets are developed based upon a well-established and detailed process (EID, CAFR, 2019h).

Debt Policies: The District manages its debt to ensure high-quality credit, access to credit markets, financial flexibility, and the lowest overall long-term cost of debt, all in compliance with the District's Debt Management Policy. EID's general philosophy on debt is to use pay-as-you-go funds for minor construction projects and to use debt issuances for major, long-lived capital projects. This enables future users to share in the costs without overburdening existing ratepayers (EID, CAFR, 2019h).

Reserve Fund Policy

EID's Board Policies and Administrative Regulations (BP/AR) describe its reserve policies (AR 3014) as follows: "The District will maintain operating reserves, as approved by the board, for each of its utilities, water and wastewater, 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; and
- cash-flow requirements; and
- a revenue source for invested interest earnings to reduce District needs for ratepayer funds" (EID, BP/AR, 2020).

The BP/AR states that EID has five reserve funds which are classified as Board Restricted Funds including:

- operating reserves
- capital replacement reserves
- routine capital replacement reserve
- self-insurance reserve
- board discretionary revenue fund

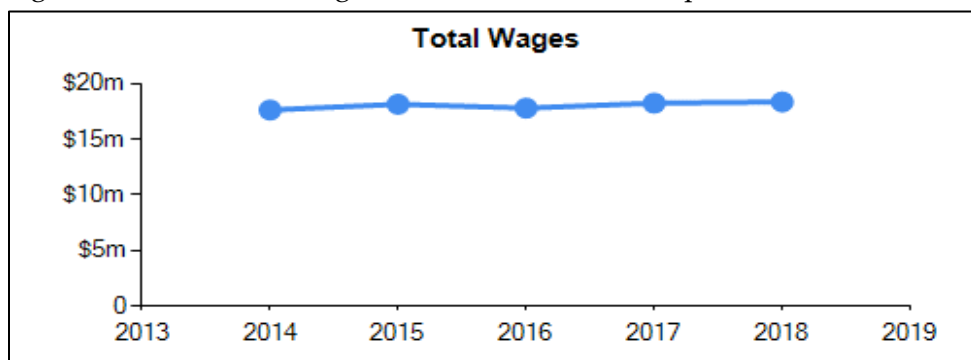
Additionally, EID's CAFR for FY 2018 describes two types of reserve funds:

- debt service reserve funds
- reserve for claims and claims expense

Data Transparency

Transparency with salary data is an important attribute for special districts in California. The El Dorado Irrigation District provides competitive compensation and a benefits package to full-time, regular employees. The Memorandum Of Understanding between El Dorado Irrigation District and the Association of El Dorado Irrigation District Employees January 1, 2019 Through December 31, 2021 is available on EID's website at: <https://www.eid.org/home/showdocument?id=389>. Additionally, the El Dorado Irrigation District forwards a report to the California State Controller for Government Compensation in California per Government Code Section 53891. This data is made available to the public on the State of California website and is summarized in Figures 8-1, 8-2, and 8-3, below.

Figure 8-1: EID Total Wages Paid 2014 to 2018 as Reported to California State Controller



Data source for Figures 8-1, 8-2, 8-3, and 8-4:

<https://publicpay.ca.gov/Reports/SpecialDistricts/SpecialDistrict.aspx?entityid=3205&year=2018&rpt=6>

Figure 8-2: Total Employee Retirement & Health Contribution Reported to California State Controller

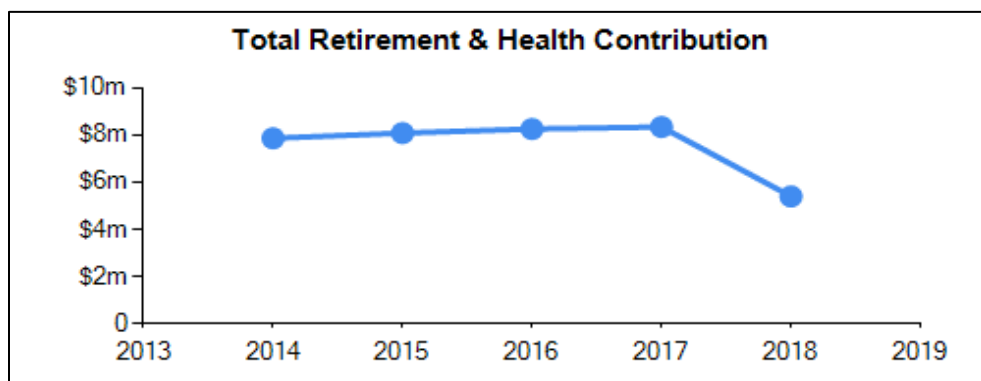
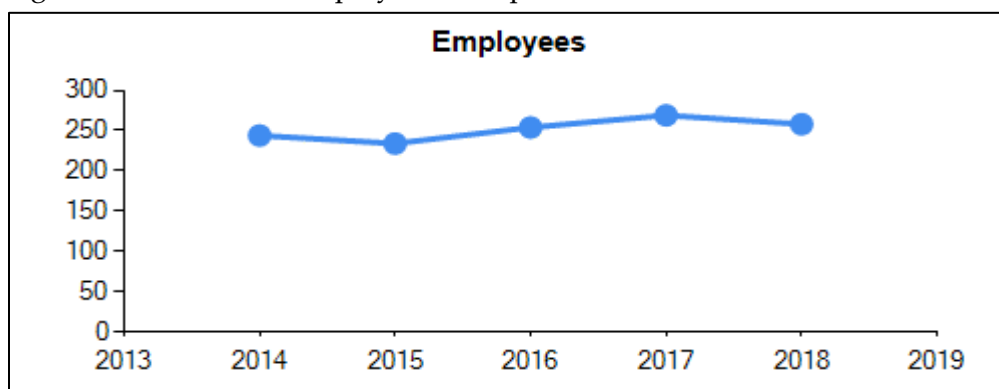
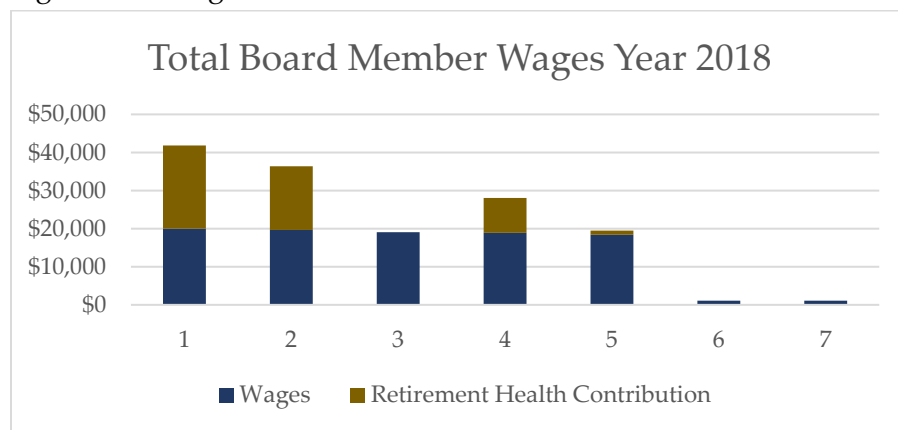


Figure 8-3: EID Total Employees as Reported to California State Controller







In the year 2018, EID paid a total of \$147,064 to elected Board Members in wages and retirement/health contributions as shown in Figure 8-4, below.

Figure 8-4: Wages and Contributions Paid to EID Elected Board Members in 2018



Indicator	Score	Notes
Summary financial information presented in a standard format and simple language.	↑	The Comprehensive Annual Financial Reports and budgets are prepared on a regular basis and they clearly and transparently present financial information.
District has a published policy for reserve funds, including the size and purpose of reserves and how they are invested.	↑	EID’s reserve policy is incorporated into the Board Policies and Administrative Regulations which is posted on the District website.
Other financing policies are clearly articulated.	↑	EID’s audited Comprehensive Annual Financial Report contains a list of its accounting policies. Additionally, the District document entitled “Board Policies and Administrative Regulations” describes its purchasing Policy, with specific procedures for purchases and procurement practices. The Board Policies and Administrative Regulations is readily available on the EID website.
Compensation reports and financial transaction reports that are required to be submitted to the State Controller's Office are posted to the district website.	↑	Required reports are sent to the California State Controller for Government Compensation. A link to these documents is provided from the EID’s Human Resources webpage at: https://www.eid.org/about-us/advanced-components/employment-opportunities/employment

Key to score:

-  Above average (compared to similar irrigation districts)
-  Average
-  Needs improvement
-  Statement of Fact (Not rated)

8.3: REVENUES, EXPENDITURES, AND NET POSITION

Revenues

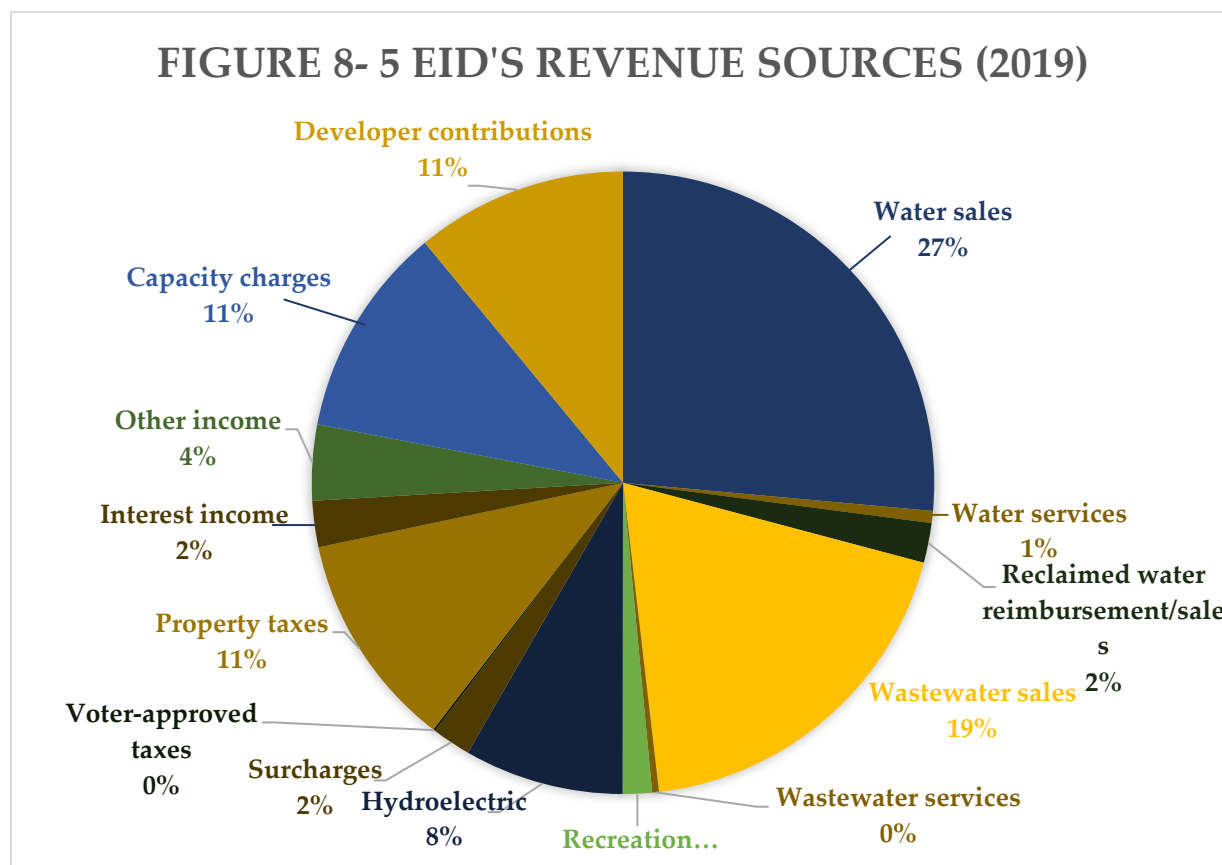
EID has two basic types of revenue:

- Operating revenues consist primarily of charges for services.
- Non-operating revenues and expenses are related to financing and investing type activities.

The District has multiple sources of operating revenue including: water sales, water services, water transfer sales, reclaimed water reimbursement/sales, wastewater sales, wastewater services, recreation fees, and hydroelectric sales. Sources of non-operating revenue include: surcharges, voter-approved taxes, property taxes, and interest income.

In 2019, EID's operating revenue was \$68,164,275 and non-operating revenue was \$48,755,302 bringing the total revenue to over \$116 million. The largest source of revenue in 2019 was water sales to customers which totaled \$30,917,264 as shown in Figure 8-5, below.

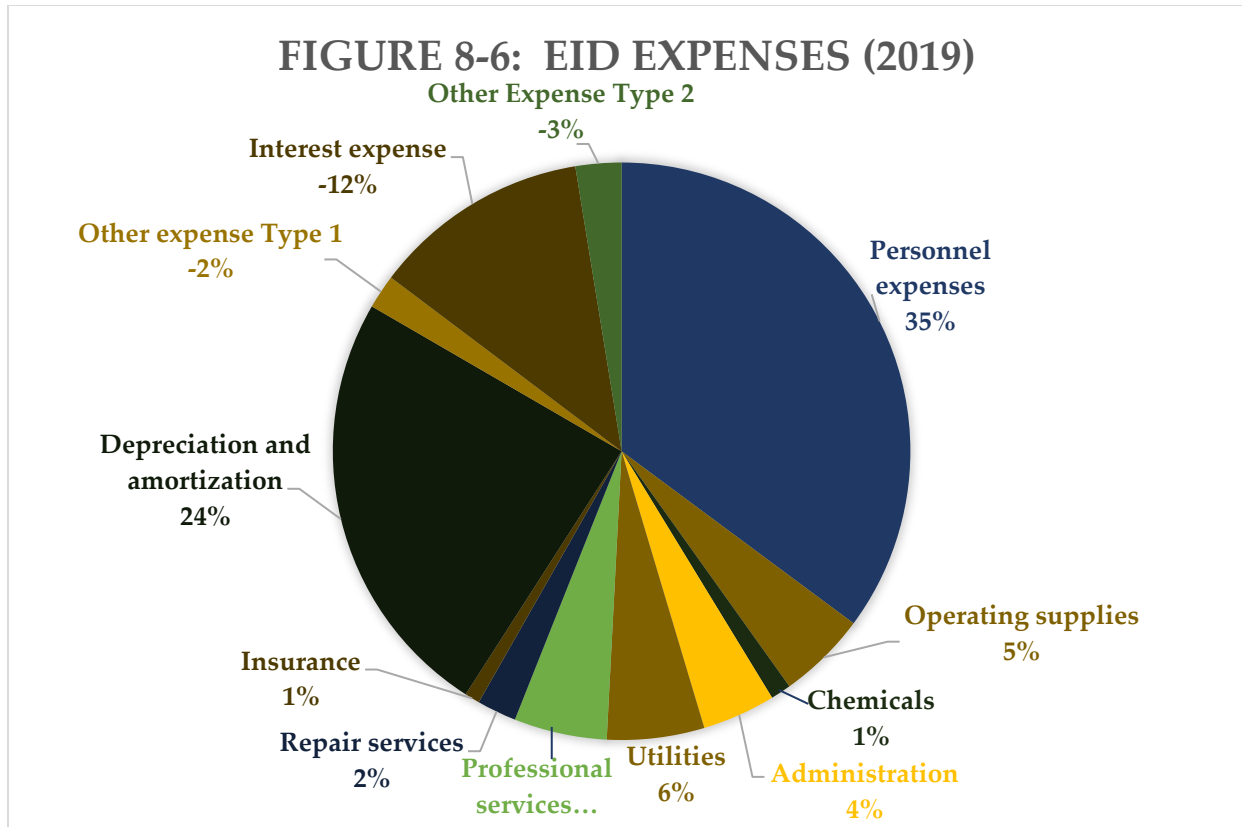
Figure:8-5: Sources of Revenue (includes both operating and non-operating)



Source: EID Financial Statement, FY: 2019, Statement of Revenues (2020b).

Expenses

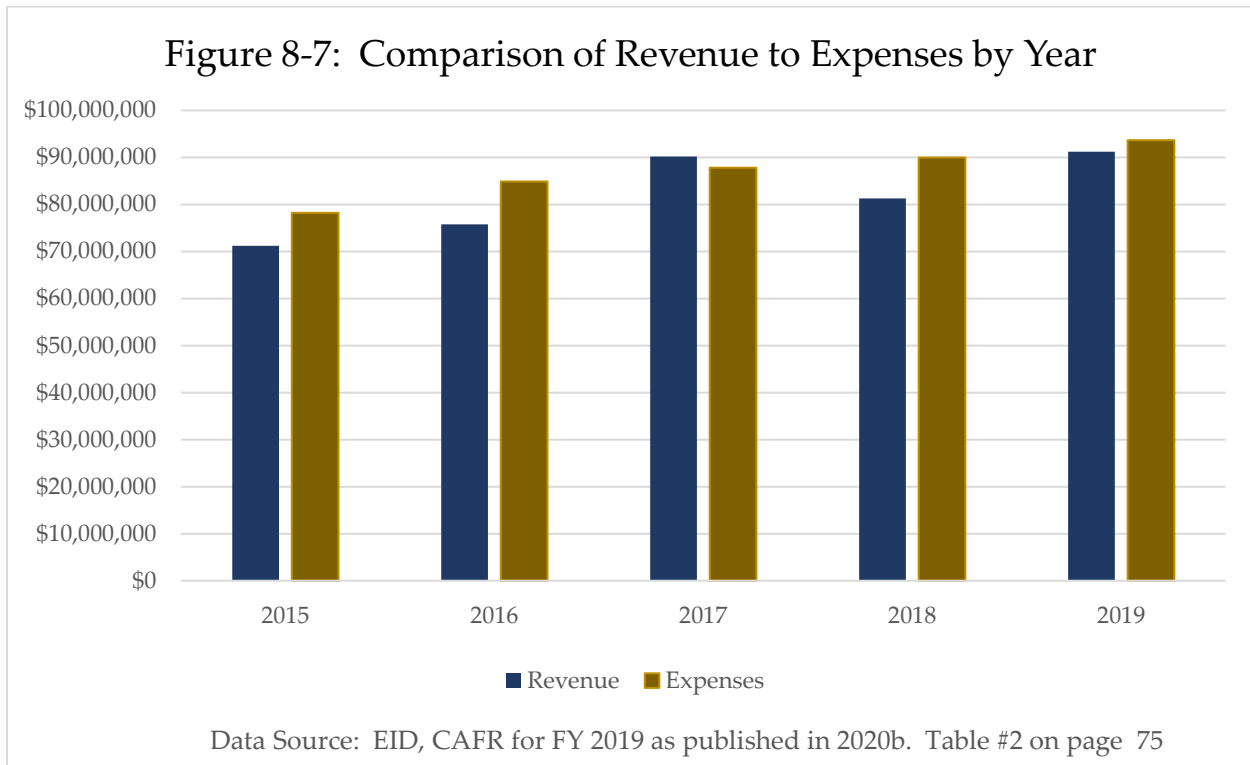
In FY 2019, operating expenses included personnel expenses, operating supplies, chemicals, administration, utilities, professional services, repair services, insurance, and depreciation and amortization. Operating expenses totaled \$80,154,072. Non-operating expenses included interest paid and other miscellaneous expenses. Total non-operating expenses were \$952,0874in FY 2019. The largest expense was personnel expenses at \$33,802,441 (35%) and the second largest expense was depreciation at \$23,349,642 (24%) as detailed in Figure 8-6 below.



Source: EID, CAFR for FY2019 as published May 2020b.

A comparison of annual total revenue to total expenses², as provided in Figure 8-7 (next page) shows that annual expenses exceeded revenues in four of the five years studied (i.e. 2015, 2016, 2018, and 2019). Expenses associated with capital improvement projects contributed to the expenditure totals during these years and contributions from the reserve funds were used to offset the difference. Capital improvements during this timeframe included FERC mandated improvements, water infrastructure, wastewater infrastructure, recycled water infrastructure, hydroelectric improvements, recreation improvements, and general district projects. (Please see the section entitled “Capital Improvement Plan” on page 8-14 of this MSR for more information on capital improvements.) EID’s reserve funds are intended to meet anticipated future expenditures, such as those in the CIP, and unexpected expenditures. Additionally, depreciation is included as an expenditure, consistent with EID’s CAFR and this raises the amount counted towards expenditures in Figure 8-7. Please also see the discussion of rates presented on page 8-27 in this chapter. EID’s average per capita expenditures amounted to \$ 818.38 per permanent resident in 2018. Average per acre expenditures amounted to \$ 610.46 per acre throughout the District boundary area in 2018.

² Please note that EID’s CAFR classifies depreciation as a non-cash expense.









Net Position

The Statement of Net Position provided in Table 8-2 (next page) includes all of the District’s assets, deferred outflows of resources, liabilities, and deferred inflows of resources, which provide information about the nature, and amounts, of investments in assets and obligations to District creditors. They also provide the basis for computing rates of return, evaluating the capital structure of the District, and assessing financial flexibility of the District. At December 31, 2019, the District’s total assets and deferred outflows of resources exceeded total liabilities and deferred inflows of resources by \$416 million. This figure, referred to as the net position, was \$19.1 million higher than the 2017 year-end balance (EID, CAFR, 2020b).

Table 8-2: Condensed Statements of Net Position (in millions)			
	December 31,		
	2019	2018	2017
Current assets	\$ 41.5	\$ 34.9	\$ 59.4
Restricted and other noncurrent assets	79.9	112.1	94.4
Capital assets, net	727.9	714.7	695.0
Total Assets	849.3	861.7	848.8
Deferred outflows of resources	11.4	18.3	17.3
Total Assets and Deferred Outflows	\$ 860.7	\$ 880.0	\$ 866.1
Current liabilities	\$ 32.1	\$ 33.5	\$ 25.6
Noncurrent liabilities	403.5	445.1	458.6
Total Liabilities	435.6	478.6	484.2
Deferred inflows of resources	9.1	8.6	8.2
Net position	416.0	392.8	373.7
Total Liabilities, Deferred Inflows, and Net Position	\$ 860.7	\$ 880.0	\$ 866.1
Detail of Net Position:			
Net investment in capital assets	\$403.3	\$ 377.7	\$ 349.5
Restricted for new facilities	55.7	53.8	36.1
Restricted for debt service	3.3	4.6	3.9
Unrestricted	(46.3)	(43.3)	(15.8)
Total Net Position	\$416.0	\$ 392.8	\$ 373.7
<i>Data Source: EID, CAFR for FY2019 as published in 2020b.</i>			

The Net Position for the District increased from 2017 to 2019 as shown in Table 8-2 by \$42.3 million.

Summary Scores Revenues, Expenditures, and Net Position

Table 8-3: Summary of Indicators Revenues, Expenditures, and Net Position		
Indicator	Score	Notes
Revenues exceed expenditures in 50% of studied fiscal years		<ul style="list-style-type: none"> EID’s total revenue was less than the total expenditures in four of the five study years as shown in Figure 8-7. One reason that expenditures exceed revenues could be related to the mechanisms used to fund capital improvement projects during this timeframe. It is recognized that capital improvement projects are expensive and necessary. Many water districts in California are in a similar situation.
Increases or decreases in net position		Changes to the Net Position are shown in Table 8-2, to be highly variable. However, the increase in Net Position of \$38.8 million from FY 2016 to FY 2018 is noted.
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

8.4: CIP, RESERVE, AND DEBT & PENSION OBLIGATION

Capital Improvement Plan

EID’s Capital Improvement Plan (CIP) is updated annually and covers a five-year time period. The most recent CIP was adopted by the Board on October 15, 2019 and covers the years 2020–2024 (EID, 2019). EID’s water, sewer, recycled water, and hydroelectric infrastructure are complex and therefore more expensive to maintain due to its geographic situation including large size (service area encompasses over 147,465 acres), elevation changes from 370 feet to 3,500 feet, and diverse climate. For example, the water system contains more than 1,105 miles of pipeline, 27

miles of ditches, 5 treatment plants, 36 storage tanks and reservoirs, and 38 pumping stations. The wastewater systems operate more than 443 miles of sewer lines, 61 lift stations, and 4 treatment facilities. EID aims to control operating costs associated with maintenance, repair and replacement of infrastructure in order to minimize future rate increases. Accordingly, EID has an extensive CIP program and the CIP projects fall into seven main categories:

- FERC
- Water
- Wastewater
- Recycled Water
- Hydroelectric
- Recreation
- General District

During the years 2020 to 2024, EID plans to spend a total of \$209,472,494 as detailed in Table 8-4, (page 8-19). EID's CIP contains an extensive list and description of each proposed project. For the purposes of this MSR analysis, the two largest projects in each of the above seven categories are described in the following paragraphs.

FERC CIP

EID has 23 projects proposed in its CIP for its FERC related facilities. These are projects that the FERC has required as a condition of its hydroelectric permit. The two largest projects are the Silver Lake Campground East Re-Construction and the Caples Lake Campground Re-Construction.

- Silver Lake Campground East Re-Construction (06082H FERC: C50.1): EID plans to expend \$3.5 million to reconstruct the paved surfaces, toilets, and water system at the 62-unit U.S. Forest Service Silver Lake Campground, including upgrade of this facility to meet the current U. S. Forest Service design standards and the U. S. Forest Service Region 5 accessibility standards requirements of the Architectural Barriers Act.
- Caples Lake Campground Re-Construction (15016 FERC: C50.2): EID plans to expend \$1 million to reconstruct the paved surfaces, toilets, and water system at the 36-unit U.S. Forest Service Caples Lake Campground, including upgrade of this facility to meet the current U. S. Forest Service design standards and the U. S. Forest Service Region 5 accessibility standards requirements of the Architectural Barriers Act.

Water CIP

EID has 52 projects proposed in its CIP to improve water facilities. The two largest projects are the Service Line Replacement Program and the Folsom Lake Intake Improvements Project as described below.

- **Service Line Replacement Program:** EID plans to expend \$23 million to target replacement of leaking water service lines throughout the District. Replacing leaking and substandard service lines with new copper water service tubing will reduce the potential for contamination of the drinking water supply, increase reliability, reduce maintenance expenditures, and decrease losses. Service line projects are prioritized with operations and engineering staff based on frequency of leaks and costs of repairs.
- **Folsom Lake Intake Improvements Project (15024):** EID plans to expend over \$17 million to improve the Folsom Lake Raw Water Intake which delivers EID water supplied from Folsom Lake to the El Dorado Hills Water Treatment Plant and which is critical to service reliability for the El Dorado Hills service area. The intake needs to be upgraded to provide for reliability, long-term operational needs, and temperature control. In 2005, the District entered into a cooperation agreement with the U.S. Bureau of Reclamation for the design and construction of a Temperature Control Device for the benefit and propagation of Chinook salmon and steelhead trout in the lower American River. The federal funding amount, which is specified for the District's facility pursuant to federal legislation, was fifty percent of the eligible costs not to exceed \$6,250,000. Minimum federal funding of \$5.7 million is included, and staff is seeking additional funding appropriations based on final project elements. The Board approved a Mitigated Negative Declaration for the project in 2019.

Wastewater CIP

EID has 27 projects proposed in its CIP to improve its wastewater facilities. The two largest projects are the Wastewater Lift Station Communication Upgrade and the Wastewater Lift Station Upgrade Program.

- **Wastewater Lift Station Communication Upgrade (18003):** EID plans to expend \$3.8 million to determine the communication feasibility at each wastewater lift station and then determine the priority of replacing the obsolete programmable logic controllers (PLC) and/or remote terminal units (RTUs) and add the required monitoring equipment (instrumentation) at the lift stations. 20 stations will be studied to address deferred upgrades of existing out-of-date PLCs used extensively for process control in the collection systems. The existing PLCs are now about 30 years old and 10 years beyond their expected useful life. This project also includes professional services funding to design the electrical and mechanical elements for installation and integration of the PLCs into the facilities and outside construction to install the new PLC systems.

- Wastewater Lift Station Upgrade Program: EID plans to expend over \$3.6 million to prioritize rehabilitation and replacement of some of its 60 lift stations based on a condition assessment of all lift stations in the year 2020. Based on the condition assessment, future projects will be prioritized and then designed. One lift station will be rehabilitated every other year. District staff will also evaluate smaller projects aimed at rehabilitating or replacing portions of existing stations where possible to prolong the useful life of the remaining stations.

Recycled Water CIP

EID has three projects proposed in its CIP for its recycled water facilities. The two largest projects are the Recycled Water Asset Replacement Program and the Recycled Water Asset Planning.

- Recycled Water Asset Replacement Program: Over the course of five years, EID plans to expend \$1.6 million on this annual program to replace recycled assets that have failed or reached end of useful life. This program differs from ongoing maintenance programs in that the equipment, facilities, and labor attributed to these assets constitute a replacement of a capitalized asset. Assets to be replaced or upgraded under this program include, but are not limited to mechanical, electrical and instrumentation systems, pump station equipment, generators, and distribution system assets that with replacement will extend the life of the associated system or facility. Items to be replaced each year will be prioritized using ongoing condition assessments and the asset management policies of the district.
- Recycled Water Asset Planning: EID plans to expend \$75,000 to improve recycled water facilities. Due to the overall age and evolving operation of the facilities, key elements of the existing distribution system need to be examined for hydraulic operation as well as rehabilitation or replacement. The general goal and objectives are to study, review, evaluate, and assess the condition and status of the structures and equipment taking into account past and future maintenance activities and regulatory requirements.

Hydroelectric CIP

EID has 28 projects proposed in its CIP for its hydroelectric facilities. The two largest projects are the Flume 38-40 Canal Conversion and the Flume 48 Replacement/Tunnel option.

- Flume 38-40 Canal Conversion (16022): EID plans to expend \$11 million to conduct localized improvements to the canal and conversion of wooden flume structures to concrete canal supported on Mechanically Stabilized Earth (MSE) walls. Project components include all-weather Aggregate Base Rock (AB) surface improvements to Camp X Road, a new canal crossing at the siphon, canal bench AB improvements,

conversion of Flumes 38 and 39/40 to canal with a new MSE bench, repair of the landslide at the L-Wall (immediately downstream of 39/40), canal replacement, canal crossing at Road R71, and AB improvements to Road R71 to eliminate helicopter use and provide construction and maintenance access. Construction is estimated to occur in 2020.

- Flume 48 Replacement/Tunnel option (17028): EID plans to expend over \$10 million over the course of several years. The District will begin by evaluating two replacement alternatives for this degraded flume. Alternative 1 is to stabilize the hand-stacked rock bench utilizing stabilization measures developed and employed at Flume 41 and the degraded wood flume would be replaced with steel reinforced precast flume. Alternative 2 would be to construct a 500-foot tunnel between Flume 48 and Highway 50 and abandon approximately 700 feet of canal and 448 feet of elevated wood flume. Option 2, if feasible, could result in significantly lower construction costs but would require acquisition of an easement on an adjacent parcel and a FERC boundary adjustment.

Recreation CIP

EID has three projects proposed in its CIP for its recreation facilities. The two largest projects are the Sly Park Recreation Area Facility Improvements and the Recreation Facility Replacement Program.

- Sly Park Recreation Area (SPRA) Facility Improvements: EID plans to expend \$365,000 to analyze and implement park improvements as described in the Sly Park Master Plan. The addition of these new facilities will generate more income, enhance the level of environmental protection, improve water quality, provide facilities that enhance the visitor's experience and increase the level of safety for park visitors and EID employees. These projects would include but would not be limited to; 1) Repositioning the SPRA entrance gatehouse to increase the distance between the gate and CR E-16, thus reducing traffic backups on E-16 and the potential for traffic accidents. 2) Expanding the number of day use facilities, improving and enlarging existing day use facilities and improving and enlarging the associated parking areas. This expansion/improvement would help reduce the need to close the park during periods of high use, resulting in increased revenue. These improvements would also reduce camper/day user conflict and would provide a means to potentially reduce the impact to the day use areas.
- Recreation Facility Replacement Program: EID plans to expend \$250,000 to replace infrastructure at District-owned recreation facilities that have failed or reached end of their useful life. Funding will be used for recreation facilities such as road and building improvements that will extend the life of the asset.

Table 8-4: 2020-2024 CAPITAL IMPROVEMENT PLAN						
Approved October 15, 2019						
	2020 PLANNED	2021 PLANNED	2022 PLANNED	2023 PLANNED	2024 PLANNED	FIVE-YEAR PLAN
FERC	\$5,721,762	\$743,195	\$464,671	\$381,191	\$392,682	\$7,703,501
Water	\$22,342,500	\$25,813,750	\$15,303,750	\$14,023,750	\$27,360,750	\$104,844,500
Wastewater	\$8,701,493	\$6,195,000	\$6,085,000	\$4,855,000	\$8,530,000	\$34,366,493
Recycled Water	\$175,000	\$100,000	\$550,000	\$550,000	\$550,000	\$1,925,000
Hydroelectric	\$19,615,000	\$11,295,000	\$4,310,000	\$8,395,000	\$6,460,000	\$50,075,000
Recreation	\$150,000	\$150,000	\$100,000	\$200,000	\$100,000	\$700,000
General District	\$2,600,000	\$2,351,000	\$1,997,000	\$1,620,000	\$1,290,000	\$9,858,000
TOTAL	\$59,305,755	\$46,647,945	\$28,810,421	\$30,024,941	\$44,683,432	\$209,472,494

Data Source: EID. October 15, 2019. Five Year Capital Improvement Plan 2020–2024. 167-pages. Available on-line at <<https://www.eid.org>>.

- Projects to improve recreation facilities potentially include the following:
 - Shoreline stabilization to protect water quality and existing assets such as road ways, boat ramps, day use areas and campgrounds.
 - Repairs to the roadways within SPRA, perhaps including replacement of campground access roads
 - Storm water mitigation features incorporated into facilities
 - Reseal the main park roadway, Lakewood Drive
 - Extend the existing riprap along Lakewood Drive (installed in 2006) along the shoreline between Chimney and Hazel Campgrounds.
 - Chip seal the access road to Scout Hill youth camp to reduce the amount of annual rehabilitation that occurs every spring.

General District CIP

EID has 14 projects proposed in its CIP for its general facilities. The two largest projects are the Vehicle Replacement program and the Hansen 7 Software Replacement project.

- Vehicle Replacement: EID plans to expend \$2.6+million to purchase a variety of vehicles including 4X4 pickups, 4X4 service trucks, 4X4 SUVs, 4X4 service trucks with crane, 4X4 flatbed extended cab trucks, dump trucks, water truck, and a vacuum pumper.
- Hansen 7 Software Replacement (18055): EID plans to expend \$2.4 million to replace the existing Hansen 7 enterprise software application with a modern enterprise solution providing superior features and functionality, including mobile device access and easier integration to other District systems. The project is anticipated to transform and streamline many current business processes and operations that now require time-consuming workarounds developed to overcome limitations in the current software.

Reserves

In California, many independent special districts have accumulated reserves. There are no standards guiding the size and use of reserve funds. Reserve funds are useful for EID because their contribution towards capital improvement projects reduces the potential need to accumulate a high debt load. The District's investment policy and the California Government Code allow the District to invest in the following, provided the credit ratings of the issuers are acceptable to the District and approved percentages and maturities are not exceeded. For FY 2018 EID reported approximately \$112 million in investments and restricted reserves that were reported in the CAFR for FY 2018. This decreased to \$89 million in FY2019 as shown in Table 8-5 below.

Fiscal Year	2019	2018
LAIF	\$ 59,830,298	\$ 78,221,260
U.S. Agency Securities	5,000,650	14,869,910
CAMP	4,346,770	8,971,933
Medium Term Corporate Notes	2,013,770	1,955,700
Certificates of Deposit	4,553,342	4,233,604
Money Market Mutual Funds	3,278,367	4,628,637
Total	\$ 89,023,197	\$ 112,881,044

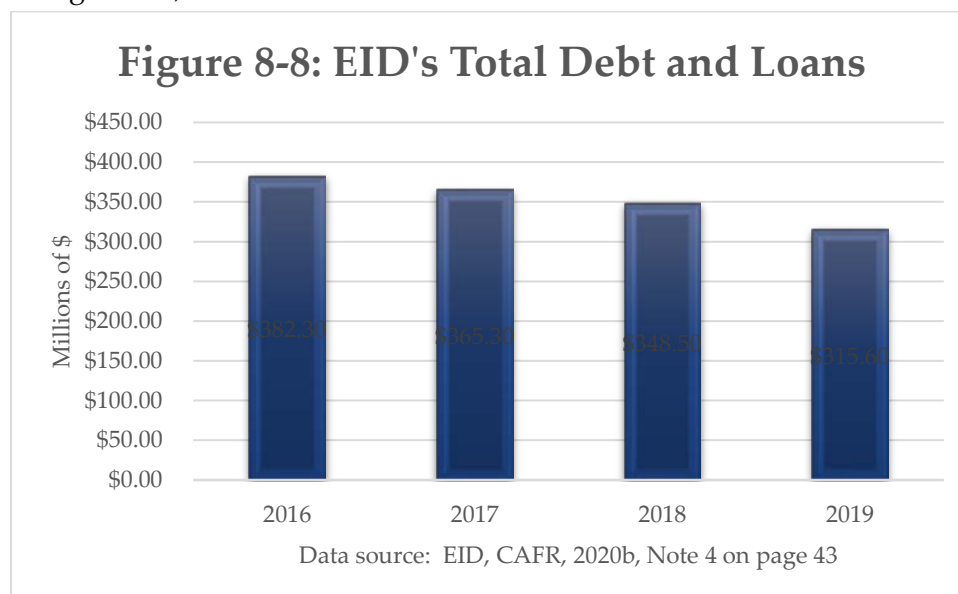
Data Source: EID, CAFR, 2019h and 2020b

Outstanding Debts and Liabilities

At December 31, 2019, EID had \$315.60 million in debt and loans outstanding, a net decrease of \$32.9 million or 9.4% from the prior year. The reduction was due to scheduled bond and loans debt payments. The decrease in FY 2018 was partially due to the \$5.9 million prepayment on the 2012A and 2014A bond’s March 1, 2019 required debt service (EID, CAFR, 2018). EID has four primary debts:

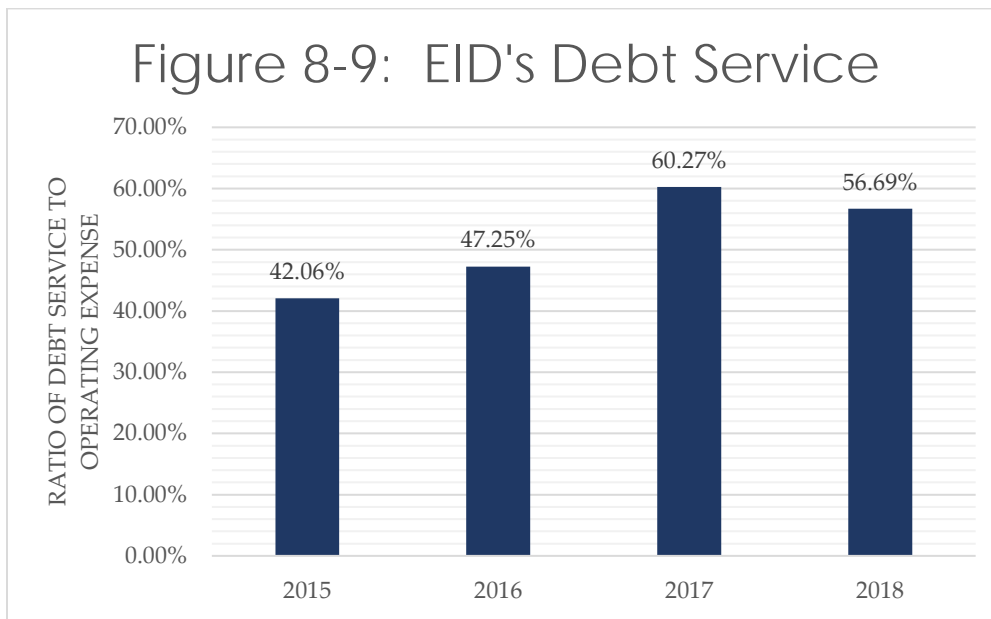
- State of California Loans
- Certificates of participation
- Refunding revenue bonds
- General obligation bonds

EID’s total debt and loan has a decreasing trend over the last three fiscal years analyzed, as shown in Figure 8-8, below.



Debt Service

Debt service is utilized as a financial metric to look at service flexibility by determining the amount of total expenses committed to annual debt service. Service flexibility decreases as more resources are committed to annual debt service. A higher ratio indicates less flexibility. The formula is debt service divided by operating expenses (minus depreciation). EID’s debt service ratio declined by 3.58% between the year 2017 to 2018 as shown in Figure 8-9 and Table 8-6 below.



	2015	2016	2017	2018
Total Debt Service	\$19,032,020	\$22,398,387	\$30,554,852	\$30,158,437
Total Operating Expenses, Excluding Depreciation and Amortization	\$45,251,357	\$47,400,000	\$50,700,000	\$53,200,000
EID’s Debt Service Ratio	42.06%	47.25%	60.27%	56.69%

Data Source: EID, CAFR, 2019h “Statement of Cash Flows” on page 26 and 2016

EID has a significant capital investment and debt associated with its hydroelectric, water, and sewer facilities. Although EID’s debt service ratio is higher compared to other documented³ districts (31% to 40% for the Mohave Water Agency and 5.6% to 7.5% for the Running Springs

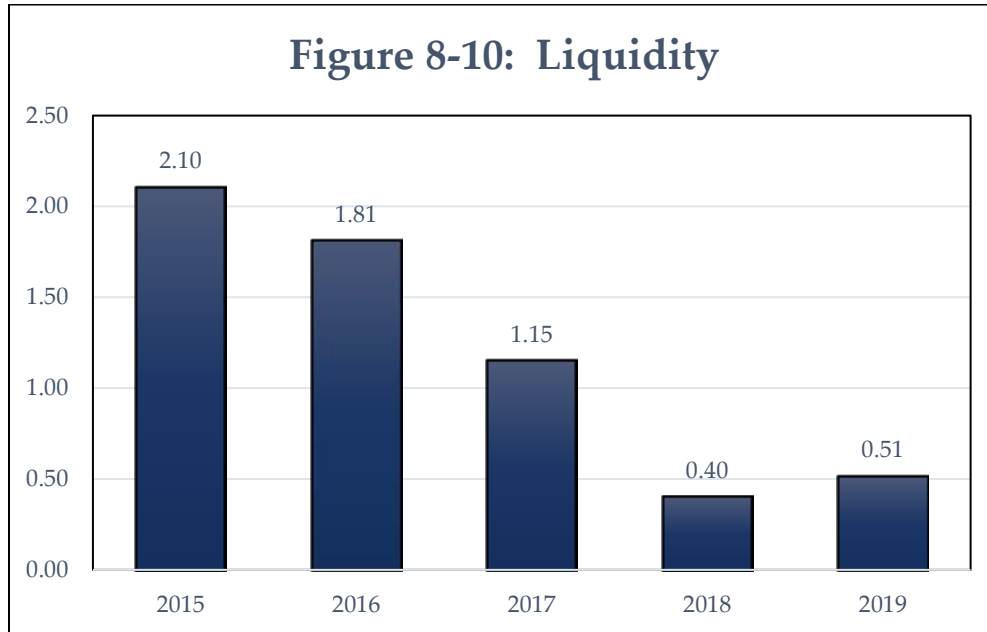
³ It is noted that a comparison to only two districts is a low sampling pool; however, data for other documented districts is available on-line at the URL listed below. The authors relied upon the best available data. For additional detail see: <http://www.sbclafco.org/FiscalIndicators.aspx>

Water District), this is just a preliminary comparison and the MSR consultants are collecting additional data from similar districts in Northern California to more fully inform this analysis. As debts associated with EID's facilities are paid off, the debt service ratio is expected to improve. It is recommended that LAFCO monitor this debt service metric for EID when the next MSR is prepared which will allow for a larger time series yielding a more effective trend analysis.

Liquidity

The Liquidity metric measures a government's ability to meet its short-term obligations. A high ratio suggests a government is able to meet its short-term obligations. The formula used to calculate liquidity is "cash and cash equivalents" (does not include fiscal agents, restricted, or fiduciary) divided by "current liabilities". EID's Liquidity declined for the four years of FY 2015 to FY 2018 because total cash and cash equivalents have been declining while Total Current Liabilities have been increasing. This is not a fiscally sustainable trend. In FY 2019, the liquidity metric improved slightly. A continued decline in EID's liquidity into the future might indicate the District could lose its ability to meet its short-term financial obligations. However, EID's 5-year financial forecast does predict an improvement in this trend (Pasquarello, personal communication, July 2020). It is recommended that LAFCO continue to monitor this metric.

In 2020, EID plans a water bond issuance of approximately \$60 million to rebuild or replace infrastructure to continue its provision of reliable drinking water service. EID plans to take advantage of current low interest rates to issue bonds to cover capital costs with the bond's principal and interest to be paid from revenues. EID is held to strict financing standards. However, the issuance of new bonds could affect trends in the liquidity metric shown in Figure 8-10 and also affect the debt service metric (debt service divided by operating expenses) provided in Figure 8-9.



	2015	2016	2017	2018	2019
Total cash and cash equivalents	\$39,716,250	\$39,088,626	\$29,433,816	\$13,424,978	\$16,472,529
Total Current Liabilities	\$18,874,726	\$21,590,659	\$25,571,496	\$33,499,946	\$32,054,290
Liquidity	2.10	1.81	1.15	0.40	0.51

Data Source: Statement of Net Position in EID CAFR for FY 2019 and dated May 2020 and CAFR for FY 2016 dated 2017

Pension Payments

On behalf of its full-time employees, EID contributes the pension payments to the California Public Employees Retirement System (CalPERS), a multiple-employer public employee defined benefit pension plan. CalPERS provides retirement, disability and death benefits to plan members and beneficiaries. CalPERS acts as a common investment and administrative agent for participating public entities within the State, including EID. Copies of CalPERS' annual financial report may be obtained from its executive office at 400 Q Street, Sacramento, California 95811. The pension contribution requirements of plan members and EID are established and may be amended by the EID Board of Directors. The retirement benefits are fully funded by the District in accordance with the District's Code of Regulations and with the Memorandum of Understanding for employees in the Association of El Dorado Irrigation District Employees. Pension benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. (EID, CAFR, 2020b).

This fiscal indicator shown in Figure 8-11 depicts the relationship between pension contributions as a percentage of covered-employee payroll. Due to updates to pension reporting requirements enacted in 2014, the Pension Payments indicator shows data for 2015 and beyond. GASB 68 revised and established new financial reporting for pensions effective for 2015. This percentage is calculated using the following formula: contributions in relation to the actuarially determined contribution divided by covered payroll.

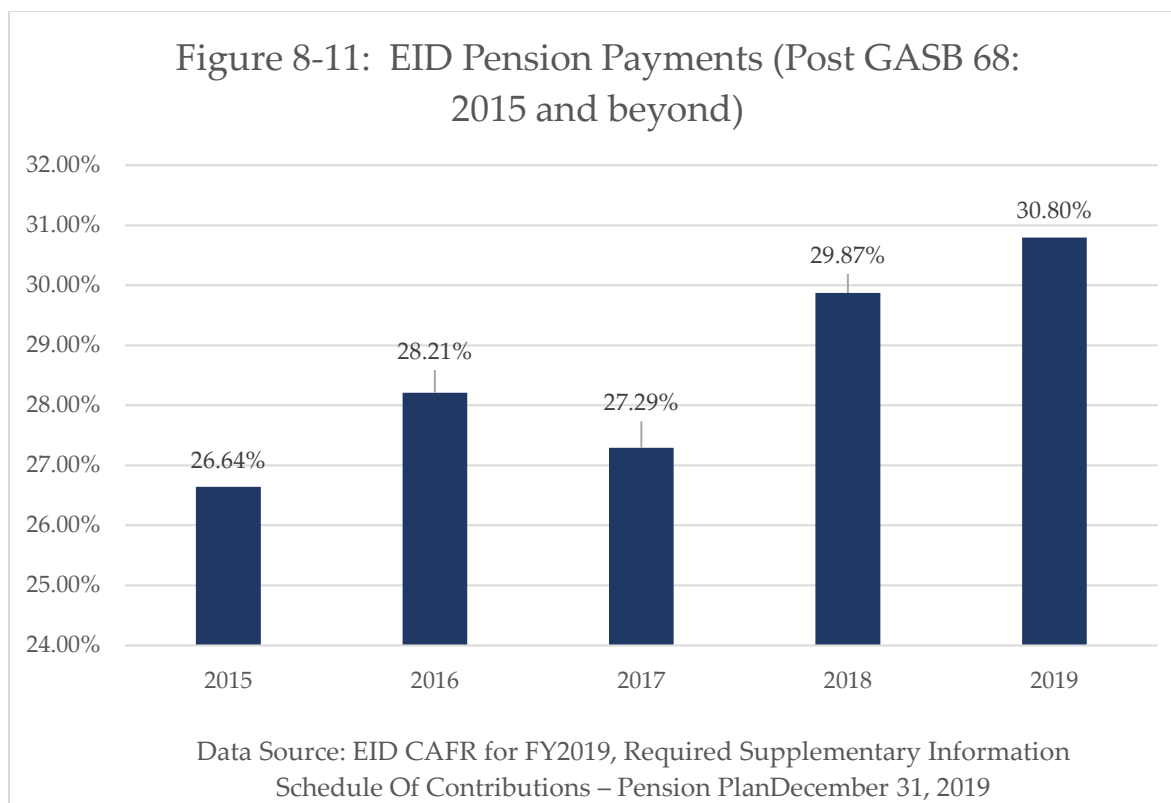












Table 8-8: EID Pension Payment Metric Calculation

	2015	2016	2017	2018	2019
Contributions in relation to the actuarially determined contribution	\$4,459,329	\$4,597,903	\$4,867,978	\$5,385,887	\$5,994,574
covered payroll	\$16,741,822	\$16,299,704	\$17,837,043	\$18,030,352	\$19,465,001
	26.64%	28.21%	27.29%	29.87%	30.80%

Data Source: EID CAFR, FY2019 - Schedule of Contributions - Pension Plan, Required Supplementary Information, Page 67.

At 30.80 percent in FY 2019, the high percentage reflected that a greater percentage of funds was dedicated to pension contributions in comparison to covered-employee payroll. During the fiscal years 2015 through 2019 the percentage is stabilized around 28.6% on average. As of December 31, 2016, EID had a net pension liability of \$57 million and this liability increased to \$61 million as of December 31, 2017. 2019 saw a slight increase in net pension liability to \$63.8 million. Ideally, LAFCO will continue to monitor this metric to consider long-term fiscal trends as a larger time series of data becomes available.

Table 8-9: Summary of CIP, Reserve, and Debt & Pension Obligation Indicators		
EID Debt Indicator	Score	Notes
District publishes a capital improvement plan.		EID’s Capital Improvement Plan (CIP) is updated annually and covers a five-year time period. The most recent CIP was adopted by the Board on October 15, 2019 and covers the years 2020–2024. EID’s extensive CIP program is delineated into seven main categories: 1) FERC, 2) Water, 3) Wastewater, 4) Recycled Water, 5) Hydroelectric, 6) Recreation, 7) General District. Over the course of five years from 2020 to 2024 EID plans to invest a total of \$209,472,494 into capital improvement projects.
Reserve funds		For FY 2018, EID reported approximately \$112 million in investments and restricted reserves in the CAFR.
Total debt		At December 31, 2019, EID had \$315.60 million in debt and loans outstanding, a net decrease of \$32.9 million or 9.4% from the prior year.
Debt Service as a ratio to expenses		EID’s debt service ratio was calculated using the amount debt service divided by operating expenses (minus depreciation). EID’s debt service ratio declined by 3.58% between the year 2017 to 2018 as shown in Figure 8-9. EID has a significant capital investment and debt associated with its aging hydroelectric, water, and sewer facilities. As debts associated with EID’s facilities are paid off, the debt service ratio is expected to improve. The MSR consultants are collecting additional data from similar districts in northern California to create a more comprehensive comparison for the Final MSR.
Liquidity		EID’s liquidity declined for the four years of FY 2015 to FY 2018 because total cash and cash equivalents have been declining while total current liabilities have been increasing. In FY 2019, the liquidity metric improved slightly. Although the decline is not a fiscally sustainable trend, the metric result is expected to improve as EID pays off its debt. It is recommended that LAFCO continue to monitor this metric.

<p>EID Pension Payments (Post GASB 68: 2015)</p>		<p>As of December 31, 2016, EID had a net pension liability of \$57 million and this liability increased to \$61 million as of December 31, 2017. 2019 saw an increase in net pension liability to \$63.8 million.</p> <p>The pension payment metric measures the percentage of funds dedicated to pension contributions in comparison to covered-employee payroll. At 30.80 percent in FY 2019, the high percentage reflected that a greater percentage of funds was dedicated to pension contributions in comparison to covered-employee payroll as shown in Figure 8-11. During the fiscal years 2015 through 2019 the percentage is stabilized around 28.6% on average.</p> <p>Ideally, LAFCO will continue to monitor this metric to consider long-term fiscal trends as a larger time series of data becomes available.</p>
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

8.5: RATES

EID charges fees to customers for water and sewer service. Additionally, recreation visitors pay fees for use of the facilities. For water service, EID charges fees for water supply, water treatment, distribution service, and capital improvement costs. For sewer service, EID charges fees for wastewater collection, treatment, and disposal. Since EID is an enterprise district, rates cover the costs of service provision. Expanding water systems and/or sewer systems in response to growth in the community is paid by developer fees. Information regarding rates is provided on EID’s

website at: <<https://www.eid.org/customers/billing-forms-and-rates>>. El Dorado Irrigation District provides water and recycled water to 25,062 customers (EID CAFR, 2019). Sewer service is provided by EID to approximately 23,191 sewer connections and this calculates to 62,000 residents and 882 businesses. EID’s Board recently adopted the revised 2019–2020 Mid-cycle Operating Budget and 2020–2024 Financial Plan, including the implementation of previously approved 3% rate increases for 2020 for water and recycled water, with 0% increase for wastewater for 2020.

Residential Water Service Rates

Residential customers include single family homes and multi-family residential. The water rates apply to dwellings of both permanent residents and vacation homeowners. The domestic water rates for metered residences consist of two components: a base charge and a commodity charge as shown in Table 8-10. The average monthly bill for a single-family home in EID’s service area would be approximately \$60.55 per month. However, EID generally bills on a bi-monthly cycle bringing the total average bill to \$122.10 for a two-month time period. EID’s website offers an on-line calculator at: <<https://www.eid.org/customers/proposition-218-notice-2020>>. EID recently completed a water rate study and completed a review of rates consistent with Proposition 218. As part of those rate studies, EID provided information on rate increase history for the past ten years as shown in Table 8- 10 below.

Table 8-10: Rate Increase History Last Ten Years		
<i>Year</i>	<i>Water</i>	<i>Wastewater</i>
2009	0%	0%
2010	18% ^[1]	18% ^[1]
2011	15% ^[2]	15% ^[2]
2012	11% ^[3]	5% ^[3]
2013	11%	5%
2014	5%	5%
2015	0% ^[4]	0% ^[4]
2016	5%	0% ^[4]
2017	3% ^[5]	3% ^[5]
2018	0% ^[6]	0% ^[6]
2020	3% ^[7]	0%

[1] An 18% rate increase was applied to all services.
 [2] A 15% rate increase was applied to all services.
 [3] The Recreational Turf class increases were not implemented until January 1, 2013.

[4] A 5% rate increase that had been approved during the 2012 Proposition 218 notice was not adopted.

[5] A 3% rate increase was adopted instead of the 5% rate increase that had been approved during the 2015 Proposition 218 notice.

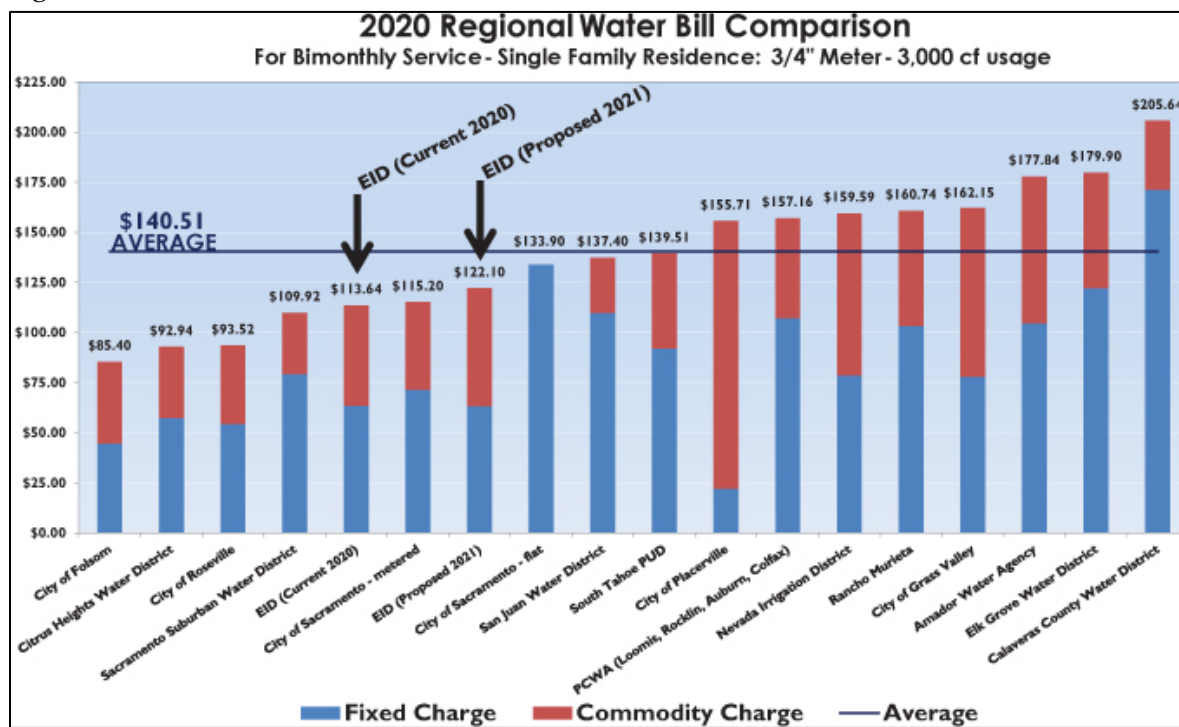
[6] A 4% rate increase, approved during the 2015 Proposition 218 notice, was not adopted.

[7] Minutes from the December 9, 2019 EID Board of Directors meeting

Data Source: EID, CAFR, 2019, Table #33, page 116

The chart provided in Figure 8-12 shows how EID rates compare with other utilities in the region for typical residential water use. The calculations in the chart includes the base charge plus the commodity charge for the water used. All amounts are for bi-monthly bills.

Figure 8-12:



Source for chart: <https://www.eid.org/customers/proposition-218-notice-2020>

Other Fees

In addition to monthly fees other fees may apply. The Facility Capacity Charge (FCC) functions as a connection charge and is based upon fees to buy in to the facilities and supply/capacity, environmental mitigation, and fees related to lining and covering reservoirs/facilities. The FCC is applied to water, recycled water, and sewer services. The fees vary depending on service area, the use of dual plumbing, and developer agreements for water supply development. Inspection fees or late payment penalty fees may be assessed as needed. Overall, EID’s budgeting approach has resulted in reasonable rates as depicted in Figure 8-12.

Table 8-11: Rate Schedule for Year 2020

EL DORADO IRRIGATION DISTRICT
BI-MONTHLY RATE SCHEDULE

Adopted: December 9, 2019
Effective: January 01, 2020

BASE CHARGES		COMMODITY CHARGES PER CUBIC FOOT (cf)	
WATER		WATER	
Single Family Residential		Single Family Residential	
5/8" and 3/4" meters	\$63.53	0 - 1,800 cf	\$0.01543
1"	\$93.03	1,801 - 4,500 cf	\$0.01862
1 1/2"	\$160.55	Above 4,500 cf	\$0.02185
1 1/2"T	\$190.06		
2"	\$244.87		
2"T	\$244.87		
3"	\$494.41		
3"T	\$514.85		
4"	\$725.74		
4"T	\$907.11		
6"	\$1,438.42		
6"T	\$1,991.14		
8"	\$3,410.92		
10"	\$5,402.06		
12"	\$7,107.53		
Single Family Dual Plumbed Residential ⁽¹⁾	\$38.23		
Multi-Family Residential and Commercial/Landscape		Multi-Family Residential and Commercial/Landscape	
5/8" and 3/4" meters	\$86.81	All usage	\$0.01836
1"	\$98.63		
1 1/2"	\$171.40		
1 1/2"T	\$203.23		
2"	\$262.34		
2"T	\$262.34		
3"	\$507.88		
3"T	\$553.36		
4"	\$780.71		
4"T	\$976.24		
6"	\$1,535.54		
6"T	\$1,837.40		
8"	\$3,659.08		
10"	\$5,795.05		
12"	\$7,601.44		
Recreational Turf		Recreational Turf	
5/8" and 3/4" meters	\$60.21	All usage	\$0.01836
1"	\$87.44		
1 1/2"	\$149.66		
1 1/2"T	\$176.89		
2"	\$227.43		
2"T	\$227.43		
3"	\$437.44		
3"T	\$476.33		
4"	\$670.78		
4"T	\$898.00		
6"	\$1,316.31		
6"T	\$1,837.40		
8"	\$3,132.36		
10"	\$4,960.88		
12"	\$6,503.95		
Agricultural Irrigation (with residence) and Small Farms		Agricultural Irrigation (with residence) and Small Farms	
5/8" and 3/4" meters	\$63.53	0 - 1,800 cf	\$0.01543
1"	\$79.62	1,801- 4,500 cf	\$0.01862
1 1/2"	\$94.18	Above 4,500 cf	\$0.00130
1 1/2"T	\$100.55		
2"	\$112.42		
2"T	\$112.42		
3"	\$161.60		
3"T	\$170.70		
4"	\$216.23		
4"T	\$255.40		
6"	\$367.43		
6"T	\$489.49		
8"	\$792.78		
10"	\$1,255.58		
12"	\$1,582.47		

EL DORADO IRRIGATION DISTRICT
BI-MONTHLY RATE SCHEDULE

Adopted: December 9, 2019
Effective: January 01, 2020

BASE CHARGES		COMMODITY CHARGES PER CUBIC FOOT (cf)	
WATER		WATER	
Agricultural Irrigation (without residence) and Raw metered 5/8" and 3/4" meters	\$18.12	Agricultural Irrigation (without residence) All usage	\$0.00130
1"	\$24.50		
1 1/2"	\$39.06		
1 1/2"T	\$45.45		
2"	\$57.29		
2"T	\$57.29		
3"	\$106.47		
3"T	\$115.59		
4"	\$161.11		
4"T	\$200.27		
6"	\$312.31		
6"T	\$434.37		
8"	\$737.68		
10"	\$1,168.28		
12"	\$1,527.35		
RAW WATER RATES		RAW WATER RATES	
Metered Landscape Irrigation ^[2]		Metered Landscape Irrigation / Seasonal Continuous Flow All usage	\$0.00130
Raw Water Year Round- 1/2" flow	\$83.19		
Raw Water Year Round- 1" flow	\$166.40		
Raw Water Year Round- 2" flow	\$332.78		
Raw Water Year Round- 4" flow	\$665.57		
Raw Water Year Round- >4" flow (per inch of flow)	\$166.40		
WASTEWATER RATES		WASTEWATER RATES	
Residential flat rate District average ^[3]	\$140.78	Single Family Residential All usage	\$0.04074
Single Family Residential	\$75.59	Multi-Family Residential All usage	\$0.03195
Multi Family Residential (per unit)	\$37.13	Commercial/Industrial	
Commercial - (all categories)	\$80.80	Commercial - Low	\$0.04684
Commercial without water service (per unit)	\$125.87	Commercial - Medium/Low	\$0.06748
Schools, per student and staff (billed annually)	\$12.39	Commercial - Medium	\$0.10062
		Commercial - Medium/High	\$0.15652
		Commercial - High	\$0.34096
RECYCLED WATER RATES		RECYCLED WATER RATES	
Single Family Dual Plumbed Residential ^[1]	\$25.30	Dual Plumbed Residential	
Commercial Landscape/Recreational Turf 5/8" and 3/4"	\$34.19	0 - 3,000 cf	\$0.00730
1"	\$49.63	3,001 - 4,500 cf	\$0.01234
1 1/2"	\$84.94	Above 4,500 cf	\$0.01858
1 1/2"T	\$100.41	Commercial Landscape All usage	\$0.01004
2"	\$129.09	Recreational Turf All usage	\$0.01188
2"T	\$129.09		
3"	\$248.27		
3"T	\$270.34		
4"	\$380.71		
4"T	\$475.62		
6"	\$747.10		
6"T	\$1,042.85		
8"	\$1,777.84		
10"	\$2,815.64		
12"	\$3,691.45		
FOOTNOTES:			
[1] Single Family Dual Plumbed Residential services pay both a potable and a recycled base charge. See both rate schedules for applicable base charges.			
[2] Base charge for Raw Water metered landscape irrigation is shown in the Water Rates Agricultural Irrigation without residence and Raw metered section			
[3] Based on 1600 cf of use			
LEGEND:			
1 cubic foot = 7.48 gallons			
1 miners inch = 11.22 gallons per minute (gpm)			
1 miners inch day = 16,156.80 gallons or 2,160 cubic feet			
Services outside of the District are billed at 1.5 times the adopted rate			

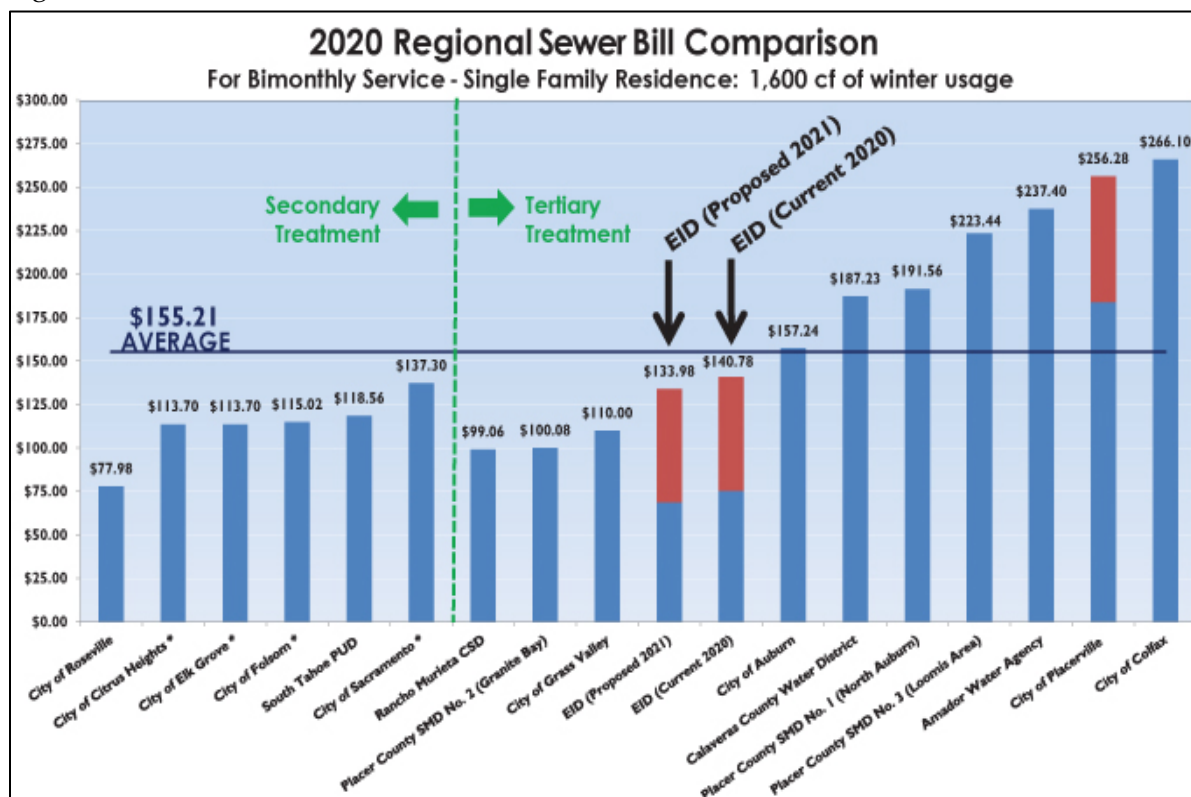
Sewer Rates

EID provides wastewater collection, treatment, and disposal services. Due to several geographic, demographic, and environmental factors, it is costly to provide sewer service. The factors include the hilly terrain, low population density, and EID's location at the headwaters of two important rivers (American and Cosumnes) which necessitates care about water quality. The lower population density⁴ means there are far fewer customers to share the costs. To protect the health of local streams and rivers, water quality monitoring technology has improved and therefore discharge regulations have grown increasingly stringent, which has required costly upgrades to wastewater treatment plants throughout California. EID is in a challenging situation to meet water quality regulations, given its geographic, demographic, and environmental constraints previously discussed. Nevertheless, EID has worked diligently to manage the costs associated with the provision of sewer service.

The residential sewer commodity charge is based on what EID calls the "winter quarter average" or the water consumption during the winter months. The sewer charge on the bill covers the cost to treat the water and waste that enters the sewer system from residential/commercial units. The sewer system is an unmetered connection. Therefore, EID uses the winter time water consumption to determine how much water is used indoors. Based on water use, EID can calculate the amount of water that enters the sewer system. The District average water usage during the winter months is 1600cf. The sewer charge is comprised of both a fixed base charge and a commodity charge. The fixed base charge is the same for all residential customers regardless of usage. The commodity charge will be different for each residence depending upon the water usage during the winter quarter average. The 2019 base rate for sewer is \$75.59 and the commodity charge based on the 1600cf average is \$65.19, for a total average bi-monthly sewer charge of \$140.78. Figure 8-13: provides a chart showing how EID's sewer rates compare with other utilities in the region for typical residential wastewater (sewer) services. All amounts are for bi-monthly bills.

⁴ Population density is described in Chapter 5 and in Appendix A of this MSR Update.

Figure 8-13










Source for chart: <https://www.eid.org/customers/proposition-218-notice-2020>

Recreation Rates

EID’s rates to utilize the recreation facilities are posted to the EID website. The Sly Park Recreation Area Fee 2019 Schedule is available at:

<https://www.eid.org/home/showdocument?id=3191> . The Highway 88 (Silver and Caples Lake) 2019 Fee Schedule is available at: <https://www.eid.org/home/showdocument?id=5304>

Table 8-12: Summary of Rate Indicators		
EID Rate Indicator	Score	Notes
Rates were adopted by the Board of Directors		Rates are adopted by the EID Board of Directors during a public hearing. For example, on December 9, 2019, EID’s Board adopted the revised 2019–2020 Mid-cycle Operating Budget and 2020–2024 Financial Plan, including the implementation of previously approved 3% rate increases for 2020 for water and recycled water, with 0% increase for wastewater for 2020.
Rates are consistent with requirements of the State Water Resources Control Board and the process for adopting rates are consistent with Proposition 218		In compliance with Proposition 218, EID Board of Directors adopted changes to rates including increases on April 27, 2020 with less than a 1% protest rate. Approved changes to the rates go into effect January 1, 2021 and continue through 2025.
Rates are readily available to constituents		Current rates are displayed on the District’s website at: < https://www.eid.org/customers/billing-forms-and-rates >. Historical rates can be located in the annual Comprehensive Annual Financial Reports on the District’s website at: < https://www.eid.org/about-us/document-library >.
<p>Key to score:</p> <ul style="list-style-type: none">  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated) 		

8.6: FINANCIAL PLAN

The District’s 2019–2020 Mid-Cycle Operating Budget and 2020-2024 Financial Plan was approved by the Board on December 9, 2019. This five-year financial plan projects future

conditions and reflects revised utility revenue projections based upon comments received from the Board. The financial plan reflects the requirements needed to adequately manage the debt service previously incurred as well as the anticipated future debt service that will be needed to fund major infrastructure replacements reflected within the 5-year CIP. The five-year financial plan includes a \$60 million bond sale in 2020 (reduced from \$75 million) following direction from the Board and a move of the \$75 million bond sale from 2024 to 2025 to minimize necessary rate increases within the five-year financial plan horizon while still completing certain critical end-of-life asset replacements.

This long-term financial plan will be used to balance ongoing operational financing needs along with the capital needed to fund the five-year capital improvement plan. Using a long-term financial plan for guidance about projected future fiscal conditions can help the Board make financial decisions to better manage the use of debt financing, structure debt payments, assist in planning for the funding of capital projects and create a plan to meet bondholder obligations. EID's Administrative Regulation 3012 indicates the goals and objectives of EID's financial plan are to:

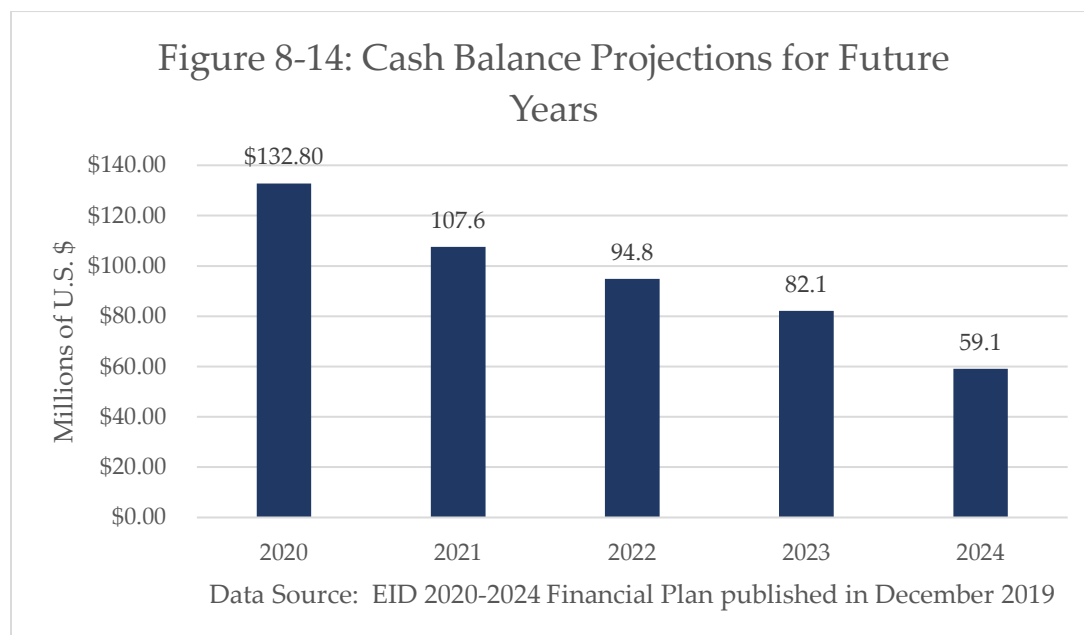
- Establish necessary operating and maintenance costs, debt expenses and funding available for pay-as-you-go projects.
- Generate sufficient revenues to fund those costs, meet bondholder obligations and maintain adequate cash reserves.
- Avoid customer "rate shock" through the use of small, annual rate adjustments.
- Maintain strong credit ratings to obtain better interest rates when debt is issued (S&P, AA-Moody's, Aa3).
- Maintain cash reserves between \$60 million and \$80 million.
- Maintain CIP funding levels to replace high-priority capital assets prior to end of life in order to avoid critical asset failures and provide safe and reliable services to our customers.

Long-term financial plans are also used to forecast and implement rate adjustments needed to meet the financial goals of the District through the use of small, annual rate increases without creating rate shock resulting from large, double-digit increases. Additional financial plan goals include maintaining strong credit ratings and maintaining funding for critical asset replacement prior to end of life to avoid asset failures. With multiyear financial plans in place, including rate increases showing the ability of a utility to meet its operational and financing obligations, the bond rating agencies gain confidence in the utility, rate its credit higher, and ultimately reduce the cost of borrowing.






Table 8- 12 : Financial Plan Update: The District-wide five-year financial plan is shown below.

Total District	Projected <u>2020</u>	Projected <u>2021</u>	Projected <u>2022</u>	Projected <u>2023</u>	Projected <u>2024</u>
Total Debt Proceeds	\$ 60.0	-	-	-	-
Total Revenues	103.9	95.4	90.7	93.5	96.5
Total Maintenance and Operation Costs	54.6	56.6	58.4	60.1	61.9
Net Revenues	49.3	38.8	32.3	33.4	34.6
Pre-existing State Obligations	1.1	1.1	1.1	1.1	0.9
Net Revenues Available After Pre-existing Obligations	48.2	37.7	31.2	32.3	33.7
Senior Debt Service	21.5	19.6	15.0	15.0	15.0
Cash Available from Current Year Activities for Capital Projects or Other Improvements	86.7	18.1	16.2	17.3	18.7
Cash Balance - January 1	99.5	132.8	107.6	94.8	82.1
Total Cash Available for Capital Projects or Debt Pre-payment	186.2	150.9	123.8	112.1	100.8
Total CIP	(47.4)	(37.3)	(23.0)	(24.0)	(35.7)
Debt Reserve Paydown on New Debt	-	-	-	-	-
Pre-funding Debt	(6.0)	(6.0)	(6.0)	(6.0)	(6.0)
Other Receipts-Insurance, FEMA and OES	-	-	-	-	-
Cash Balance - December 31	\$ 132.8	107.6	94.8	82.1	59.1
Senior Debt Service Coverage (1.25x test)	2.24	1.92	2.08	2.15	2.25
Internal Senior Debt Coverage					
Total FCCs in Revenue Above	18.8	10.0	5.0	5.0	5.0
\$\$\$ of FCCs Removed from Calculation	18.8	10.0	5.0	5.0	5.0
Internal Senior Debt Coverage (1.0x test)	1.37	1.41	1.75	1.82	1.91

The above Financial Plan projects a declining cash balance for the next four years as shown in Figure 8-14, below.



Although both the EID Board and Staff are working diligently to meet its financial goals, the trends in the financial metrics presented in this MSR chapter for debt service, liquidity, and for the above projected cash balance present some cause for diligence. While EID, like all water districts in California, aims to reduce rate increases and the fiscal burden on customers, it is important for an enterprise district like EID to function as a business type operation where rates are in-line with projected future expenses. The economic studies presented in Appendix B and Appendix C of this MSR show that The County of El Dorado has recovered from the 2008 recession and customers may be in a better position to accommodate future rate increases in their household and business budgets. EID’s water, sewer, and hydroelectric facilities are critical community assets and represent an investment the entire community has made in its infrastructure. The results of not implementing planned rate increases combined with an increased need for capital replacement to maintain infrastructure, has created increased pressure on cash positions in future years (EID, 2019v Financial Plan). The source of revenue and funding needed by the District to address both operating and future capital improvements should be a top priority for the District Board and LAFCO should continue to monitor the fiscal indicators presented in this MSR.

Table 8-14: Future Financial Planning Indicator		
EID Rate Indicator	Score	Notes
District has considered multiple year future projections of financial conditions.		The EID Board of Directors has considered multiple year future projections of financial conditions. Specifically, the Board adopted the 2019–2020 Mid-Cycle Operating Budget and the 2020-2024 Financial Plan on December 9, 2019. This four-year financial plan projects future conditions and reflects revised utility revenue projections. This financial plan is available on EID’s website.
Key to score:  Above average (compared to similar irrigation districts)  Average  Needs improvement  Statement of Fact (Not rated)		

8.7: JPA’S, COST AVOIDANCE, AND SHARING

Joint Power Authorities

Effective January 1, 2017, Government Code §6503.6 and §6503.8 require LAFCO to be a repository for all Joint Powers Authority Agreements (JPA) within a county that relate to the provision of municipal services. EID is not currently a member of a JPA. In the past, the District was a member of the El Dorado Water and Power Authority; however, it was disbanded in 2019.

Cost Avoidance

This section highlights cost avoidance practices given necessary service requirements and expectations. An examination of cost avoidance opportunities should identify practices and

opportunities that may help eliminate unnecessary or excessive costs to provide services. Such costs may be derived from a variety of factors including: duplication of service efforts and facilities; inefficient budgeting practices; higher than necessary administration and operating cost ratios; inefficient use of outsourcing opportunities; and inefficient service boundaries.

Ideally, proposed methods to reduce costs would not adversely affect service levels. In general, water and sewer systems have a fixed cost associated with infrastructure, operations and maintenance and have a variable cost related to demand. Given these constraints, EID utilizes an array of cost avoidance techniques that each contributes incrementally towards keeping costs at a reasonable level. Specifically, EID carefully utilizes its budgeting processes to serve as one means to avoid unnecessary costs. Additionally, EID's accounting policies provide a consistent treatment of expenditures and review thereof. Regular maintenance of infrastructure is a key component of avoiding unnecessary costs. EID works to meet all federal, state and local regulations, and to continually maintain its water infrastructure.

Employee salaries and benefits represent a significant portion of EID's costs. The provision of water services and the associated maintenance and physical improvements are labor intensive activities. Additionally, the cost of living in The County of El Dorado is significant. EID works to reduce costs associated with labor as part of its human resource duties and by participating in CalPERS. For example, employee compensation levels are compared to other districts and target compensation rates are set within certain ranges. When employees retire, there are costs associated with re-filling these positions and EID works to ensure continuity and training.

Over the past several years, EID has taken additional measures to save money, lower expenses, and improve services as listed herein:

- EID carefully follows the bidding requirements for special districts and government agencies. EID's administrative regulations dictate thresholds for obtaining additional bids at defined dollar thresholds and formal advertised bidding is required for all projects valued above \$50k.
- EID leverages existing cooperative purchasing agreements such as the Bay Area Chemical Consortium which is comprised of several Northern California agencies and this results in cost savings for specific purchases. Staff has expressed a commitment to identifying the best value for each procurement.
- As an on-going effort by EID to reduce overhead and operational costs staff conducts continual review of processes, and operating procedures. For example, vacant positions and redeployment and any unused assets are continually evaluated for cost savings opportunities. (Source: EID. RFI, 2019t).

- EID’s solar photovoltaic power generation system came on line in May 2006, saving the District a significant amount in electricity costs at the El Dorado Hills Wastewater Treatment Plant.
- EID uses a Supervisory Control and Data Acquisition System (SCADA) to monitor system performance for both water and wastewater systems and to avoid costly outages and sewer system overflows.

Memberships & Resource Sharing

Membership in professional organizations is a way that special districts can leverage their expertise and the expertise of their colleagues in similar districts to efficiently provide mutual assistance, share information and to support professional development. EID does maintain mutual aid, automatic aid agreements, and/or memberships in the following organizations:

- (1) California Disaster and Civil Defense Master Mutual Aid Agreement
- (2) California Water/Wastewater Agency Response Network (CalWARN)
- *Data Source: EID Response to RFI, date November 2019*

Risk Management

Managing risks is a method special districts commonly utilize to reduce unforeseen costs associated with risks. Chapter 7 describes potential risks to EID’s services and infrastructure. Insurance policies assist special districts in managing risks. EID uses an insurance broker to assist with researching insurance packages for property, liability and workers’ compensation insurance. The coverage includes property, liability, crime and workers’ compensation insurance. The property, liability and crime policies are specific to governmental agencies. Liability Insurance and Workers’ Compensation policy is with Association of California Water Agencies Joint Powers Insurance Authority which is specific to water related districts in California (*EID, Response to RFI, 2019*).

Opportunities for Shared Facilities

LAFCO is required by the CKH Act to make a determination about the status of, and opportunities for, shared facilities. Additionally, LAFCOs describe shared facilities and regional cooperation in municipal service reviews because it is thought that a local government agency’s ability to partner with another entity, public or private, in order to accomplish the same level of public service, while splitting the costs to deliver the service will provide an efficiency of service. Ideally, a sharing or cooperative arrangement would yield the same public service at less cost, and with less resources required from a community to pay for those results. Another aim of

LAFCO is to avoid the duplication of service. The EID’s activities related to shared facilities and regional cooperation are described in the following paragraph.









EID is in close proximity to multiple other agencies as well as their corresponding facilities as described in Appendix K. Agencies such as the El Dorado Hills Community Services District, the City of Placerville, and The County of El Dorado operate facilities or provide some form of service within the western portion of the County of El Dorado. For example, EID does coordinate with the City of Placerville regarding use of the City’s roadways for EID’s underground water and sewer pipes/easements within the road right-of-way. EID also assists City of Placerville on water audits and have assisted with wastewater pumping and leak/break response. EID also assists the City of Placerville with operational challenges. Additionally, EID manages the water supply to local fire hydrants which are utilized by the El Dorado County Fire Protection District and other fire districts as described in Appendix K. The U.S. Forest Service is one of EID’s most significant partners with EID providing maintenance support to several facilities located at Caples, Aloha, Pyramid and Echo Lakes. EID is a member of CalWARN and has supplied mutual aid to neighboring agencies like GDPUD during emergencies, such as emergency power shut offs (PSPS events). EID is a participant in the Cosumnes, American, Bear, and Yuba (CABY) Integrated Regional Water Management Plan (IRWMP).

Sharing of facilities and other resources with nearby agencies could potentially reduce the costs associated with materials or workforce for various capital projects. Ideally, this type of collaboration could be incorporated into the agencies’ improvement programs. In some cases, EID is separated from other water and sewer service providers by open space and mountainous terrain which limits opportunities to directly share physical infrastructure. Although facilities sharing opportunities are limited, the EID may wish to consider future opportunities to share corporate yards, specialized equipment, and/or office space with neighboring agencies. While there may be opportunities for sharing facilities with other agencies, none have been specifically identified as part of this MSR.

It should also be noted that EID cooperates with regional water resource planning efforts such as the 2018 American River Basin Integrated Regional Water Management Plan (IRWMP), a comprehensive document which includes the North American Basin Regional Drought Contingency Plan; Regional Water Reliability Plan; Sacramento and San Joaquin Rivers Basin Study; and local climate action and sustainability plans. Other regional water resources planning efforts in which EID participates include:

- Regional Water Authority’s Water Efficiency Program and 2017 Strategic Plan; and

- 2013 American River Watershed Sanitary Survey written collaboratively with PCWA, EID, SJWD, Roseville, Folsom, Folsom State Prison, GSWC, CWD, Sacramento, SCWA, and EBMUD.

Table 8-15: Indicators for Cost Avoidance & Opportunity for Shared Facilities		
Indicator	Score	Notes
Cost avoidance measures		EID utilizes a sufficient range of cost avoidance opportunities; including bidding of contracted services and utilizing contract services to reduce costs.
Collaboration with other agencies		EID effectively collaborates with multiple other agencies for the delivery of public services as demonstrated by its participation in the 2018 American River Basin Integrated Regional Water Management Plan, CABY, and other regional water resources planning efforts.
Coordination regarding capital projects		Due to topographic and other constraints, opportunities to share the costs of capital improvements are limited. EID should coordinate with nearby agencies that also have infrastructure within proposed project areas to determine the feasibility of sharing some costs during capital projects.
Formal cooperative agreements.		If projects or delivery of services do involve other agencies, EID should formalize any coordination in a shared facilities/services agreement, or other appropriate instrument, in order to provide details and conditions for how services delivery will be conducted and shared between the agencies.
<p>Key to score:</p> <p> Above average (compared to similar irrigation districts)</p> <p> Average</p> <p> Needs improvement</p> <p> Statement of Fact (Not rated)</p>		

Chapter 9: LAFCO Policies Affecting Service Delivery

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH Act) allows LAFCOs to establish policies to implement the law and process LAFCO-related applications. El Dorado LAFCO has implemented extensive policies and guidelines which mirror the requirements of the CKH Act and include additional requirements for Municipal Service Reviews (MSRs), Sphere of Influence (SOI) amendments and updates, discretionary standards, and application processes. El Dorado LAFCO originally adopted their policies on November 7, 1988 and has regularly updated these policies. The most recent update to LAFCO's policies occurred on April 24, 2019.

LAFCO's Policies and Guidelines related to SOIs start with Policy 4.0. Section 4.4 of that policy requires that additional determinations be made in an MSR prior to establishing a Sphere of Influence. In addition to the factors in Government Code §56425 and §56430, the Commission's Policies and Guidelines Section 4.4 require that it make the following determinations prior to establishing a Sphere of Influence:

- 1) The service capacity, level and types of services currently provided by the agency and the areas where these services are provided;
- 2) Financial capabilities and costs of service;
- 3) Topographic factors and social and economic interdependencies;
- 4) Existing and planned land uses, land use plans and policies; consistency with county and city General Plans, and projected growth in the affected area;
- 5) Potential effects on agricultural and open space lands;
- 6) A description of the services that will be provided to any areas which may be added to the sphere and the timing and method for funding expansion of facilities or services; and
- 7) An analysis of the effects a proposed Sphere of Influence on other agencies and their service capabilities.

El Dorado LAFCO has established an important policy to analyze the agency's potential impacts of growth and its relationship to preservation of open space, important agricultural land, and finite natural resources. This MSR/SOI addresses this policy by:

- Describing agriculture and open space in Chapter 5, Section 5.3.b Open Space & Agriculture;
- Depicting local agricultural areas in Figure 5-2: Farmland and Open Space Within Boundary; and
- Considering service provision in the context of the County's natural watersheds as described in Appendix J, Watershed Descriptions.

Additionally, Chapter 10 recommends an alternative to the existing EID SOI that will better align with the County’s General Plan by excluding existing land uses that would not allow for probable development in the future or are already developed to General Plan densities. These occur in the southeastern portion of the County that are designated Natural Resources, Rural Residential, Open Space, and Agriculture, along with small clusters of Low Density Residential. These areas were identified by LAFCO as consistent with the El Dorado County General Plan Land Use Element for limiting development and requiring an appropriate level of analysis and planning to consider expanding infrastructure.

Application of discretionary standards lies with the Commission, and it is LAFCO’s responsibility to review the information available regarding services provided by an agency and make appropriate determinations that will establish future policy for future boundary decisions. There are no other aspects of municipal services required to be addressed in this report by LAFCO policies that would affect delivery of such services. LAFCO’s policies are available via its website at: <https://www.edlafco.us/files/bfdbebe86/El+Dorado+LAFCO+Policies+%26+Guidelines.pdf>.

Chapter 10: SPHERE OF INFLUENCE UPDATE & DETERMINATIONS

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10.1: SPHERE OF INFLUENCE BACKGROUND INFORMATION

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (CKH Act) requires that LAFCO review and update the Sphere of Influence (SOI or Sphere) for each of the special districts and cities within the county. El Dorado LAFCO is being asked to consider the El Dorado Irrigation District’s Sphere at this time in conjunction with its review of the updated MSR (presented in Chapters 3 to 9 of this document).

In determining the Sphere of Influence for an agency, LAFCO must consider and prepare written determinations with respect to four factors [Government Code §56425(e)]. These factors relate to the present and planned land uses including agricultural and open-space lands; the present and probable need for public facilities and services in the area; the present capacity of public facilities and adequacy of public services which the agency provides or is authorized to provide; and the existence of any social or economic communities of interest in the area if the commission

determines that they are relevant to the agency. Commission policies require review of service capacity, level and types of services currently provided, the areas where these services are provided, topographic factors, financial capabilities, cost of service, and social and economic interdependencies to areas proposed for change of organization or reorganization (El Dorado LAFCO, 2019a).

10.1.a: Summary of Sphere Update Process

LAFCO began the process to update the Municipal Service Review (MSR) for EID as presented in Chapters 3 to 9 of this document. The updated MSR serves as the foundation for consideration of this Sphere of Influence Update. The information presented herein is designed to assist the Commission in considering next steps. The Commission will hold a public hearing and consider written statements of fact regarding the SOI prior to adoption.

10.1.b: Overview of Sphere of Influence Options

The intent of an SOI is to identify the most appropriate areas for an agency to provide services in the probable future. Pursuant to El Dorado LAFCO policies relating to SOIs, LAFCO must review the following factors before either approving an SOI, amending an SOI, or updating an SOI:

- The service capacity, level and types of services currently provided by the agency and the areas where these services are provided, topographic factors, financial capabilities, costs of service, and social and economic interdependencies;
- Existing and planned land uses, land use plans and policies; consistency with county and city General Plans; projected growth in the affected area, and potential effects on agricultural and open space lands;
- A description of the services that will be provided to any areas which may be added to the sphere, the timing and method for funding expansion of facilities or services;
- An analysis of the effects a proposed Sphere of Influence on other agencies and their service capabilities.

Accordingly, territory included in an agency's Sphere is an indication that the probable need for service has been established; and that the subject agency has been determined by LAFCO to be the most logical service provider for the area.

There are a number of ways to look at Spheres of Influence. One option is to consider growth and development and the need for municipal services over time. Under El Dorado LAFCO policies, the Commission utilizes MSR data to evaluate proposals that may affect a district in the next 10 to 20 years (El Dorado LAFCO, 2019). A second option is to determine an agency's ability to provide municipal services beyond its current boundary. For an agency that does not plan to provide municipal services beyond its present boundary, a Sphere boundary that is the same as the agency boundary is called a Coterminous Sphere of Influence. A third option is related to reducing the current Sphere of Influence of an agency by adopting a Reduced Sphere of Influence

by excluding territory currently within an agency’s Sphere. A fourth option relates to Sphere areas for which municipal services are not intended to be provided; that is, areas within a Sphere which will remain undeveloped (such as open space or ‘protected lands’). Such an area is a special case and requires the agency to demonstrate why an area should be included within a Sphere for which no municipal services will be provided.

LAFCO also has the ability to determine a Zero Sphere of Influence for a City or Special District; signaling that the City or District does not have the wherewithal, governance capability, financial means, and/or operational capabilities to provide the municipal services for which it was formed, and should be dissolved or its function(s) reallocated to another agency. Presented within this Chapter is a proposal to update the Sphere of Influence for the El Dorado Irrigation District, for which El Dorado LAFCO is the principal LAFCO.

10.2: EXISTING SPHERE OF INFLUENCE

El Dorado Irrigation District’s Sphere of Influence was originally established by the Commission (LAFCO) in 1973. The SOI was last updated by the Commission in 2008, as described in Resolution L-2008-25. There have been a number of annexations to the District since 2008 as listed in Table 10-1 below.

Year	Name of SOI Annexation	Project Description
2005	Silver Springs	234 single family residences, existing middle school, future high school
2006	Bannon	2 proposed single-family residences
2006	Buckeye Union School District Silver Dove Elementary School	650 student, 70 staff, K-5 school
2007	Marble Valley	398 single family residences, cultural arts center, elementary school, community park - Marble Ridge: 21 existing homes annexed into EID
2007	Dorkin (La Caille Estates)	24-lot residential subdivision
2007	Garrett	11-acres agricultural uses (fruit/Christmas trees, grapes), potential future single-family residence
2008	Naef	2 existing single-family residences

Table 10-1: Annexations to EID Since 2005		
Year	Name of SOI Annexation	Project Description
2008	Visman	Agricultural production (Christmas trees/apple trees), 2 existing single-family residences
2009	Bass Lake Estates	36-lot residential subdivision
2010	Summer Brook	29-lot residential subdivision
2011	Campobello	45-lot residential subdivision
2012	Alto	23-lot residential subdivision
2013	El Dorado Union High School District	Proposed high school: 1,600 students, 175 staff members
2014	Clarksville Business Park	10-lot commercial development
2015	Shingle Springs Montessori School	350-student K-8 charter school
2016	La Canada	47-lot residential subdivision
2018	Malcom Dixon Estates	8-lot residential subdivision
2018	Diamante Estates	19-lot residential subdivision
2018	Porter	54-lot residential subdivision
2018	Welsh Out-of-Agency Agreement	OAA with EID for water service to an existing single-family residence
2019	Bass Lake North	BLN--90 single family residences; APN 115-400-09; up to additional 30 single family residences under Bass Lake Hills Specific Plan
2020	Snyder	Development of a single-family home on a 60-acre parcel located along Manzanita Lane and within EID's Western/Eastern Supply Area
<i>Data Source: EID, 2019t and personal communication with E. Sanchez, LAFCO</i>		

EID’s current Sphere of Influence generally encompasses the southwestern portion of County of El Dorado from Folsom Lake and the El Dorado-Sacramento County Line, turning east toward Grizzly Flats where it curves to follow Highway 50 up to Twin Bridges. It is bounded on the north by Folsom Lake and Coloma, curving down along Highway 49 to just north of Placerville and up again to cover communities from Mosquito to Pollock Pines. The SOI also includes a small portion of the City of Folsom in Sacramento County along the southwest boundary of County of El Dorado.

In addition, there are several satellite SOI and District Boundary areas within the current SOI. These include the eastern portion of County of El Dorado surrounding the EID water supply reservoirs of Echo Lake and Lake Aloha; as well as the residential areas of Outingdale and Fair Play located south of Somerset. There are small portions of the District Boundary outside the Sphere of Influence adjacent to the water supply reservoir of Silver Lake in Amador County, and in the north central portion of the District in the Slate Mountains area. There is also a small portion of the District SOI outside of County of El Dorado, located along the western portion of the County of El Dorado line and crossing into Sacramento County adjacent to Highway 50 (El Dorado LAFCO, 2008). Figure 10-1 shows the District Boundary and Sphere of Influence. There are 69,459 parcels located in the Districts SOI. Of those, 59,236 parcels are in the EID boundary, leaving 10,223 parcels located in the SOI but not in the District boundary.

Within EID's service boundary exist service area holes. Some of these gaps came about by internal decisions regarding lands to annex prior to the establishment of LAFCO. From 1963 to 2000, El Dorado LAFCO strictly interpreted GC 56426 & 56426.6 to not annex lands under Williamson Act contract to any agency. Thus, other service area holes came into existence. Currently, there are no plans for LAFCO or EID to annex these service holes unless a request is made by the property owner.

10.3: SPHERE OF INFLUENCE UPDATE OPTIONS

As part of the SOI Update, the Commission is being presented with three options to consider as refinements to EID's SOI. A detailed description of each option is provided below with determinations provided for the preferred option, Option No. 2. The recreational facilities of the District have been sufficient to meet the demands of the local and regional population to date, although population growth in the region will continue to increase demands on existing facilities. EID's capacity and infrastructure to generate hydropower is sufficient to provide a reliable source of electrical power on the open market. Therefore, this proposed SOI Update would have no impact on EID's parks and recreation or hydroelectric power services. These services are not further discussed in relation to amending the District's SOI.

10.3.a: Option No. 1 – Retain Existing SOI

Option No. 1 recommends that the existing SOI for EID would remain as was adopted by the Commission in 2008 (Figure 10-1 above). The 2008 MSR acknowledged that at that time it was not probable for EID to expand services in the next 10 to 20 years to encompass all of the large geographic area contained within the SOI given current resources. This conclusion can also be drawn from this MSR/SOI Update. EID does not anticipate expansion of services for water and

wastewater beyond the developments listed in Chapter 7. SOI boundaries in general identify areas where districts expect to expand within a 10 to 20-year timeframe, ensuring adequate resources and infrastructure would be available in the future to meet that expansion. With the impracticality of EID providing services to the expansive SOI currently in place, this option is not preferred.

10.3.b: Option No. 2 – Reduce SOI as Proposed by EID & LAFCO

Option No. 2 recommends reduction of the SOI to more accurately portray anticipated development over the next 20 years within County of El Dorado. This option considers the reduction of the southeastern portion of EID’s SOI, generally east of Big Canyon Creek, south of the North Fork of the Cosumnes River, and south of Camp Creek. These are identified as areas where EID cannot feasibly extend services in the foreseeable future. Figure 10-2 below shows the proposed reduction in the SOI. This proposed reduction in EID’s SOI is consistent with the County of El Dorado General Plan, and the County of El Dorado Water Agency (EDCWA) Water Resources Development and Management Plan. EID and LAFCO are considering a reduction of EID’s SOI as summarized in Table 10-2 below.

Table 10-2: Size of EID’s SOI			
	Existing SOI	Proposed Reduction to the SOI	Proposed Total Option No. 2 SOI
Acres	384,530	134,201	250,329
Square miles	601	210	391
<i>Source: GIS Spatial Data from County of El Dorado</i>			

County of El Dorado General Plan

The County of El Dorado General Plan Land Use Element, amended in August 2019, provides land use designations for parcels within the County. Option No. 2’s proposed reduction of EID’s SOI generally follows land uses in the southeastern portion of the County that are designated Natural Resources, Rural Residential, Open Space, Agriculture, and small clusters of Low Density Residential. These areas were identified by LAFCO as consistent with the County of El Dorado General Plan Land Use Element for limiting development and requiring an appropriate level of analysis and planning to consider expanding infrastructure. This approach is also consistent with LAFCO’s policies. Table 10-3 below details the breakdown in percentage of General Plan land use designations in the proposed SOI reduction area.

Table 10-3: General Plan Land Use Designations in SOI Reduction Area	
Land Use	Percentage of SOI Reduction Area
Agriculture	17%

Table 10-3: General Plan Land Use Designations in SOI Reduction Area	
Land Use	Percentage of SOI Reduction Area
Low Density Residential	2%
Natural Resources	55%
Open Space	3%
Rural Residential	22%
<i>Source: GIS Analysis from County of El Dorado; County of El Dorado General Plan</i>	

The proposed reduction would include 55 percent of the natural resource’s designation, the highest percentage of land use to be removed from future services for EID. This would be followed by 22 percent and 17 percent for Rural Residential planning designation and Agriculture planning designation. The proposed removal of these properties from EID’s SOI would be consistent with County of El Dorado’s General Plan.

County of El Dorado Water Agency: Water Resources Development & Management Plan

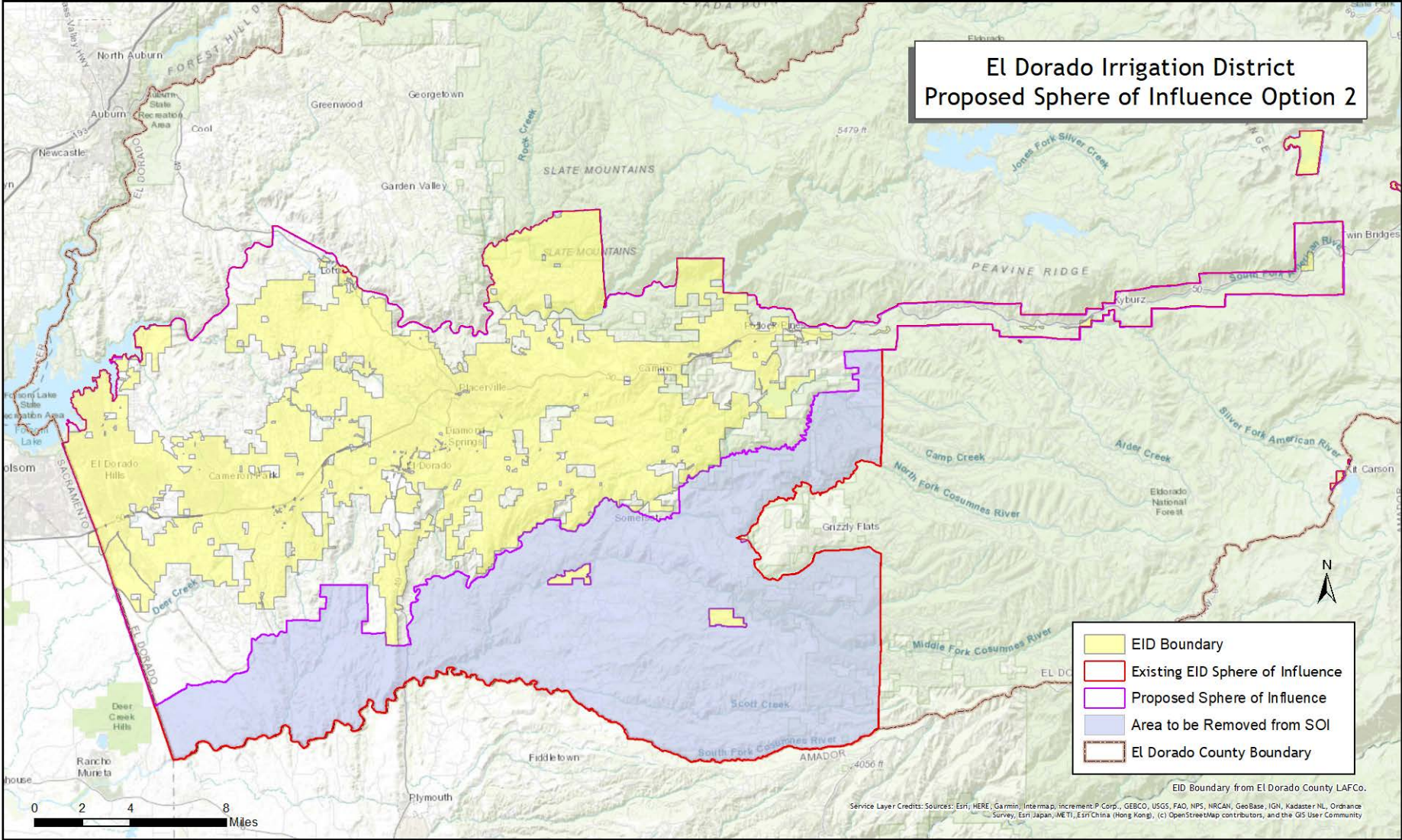
The Draft Water Resources Development & Management Plan (WRDMP) outlines efforts for countywide long-term water security and advancing integrated water management to meet the County of El Dorado General Plan economic, development, environmental protection, and quality of life goals (EDCWA, 2019). The WRDMP identifies that 53 percent of the land in the West Slope that is identified by the General Plan for economic development lacks adequate water supply for intended land use.

Satellite Areas

There are two water service areas south of Somerset which are within the current EID boundary but are not contiguous to the main EID boundary. The area southeast of Somerset is Fair Play, a rural community of roughly 503 people. The area southwest of Somerset is Outingdale, a satellite water supply system that was annexed to the District in 1970. Although within the District boundary, Outingdale is an independent water system that may require services from the District at some time in the future.

It recommended that these satellite areas, as well as the Echo Lake area, the Aloha Lakes area, and the area adjacent to Silver Lake remain within the District boundary and within the Option No. 2 SOI. As a Special District, EID is allowed to have non-contiguous areas within its territory per Irrigation District Law, Water Code Section 26875.

Figure 10-2: EID Option No. 2: District Boundary & Proposed SOI Reduction



Much of the rural areas within EIDs existing SOI are served from groundwater wells or are self-supplied by groundwater from generally low-yield fractured rock aquifers. Most areas of the West Slope are likely to experience hardships as a result of not having secure water supplies (EDCWA, 2019). During the recent drought from 2012 through 2016, residents obtained supplemental water supplies from EID's bulk water stations. Understanding how droughts affect areas in County of El Dorado is a first step to be taken in mitigating future drought impacts. The WRDMP calls for EID, in conjunction with other principal agencies to:

1. Secure CVP long-term water service contracts with the Bureau of Reclamation;
2. Develop water infrastructure to meet projected needs;
3. Develop operational agreements as needed for flexible use of water supply entitlements;
4. Review and update demands by incorporating regulatory changes and best management practices;
5. Engage in the development of statewide long-term conservation policies, regulations, and legislation to ensure applicability in foothill and forested/ mountain communities and related to preservation of countywide interests;
6. Explore potential for and implement potable reuse of treated wastewater;
7. Increase non-potable reuse of treated wastewater onsite;
8. Encourage greywater reuse and rainfall harvest practices at the household and individual facility level;
9. Ensure water infrastructure integrity, operations, and maintenance through agency-specific Capital Improvement Programs;
10. Develop new high mountain storage to increase water supply reliability;
11. Reduce vulnerability of water infrastructure to large-scale fires;
12. Update emergency response and communication plans regularly to maintain current preparedness levels, including consideration of wildfire and potentially extended power shutoff under threat of wildfire;
13. Expand current agency-specific drought plans to address drought planning requirements specified in Assembly Bill 1668/Senate Bill 606;
14. Develop West Slope Regional Drought Contingency Plan to coordinate and align all drought plans in the West Slope;
15. Assess challenges in water accessibility and affordability in County of El Dorado;
16. Participate in statewide efforts to develop policy, regulations, and legislation related to water affordability that is workable for specific communities;
17. Collaborate with resource management agencies, power utilities, water purveyors, and stakeholders to promote sustainable forest management for long-term benefits of water supply infrastructure protection, biodiversity and ecosystem functions;
18. Expand options for utilizing and disposing of woody biomass;
19. Apply advanced technologies for water quality monitoring (surface water and groundwater), including remote sensing, for areas susceptible to water quality problems;
20. Implement Sewage System Management Plans in coordination with system owners including emergency response protocols and vulnerability assessments;

21. Conduct public outreach and education activities to encourage prevention of water supply contamination;
22. Update potential risks of flooding and infrastructure vulnerability; and
23. Incorporate the effects of climate change in the frequency and intensity of flood-causing storm events in facility planning (siting and design) for long-term sustainability.

The areas for proposed reduction in EID's SOI do not contradict the intent of the WRDMP or the actions required by EID. In addition, there has been no identified groundwater sustainability agency (GSA), or identified groundwater basins or subbasins within the County of El Dorado West Slope that are designated medium or high priority. This indicates that there is currently no groundwater reduction issues or lack of sufficient groundwater supplied to meet needs within the County (CDWR-SGMA, 2019).

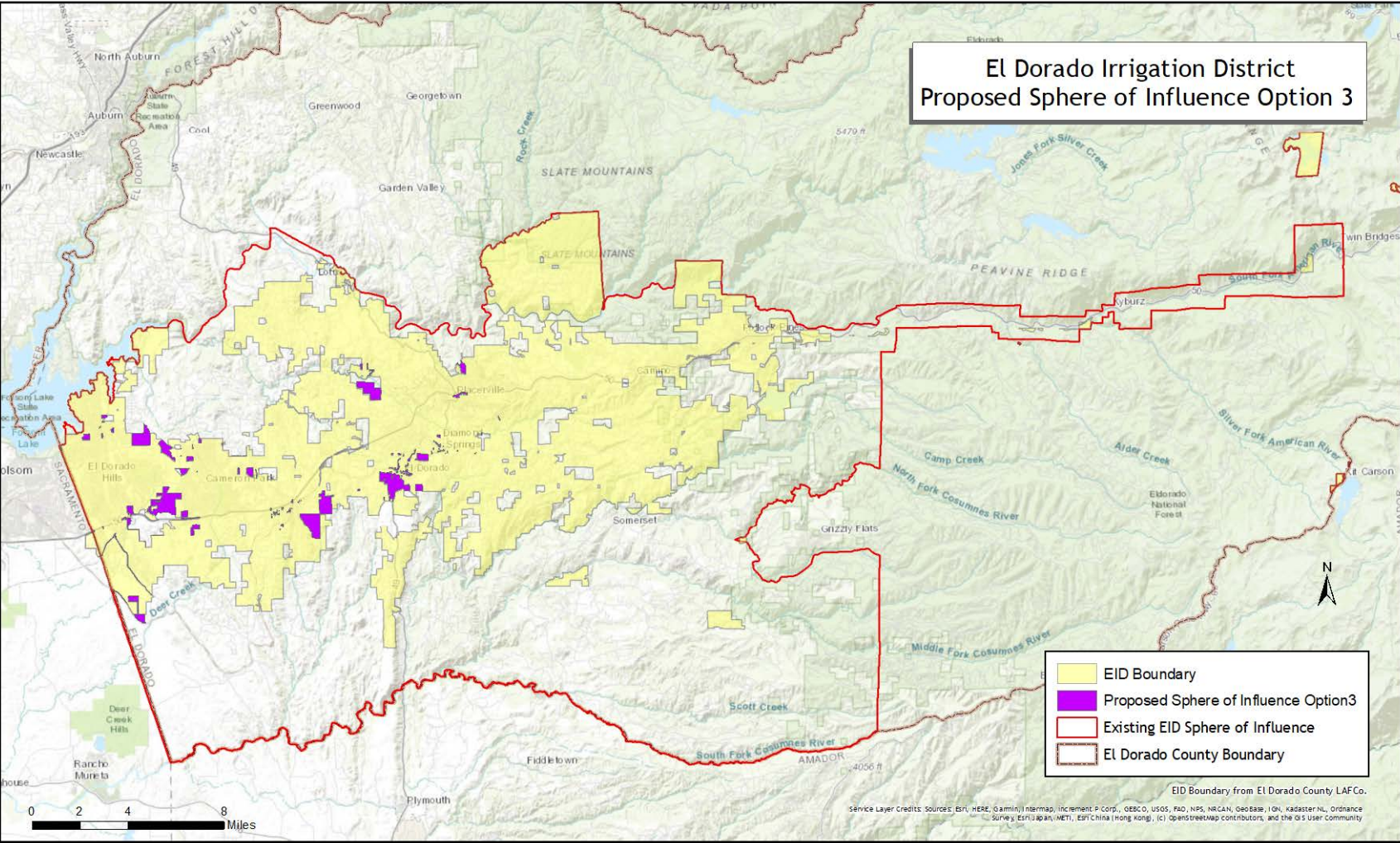
10.3.c: Option No. 3 – Reduce the SOI to Include Community Regions and Rural Regions Only

A third option is offered to the Commission for consideration. For this Option, EID's SOI would be reduced to only include specific areas to match County of El Dorado's Community Regions and Rural Regions as defined by the General Plan. County of El Dorado has identified five Community Regions as the following areas and their immediate surroundings:

- El Dorado Hills
- Cameron Park
- El Dorado
- Diamond Springs
- Shingle Springs
- City of Placerville

These areas are defined as appropriate for the highest intensity of urban-type development or suburban type development based on existing municipal services, availability of infrastructure, major transportation corridors, and the location of major topographic patterns and features, among others. These regions were established to create urban limit lines, demarcating where urban and suburban land uses will be developed.

Figure 10-3: EID Option No. 3: Proposed SOI Reduction with Community and Rural Regions (DRAFT)



In addition to these regions, EID currently provides water services and some wastewater services to several Rural Regions as identified by County of El Dorado's General Plan. These Rural Regions are:

- Mosquito
- Cedar Grove
- Pollock Pines
- Pleasant Valley
- Rescue
- Coloma
- Lotus

This proposed Option No. 3 would reduce EID's SOI further by following existing Community Region lines and Rural Region lines as well as exclude areas that are not currently serviced by EID. Figure 10-3 above shows the proposed additional reduction in the SOI under Option No. 3.

Many of the areas directly to the north of El Dorado Hills are designated by the General Plan as Ecological Preserve, the designation of which is to identify properties which have potential to be established, or have already been established as habitat preserve areas for rare and/or endangered plant and animal species, and/or critical wildlife habitat and/or natural communities of high quality or of Statewide importance. Other areas proposed for reduction include Agricultural District designated areas which identify the general areas which contain the majority of the County's federally designated prime, State designated unique or important, or County designated locally important soils and for which the Board of Supervisors has determined should be preserved primarily for agricultural use. All of the proposed areas are not identified for urban-type development as expected in the Community and Rural Regions. It is not anticipated that EID would expand services to these areas within the next 10 to 20 years.

This option is not preferred. The agricultural areas may need a raw water supply from EID in the future. Though it may be technically feasible it would be cost prohibitive to extend services to these areas based on the current location of the Districts infrastructure. In addition, this option would be counter to policies proposed by the EDCWA as described in Option No. 2. Therefore, this option is not recommended.

10.4: DETERMINATIONS

In reviewing EID's MSR and SOI Update, LAFCO must consider and prepare determinations for the following five factors pursuant to Government Code Section 56425 of the CKH Act:

- The present and planned land uses in the area, including agricultural and open space lands;
- The present and probable need for public facilities and services in the area;
- The present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide;
- The existence of any social or economic communities of interest in the area if the Commission determines that they are relevant to the agency; and
- The present and probable need for sewers, municipal and industrial water, or structural fire protection services of any disadvantaged unincorporated communities within the existing Sphere of Influence.

Recommendation 10.1 – LAFCO’s Executive Officer has considered the information provided in this MSR/SOI Update and recommends the following: EID’s Sphere of Influence should be reduced to exclude the areas identified in Figure 10-2 and as described in Option No. 2 above. The determinations listed below support the Executive Officer’s recommendation. If the Commission chooses a different option, the suggested determinations provided below will need to be modified to support the Commission’s preferred option.

10.4.a: Present and Planned Lands Uses

The Commission is required to make a determination as it updates the El Dorado Irrigation District’s SOI, regarding the present and planned lands uses in the area, including agricultural and open space lands. The existing land uses within EID’s existing boundaries are described in Chapter 5. The existing land uses within EID’s existing SOI are described in LAFCO’s 2008 SOI Update. The existing land uses on the parcels proposed for exclusion from the SOI are discussed in Section 10.3, above.

The potential environmental impacts associated with the proposed SOI reduction in Option No. 2 have been analyzed by LAFCO Staff, and as Lead Agency, the Commission will consider a determination that a reduced Sphere is exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15061(b)(3) in that the Sphere Update for Option No. 2 is covered by the common sense exemption that CEQA applies only to projects which have the potential for causing a significant effect on the environment. In addition, the adoption of a municipal service review is considered to be categorically exempt from the preparation of environmental documentation under a classification related to information gathering (Class 6 – Regulation §15306). Because the El Dorado Irrigation District does not provide any services outside the Option No. 2 Sphere and does not intend to do so; it can be seen with certainty that there is no possibility that Option No. 2 may have a significant effect on the environment and is not subject to CEQA.

Table 10-4: SOI Determinations for Present and Planned Lands Uses		
Indicator	Score	Determination
Present and planned land uses in the area	◆	<ul style="list-style-type: none"> ▪ Land uses in the SOI were evaluated in Chapters 5 and 10 of this MSR/SOI Update. Within the SOI, land uses consist primarily of natural resource and agricultural land. ▪ Existing and planned land uses in the SOI, such as natural resource and agricultural land, are not expected to require municipal water or sewer service extensions in the near future. However, agricultural areas may have a need for raw water for irrigation from private wells or other sources in the future. ▪ The County of El Dorado’s General Plan includes development patterns and areas of growth in existing Community Regions and Rural Regions, establishing urban limit lines where urban and semi-urban lands will be developed. These urban limit lines can only be modified through the General Plan amendment process; thereby controlling the ability of existing rural areas to be developed. ▪ Proposed future developments listed in Chapter 7 will occur in areas that can be served by District infrastructure. ▪ Extension of service to areas within the SOI will be evaluated on a case-by-case basis as the need arises and as the District’s infrastructure allows. ▪ Chapter 10 of this MSR/SOI Update offers three SOI Update options for consideration as listed below. <ul style="list-style-type: none"> ○ Option No. 1 – Retain Existing SOI ○ Option No. 2 – Reduce SOI as Proposed by EID & LAFCO ○ Option No. 3 – Reduce the SOI to Include Community Regions and Rural Regions Only <p>An analysis of land-use factors for each of these three options presented in Chapter 10 was carefully considered.</p>

Table 10-4: SOI Determinations for Present and Planned Lands Uses		
Indicator	Score	Determination
		<ul style="list-style-type: none"> Based on the analysis of the three SOI Update options, Option #2 is recommended to reduce EID’s SOI to more accurately match with the geographic areas where EID can reasonably extend services in the foreseeable future.
Potential effects on agricultural and open-space lands	◆	<ul style="list-style-type: none"> Potential effects on agricultural and open-space lands were evaluated for each of the three SOI Update options presented in Chapter 10. In SOI Update Option #2, the proposed removal of SOI areas include agriculture and open-space lands. These areas were identified by EID as areas where services and infrastructure could not be practically extended in the future. Removal of these areas from the SOI further reduces the opportunity for these land uses to be developed and is thereby protective of agricultural soils and open space.
Potential environmental impacts	◆	<ul style="list-style-type: none"> LAFCO is the Lead Agency under CEQA. Reduction of the SOI under Option No. 2 qualifies as an Exemption from CEQA under Section 15061(b)(3) as described above.
<p><i>Key to score:</i></p> <p>◆ <i>Statement of Fact (Not rated)</i></p>		

10.4.b: Present and Probable Need for Public Facilities and Services

The Commission is required to make a determination as it updates EID’s SOI regarding the present and probable need for public facilities and services in the area. Existing public services and public facilities within EID’s boundaries are described in Chapter 7. Public services and public facilities within the EID’s existing SOI are described in LAFCO’s 2008 SOI Update document. Currently, the parcels proposed for exclusion from EID’s SOI do not receive water, sewer, or recycled water services. There are no District public facilities located on these parcels.

Indicator	Score	Determination
Services Provided	◆	<ul style="list-style-type: none"> ▪ The District currently provides for adequate services to meet the needs of the existing 41,396 water connections and 23,191 sewer connections within the District boundaries. Services provided by EID include water, sewer, hydroelectric power and recreation as described in Chapter 7.
Present and probable need for public facilities and services in the area related to water and wastewater.	◆	<ul style="list-style-type: none"> ▪ There is no present or probable need for EID services to the area proposed for removal from the SOI under Option No. 2. ▪ Property proposed for removal from the SOI under Option No. 2 currently does not receive water or wastewater services from EID. Any development existing in these areas would rely on groundwater wells and individual septic systems for water and wastewater systems. ▪ No future development is proposed to occur in the SOI proposed for removal under Option No. 2, consistent with the County’s General Plan.
Location of facilities, infrastructure and natural features.	◆	<ul style="list-style-type: none"> ▪ There are no sewer or water facilities or infrastructure in the area proposed for removal from the SOI, under Option No. 2. ▪ Two satellite areas currently within the District boundary (Outingdale and Fair Play), as well as the satellite water reservoir areas within the District boundary (Echo, Aloha and Silver Lakes) are proposed to remain within the Option No. 2 SOI.
<p><i>Key to score:</i></p> <p>◆ <i>Statement of Fact (Not rated)</i></p>		

10.4.c: Present Capacity of Public Facilities and Adequacy of Public Services

The Commission is required to make a determination as it updates the EID’s SOI, regarding the present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide. The capacity and adequacy of public services and public facilities within EID’s boundaries are described in Chapter 7. The capacity and adequacy of public services and public facilities within the District’s existing SOI are described in LAFCO’s 2008 SOI Update document. Currently the parcels proposed for removal from EID’s SOI do not receive water, sewer, or recycled water services.

Indicator	Score	Determination
Present capacity of public facilities and adequacy of public services related to water, wastewater, recreation and hydroelectric services.	◆	<ul style="list-style-type: none"> ▪ Based on the data and analysis presented in Chapter 7 of the MSR/SOI Update, the present capacity of EID’s public facilities and the adequacy of public services related to water, wastewater, recreation and hydroelectric services are determined to be adequate for existing demand. ▪ Three options to update EID’s SOI were carefully considered and the properties proposed for removal from the SOI under Option No. 2 currently do not receive water or wastewater services from EID. Any development existing in these areas would rely on groundwater wells and individual septic systems for water and wastewater services. There is no present or probable need for EID services to the areas proposed for removal from the SOI under Option No. 2. ▪ No future development is proposed to occur in the SOI removal area of Option No. 2, consistent with the County’s General Plan.
Effects on other agencies.	◆	Implementation of the SOI Update Option No. 2 is not expected to affect other agencies or service providers within the region.

Table 10-6: SOI Determinations for Capacity of Public Facilities and Adequacy of Public Services		
Indicator	Score	Determination
Willingness to serve.	◆	<ul style="list-style-type: none"> EID has acknowledged that there are significant challenges in providing infrastructure to the proposed SOI reduction areas due to steep terrain, distance from existing infrastructure, and ability for these areas to be developed in the future. Additionally, developing infrastructure in some SOI areas would likely be expensive. Given these geographic and infrastructure constraints, it is not practical for EID to provide service to these areas within the next 10 to 20 years. Given these geographic and infrastructure constraints, it is not practical for EID to provide service to these areas within the next 10 to 20 years.
Geographic proximity to existing municipal services.	◆	There are no existing municipal services in geographic proximity to the proposed SOI reduction areas described in Option No. 2. The nearest existing water line to the SOI proposed reduction area is roughly 12 miles north of the southernmost SOI boundary.
<p><i>Key to score:</i></p> <p>◆ <i>Statement of Fact (Not rated)</i></p>		

10.4.d: Social or Economic Communities of Interest

LAFCO is required to make a determination as it updates EID’s SOI, regarding the existence of any social or economic communities of interest in the area if the Commission determines that they are relevant to the agency. EID currently provides services to distinct areas, both Community Regions and Rural Regions as described in Section 10.3.c, above.

Table 10-7: SOI Determinations for Social or Economic Communities of Interest		
Indicator	Score	Determination
The existence of any social or economic communities of interest in the area.	◆	<ul style="list-style-type: none"> ▪ There are a number of social and economic communities in the area served by the District, including El Dorado Hills, Cameron Park, El Dorado, Diamond Springs, Shingle Springs, the City of Placerville, Mosquito, Cedar Grove, Pollock Pines, Pleasant Valley, Rescue, Coloma, and Lotus. Also, disadvantaged unincorporated areas are analyzed in Chapter 6 of this MSR/SOI Update. ▪ Each of the three SOI Update options considers the existence of any social or economic communities of interest in the area. The proposed reduction of the SOI proposed by Option #2 is not anticipated to adversely affect any adjacent social or economic community of interest.
Potential for consolidations or other reorganizations when boundaries divide communities.	◆	<ul style="list-style-type: none"> ▪ The proposed reduction of the EID’s SOI under Option No. 2 will result in an SOI that is more aligned with the County General Plan and will not divide any existing communities. ▪ There is limited potential for consolidations or other reorganizations at this time.
<p><i>Key to score:</i></p> <p>◆ <i>Statement of Fact (Not rated)</i></p>		

10.4.e: Provision of Public Facilities or Services to a DUC

LAFCO is required to make a determination as it updates EID’s SOI, regarding the existence of any present and probable need for sewers, municipal and industrial water, or structural fire protection services of any disadvantaged unincorporated communities within the existing Sphere of Influence.

Table 10-8: SOI Determinations for Provision of Public Facilities or Services to a Disadvantaged Unincorporated Community		
Indicator	Score	Determination
The existence of any Disadvantaged Unincorporated Communities (DUCs) within the reduced SOI.	◆	<ul style="list-style-type: none"> ▪ DUCs are analyzed in Chapter 6 of this document. ▪ There is a large disadvantaged area (Block Group 314023 as shown on Figure 6-1) in the southeast portion of the existing SOI which includes portions of Somerset and Fair Play. As proposed, these fringe areas would remain in the District boundary and within the reduced SOI.
The present and probable need for water, sewer and structural fire protection of any DUC within the existing SOI.	◆	<ul style="list-style-type: none"> ▪ The present and probable need for water, sewer and structural fire protection of any DUC within the existing EID SOI are considered in Chapter 6. The proposed reduction of the SOI per Option No. 2 is not anticipated to adversely affect any adjacent disadvantaged community.
<p><i>Key to score:</i></p> <p style="margin-left: 40px;">◆ <i>Statement of Fact (Not rated)</i></p>		

CHAPTER 11: COMMENTS RECEIVED AND RESPONSES TO COMMENTS

This Chapter describes the public comments received on this MSR/SOI Update during the public comment period. The Preliminary Draft MSR Update was distributed to the El Dorado Irrigation District and it was posted to LAFCo's website in August 2020. The Commission will hold a public meeting on the Preliminary Draft MSR Update on (month) 2020. A public hearing on the Public Review Draft/Final is expected be held on (month), 2020. The public is encouraged to provide comments for staff to review and possibly incorporate into the final document. Comments submitted prior to the (month) 2020 hearing should be made in writing. Comments may be submitted to LAFCO staff at: 550 Main Street, Suite E, Placerville, CA 95667. Written comments can also be emailed to LAFCO at lafco@edlafco.us. Oral comments can be made during the public meeting. Public comments which are received will be listed herein.

Please note that due to the COVID-19 virus, the public hearing may be held via video/phone. A call-in number for public participation will be provided on each meeting agenda.

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CHAPTER 13: GLOSSARY

Acre-foot: The volume of water required to cover one acre of land to a depth of one foot. This is equal to 325.851 gallons or 1,233 cubic meters. An “acre-foot” of water usually supplies enough water to support two urban households for one year.

Appropriation Doctrine: In the western US, the doctrine of Prior Appropriation was in common use as early settlers and miners began to develop the land. The prior appropriation doctrine is based on the concept of “first in time, first in right”; meaning that the first person to use a quantity of water and put it to Beneficial Use has a higher priority of water right than a subsequent user. In drought conditions, high priority users are allocated water before junior users receive water. Appropriative rights can be lost through nonuse or transferred apart from the land.

Appropriative rights: Water rights based on the “Appropriation Doctrine”. Not related to riparian land ownership. In California and since 1914, a state-issued permit or license is required to establish appropriative rights.

Aqueduct: A conduit, pipe, or channel designed to transport water from a remote source, usually by gravity.

Aquifer: A below-ground geologic formation that bears water, stores water, and/or transmits water, such as to wells and springs.

Annexation: The annexation, inclusion, attachment, or addition of territory to a city or district.

Area of origin statutes: Statutes designed to protect counties and watersheds where the water originates, in the form of rain or snow, from the export of water outside the regions.

Average base flow (ABF): Flow in the sanitary sewer during dry-weather months, measured when no appreciable rain is falling. Base flow consists of sanitary flow plus groundwater infiltration.

Beneficial use: Includes irrigation, municipal, domestic, industrial, recreational use, and protection of fish wildlife and their habitat, and aesthetic enjoyment. The California Constitution (Article X, Section 2) requires that all water resources must be put to beneficial use, without waste or unreasonable use.

Best Management Practices: Best management practices are defined as methods or techniques found to be the most effective and practical means in achieving an objective (such as minimizing pollution) while making the optimum use of the District's resources.

Board of Directors: The legislative body or governing board of a district.

Board of Supervisors: The elected board of supervisors of a county.

Bond: An interest-bearing promise to pay a stipulated sum of money, with the principal amount due on a specific date. Funds raised through the sale of bonds can be used for various public purposes.

Buildout: The maximum development potential when all lands within an area have been converted to the maximum density allowed under the General Plan.

CFS: Abbreviation for cubic feet per second. Used to describe a rate of the flow in streams and rivers. One "cfs" is equivalent to 7.48 gallons of water flowing each second. Also, equal to a volume of water one foot high and one foot wide flowing a distance of one foot in one second.

City: Any charter or general law city.

Consumptive use: Any use of water that permanently removes water from the natural stream system. 2. Water that has been evaporated, transpired, incorporated into products, plant tissue, or animal tissue and is not available for immediate reuse.

Conveyance loss: *Loss* of water from a channel or pipe during *conveyance*, including *losses* due to seepage, leakage, evaporation and transpiration by plants growing nearby.

Community Services District (CSD): An independent special district formed to provide services and facilities as authorized in California Government Code Sections 61100-61107. A CSD has the ability to tax, charge fees, and deliver a variety of public services such as parks, recreation, and other human services within a defined geographic area.

Consolidation: The uniting or joining of two or more districts into a single new successor district. In the case of consolidation of special districts, all of those districts shall have been formed pursuant to the same principal act.

Contiguous: In the case of annexation, territory adjacent to an agency to which annexation is proposed. Territory is not contiguous if the only contiguity is based upon a strip of land more than 300 feet long and less than 200 feet wide.

Cost avoidance: Actions to eliminate unnecessary costs derived from, but not limited to, duplication of service efforts, higher than necessary administration/operation cost ratios, use of outdated or deteriorating infrastructure and equipment, underutilized equipment or buildings or facilities, overlapping/inefficient service boundaries, inefficient purchasing or budgeting practices, and lack of economies of scale.

Detachment: The detachment, deannexation, exclusion, deletion, or removal from a city or district of any portion of the territory of that city or district.

Development Fee: A fee charged to the developer of a project by a county, or other public agency as compensation for otherwise-unmitigated impacts the project will produce. California Government Code Section 66000, et seq., specifies that development fees shall not exceed the estimated reasonable cost of providing the service for which the fee is charged. To lawfully impose a development fee, the public agency must verify its method of calculation and document proper restrictions on use of the fund.

Discharge: The volume of water that passes a given location within a given period of time. Usually measured in cfs.

Drainage basin: A watershed (land area) where precipitation runs off into streams, rivers, lakes, and reservoirs. A drainage basin may be identified by tracing a line along the highest elevations between two areas on a map, often along a ridgeline.

Dissolution: The dissolution, disincorporation, extinguishment, and termination of the existence of a district and the cessation of all its corporate powers, except for the purpose of winding up the affairs of the district.

District or special District: An agency of the state, formed pursuant to general law or special act, for the local performance of governmental or proprietary functions within limited boundaries. "District" or "special district" includes a county service area.

District of limited Powers: An airport district, community services district, municipal utility district, public utilities district, fire protection district, harbor district, port district, recreational harbor district, small craft harbor district, resort improvement district, library district, local hospital district, local health district, municipal improvement district formed pursuant to any special act, municipal water district, police protection district, recreation and park district, garbage disposal district, garbage and refuse disposal district, sanitary district, or county sanitation district.

Evaporation: A physical process such that liquid water transforms to water vapor, including vaporization from water surfaces, land surfaces, and fields.

Evapotranspiration: Combination of evaporation from free water surfaces and transpiration of water from plant surfaces to the atmosphere.

Formation: The formation, incorporation, organization, or creation of a district.

Function: Any power granted by law to a local agency or a county to provide designated governmental or proprietary services or facilities for the use, benefit, or protection of all persons or property.

Functional revenues: Revenues generated from direct services or associated with specific services, such as a grant or statute, and expenditures.

FY: Fiscal year.

General plan: A document containing a statement of development policies including a diagram and text setting forth the objectives of the plan. In California, the general plan for a city or a county must include certain state mandated elements related to land use, circulation, housing, conservation, open-space, noise, and safety.

General revenues: Revenues not associated with specific services or retained in an enterprise fund.

Groundwater: Water under the earth's surface, often confined to aquifers capable of supplying wells and springs.

Incorporation: The incorporation, formation, creation, and establishment of a city with corporate powers. Any area proposed for incorporation as a new city must have at least 500 registered voters residing within the affected area at the time commission proceedings are initiated.

Independent Special District: Any special district having a legislative body all of whose members are elected by registered voters or landowners within the district, or whose members are appointed to fixed terms, and excludes any special district having a legislative body consisting, in whole or in part, of ex officio members who are officers of a county or another local agency or who are appointees of those officers other than those who are appointed to fixed terms. "Independent special district" does not include any district excluded from the definition of district contained in §56036.

Infrastructure: Public services and facilities, such as pipes, canals, levees, water-supply systems, other utility, systems, and roads.

LAFCO: Local Agency Formation Commission.

Local accountability and governance: A style of public agency decision making, operation and management that includes an accessible staff, elected or appointed decision-making body and decision making process, advertisement of, and public participation in, elections, publicly disclosed budgets, programs, and plans, solicited public participation in the consideration of work and infrastructure plans; and regularly evaluated or measured outcomes of plans, programs or operations and disclosure of results to the public.

Local agency: A city, county, or special district or other public entity, which provides public services.

Management Efficiency: The organized provision of the highest quality public services with the lowest necessary expenditure of public funds. An efficiently managed entity (1) promotes and demonstrates implementation of continuous improvement plans and strategies for budgeting, managing costs, training and utilizing personnel, and customer service and involvement, (2) has the ability to provide service over the short and long term, (3) has the resources (fiscal, manpower, equipment, adopted service or work plans) to provide adequate service, (4) meets or exceeds environmental and industry service standards, as feasible considering local conditions or circumstances, (5) and maintains adequate contingency reserves.

Municipal services: The full range of services that a public agency provides, or is authorized to provide, except general county government functions such as courts, special services and tax collection. As understood under the CKH Act, this includes all services provided by Special Districts under California law.

Municipal Service Review (MSR): A study designed to determine the adequacy of governmental services being provided in the region or sub-region. Performing service reviews for each city and special district within the county may be used by LAFCO, other governmental agencies, and the public to better understand and improve service conditions.

Ordinance: A law or regulation set forth and adopted by a governmental authority.

Peak flow: Maximum measured daily flow. Commonly measured in cubic feet per second (cfs). Typically occurs during wet-weather events and can also be referred to as peak wet-weather flow.

Per Capita Water Use: The water produced by or introduced into the system of a water supplier divided by the total residential population; normally expressed in gallons per capita per day (gpcd).

pH: A measure of the relative acidity or alkalinity of water. Water with a pH of 7 is neutral; lower pH levels indicate increasing acidity, while pH levels higher than 7 indicate increasingly basic solutions.

Plan of reorganization: A plan or program for effecting reorganization and which contains a description of all changes of organization included in the reorganization and setting forth all terms, conditions, and matters necessary or incidental to the effectuation of that reorganization.

Potable Water: Water of a quality suitable for drinking.

Prior appropriation doctrine: In dealing with water rights, the *prior appropriation doctrine* states that water rights are determined by priority of beneficial use. This means that the first person to use water or divert water for a beneficial use or purpose can acquire individual rights to the water. The rights can be lost through nonuse; they can also be sold or transferred apart from the land.

Principal act: In the case of a district, the law under which the district was formed and, in the case of a city, the general laws or a charter, as the case may be.

Principal LAFCO for municipal service review: The LAFCO with the lead responsibility for a municipal service review. Lead responsibility can be determined pursuant to the CKH Act definition of a Principal LAFCO as it applies to government organization or reorganization actions, by negotiation, or by agreement among two or more LAFCOs.

Proceeding: A course of action. Procedures.

Public agency: The state or any state agency, board, or commission, any city, county, city and county, special district, or other political subdivision, or any agency, board, or commission of the city, county, city and county, special district, or other political subdivision.

Public trust: The public's rights to many natural resources, including running water, the sea, and the shore. The Public Trust Doctrine traditionally applied to commerce and fishing in navigable waters and has been expanded to include fish, wildlife, habitat, and recreation, and the preservation of natural resources and ecosystems.

Rate restructuring: Rate restructuring does not refer to the setting or development of specific rates or rate structures. During a municipal service review, LAFCO may compile and review certain rate related data, and other information that may affect rates, as that data applies to the intent of the CKH Act (§56000, §56001, §56301), factors to be considered (§56668), SOI determinations (§56425) and all required municipal service review determinations (§56430). The objective is to identify opportunities to positively impact rates without adversely affecting service quality or other factors to be considered.

Reorganization: Two or more changes of organization initiated in a single proposal.

Reserve: (1) For governmental type funds, an account used to earmark a portion of fund balance, which is legally or contractually restricted for a specific use or not appropriable for expenditure. (2) For proprietary type/enterprise funds, the portion of retained earnings set aside for specific purposes. Unnecessary reserves are those set aside for purposes that are not well defined or adopted or retained earnings that are not reasonably proportional to annual gross revenues.

Responsible LAFCO: The LAFCO of a county other than the Principal County that may be impacted by recommendations, determinations or subsequent proposals elicited during a municipal service review being initiated or considered by the Lead LAFCO.

Retained earnings: The accumulated earnings of an enterprise or intragovernmental service fund which have been retained in the fund and are not reserved for any specific purpose (debts, planned improvements, and contingency/emergency).

Riparian water right: The legal right held by an owner of land contiguous to or bordering on a natural stream or lake, to take water from the source for use on the contiguous land. The doctrine of riparian rights is an old one, having its origins in English common law. Riparian rights cannot be sold or transferred for use on non-riparian land.

RWQCB: Regional Water Quality Control Board.

SCADA: Acronym for Supervisory Control and Data Acquisition; a software application program used for process control and to gather real time data from remote locations. The SCADA System consists of hardware and software components. The hardware collects and feeds data into a computer with SCADA software installed. The function of SCADA is recording and logging all events in a file that is stored in a hard disk or sending them to a printer. If conditions become hazardous, SCADA sounds warning alarm.

Service review: A study and evaluation of municipal service(s) by specific area, subregion or region culminating in written determinations regarding seven specific evaluation categories.

Sewage: Sewage is the wastewater released by residences, businesses and industries in a community. It is 99.94 percent water, with only 0.06 percent of the wastewater dissolved and suspended solid material. The cloudiness of sewage is caused by suspended particles which in untreated sewage ranges from 100 to 350 mg/l.

Special Reorganization: A reorganization that includes the detachment of territory from a city or city and county and the incorporation of that entire detached territory as a city.

Sphere of influence (SOI): A plan for the probable physical boundaries and service area of a local agency, as determined by the LAFCO.

Sphere of influence determinations: In establishing a sphere of influence, the Commission must consider and prepare written determinations related to present and planned land uses, need and capacity of public facilities, and existence of social and economic communities of interest.

Stream: A body of flowing water or natural watercourse containing water at least part of the year. In hydrology, it is generally applied to the water flowing in a natural channel as distinct from a canal.

Streamflow: The water discharge that occurs in a natural channel. A more general term than runoff, streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Stormwater runoff: Rainwater which does not infiltrate into the soil and runs off the land.

SWRCB: State Water Resources Control Board.

Treated water: Raw water which has been treated for human consumption through secondary or tertiary processes at a water treatment plan (WTP).

Watershed: An area of land that drains water, sediment and dissolved materials to a common receiving body or outlet. The term is not restricted to surface water runoff and includes interactions with subsurface water. Watersheds vary from the largest river basins to just acres or less in size. In urban watershed management, a watershed is seen as all the land which contributes runoff to a particular water body.

CHAPTER 14: ACKNOWLEDGEMENTS

Several people contributed information that was utilized in this Municipal Service Review and Sphere of Influence Update.

El Dorado LAFCO Staff	Jose Henriquez, Executive Officer Erica Sanchez, Assistant Executive Officer
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- B. Economic Forecast by Nat'l Assoc. Counties
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Appendix A

Demographic Report for County of El Dorado, County of Sacramento, and Placerville

DEMOGRAPHICS STARTER REPORT

El Dorado County

CALIFORNIA



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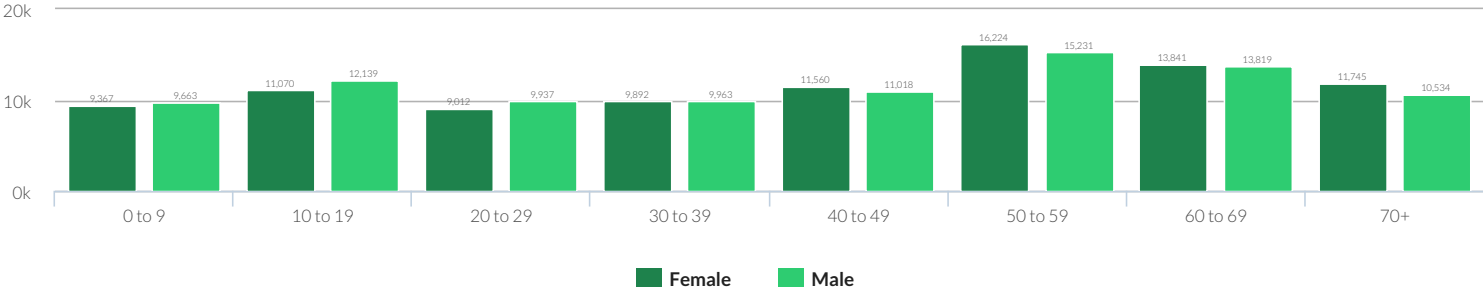
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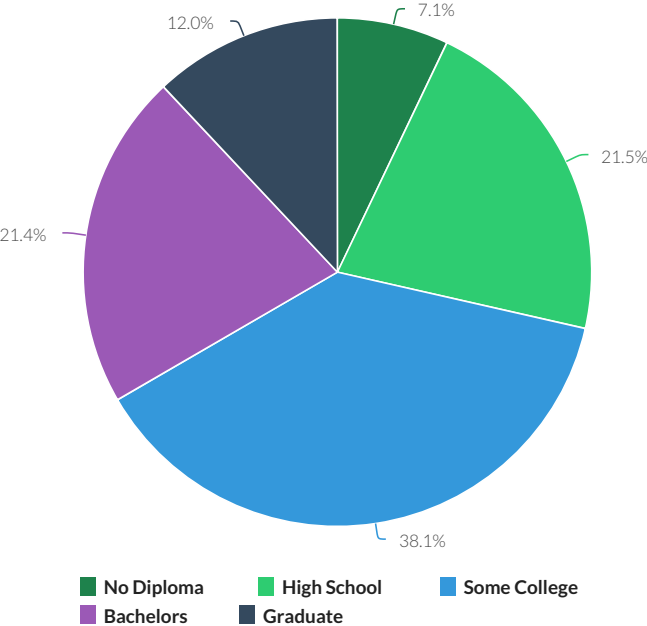
2018 POPULATION
190,678

MEDIAN HOUSEHOLD INCOME
\$74,885

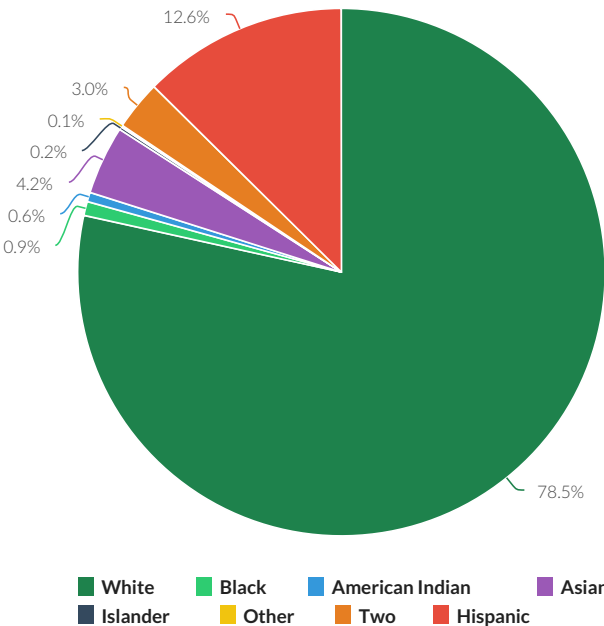
SEX BY AGE



EDUCATIONAL ATTAINMENT



RACE & ORIGIN



POVERTY
6.4%

for all families whose income in the past 12 months is below the poverty level

UNEMPLOYMENT
4.6%

for the population 16 years & over in the labor force

HOUSING UNITS
89,286

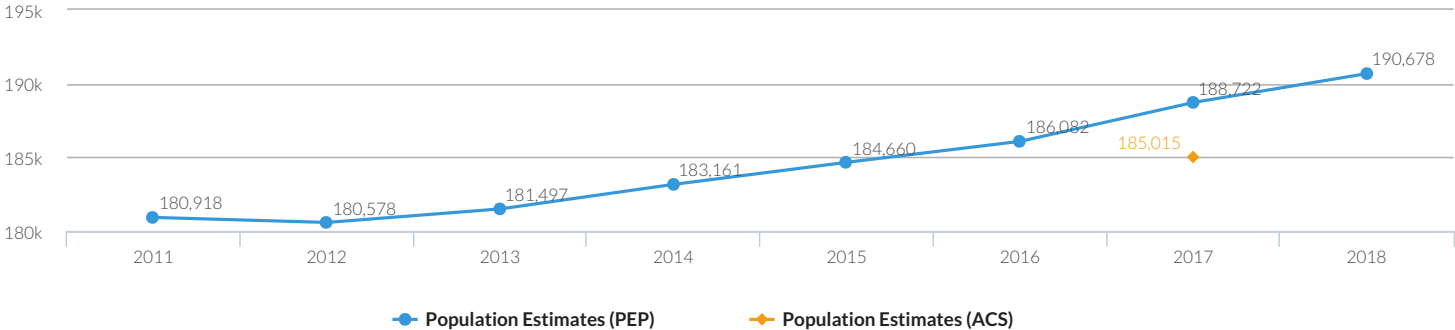
houses, apartments, mobile homes, group of rooms or single rooms that serve as separate living quarters

HOUSEHOLDS
68,084

all the people who occupy a housing unit

Source: United States Census Bureau. The US Census Bureau's 2018 Population Estimates dataset has the most current population estimate data. The US Census Bureau's 2017 American Community Survey dataset has the most current demographic data (i.e. race).

POPULATION



Population Estimates (ACS)

	#	% Change
2017 5-yr estimate	185,015	-

Source: American Community Survey 2017

Population Estimates (PEP)

	#	% Change
2011	180,918	-
2012	180,578	-0.2%
2013	181,497	0.5%
2014	183,161	0.9%
2015	184,660	0.8%
2016	186,082	0.8%
2017	188,722	1.4%
2018	190,678	1.0%

Source: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018

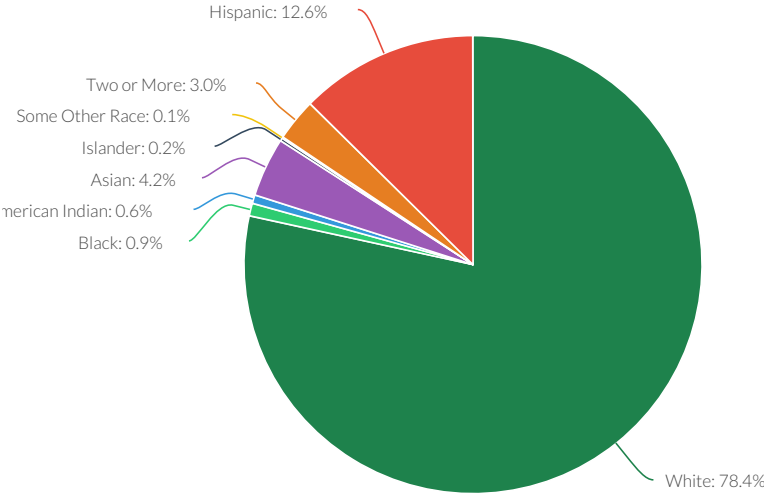
Historical Population Counts

	#	% Change
2000	156,299	-
2010	181,058	15.8%

Source: Decennial Census 2010, 2000

RACE

Race & Origin (Hispanic)



	#	%
Non-Hispanic	161,736	87.4%
White	145,153	78.5%
Black	1,614	0.9%
American Indian	1,054	0.6%
Asian	7,805	4.2%
Islander	322	0.2%
Other	209	0.1%
Two or More	5,579	3.0%
Hispanic	23,279	12.6%
Total Population	185,015	-

The complete Census race descriptions are as follows: White alone; Black or African American alone; American Indian and Alaska Native alone; Asian alone; Native Hawaiian and Other Pacific Islander alone; Some Other Race alone; and Two or More Races. Hispanics may be of any race. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

Detailed Race

	#	%
One race	178,240	96.3%
White	161,881	87.5%
Black or African American	1,789	1.0%
American Indian and Alaska Native	1,347	0.7%
Cherokee tribal grouping	281	0.2%
Chippewa tribal grouping	34	0.0%
Navajo tribal grouping	11	0.0%
Sioux tribal grouping	5	0.0%
Asian	7,864	4.3%
Asian Indian	2,302	1.2%
Chinese	1,538	0.8%
Filipino	2,010	1.1%
Japanese	410	0.2%
Korean	607	0.3%
Vietnamese	408	0.2%
Other Asian	589	0.3%
Native Hawaiian and Other Pacific Islander	333	0.2%
Native Hawaiian	39	0.0%
Guamanian or Chamorro	31	0.0%
Samoa	1	0.0%
Other Pacific Islander	262	0.1%
Some other race	5,026	2.7%
Two or more races	6,775	3.7%
White and Black or African American	668	0.4%
White and American Indian and Alaska Native	2,356	1.3%
White and Asian	2,044	1.1%
Black or African American and American Indian and Alaska Native	2	0.0%
Total Population	185,015	-

Source: American Community Survey 2017

Hispanic or Latino

	#	%
Non-Hispanic	161,736	87.4%
Hispanic or Latino (of any race)	23,279	12.6%
Mexican	18,389	9.9%
Puerto Rican	606	0.3%
Cuban	115	0.1%
Other	4,169	2.3%
Total Population	185,015	-

Source: American Community Survey 2017

SEX

	#	%
Male	92,304	49.9%
Female	92,711	50.1%
Total Population	185,015	-

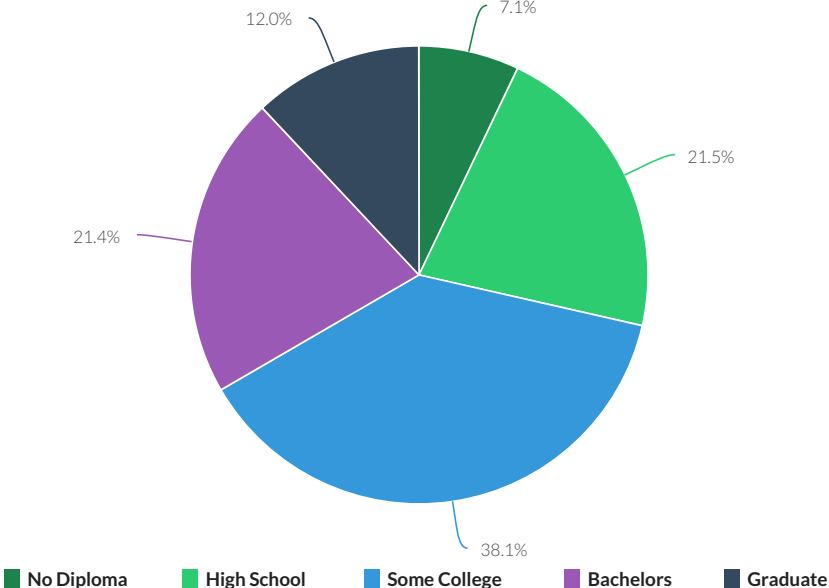
Source: American Community Survey 2017

AGE BREAKDOWN

	#	%
0 to 9 years	19,030	10.3%
10 to 19 years	23,209	12.5%
20 to 29 years	18,949	10.2%
30 to 39 years	19,855	10.7%
40 to 49 years	22,578	12.2%
50 to 59 years	31,455	17.0%
60 to 69 years	27,660	15.0%
70+ years	22,279	12.0%
Total Population	185,015	-

Source: American Community Survey 2017

EDUCATIONAL ATTAINMENT



	#	%
No diploma	9,425	7.1%
High school graduate & equivalency	28,481	21.5%
Associate degree & some college, no degree	50,590	38.1%
Bachelor's degree	28,348	21.4%
Graduate or Professional degree	15,900	12.0%
Population 25 Years and Over	132,744	-

Source: American Community Survey 2017

HOUSEHOLDS

Average Household Size	2.69 persons
Average Family Size	3.15 persons

A household includes all the people who occupy a housing unit. (People not living in households are classified as living in group quarters.) A family household consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

Household Types

	#	%
Family households (families)	48,175	70.8%
With own children under 18 years	17,798	26.1%
Married-couple family	40,520	59.5%
With own children under 18 years	13,855	20.3%
Male householder, no wife present	2,327	3.4%
With own children under 18 years	1,262	1.9%
Female householder, no husband present	5,328	7.8%
With own children under 18 years	2,681	3.9%
Nonfamily households	19,909	29.2%
Householder living alone	16,048	23.6%
65 years and over	7,729	11.4%
Total households	68,084	-

A family household consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. A nonfamily household is a householder living alone or with nonrelatives only. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

INCOME

Median Household Income

Census 2000 in 1999 dollars	\$51,484
American Community Survey (ACS) 2017 in 2017 inflation adjusted dollars	\$74,885

Source: Decennial Census 2000, American Community Survey 2017

Household Income Distribution

Income in thousands.	#	%
Less than \$10	2,762	4.1%
\$10 to \$14.9	2,711	4.0%
\$15 to \$24.9	5,664	8.3%
\$25 to \$34.9	5,076	7.5%
\$35 to \$49.9	7,116	10.5%
\$50 to \$74.9	10,757	15.8%
\$75 to \$99.9	8,314	12.2%
\$100 to \$149.9	12,194	17.9%
\$150 to \$199.9	6,085	8.9%
\$200K+	7,405	10.9%
Total Households	68,084	-

Source: American Community Survey 2017

POVERTY

	#	%
Families with Income in the past 12 months below poverty level	(X)	6.4%
Population with Income in the past 12 months below poverty level	(X)	9.8%

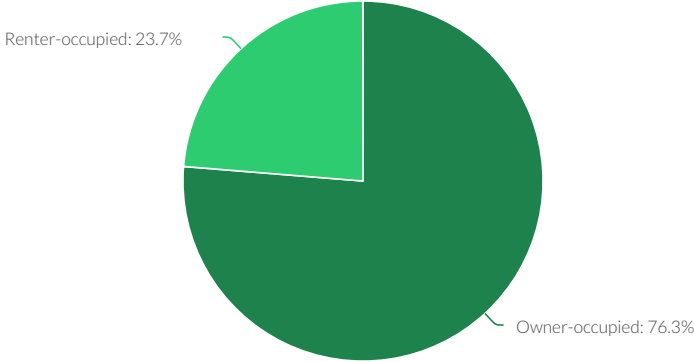
Source: American Community Survey 2017

HOUSING

Occupancy

	#	%
Occupied Housing Units	68,084	76.3%
Owner-occupied Housing Units	51,948	76.3%
Renter-occupied Housing Units	16,136	23.7%
Vacant Housing Units	21,202	23.7%
Total Housing Units	89,286	-

Source: American Community Survey 2017



Value

	#	%
Median Value of Owner-occupied Housing Units	\$405,900	-

Source: American Community Survey 2017

CITATIONS & NOTES

Citations

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Notes

American Community Survey data are estimates, not counts.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Supporting documentation on code lists, subject definitions, data accuracy, and statistical testing can be found on the American Community Survey website in the Data and Documentation section.

Sample size and data quality measures (including coverage rates, allocation rates, and response rates) can be found on the American Community Survey website in the Methodology section.

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

The ACS questions on Hispanic origin and race were revised in 2008 to make them consistent with the Census 2010 question wording. Any changes in estimates for 2008 and beyond may be due to demographic changes, as well as factors including questionnaire changes, differences in ACS population controls, and methodological differences in the population estimates, and therefore should be used with caution. For a summary of questionnaire changes see http://www.census.gov/acs/www/methodology/questionnaire_changes/. For more information about changes in the estimates see <http://www.census.gov/population/www/socdemo/hispanic/reports.html>.

For more information on understanding race and Hispanic origin data, please see the Census 2010 Brief entitled, Overview of Race and Hispanic Origin: 2010, issued March 2011. (pdf format)

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DEMOGRAPHICS STARTER REPORT

Sacramento County

CALIFORNIA

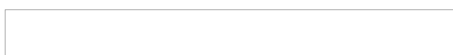


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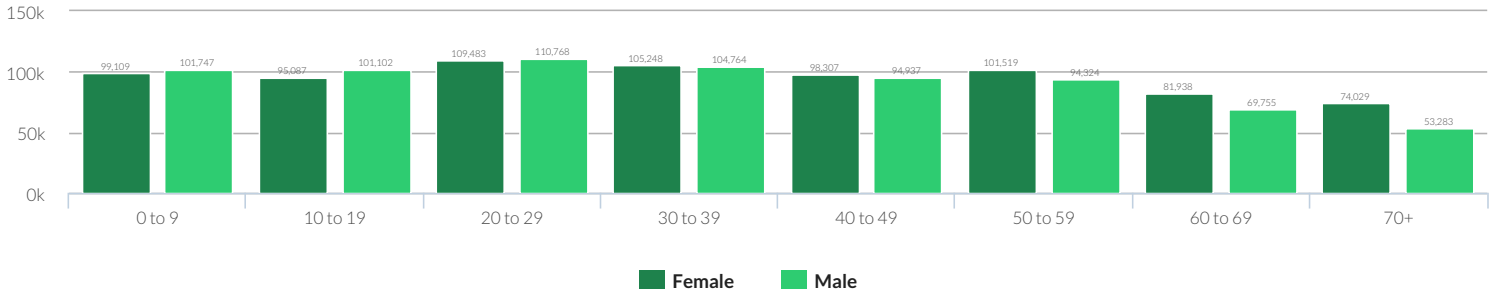
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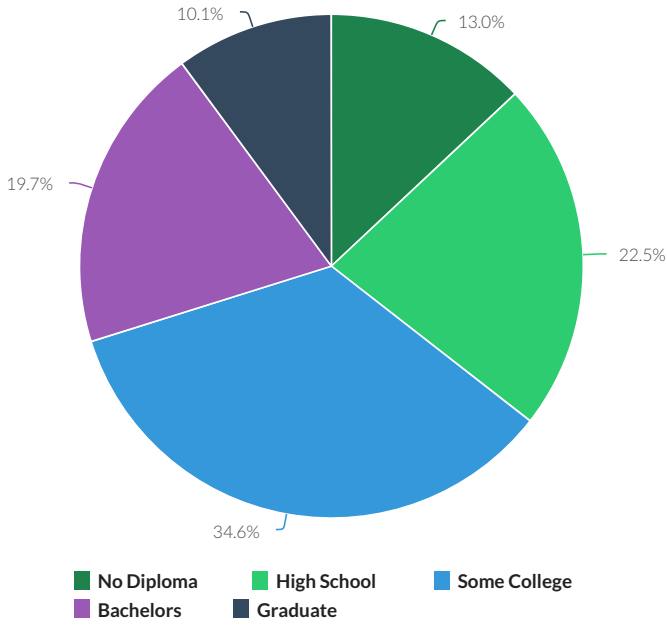
2018 POPULATION
1,540,975

MEDIAN HOUSEHOLD INCOME
\$60,239

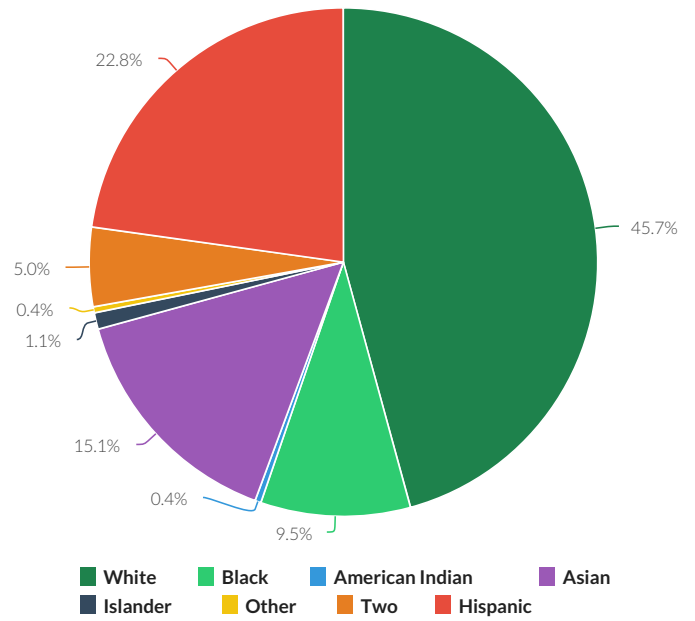
SEX BY AGE



EDUCATIONAL ATTAINMENT



RACE & ORIGIN



POVERTY
12.6%

for all families whose income in the past 12 months is below the poverty level

UNEMPLOYMENT
5.5%

for the population 16 years & over in the labor force

HOUSING UNITS
564,349

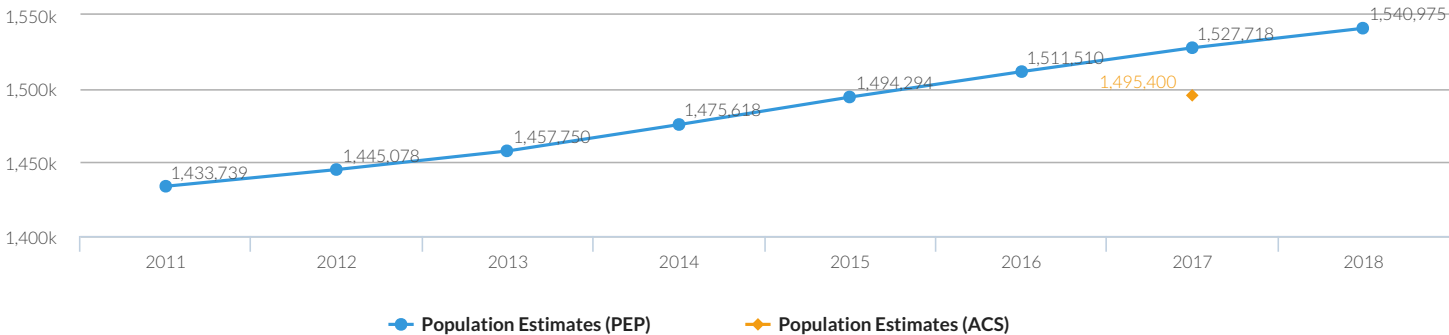
houses, apartments, mobile homes, group of rooms or single rooms that serve as separate living quarters

HOUSEHOLDS
532,050

all the people who occupy a housing unit

Source: United States Census Bureau. The US Census Bureau's 2018 Population Estimates dataset has the most current population estimate data. The US Census Bureau's 2017 American Community Survey dataset has the most current demographic data (i.e. race).

POPULATION



Population Estimates (ACS)

	#	% Change
2017 5-yr estimate	1,495,400	-

Source: American Community Survey 2017

Population Estimates (PEP)

	#	% Change
2011	1,433,739	-
2012	1,445,078	0.8%
2013	1,457,750	0.9%
2014	1,475,618	1.2%
2015	1,494,294	1.3%
2016	1,511,510	1.2%
2017	1,527,718	1.1%
2018	1,540,975	0.9%

Source: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018

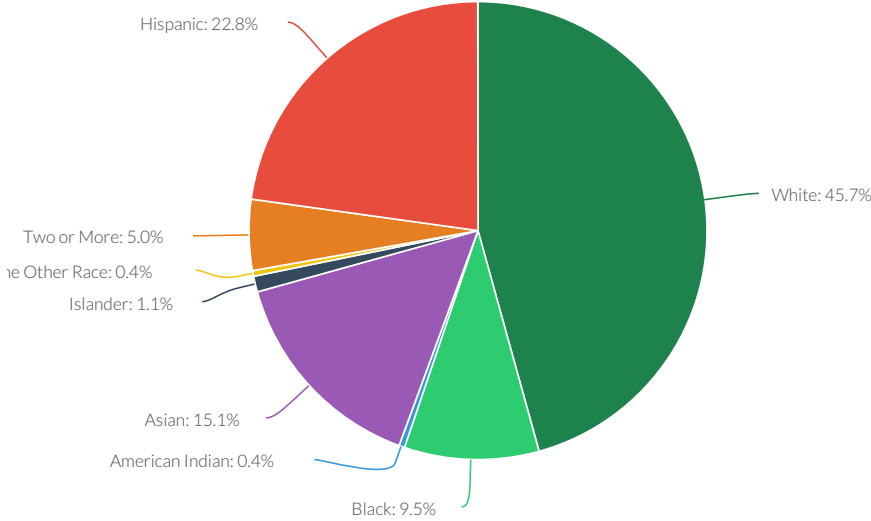
Historical Population Counts

	#	% Change
2000	1,223,499	-
2010	1,418,788	16.0%

Source: Decennial Census 2010, 2000

RACE

Race & Origin (Hispanic)



	#	%
Non-Hispanic	1,154,744	77.2%
White	684,141	45.7%
Black	142,416	9.5%
American Indian	5,695	0.4%
Asian	225,851	15.1%
Islander	15,757	1.1%
Other	5,580	0.4%
Two or More	75,304	5.0%
Hispanic	340,656	22.8%
Total Population	1,495,400	-

The complete Census race descriptions are as follows: White alone; Black or African American alone; American Indian and Alaska Native alone; Asian alone; Native Hawaiian and Other Pacific Islander alone; Some Other Race alone; and Two or More Races. Hispanics may be of any race. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

Detailed Race

	#	%
One race	1,390,005	93.0%
White	877,495	58.7%
Black or African American	147,425	9.9%
American Indian and Alaska Native	10,384	0.7%
Cherokee tribal grouping	1,194	0.1%
Chippewa tribal grouping	58	0.0%
Navajo tribal grouping	261	0.0%
Sioux tribal grouping	226	0.0%
Asian	229,441	15.3%
Asian Indian	32,378	2.2%
Chinese	48,525	3.2%
Filipino	44,786	3.0%
Japanese	10,125	0.7%
Korean	7,347	0.5%
Vietnamese	26,281	1.8%
Other Asian	59,999	4.0%
Native Hawaiian and Other Pacific Islander	16,019	1.1%
Native Hawaiian	868	0.1%
Guamanian or Chamorro	884	0.1%
Samoan	2,514	0.2%
Other Pacific Islander	11,753	0.8%
Some other race	109,241	7.3%
Two or more races	105,395	7.0%
White and Black or African American	22,540	1.5%
White and American Indian and Alaska Native	13,441	0.9%
White and Asian	27,626	1.8%
Black or African American and American Indian and Alaska Native	2,650	0.2%
Total Population	1,495,400	-

Source: American Community Survey 2017

Hispanic or Latino

	#	%
Non-Hispanic	1,154,744	77.2%
Hispanic or Latino (of any race)	340,656	22.8%
Mexican	284,060	19.0%
Puerto Rican	9,301	0.6%
Cuban	2,785	0.2%
Other	44,510	3.0%
Total Population	1,495,400	-

Source: American Community Survey 2017

SEX

	#	%
Male	730,680	48.9%
Female	764,720	51.1%
Total Population	1,495,400	-

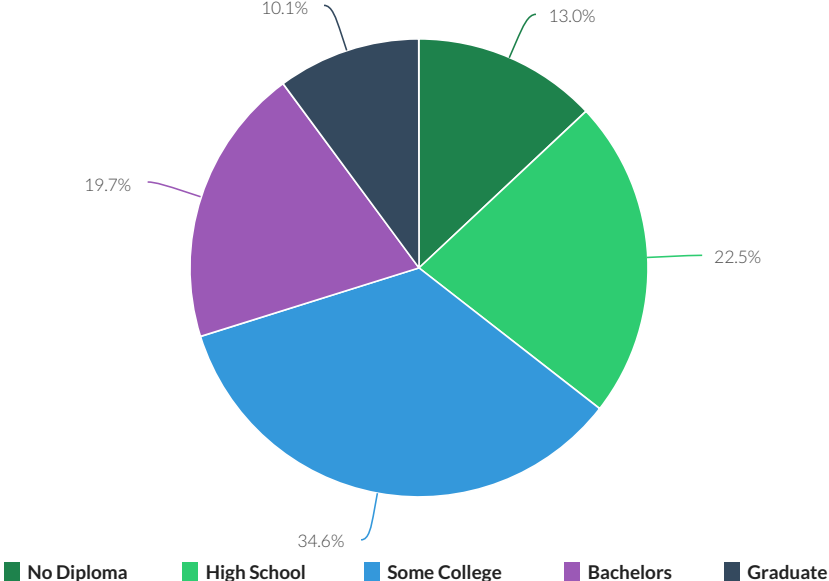
Source: American Community Survey 2017

AGE BREAKDOWN

	#	%
0 to 9 years	200,856	13.4%
10 to 19 years	196,189	13.1%
20 to 29 years	220,251	14.7%
30 to 39 years	210,012	14.0%
40 to 49 years	193,244	12.9%
50 to 59 years	195,843	13.1%
60 to 69 years	151,693	10.1%
70+ years	127,312	8.5%
Total Population	1,495,400	-

Source: American Community Survey 2017

EDUCATIONAL ATTAINMENT



	#	%
No diploma	129,295	13.0%
High school graduate & equivalency	224,145	22.5%
Associate degree & some college, no degree	345,169	34.6%
Bachelor's degree	196,514	19.7%
Graduate or Professional degree	101,072	10.1%
Population 25 Years and Over	996,195	-

Source: American Community Survey 2017

HOUSEHOLDS

Average Household Size	2.76 persons
Average Family Size	3.38 persons

A household includes all the people who occupy a housing unit. (People not living in households are classified as living in group quarters.) A family household consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

Household Types

	#	%
Family households (families)	351,693	66.1%
With own children under 18 years	165,034	31.0%
Married-couple family	241,306	45.4%
With own children under 18 years	108,589	20.4%
Male householder, no wife present	32,961	6.2%
With own children under 18 years	15,771	3.0%
Female householder, no husband present	77,426	14.6%
With own children under 18 years	40,674	7.6%
Nonfamily households	180,357	33.9%
Householder living alone	140,690	26.4%
65 years and over	48,908	9.2%
Total households	532,050	-

A family household consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. A nonfamily household is a householder living alone or with nonrelatives only. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

INCOME

Median Household Income

Census 2000 in 1999 dollars	\$43,816
American Community Survey (ACS) 2017 in 2017 inflation adjusted dollars	\$60,239

Source: Decennial Census 2000, American Community Survey 2017

Household Income Distribution

Income in thousands.	#	%
Less than \$10	31,242	5.9%
\$10 to \$14.9	28,488	5.4%
\$15 to \$24.9	48,126	9.0%
\$25 to \$34.9	48,100	9.0%
\$35 to \$49.9	67,098	12.6%
\$50 to \$74.9	95,187	17.9%
\$75 to \$99.9	67,912	12.8%
\$100 to \$149.9	80,129	15.1%
\$150 to \$199.9	36,326	6.8%
\$200K+	29,442	5.5%
Total Households	532,050	-

Source: American Community Survey 2017

POVERTY

	#	%
Families with Income in the past 12 months below poverty level	(X)	12.6%
Population with Income in the past 12 months below poverty level	(X)	16.7%

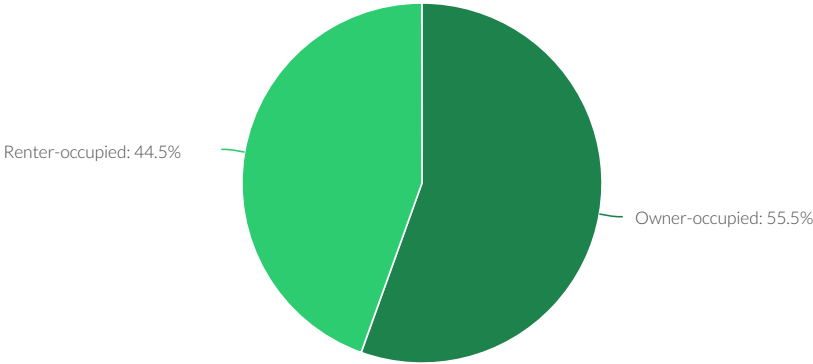
Source: American Community Survey 2017

HOUSING

Occupancy

	#	%
Occupied Housing Units	532,050	94.3%
Owner-occupied Housing Units	295,276	55.5%
Renter-occupied Housing Units	236,774	44.5%
Vacant Housing Units	32,299	5.7%
Total Housing Units	564,349	-

Source: American Community Survey 2017



Value

	#	%
Median Value of Owner-occupied Housing Units	\$299,900	-

Source: American Community Survey 2017

CITATIONS & NOTES

Citations

- United States Census Bureau. B01001 SEX BY AGE, 2017 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office. Web. 6 December 2018. <http://www.census.gov/>.
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- United States Census Bureau. DP03 SELECTED ECONOMIC CHARACTERISTICS, 2017 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office. Web. 6 December 2018. <http://www.census.gov/>.
- United States Census Bureau. DP04 SELECTED HOUSING CHARACTERISTICS, 2017 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office. Web. 6 December 2018. <http://www.census.gov/>.
- United States Census Bureau. DP05 ACS DEMOGRAPHIC AND HOUSING ESTIMATES, 2017 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office. Web. 6 December 2018. <http://www.census.gov/>.
- United States Census Bureau. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018. U.S. Census Bureau, Population Division. Web. May 2019. <http://www.census.gov/>.

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DEMOGRAPHICS STARTER REPORT

Placerville

CALIFORNIA



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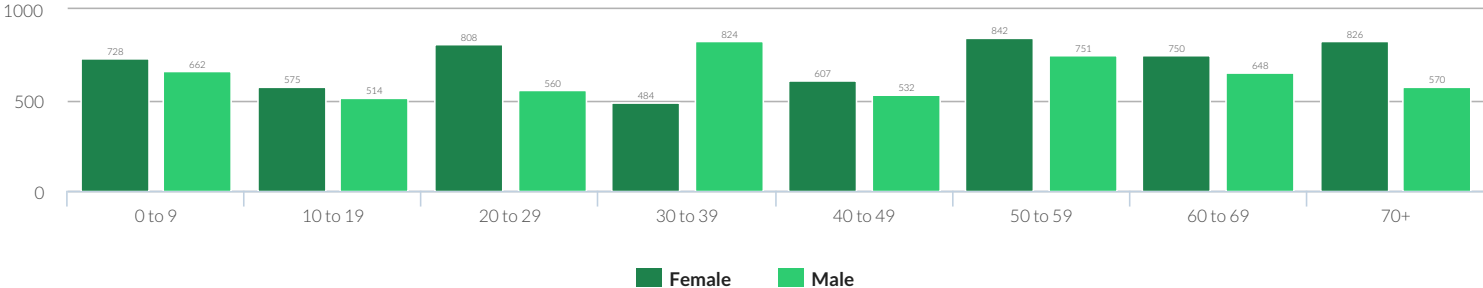
Topic	Page
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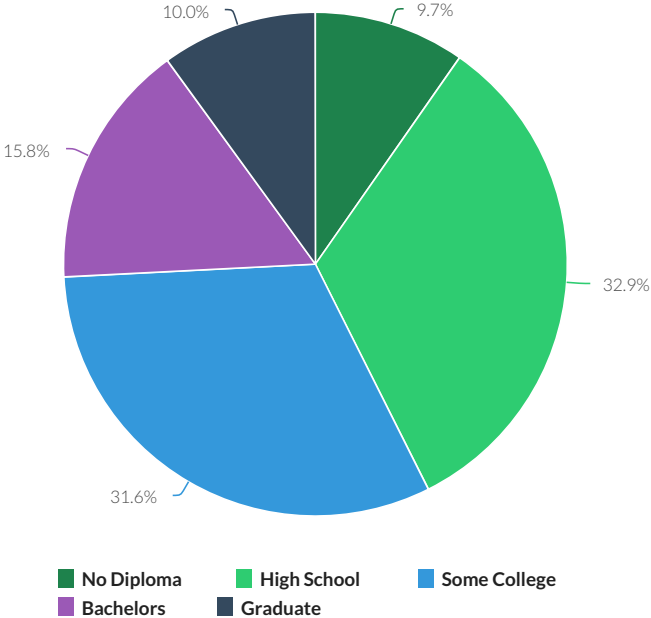
2018 POPULATION
11,048

MEDIAN HOUSEHOLD INCOME
\$51,250

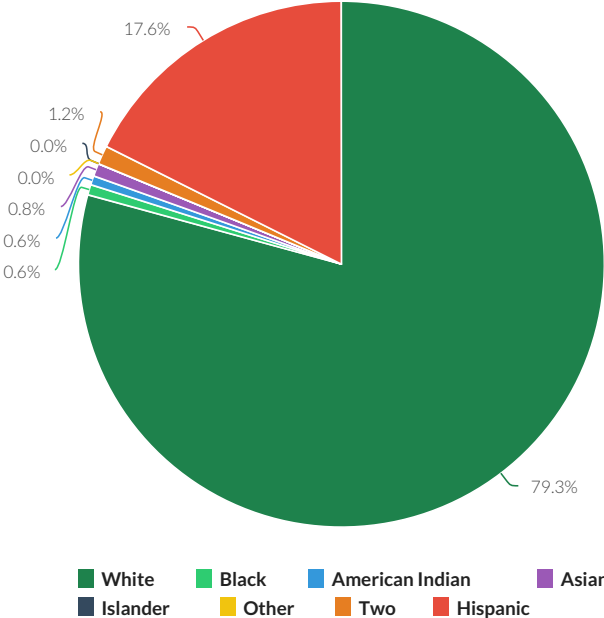
SEX BY AGE



EDUCATIONAL ATTAINMENT



RACE & ORIGIN



POVERTY
13.1%

for all families whose income in the past 12 months is below the poverty level

UNEMPLOYMENT
4.4%

for the population 16 years & over in the labor force

HOUSING UNITS
4,358

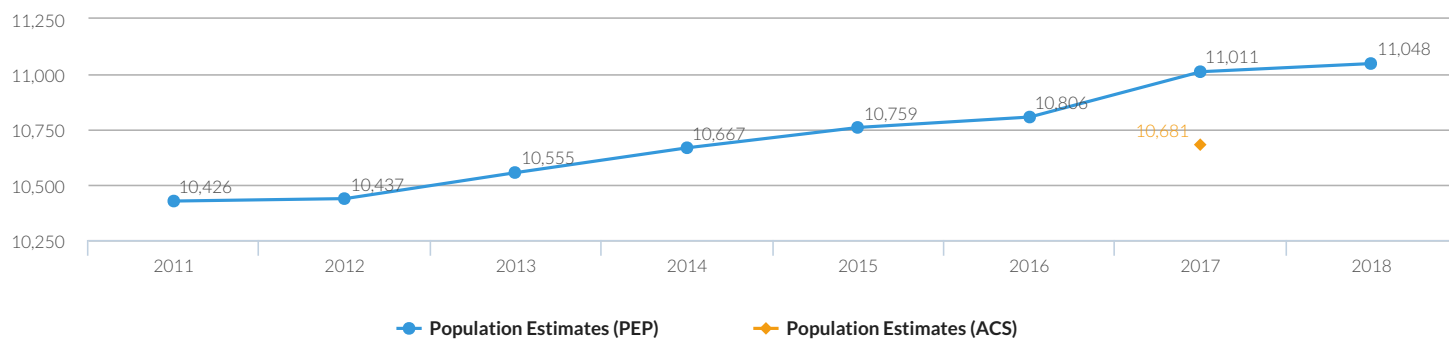
houses, apartments, mobile homes, group of rooms or single rooms that serve as separate living quarters

HOUSEHOLDS
3,946

all the people who occupy a housing unit

Source: United States Census Bureau. The US Census Bureau's 2018 Population Estimates dataset has the most current population estimate data. The US Census Bureau's 2017 American Community Survey dataset has the most current demographic data (i.e. race).

POPULATION



Population Estimates (ACS)

	#	% Change
2017 5-yr estimate	10,681	-

Source: American Community Survey 2017

Population Estimates (PEP)

	#	% Change
2011	10,426	-
2012	10,437	0.1%
2013	10,555	1.1%
2014	10,667	1.1%
2015	10,759	0.9%
2016	10,806	0.4%
2017	11,011	1.9%
2018	11,048	0.3%

Source: Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2018

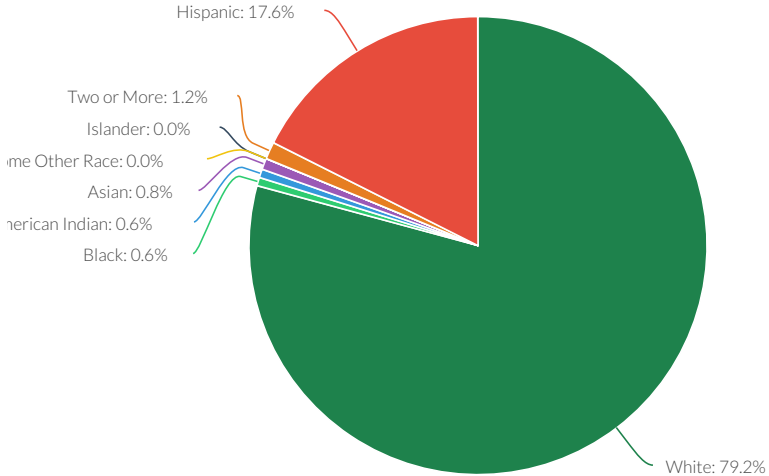
Historical Population Counts

	#	% Change
2000	9,610	-
2010	10,389	8.1%

Source: Decennial Census 2010, 2000

RACE

Race & Origin (Hispanic)



	#	%
Non-Hispanic	8,801	82.4%
White	8,466	79.3%
Black	67	0.6%
American Indian	59	0.6%
Asian	86	0.8%
Islander	0	0.0%
Other	0	0.0%
Two or More	123	1.2%
Hispanic	1,880	17.6%
Total Population	10,681	-

The complete Census race descriptions are as follows: White alone; Black or African American alone; American Indian and Alaska Native alone; Asian alone; Native Hawaiian and Other Pacific Islander alone; Some Other Race alone; and Two or More Races. Hispanics may be of any race. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

Detailed Race

	#	%
One race	10,500	98.3%
White	9,901	92.7%
Black or African American	67	0.6%
American Indian and Alaska Native	59	0.6%
Cherokee tribal grouping	0	0.0%
Chippewa tribal grouping	0	0.0%
Navajo tribal grouping	0	0.0%
Sioux tribal grouping	0	0.0%
Asian	86	0.8%
Asian Indian	0	0.0%
Chinese	33	0.3%
Filipino	13	0.1%
Japanese	0	0.0%
Korean	12	0.1%
Vietnamese	0	0.0%
Other Asian	28	0.3%
Native Hawaiian and Other Pacific Islander	0	0.0%
Native Hawaiian	0	0.0%
Guamanian or Chamorro	0	0.0%
Samoaan	0	0.0%
Other Pacific Islander	0	0.0%
Some other race	387	3.6%
Two or more races	181	1.7%
White and Black or African American	0	0.0%
White and American Indian and Alaska Native	103	1.0%
White and Asian	15	0.1%
Black or African American and American Indian and Alaska Native	0	0.0%
Total Population	10,681	-

Source: American Community Survey 2017

Hispanic or Latino

	#	%
Non-Hispanic	8,801	82.4%
Hispanic or Latino (of any race)	1,880	17.6%
Mexican	1,728	16.2%
Puerto Rican	5	0.0%
Cuban	0	0.0%
Other	147	1.4%
Total Population	10,681	-

Source: American Community Survey 2017

SEX

	#	%
Male	5,061	47.4%
Female	5,620	52.6%
Total Population	10,681	-

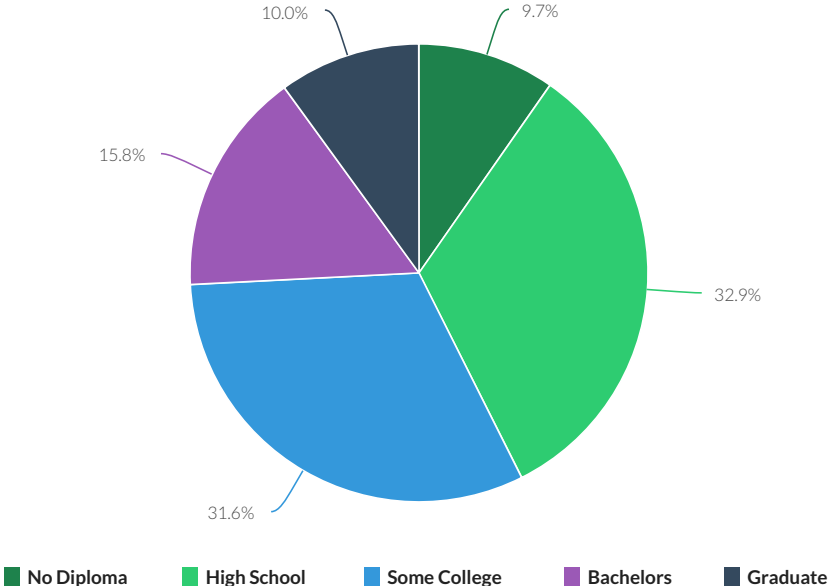
Source: American Community Survey 2017

AGE BREAKDOWN

	#	%
0 to 9 years	1,390	13.0%
10 to 19 years	1,089	10.2%
20 to 29 years	1,368	12.8%
30 to 39 years	1,308	12.2%
40 to 49 years	1,139	10.7%
50 to 59 years	1,593	14.9%
60 to 69 years	1,398	13.1%
70+ years	1,396	13.1%
Total Population	10,681	-

Source: American Community Survey 2017

EDUCATIONAL ATTAINMENT



	#	%
No diploma	736	9.7%
High school graduate & equivalency	2,498	32.9%
Associate degree & some college, no degree	2,398	31.6%
Bachelor's degree	1,203	15.8%
Graduate or Professional degree	762	10.0%
Population 25 Years and Over	7,597	-

Source: American Community Survey 2017

HOUSEHOLDS

Average Household Size	2.54 persons
Average Family Size	3.29 persons

A household includes all the people who occupy a housing unit. (People not living in households are classified as living in group quarters.) A family household consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

Household Types

	#	%
Family households (families)	2,351	59.6%
With own children under 18 years	998	25.3%
Married-couple family	1,782	45.2%
With own children under 18 years	750	19.0%
Male householder, no wife present	167	4.2%
With own children under 18 years	50	1.3%
Female householder, no husband present	402	10.2%
With own children under 18 years	198	5.0%
Nonfamily households	1,595	40.4%
Householder living alone	1,356	34.4%
65 years and over	693	17.6%
Total households	3,946	-

A family household consists of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. A nonfamily household is a householder living alone or with nonrelatives only. Same-sex couple households with no relatives of the householder present are tabulated in nonfamily households. For more information, visit the American Community Survey Data & Documentation page: http://www.census.gov/acs/www/data_documentation/documentation_main/.

Source: American Community Survey 2017

INCOME

Median Household Income

Census 2000 in 1999 dollars	\$36,454
American Community Survey (ACS) 2017 in 2017 inflation adjusted dollars	\$51,250

Source: Decennial Census 2000, American Community Survey 2017

Household Income Distribution

Income in thousands.	#	%
Less than \$10	325	8.2%
\$10 to \$14.9	230	5.8%
\$15 to \$24.9	547	13.9%
\$25 to \$34.9	374	9.5%
\$35 to \$49.9	467	11.8%
\$50 to \$74.9	840	21.3%
\$75 to \$99.9	303	7.7%
\$100 to \$149.9	570	14.4%
\$150 to \$199.9	121	3.1%
\$200K+	169	4.3%
Total Households	3,946	-

Source: American Community Survey 2017

POVERTY

	#	%
Families with Income in the past 12 months below poverty level	(X)	13.1%
Population with Income in the past 12 months below poverty level	(X)	18.6%

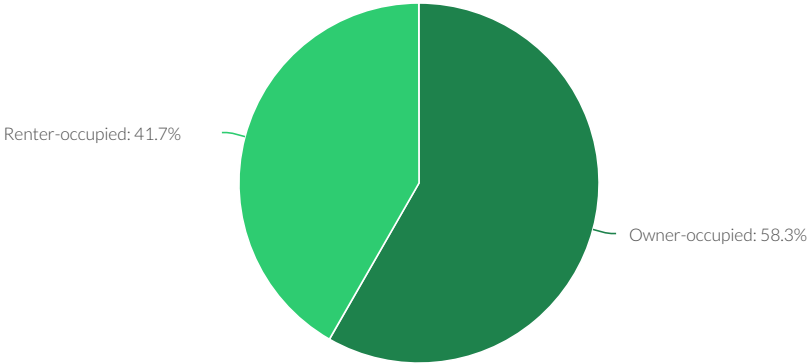
Source: American Community Survey 2017

HOUSING

Occupancy

	#	%
Occupied Housing Units	3,946	90.5%
Owner-occupied Housing Units	2,301	58.3%
Renter-occupied Housing Units	1,645	41.7%
Vacant Housing Units	412	9.5%
Total Housing Units	4,358	-

Source: American Community Survey 2017



Value

	#	%
Median Value of Owner-occupied Housing Units	\$298,900	-

Source: American Community Survey 2017

CITATIONS & NOTES

Citations

- United States Census Bureau. B01001 SEX BY AGE, 2017 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office. Web. 6 December 2018. <http://www.census.gov/>.
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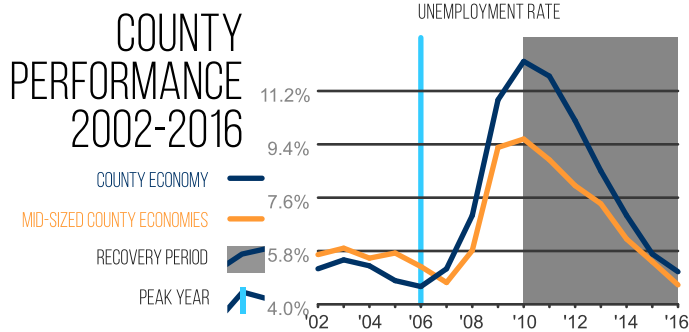
COUNTY ECONOMIES 2016

EL DORADO COUNTY, CA

UNEMPLOYMENT RATE CHANGE

2015-2016

-0.6PPS



RECOVERED BY 2016

NO

SIZING UP 2016

POPULATION, 2015	184,452
UNEMPLOYMENT RATE, 2016	5.1%
REAL GDP, 2016, IN 2009 DOLLARS	\$6.7 Billion
AVERAGE REAL WAGES, 2016, IN 2009 DOLLARS	\$24.0 Thousand
El Dorado County, CA has a county government.	

El Dorado County is a medium-sized county in the Sacramento--Roseville--Arden-Arcade, CA metropolitan area.

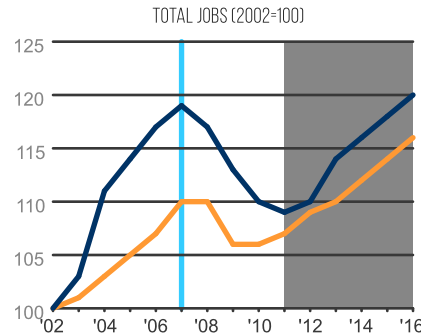
DEFINITION OF TERMS: (Data Sources: Woods & Poole Economics, Inc., 2016 Data and U.S. Census Bureau)

Economic output (gross domestic product - GDP): Total value of goods and services produced by a county economy, also known as GDP. **Jobs:** Total wage and salary jobs, whether full or part-time, temporary or permanent in a county economy. This is a measure of the number of jobs, not employed people, for all employers in a county economy, not only for the county government. **Median Home Sales Price:** Median sales prices of existing single-family homes in a county economy. **Unemployment Rate:** The proportion of the civilian labor force that is employed.

For more on the methodology and indicators, see the Key Terms document available at www.NACo.org/CountyEconomies
 Appendix B: Economic Forecast

JOBS GROWTH RATE

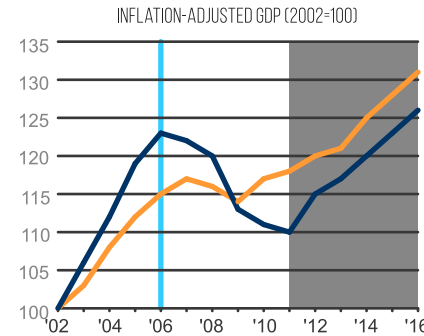
1.6%



YES

ECONOMIC OUTPUT GROWTH RATE

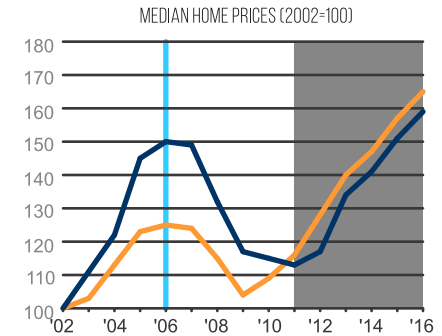
2.5%



YES

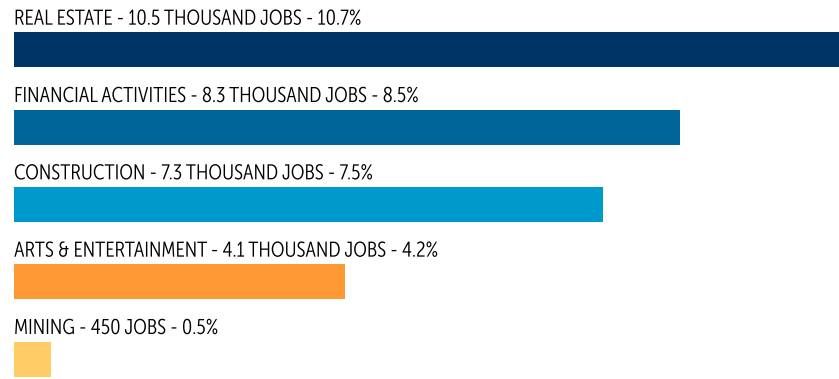
MEDIAN HOME PRICES GROWTH RATE

5.3%



YES

TOP FIVE SPECIALIZED INDUSTRIES, BY EMPLOYMENT, 2016



MEDIA CONTACT

David Jackson
 Communications Director
 202.942.4271 | djackson@naco.org

QUESTIONS

Dr. Emilia Istrate
 Managing Director, Counties Futures Lab
research@naco.org

FINDINGS

WWW.NACO.ORG/COUNTYECONOMIES

#COUNTYECONOMIES

Appendix C: Economic Forecast by Caltrans

for

El Dorado County and Sacramento County

California County-Level Economic Forecast 2018-2050



Appendix C: Caltrans Economic Forecast



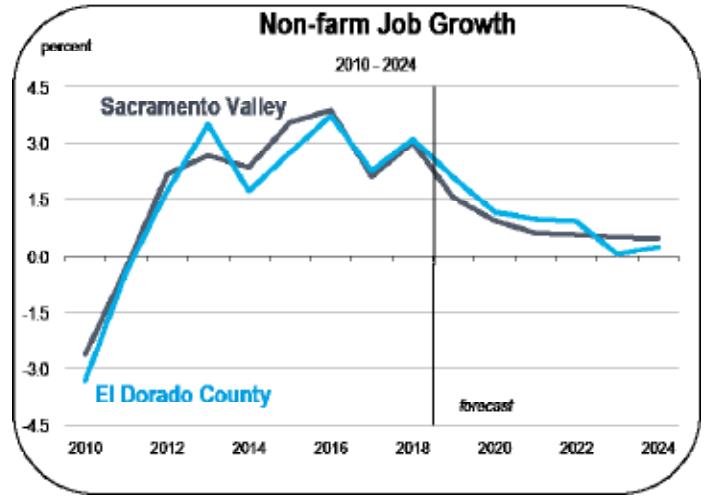
El Dorado County Economic Forecast

Forecast Summary

- 1,200 non-farm jobs will be created in El Dorado County during 2019. Over the following five years, an average of 400 new jobs are expected per year.
- Employment growth will be led by professional services, leisure services, healthcare, and government. These sectors will account for 81 percent of net job creation through 2024.
- The unemployment rate averaged 3.6 percent in 2018, but may begin to increase in 2019.
- The county population is expanding at a faster rate than the statewide average, and will continue to do so.
- Housing production has increased in recent years, but it is not keeping pace with population growth.
- Most new housing units over the forecast period will be single-family homes.

Job Growth

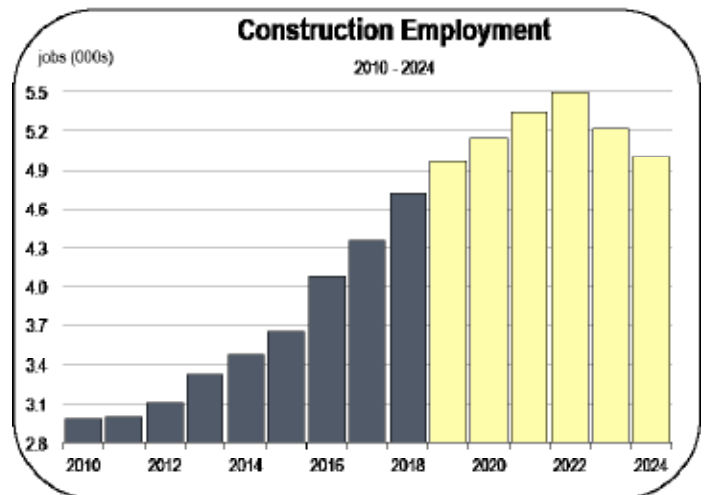
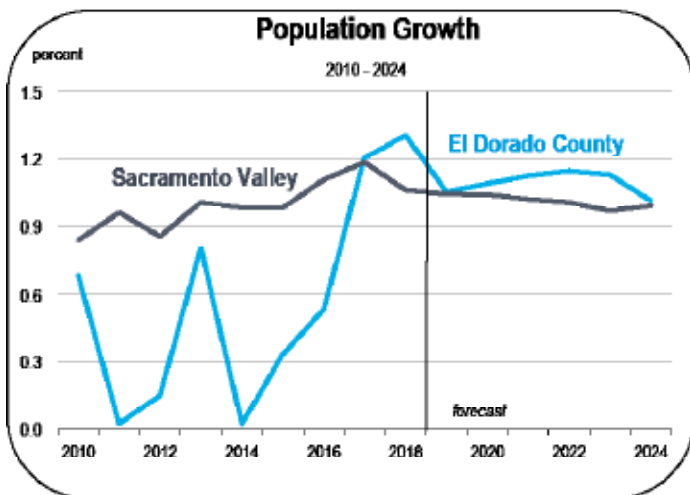
- Job growth was strong in 2018, but will decelerate in 2019 and 2020.
- The leading industries in 2018 were construction, healthcare, leisure and hospitality, and professional business services.
- Between 2012 and 2018, non-farm employment increased by 2.8 percent per year.
- Between 2018 and 2024, growth is forecast to average 0.9 percent.
- Approximately 1,200 non-farm jobs will be created during 2019.



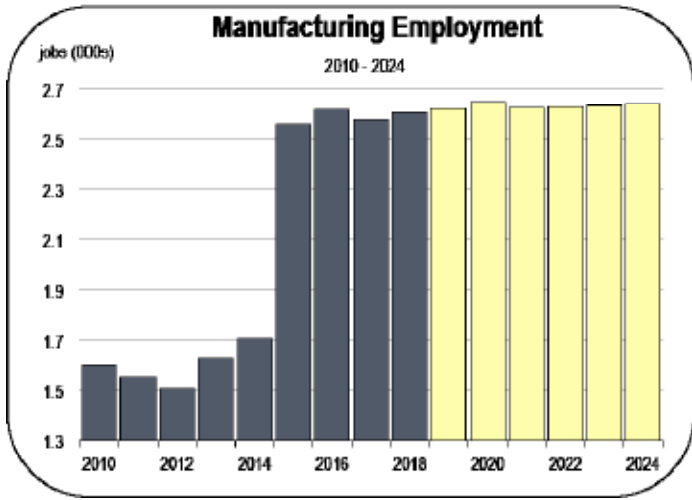
- Through 2024, an average of 400 new non-farm wage and salary jobs are expected per year.

Construction Employment

- Due to an acceleration in housing production, construction employment is increasing at an incredibly rapid rate.
- This sector will outpace the broader El Dorado County labor market in 2019 and 2020 as more housing units are built.
- Residential projects will be the primary driver of job creation. Over the forecast period, residential projects will employ about 4 times as many construction workers as commercial and industrial projects.



El Dorado County Economic Forecast

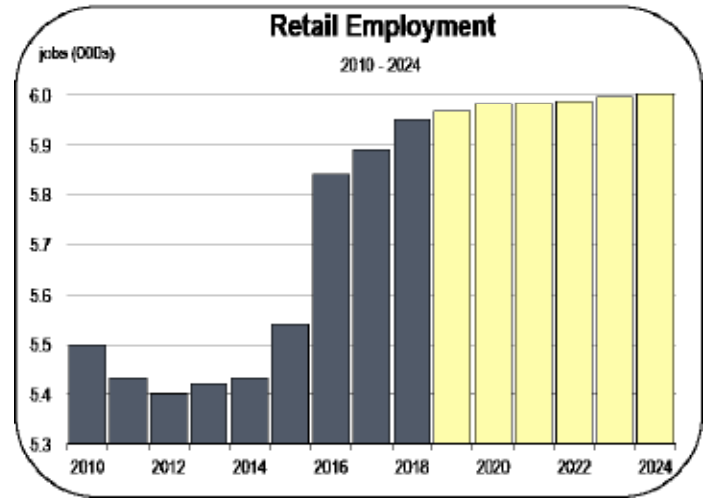
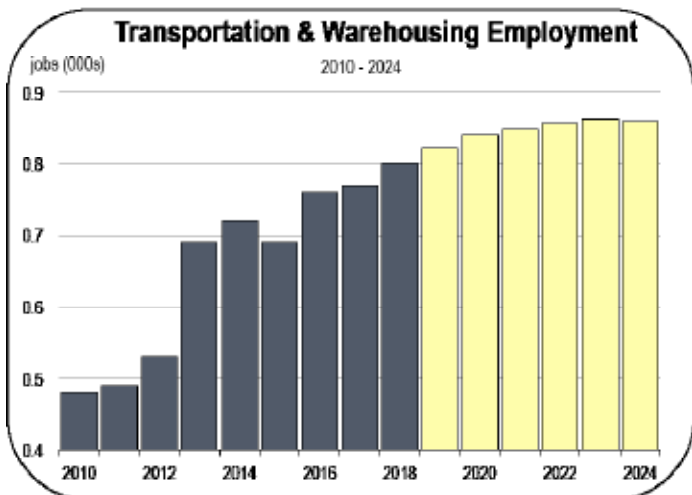


Manufacturing Employment

- Manufacturing employment increased by almost 800 jobs in 2015, as three new facilities opened in the county. Virtually no jobs have been gained since, and little future growth is expected.
- The manufacturing industry is particularly sensitive to changes in the minimum wage. As the California minimum wage reaches \$15 per hour by 2022, job growth could be impacted.

Transportation and Warehousing Employment

- This sector is very small in El Dorado County. Approximately 110 jobs have been created over the last 5 years. The county has 5 local delivery firms and 18 long-distance trucking companies. These organizations have generated virtually all job growth in recent years.
- Future gains will be driven by the transition to online shopping. As consumers buy a larger volume of goods online, orders will be shipped directly to their homes rather than to physical storefronts, leading to expansion at delivery firms like UPS and FedEx.

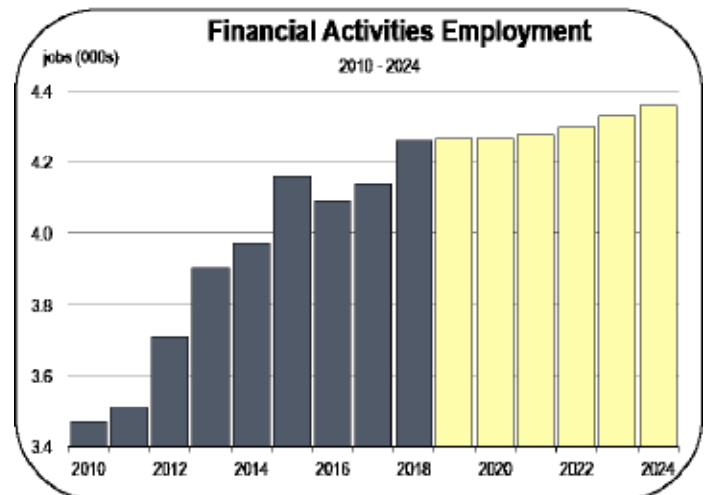


Retail Trade Employment

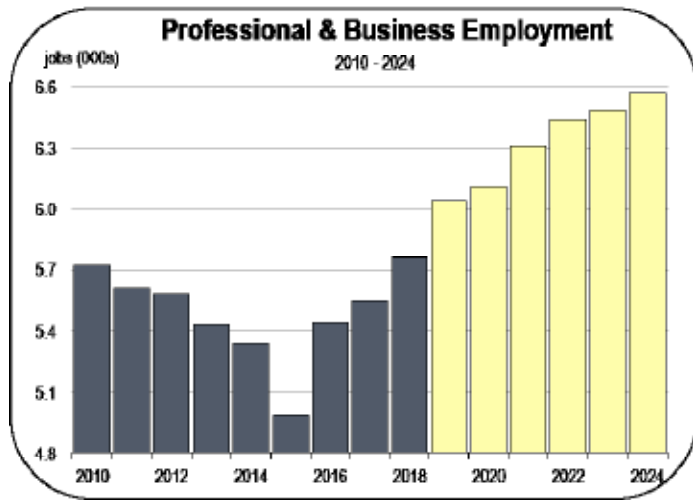
- The retail industry is expanding faster in El Dorado County than in most other parts of the state.
- Gains have been strongest in sectors that are not facing heavy online competition, like drug stores and auto dealers.
- But hiring has been minimal in sectors that are now competing with online retailers. This is particularly true of consumer electronics stores, sporting goods stores, clothing stores, and department stores.
- New jobs could be created if a Costco opens in El Dorado Hills. The company is exploring a new store near Silva Valley Parkway and Highway 50. A typical Costco has more than 100 employees.

Financial Activities Employment

- This industry is expanding, but is only creating about 100 jobs per year.



El Dorado County Economic Forecast



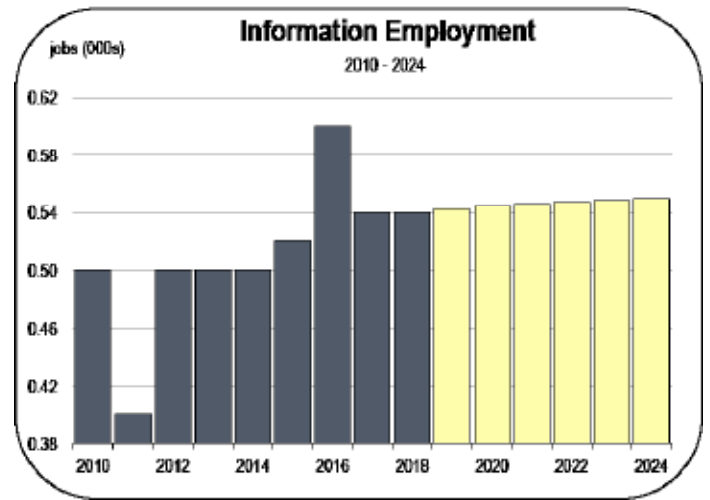
- The Blue Shield office in El Dorado Hills accounts for half of all jobs in this sector. Blue Shield is also El Dorado County’s largest private employer.
- Growth will be slow in the coming years. Fewer customers are visiting their local branches because banks are offering more online services, dampening demand for banking employees. But the real estate industry should expand as more homes are built.
- The future of the U.S. health insurance landscape is unknown, but legislative changes could have large effects on employment in this sector in El Dorado County.

Professional and Business Services Employment

- This sector is now creating jobs at a brisk rate.
- This sector is partially comprised of high skill jobs in fields like law, accounting, tech, and consulting. It also has a large number of workers in temporary help positions and business support functions.
- Most recent job creation has been in business support firms, like maintenance services, corporate security services, and back-office management. Going forward, some jobs will also be created at local law, accounting, and engineering firms.

Information Employment

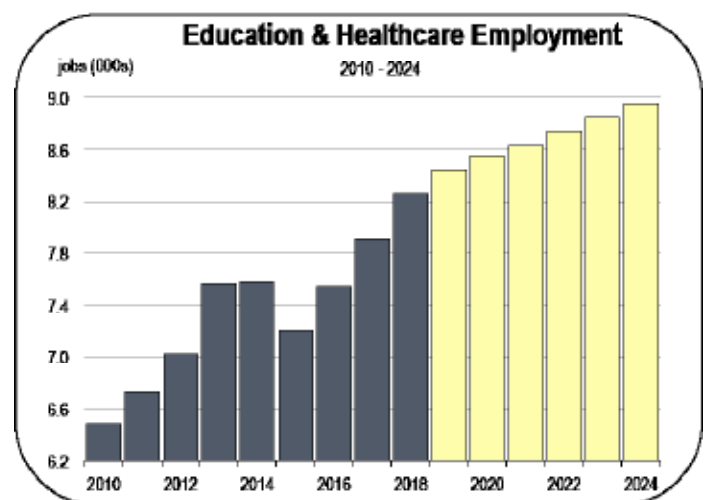
- The El Dorado County information sector now has:
 - 13 software firms with 220 total jobs
 - 9 movie theaters with 100 jobs
 - 9 telecommunications firms with 95 jobs
 - 3 newspapers with 50 jobs



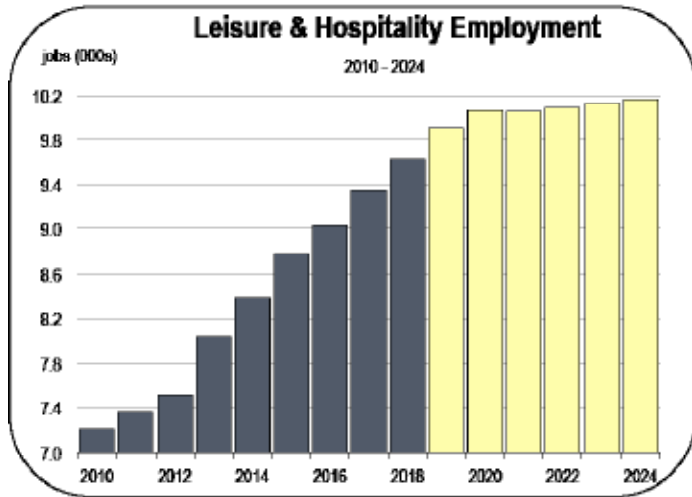
- During the current economic cycle, virtually all job creation has occurred in the software sector.
- Newspapers, movie theaters, and telecommunications firms have lost jobs.

Private Education and Healthcare Employment

- Healthcare job growth has been concentrated in doctors’ offices, outpatient care centers, and organizations that provide services to the elderly and people with disabilities.
- Private schools have been shedding jobs, but SUM Bible College is establishing a campus in El Dorado Hills (public schools are included in the government sector).
- Growth will remain strong as an aging population generates higher levels of demand for healthcare. However, the future of the U.S. health insurance industry is unknown, and legislative changes could influence job growth in health services.



El Dorado County Economic Forecast

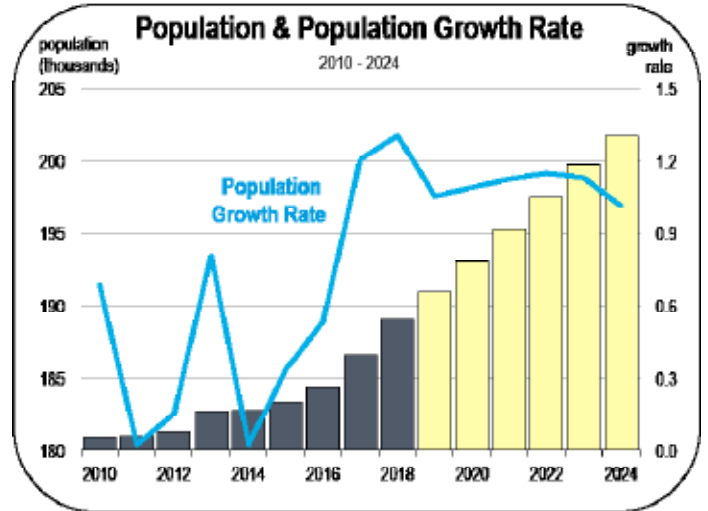
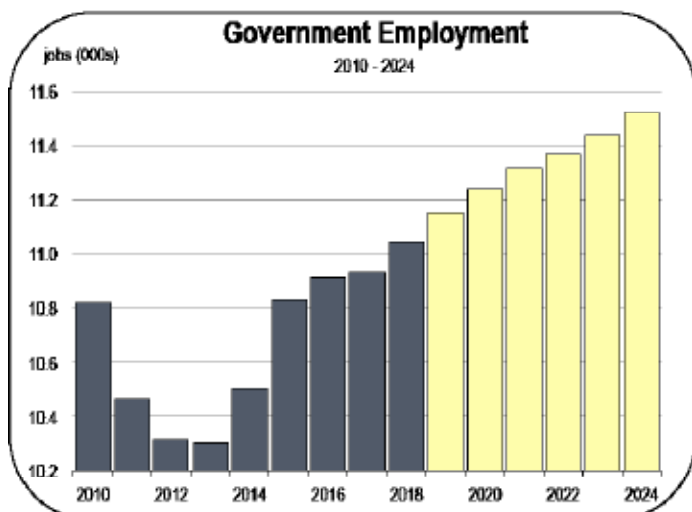


Leisure and Hospitality Employment

- 400 restaurant jobs were created in 2018, accounting for virtually all grow in the leisure and hospitality sector. Several hundred jobs were lost at hotels and fitness centers.
- Across much of California, the takeout and fast casual market segment has been expanding rapidly, but El Dorado County consumers strongly prefer traditional sit-down establishments.
- Growth will be healthy in 2019 and 2020, but this sector is in danger of losing jobs in 2021 or 2022.

Government Employment

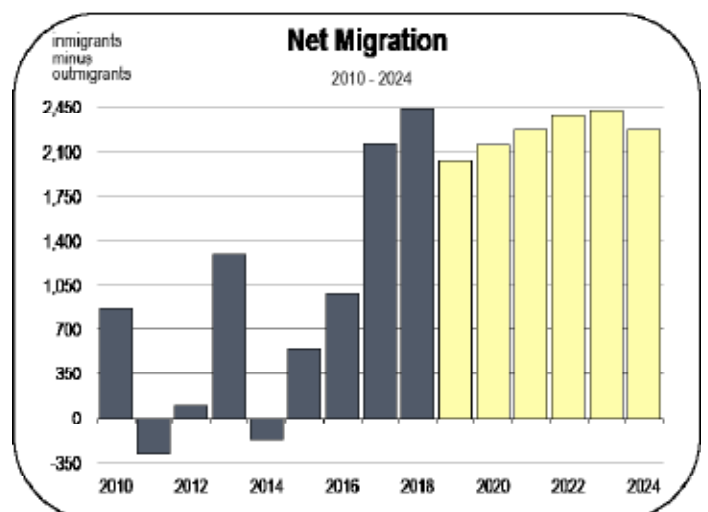
- Government employment has increased slowly over the past three years. Growth has been observed at local schools as well as local municipal agencies.



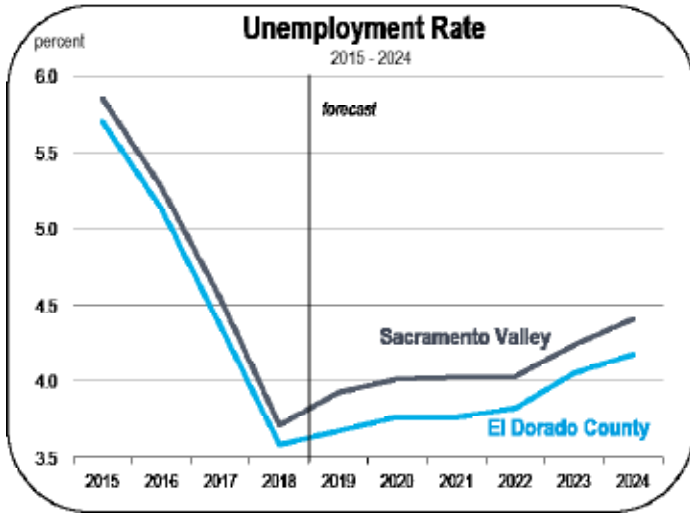
- Future gains will depend on population growth and the condition of government budgets.

Population Growth

- Population growth has accelerated, and the El Dorado County population is now growing faster than the statewide average.
- Net migration has been very strong, and almost 2,500 net migrants entered the county last year.
- An average of 2,300 net migrants will enter the county each year from 2019 to 2024.
- Population growth will average 1.1 percent per year, and the county will surpass 200,000 residents by the end of the forecast period.

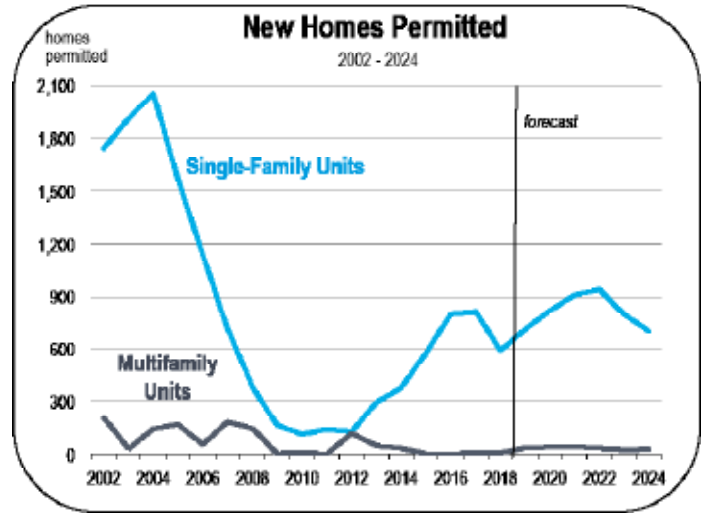


El Dorado County Economic Forecast



Unemployment and Inflation Rates

- The unemployment rate in El Dorado County averaged 3.6 percent in 2018, which was similar to the composite rate for Northern California.
- The unemployment rate will begin rising by 2020, but because it will remain near (or below) 4 percent, the labor market will still be exceptionally tight.
- Inflation accelerated in 2018 as energy prices increased and housing costs rose quickly. Across California, the inflation rate is expected to be within a range of 2 percent and 3 percent in 2019 and 2020.

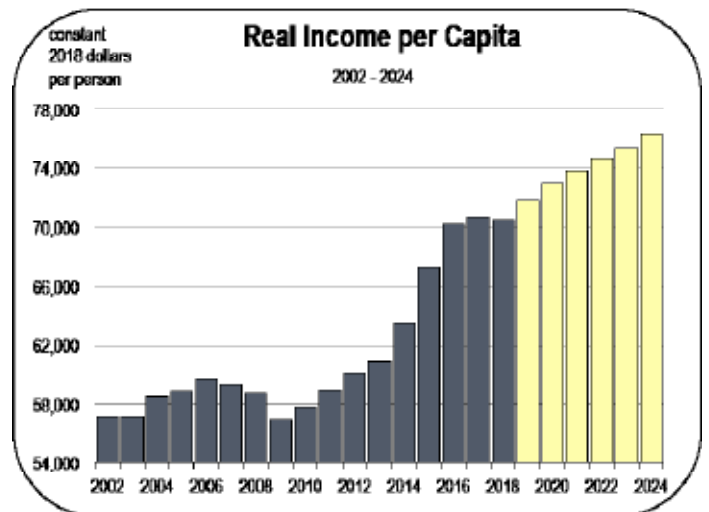
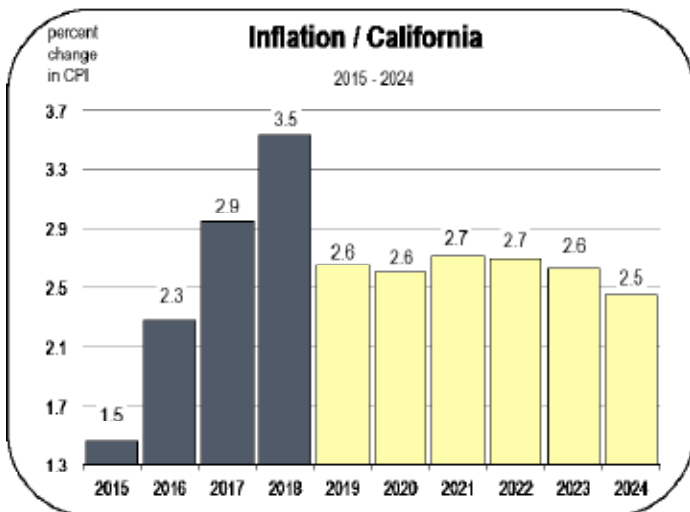


New Housing Production

- From 2013 to 2018, an average of 590 new homes were started each year. From 2019 to 2024, the county will generate an average of 850 units per year.
- The largest development project will include 1,000 homes in El Dorado Hills. There will be a mix of single-family homes, condos, townhomes, and apartments. The project is undergoing an environmental review, and if it is approved, complete build out could take up to 20 years.

Income per Capita

- Income per capita in 2018 was \$70,400, which is above the Sacramento Valley average of \$56,400.

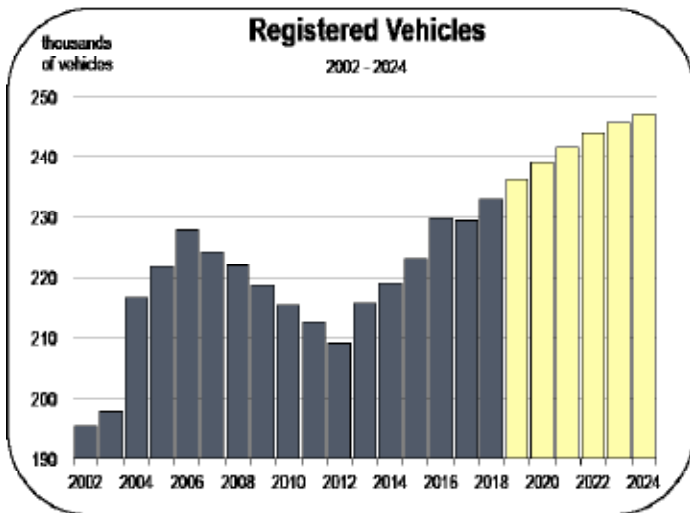


El Dorado County Economic Forecast

- Over the last six years, real incomes have risen at an average rate of 2.7 percent per year, which is faster than the Sacramento Valley average of 1.7 percent per year.
- Over the next six years, real incomes are expected to rise by approximately 1.3 percent per year in El Dorado County.

Registered Vehicles

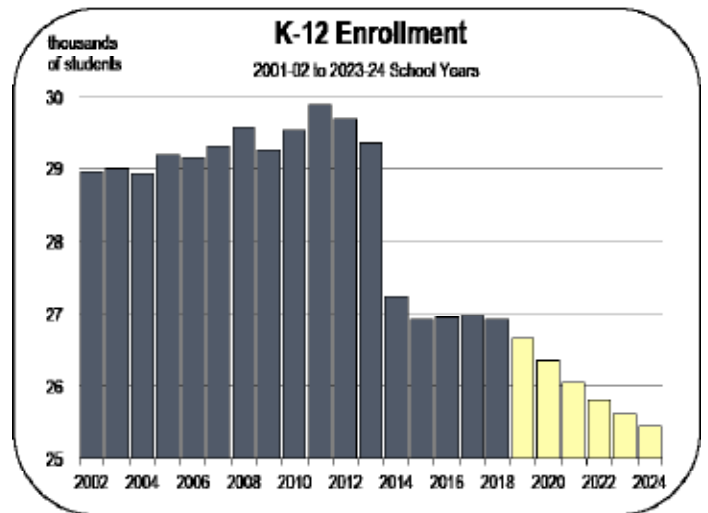
- There were 233,000 registered vehicles in El Dorado County in 2018.
- By 2024, it is expected that the county will have approximately 346,900 registered vehicles.



- The number of registered vehicles is expected to increase in tandem with the overall population. The forecast calls for 14,000 additional vehicles by 2024, as well as an additional 12,700 residents.

Public School Enrollment

- In El Dorado County, approximately 29,900 students were enrolled in K-12 public schools during the 2017—2018 school year.
- By 2024, there are expected to be 25,400 K-12 students in the county.
- Enrollment is expected to decrease because the population age 5 to 17 will decrease.



El Dorado County Economic Forecast

Economic Indicators

2015-2018 History, 2019-2050 Forecast

	Population (people)	House- holds (thousands)	Average Household Income (dollars)	New Homes Permitted (homes)	Registered Vehicles (thousands)	Personal Income (billions)	Taxable Retail Sales (billions)	Local Sales Tax (millions)	Real Industrial Production (billions)	Real per Capita Income (dollars)	School Enrollment (thousands)	Births (people)	Deaths (people)
2015	183,358	72.1	\$157,360	574	223	\$11.3	\$1.4	\$18	\$2.1	\$67,272	26.9	1,594	1,585
2016	184,335	72.6	\$167,214	799	230	\$12.1	\$1.5	\$19	\$2.2	\$70,270	26.9	1,601	1,520
2017	186,556	73.1	\$173,771	819	229	\$12.7	\$1.6	\$20	\$2.2	\$70,677	27.0	1,570	1,585
2018	188,993	74.3	\$179,251	593	233	\$13.3	\$1.7	\$21	\$2.2	\$70,445	26.9	1,596	1,618
2019	190,984	74.7	\$188,702	747	236	\$14.1	\$1.7	\$21	\$2.3	\$71,835	26.7	1,604	1,638
2020	193,066	75.2	\$197,751	857	239	\$14.9	\$1.8	\$22	\$2.4	\$72,983	26.4	1,612	1,678
2021	195,235	75.7	\$206,437	952	242	\$15.6	\$1.8	\$23	\$2.4	\$73,820	26.0	1,621	1,720
2022	197,475	76.3	\$215,412	972	244	\$16.4	\$1.9	\$23	\$2.4	\$74,693	25.8	1,634	1,777
2023	199,704	77.0	\$223,780	820	246	\$17.2	\$1.9	\$24	\$2.5	\$75,357	25.6	1,639	1,833
2024	201,729	77.7	\$232,655	725	247	\$18.1	\$2.0	\$25	\$2.5	\$76,300	25.4	1,642	1,887
2025	203,535	78.4	\$240,725	705	248	\$18.9	\$2.0	\$25	\$2.6	\$77,048	25.3	1,645	1,942
2026	205,219	79.0	\$249,429	711	249	\$19.7	\$2.1	\$26	\$2.6	\$77,994	25.3	1,648	1,994
2027	206,848	79.7	\$258,650	737	250	\$20.6	\$2.1	\$27	\$2.7	\$79,097	25.3	1,651	2,047
2028	208,432	80.3	\$268,023	748	251	\$21.5	\$2.2	\$27	\$2.7	\$80,139	25.7	1,656	2,102
2029	209,975	80.9	\$276,170	734	252	\$22.4	\$2.2	\$28	\$2.7	\$80,682	26.0	1,661	2,157
2030	211,454	81.6	\$284,319	718	253	\$23.2	\$2.3	\$29	\$2.8	\$81,259	26.2	1,660	2,215
2031	212,855	82.2	\$292,722	707	254	\$24.1	\$2.3	\$29	\$2.8	\$81,945	26.5	1,657	2,271
2032	214,174	82.8	\$300,337	644	255	\$24.9	\$2.4	\$30	\$2.8	\$82,219	26.8	1,654	2,325
2033	215,360	83.4	\$308,715	625	256	\$25.8	\$2.4	\$31	\$2.9	\$82,994	27.1	1,653	2,377
2034	216,476	84.0	\$317,677	608	256	\$26.7	\$2.5	\$31	\$2.9	\$83,716	27.5	1,653	2,427
2035	217,512	84.6	\$327,575	657	257	\$27.7	\$2.6	\$32	\$2.9	\$84,546	27.9	1,646	2,480
2036	218,517	85.1	\$337,228	616	258	\$28.7	\$2.6	\$33	\$3.0	\$84,930	28.2	1,640	2,527
2037	219,416	85.7	\$347,695	620	258	\$29.8	\$2.7	\$34	\$3.0	\$85,390	28.4	1,628	2,570
2038	220,270	86.3	\$358,382	605	259	\$30.9	\$2.8	\$35	\$3.0	\$86,003	28.8	1,618	2,611
2039	221,035	86.8	\$369,539	592	260	\$32.1	\$2.9	\$36	\$3.0	\$86,512	29.0	1,606	2,650
2040	221,725	87.3	\$380,659	553	260	\$33.2	\$2.9	\$37	\$3.0	\$87,034	29.2	1,595	2,686
2041	222,329	87.8	\$391,887	508	261	\$34.4	\$3.0	\$38	\$3.1	\$87,697	29.4	1,587	2,714
2042	222,828	88.3	\$403,910	540	261	\$35.7	\$3.1	\$39	\$3.1	\$88,567	29.5	1,581	2,740
2043	223,332	88.8	\$416,142	573	262	\$37.0	\$3.2	\$40	\$3.1	\$89,484	29.7	1,580	2,767
2044	223,867	89.3	\$428,036	560	263	\$38.2	\$3.2	\$40	\$3.2	\$90,422	29.8	1,581	2,794
2045	224,350	89.8	\$440,172	544	263	\$39.5	\$3.3	\$41	\$3.2	\$91,190	29.9	1,578	2,825
2046	224,774	90.3	\$452,414	530	264	\$40.8	\$3.4	\$42	\$3.2	\$92,022	30.1	1,580	2,850
2047	225,143	90.7	\$464,760	513	265	\$42.2	\$3.5	\$43	\$3.2	\$92,828	30.1	1,581	2,870
2048	225,462	91.2	\$477,535	497	265	\$43.6	\$3.5	\$44	\$3.3	\$93,669	30.1	1,581	2,887
2049	225,734	91.7	\$490,743	481	266	\$45.0	\$3.6	\$45	\$3.3	\$94,540	30.1	1,581	2,903
2050	225,957	92.1	\$504,375	464	267	\$46.5	\$3.7	\$46	\$3.3	\$95,434	30.0	1,583	2,919

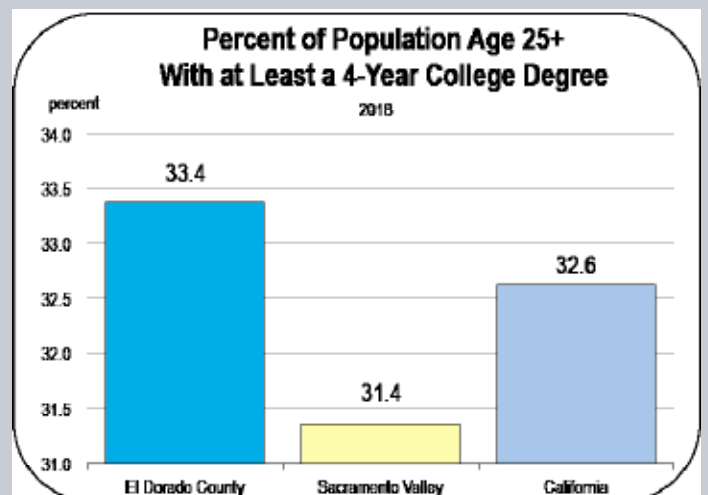
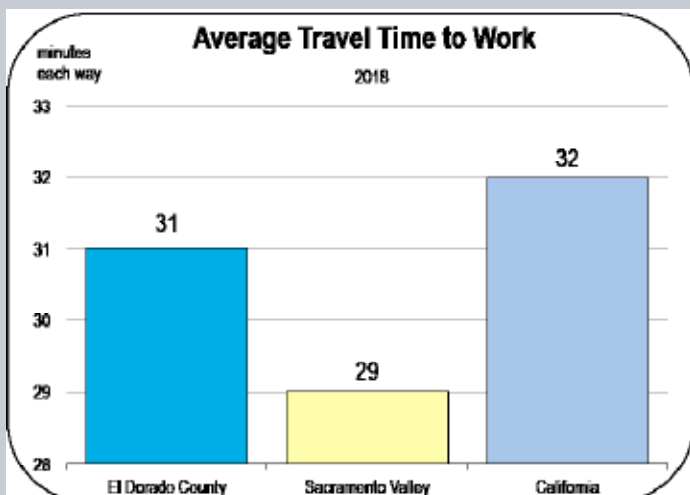
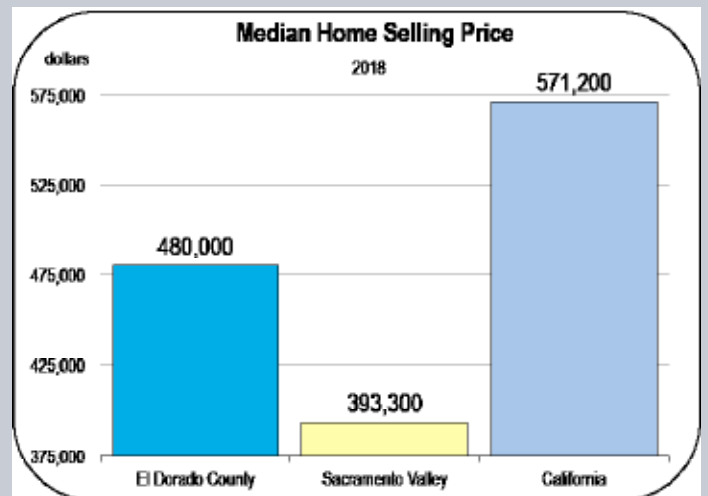
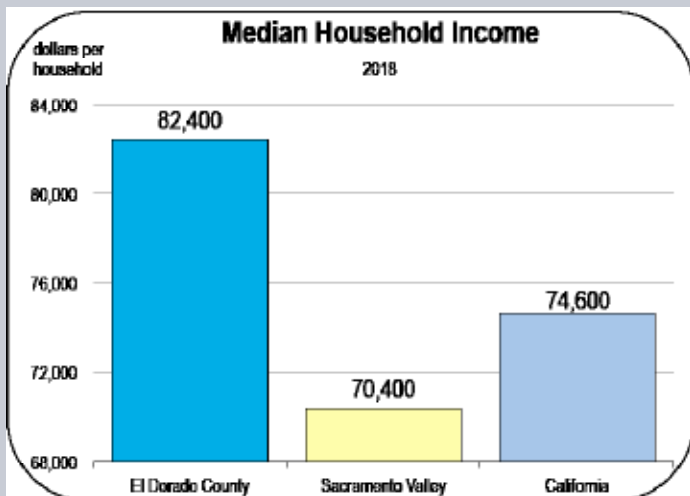
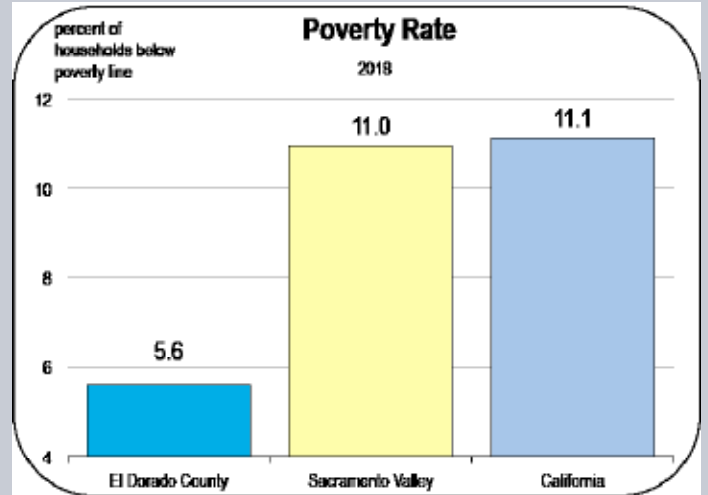
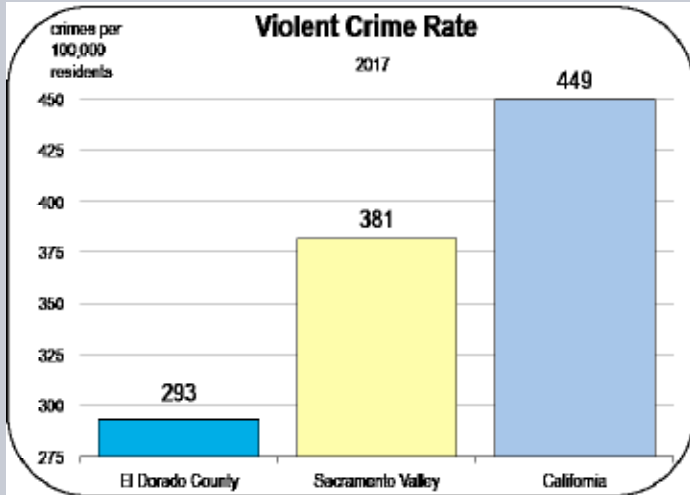
Employment Sectors

2015-2018 History, 2019-2050 Forecast

	Total Wage & Salary	Farm	Construction	Manufac- turing	Transportation & Utilities	Wholesale & Retail Trade (thousands of jobs)	Financial Activities	Professional Services	Information	Health & Education	Leisure	Government
2015	52.3	0.5	3.7	2.6	0.7	6.4	4.2	5.0	0.5	7.2	8.8	10.8
2016	54.0	0.3	4.1	2.6	0.8	6.7	4.1	5.4	0.6	7.5	9.0	10.9
2017	55.2	0.3	4.4	2.6	0.8	6.8	4.1	5.6	0.5	7.9	9.4	10.9
2018	56.9	0.2	4.7	2.6	0.8	6.9	4.3	5.8	0.5	8.3	9.6	11.0
2019	58.0	0.3	5.0	2.6	0.8	6.9	4.3	6.0	0.5	8.4	9.9	11.2
2020	58.7	0.3	5.1	2.7	0.8	6.9	4.3	6.1	0.5	8.6	10.1	11.2
2021	59.3	0.3	5.3	2.6	0.8	6.9	4.3	6.3	0.5	8.6	10.1	11.3
2022	59.8	0.3	5.5	2.6	0.9	7.0	4.3	6.4	0.5	8.7	10.1	11.4
2023	59.9	0.3	5.2	2.6	0.9	7.0	4.3	6.5	0.5	8.8	10.1	11.4
2024	60.0	0.3	5.0	2.6	0.9	7.0	4.4	6.6	0.5	9.0	10.2	11.5
2025	60.3	0.3	4.9	2.6	0.9	7.0	4.4	6.6	0.6	9.1	10.2	11.6
2026	60.7	0.3	5.0	2.7	0.9	7.0	4.4	6.7	0.6	9.2	10.3	11.7
2027	61.0	0.3	5.0	2.7	0.9	7.0	4.4	6.8	0.6	9.3	10.3	11.8
2028	61.4	0.3	5.1	2.7	0.9	7.0	4.4	6.9	0.6	9.3	10.4	11.8
2029	61.7	0.3	5.0	2.7	0.9	7.0	4.4	6.9	0.6	9.4	10.4	11.9
2030	61.9	0.3	5.0	2.7	0.9	7.1	4.4	7.0	0.6	9.5	10.5	11.9
2031	62.2	0.3	5.0	2.7	0.9	7.1	4.4	7.1	0.6	9.6	10.5	12.0
2032	62.3	0.3	4.8	2.7	0.9	7.1	4.4	7.2	0.6	9.7	10.6	12.1
2033	62.6	0.3	4.8	2.7	0.9	7.1	4.4	7.2	0.6	9.8	10.6	12.1
2034	62.8	0.3	4.7	2.7	0.9	7.1	4.4	7.3	0.6	9.9	10.7	12.2
2035	63.3	0.3	4.8	2.7	0.9	7.1	4.4	7.4	0.6	10.0	10.7	12.2
2036	63.5	0.3	4.7	2.7	0.9	7.1	4.4	7.4	0.6	10.1	10.8	12.3
2037	63.8	0.3	4.7	2.7	0.9	7.1	4.4	7.5	0.6	10.1	10.8	12.4
2038	64.0	0.3	4.7	2.7	0.9	7.1	4.4	7.6	0.6	10.2	10.9	12.4
2039	64.3	0.3	4.7	2.7	0.9	7.2	4.4	7.7	0.6	10.3	10.9	12.5
2040	64.5	0.3	4.6	2.7	0.9	7.2	4.4	7.7	0.6	10.4	11.0	12.6
2041	64.7	0.3	4.5	2.7	0.9	7.2	4.4	7.8	0.6	10.5	11.0	12.6
2042	65.1	0.3	4.5	2.7	0.9	7.2	4.4	7.9	0.6	10.6	11.1	12.7
2043	65.5	0.3	4.6	2.7	0.9	7.2	4.4	8.0	0.6	10.7	11.1	12.7
2044	65.8	0.3	4.6	2.7	0.9	7.2	4.4	8.0	0.6	10.8	11.1	12.8
2045	66.0	0.3	4.6	2.7	0.9	7.2	4.4	8.1	0.6	10.9	11.2	12.9
2046	66.3	0.3	4.5	2.7	0.9	7.2	4.4	8.2	0.6	11.0	11.2	12.9
2047	66.6	0.3	4.5	2.7	0.9	7.2	4.4	8.2	0.6	11.1	11.3	13.0
2048	66.9	0.3	4.4	2.7	0.9	7.2	4.4	8.3	0.6	11.2	11.3	13.1
2049	67.1	0.3	4.4	2.7	0.9	7.3	4.4	8.4	0.6	11.3	11.4	13.1
2050	67.4	0.3	4.4	2.7	0.9	7.3	4.4	8.5	0.6	11.4	11.4	13.2

El Dorado County Economic Forecast

Socioeconomic Indicators



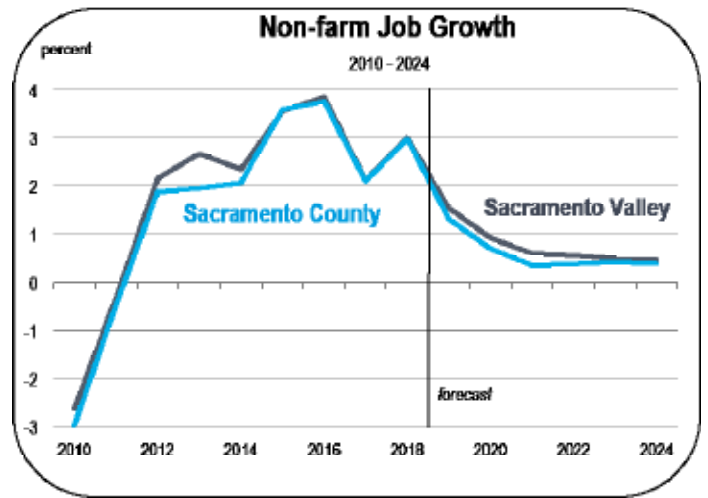
Sacramento County Economic Forecast

Forecast Summary

- 8,900 non-farm jobs will be created in Sacramento County during 2019. Over the following five years, an average of 3,100 new jobs are expected per year.
- Employment growth will be widespread, but will be led by professional services, healthcare, and leisure services. These sectors will account for 83 percent of net job creation through 2024.
- The unemployment rate averaged 3.8 percent in 2018, but may begin to rise in 2019.
- The population is expanding faster than the broader state, and will continue to do so.
- Housing production has increased in recent years, but has not kept pace with population growth.
- Over the forecast period, most new units will be single-family homes.
- A number of very large residential development projects have been proposed in the county. In total, 123,000 homes could be built over the next few decades.

Job Growth

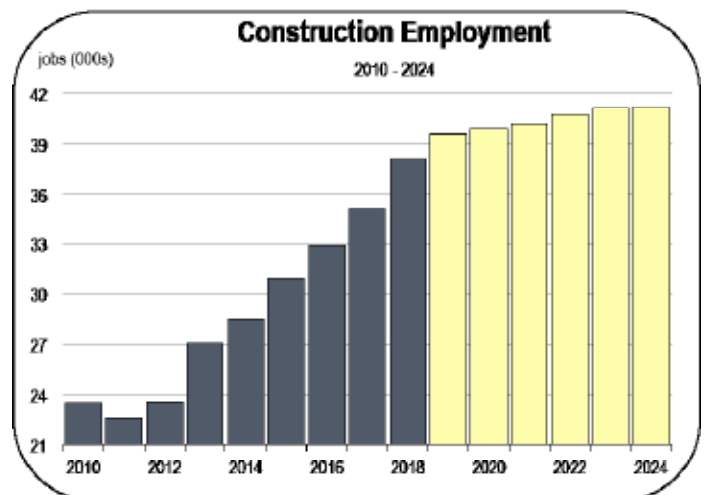
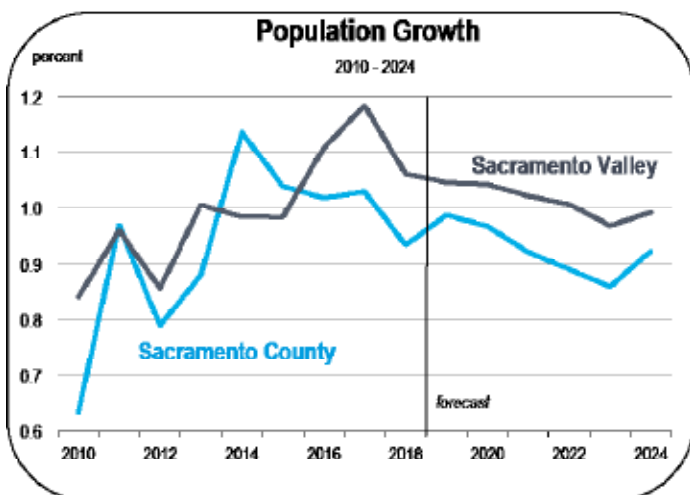
- Job growth was exceptionally strong in 2018, but growth will decelerate in 2019. Though it is not a part of the base case forecast, the county becomes more vulnerable to employment contraction in 2020 or 2021.
- The leading industries in 2018 were leisure services, education and healthcare, and construction.



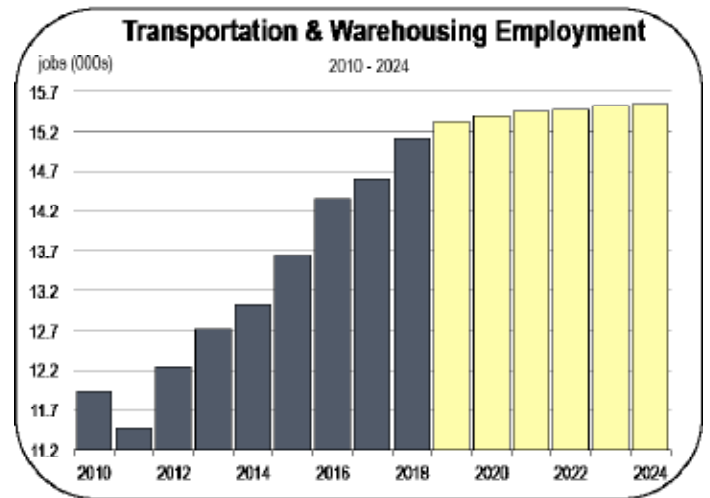
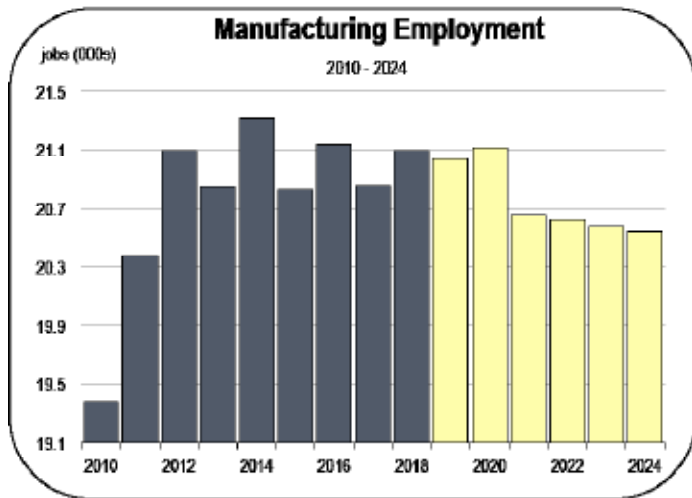
- Between 2012 and 2018, non-farm employment increased by 2.7 percent per year.
- Between 2018 and 2024, growth is forecast to average 0.6 percent annually.
- Approximately 8,900 non-farm jobs will be created during 2019.
- Through 2024, an average of 3,100 new non-farm wage and salary jobs are expected each year.

Construction Employment

- Due to an acceleration in housing production, construction employment is increasing at a rapid rate.
- Almost 4,900 homes were built last year, and close to \$900 million was spent building and renovating commercial and industrial structures.



Sacramento County Economic Forecast



- Over the long term (beyond 2024) Sacramento County will be a major center for construction activity. Its development pipeline has 123,000 homes and 50 million square feet of non-residential space.
- Construction employment will continue to grow rapidly in 2019, but gains are forecast to moderate in subsequent years.

- The onset of an economic recession would slow or even reverse job creation in this cyclically vulnerable sector.

Manufacturing Employment

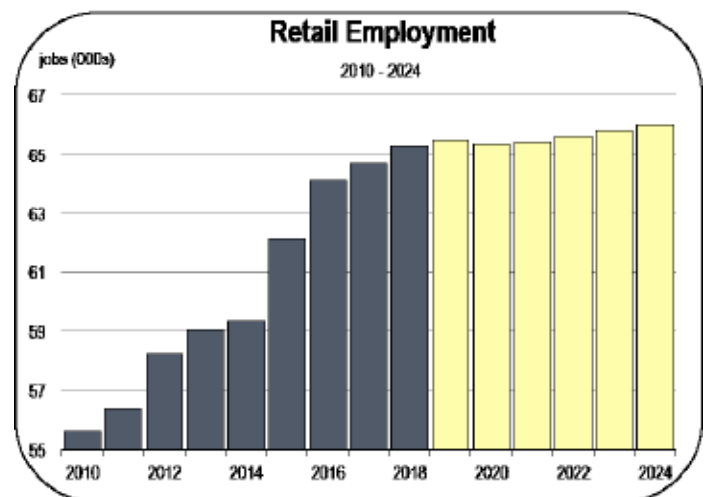
- Employment levels in the manufacturing industry have remained in a narrow band for the last seven years.
- Last year, small numbers of jobs were created in computer and aerospace manufacturing, which rebounded slightly after several years of contraction.
- Jobs were also created at breweries, which are in the beverage manufacturing industry. Sacramento County now has 25 breweries that employ 250 people.

Retail Trade Employment

- The retail industry is being divided into two groups: stores that face heavy online competition, and stores that don't.
- Growth has been slow at stores with online competition:
 - Clothing stores
 - Sporting goods stores
 - Department stores (i.e. Macy's)
 - Consumer electronics stores
- A number of stores closed in 2018, including:
 - Walmart in Sacramento
 - Sam's Club in Sacramento
 - Sears in Sacramento and Citrus Heights

Transportation and Warehousing Employment

- Job creation has been very strong in this sector, with 3,600 jobs created during the current economic cycle.
- Job growth has been concentrated in delivery services (e.g. UPS and FedEx), at Sacramento International Airport, and in the warehousing and logistics sector. Amazon opened a huge fulfillment center near the airport, which will eventually employ 1,500 workers.
- All of these subsectors should continue to expand, particularly delivery and logistics, as the growth of online shopping leads to job creation at delivery firms, and the Sacramento region adds more warehousing and distribution space.



Sacramento County Economic Forecast

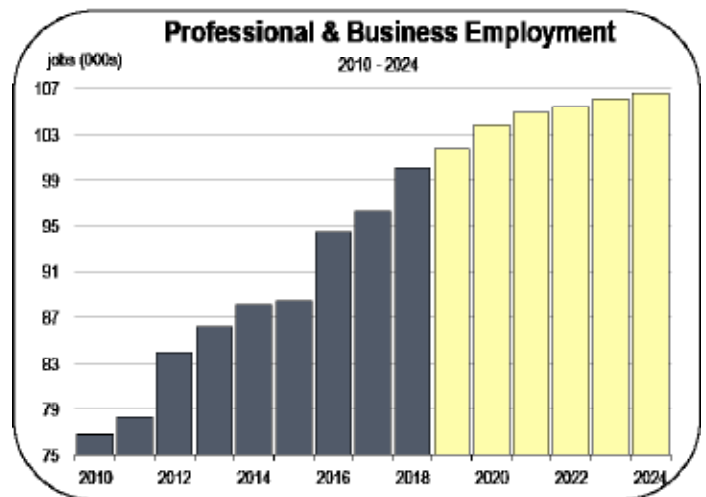
- Growth has been faster in sectors not facing heavy online competition:
 - Car dealerships
 - Drug stores and healthcare stores
 - Grocery stores
 - Gas stations
- Job growth will be slow in 2019, and jobs could be lost in 2020 or 2021.

Financial Activities Employment

- The financial activities industry added 1,000 jobs last year.
- Gains were largest in the real estate sector, which has expanded to accommodate an increase in new housing production.
- Job growth will slow in 2019 and the risk of job contraction rises in 2020 and 2021.

Professional and Business Services Employment

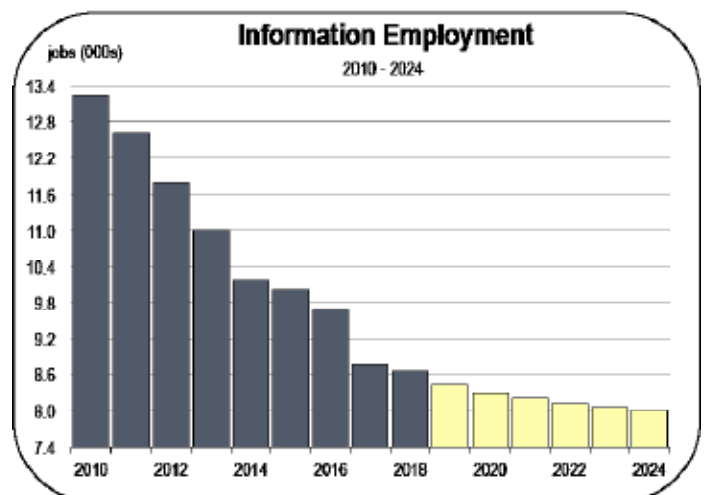
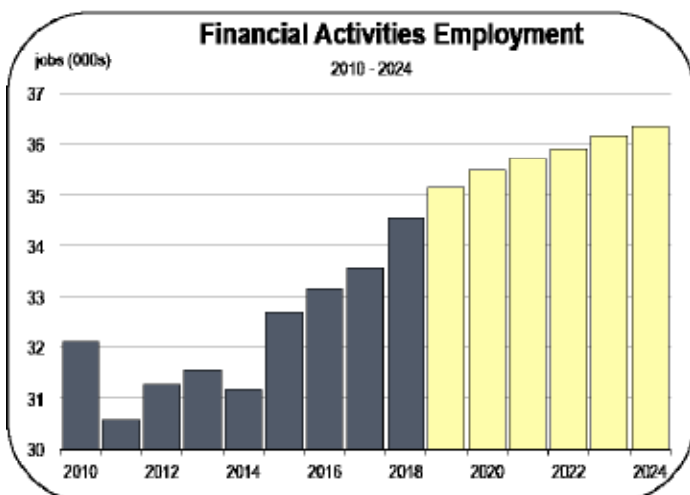
- Growth in this sector accelerated last year as 3,700 new jobs were created.
- This industry is primarily comprised of companies in law, accounting, tech, consulting, and scientific research. It also has a large number of business support firms, which provide administrative workers and manual labor to local firms.
- Half of last year’s job creation was in law firms, business consulting firms, and marketing firms. The other half was in temporary



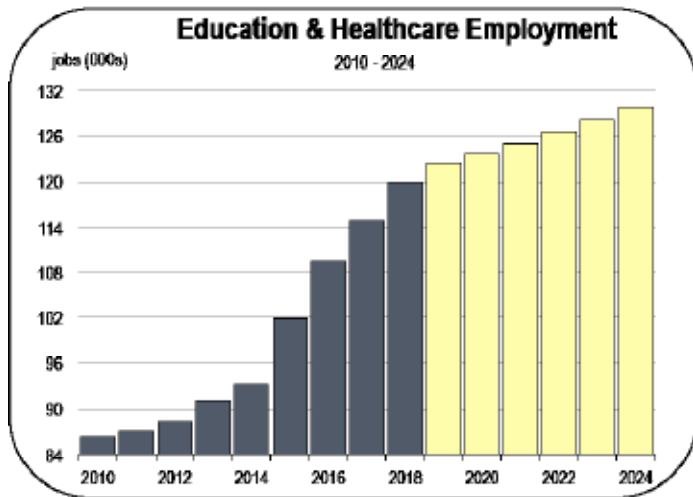
staffing agencies, building maintenance services, and corporate security firms.

Information Employment

- The information sector lost 200 jobs in 2018.
- In Sacramento County, the Information sector is largely comprised of telecommunications companies, but also has a small number of newspaper publishers, TV studios, software firms, and data services/web hosting companies.
- Telecommunications and newspaper companies will keep losing jobs, outweighing any gains from software and data services firms.



Sacramento County Economic Forecast



Private Education and Healthcare Employment

- The expansion of healthcare employment in Sacramento has been remarkable.
- Gains have been concentrated in doctors' offices, home health companies, outpatient and residential care centers, and organizations that provide services to the elderly and people with disabilities.
- Private schools gained a small number of jobs last year (public schools are in the government sector).
- Future growth will be driven by an aging population, which will lead to higher demand for healthcare. However, the future of the health insurance sector is unknown, and legislative changes could influence job growth in health services.

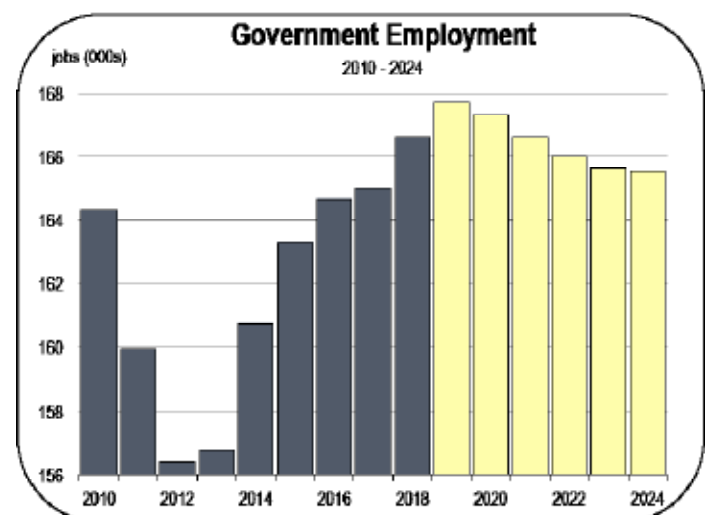
Leisure and Hospitality Employment

- Sacramento County gained 1,300 restaurant jobs last year, part of the surge of 7,000 new jobs in the restaurant industry since 2014.
- 900 jobs were also created at hotels in 2018.
- The leisure and hospitality industry will add more new jobs in 2019 and 2020, but employment growth is forecast to substantially slow after 2020.

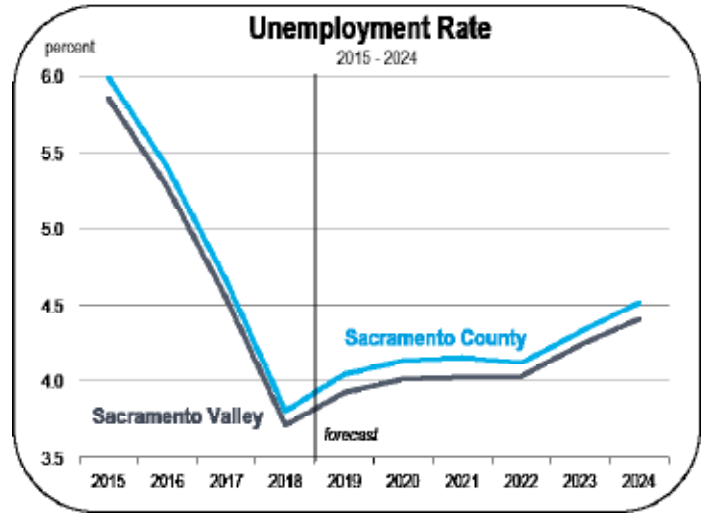
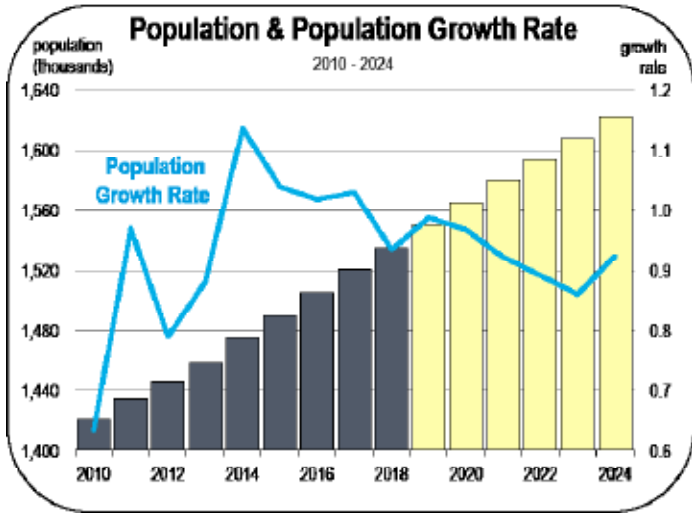
Government Employment

- The government sector expanded by 1,600 jobs last year.
- Most of these jobs were generated at state colleges (Sac State and the local community colleges), and state agencies. Employment levels at local public schools did not change substantially.
- Future gains will depend on local population growth, statewide population growth, and the condition of California's government budget.

Population Growth



Sacramento County Economic Forecast

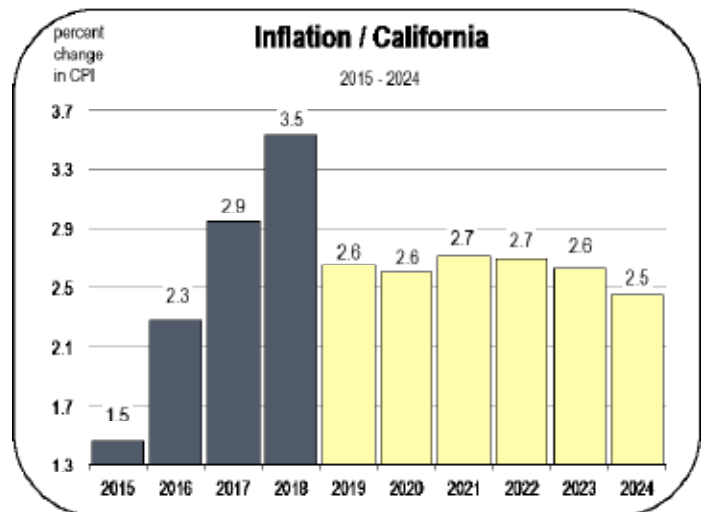
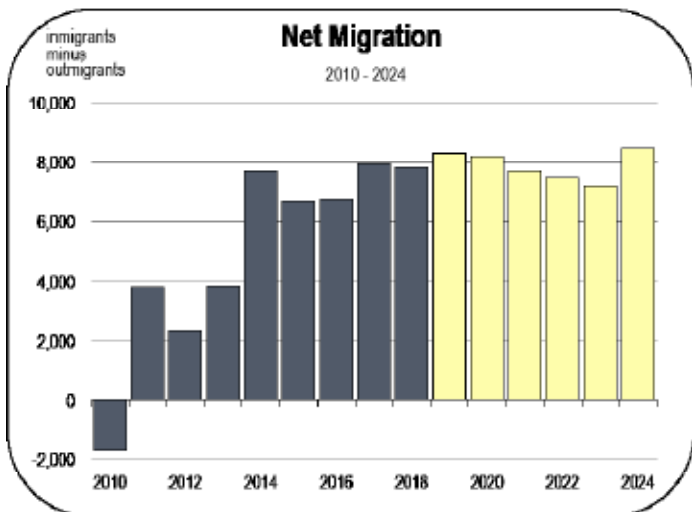


- The Sacramento county population is growing more quickly than the statewide average.
- An average of 7,400 net migrants entered the county in each of the last 5 years. An average of 7,900 will enter annually from 2019 to 2024.
- Population growth will average 0.9 percent per year, and the county will surpass 1.6 million residents during the forecast period.

- The unemployment rate in Sacramento County averaged 3.8 percent in 2018, which was identical to the composite rate for Northern California.
- The unemployment rate may begin to rise in 2019 and 2020, but with an unemployment rate of just 4.0 percent, the labor market will still be exceptionally tight.
- Inflation accelerated in 2018 as energy prices increased and housing costs rose quickly. Across California, the inflation rate is expected to be within a range of 2 percent and 3 percent in 2019 and 2020.

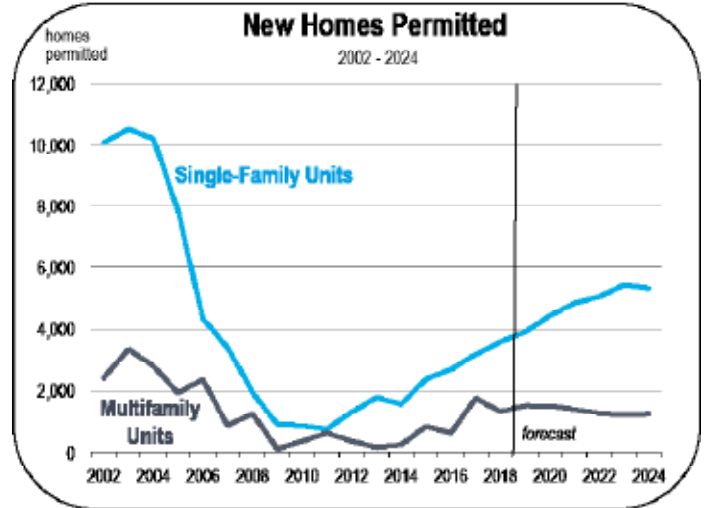
Unemployment and Inflation Rates

New Housing Production

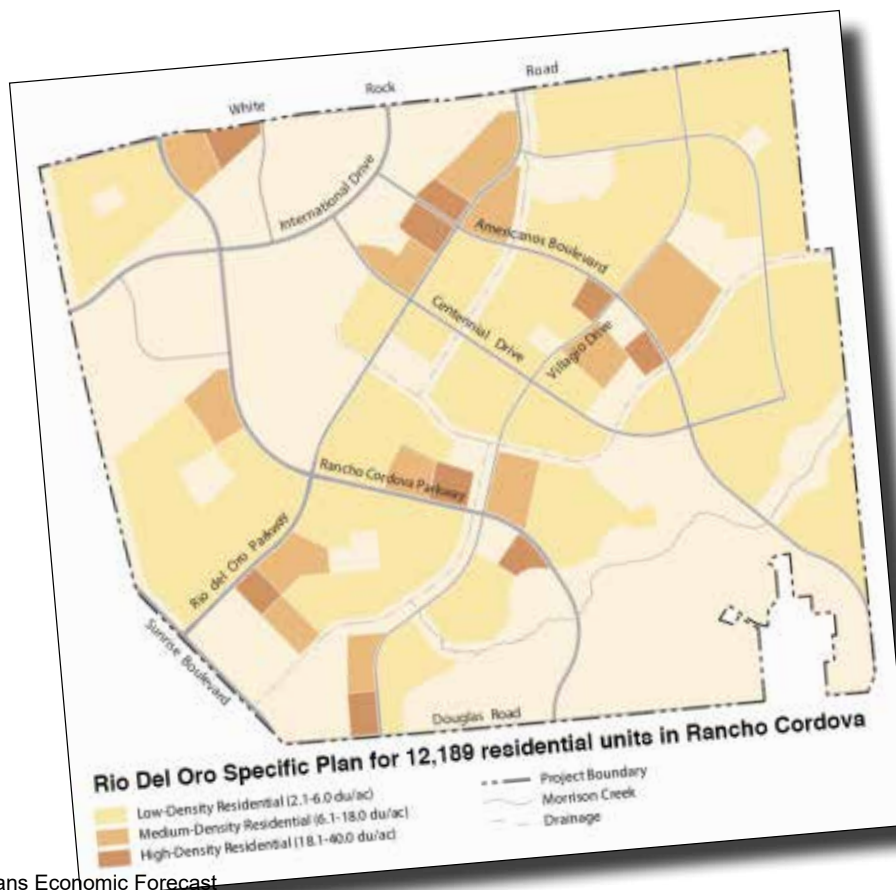


Sacramento County Economic Forecast

- From 2013 to 2018, an average of 3,300 homes were permitted per year. From 2019 to 2024, the county will generate an average of 6,200 units per year.
- The Sacramento County development pipeline has 123,000 units that could be constructed over the next 30 to 40 years:
 - 46,000 units in Rancho Cordova
 - 29,000 units in the Mather/Bradshaw area
 - 21,000 units in Folsom
 - 20,000 units within the Sacramento city limits
 - 3,000 units in Elk Grove
- The largest component of the development pipeline is in Rancho Cordova and the Mather/Bradshaw area. This region has 11 projects that contain at least 1,000 units.
- The West Jackson Highway Master Plan includes 14,900 homes near Jackson Highway and Bradshaw Rd. The project site spans 5,900 acres and will accommodate 17 million square feet of commercial and industrial space. The developers hope to create walkable neighborhoods that have retail space, office structures, schools, and possibly urban farms.
- Rio Del Oro will contain 12,200 homes northeast of Douglas Blvd. and Sunrise Blvd. in Rancho Cordova. It will also accommodate 3 schools and 4 to 5 million square feet of non-residential space. The plan concept has been approved, and developers will now seek approval for individual neighborhoods.



- Cordova Hills will include 8,000 homes east of Grant Line Rd. and north of Jackson Highway. This community will have 4 schools and a university, and 1.3 million square feet of retail, office, and medical facilities. The first homes could be built in 2019.
- The Jackson Township Specific plan will accommodate 6,100 homes, schools, a fire station, commercial facilities, and agricultural land.
- Outside of the Rancho Cordova/Mather area, other large projects have been planned for Sacramento County:



Sacramento County Economic Forecast

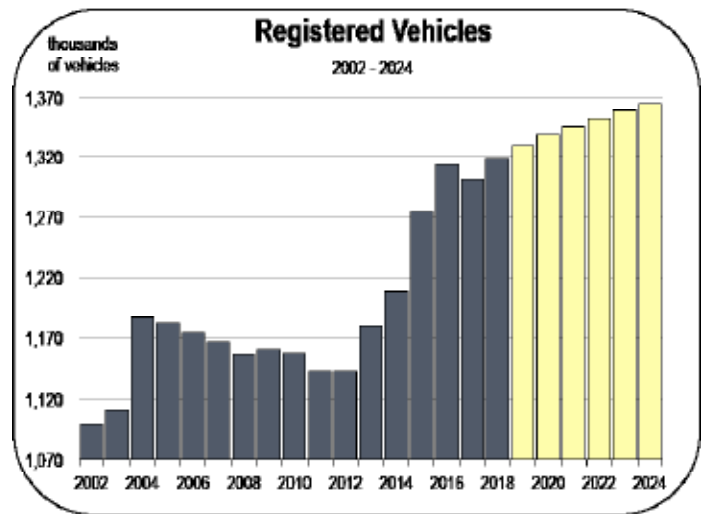
- Folsom Ranch – 10,200 homes and 3.6 million square feet of commercial space at Highway 50 near El Dorado County.
- The Railyards Project – 10,000 homes, 6 million sq. ft. of commercial space, 1,100 hotel rooms, and a soccer stadium Downtown.
- Sacramento Commons – two high-rise buildings with 1,470 multifamily units in Downtown Sacramento.

Income per Capita

- Income per capita in 2018 was \$52,500 in Sacramento County, which is below the Sacramento Valley average of \$56,400.
- Over the last six years, real incomes have risen at an average rate of 1.6 percent per year in the county, which is similar to the Sacramento Valley average of 1.7 percent per year.
- Over the next six years, real incomes are expected to rise by approximately 1.7 percent per year in Sacramento County.

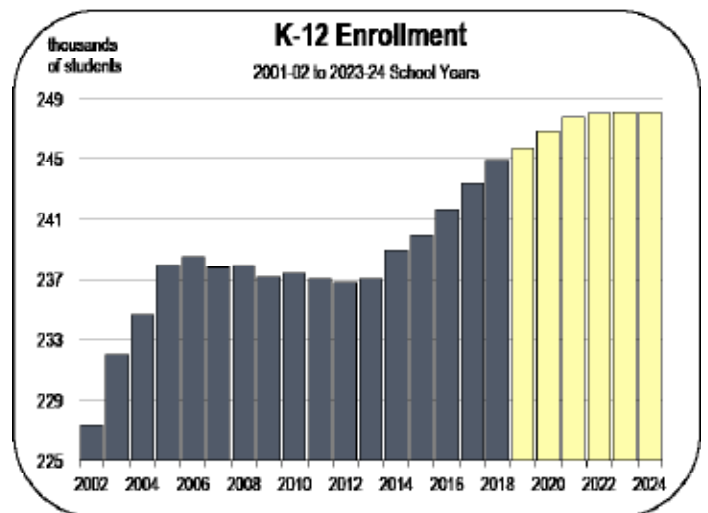
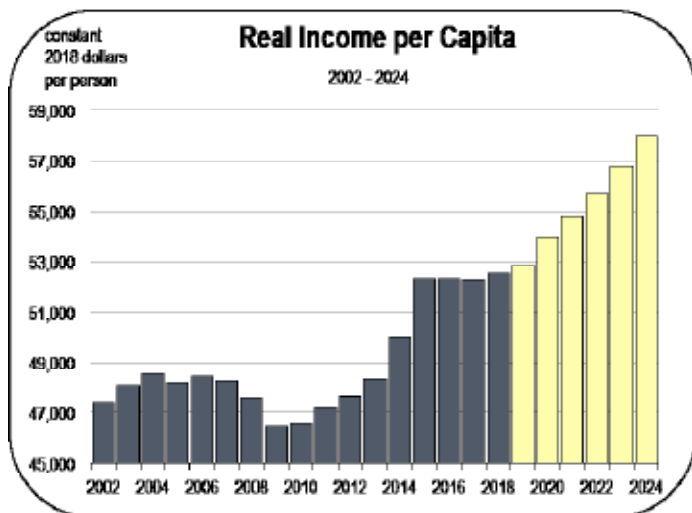
Registered Vehicles

- There were 1.32 million registered vehicles in Sacramento County in 2018.
- By 2024, it is expected that the county will have approximately 1.36 million registered vehicles.



Public School Enrollment

- In Sacramento County, approximately 244,900 students were enrolled in K-12 public schools during the 2017–2018 school year.
- By 2024, there are expected to be 248,000 K-12 students in the county.



Sacramento County Economic Forecast

Economic Indicators

2015-2018 History, 2019-2050 Forecast

	Population (people)	House- holds (thousands)	Average Household Income (dollars)	New Homes Permitted (homes)	Registered Vehicles (thousands)	Personal Income (billions)	Taxable Retail Sales (billions)	Local Sales Tax (millions)	Real Industrial Production (billions)	Real per Capita Income (dollars)	School Enrollment (thousands)	Births (people)	Deaths (people)
2015	1,490,025	533.0	\$134,497	3,173	1,275	\$71.7	\$15.0	\$263	\$13.3	\$52,334	239.9	19,423	11,427
2016	1,505,194	536.5	\$137,576	3,277	1,313	\$73.8	\$15.7	\$275	\$13.4	\$52,345	241.6	19,588	11,260
2017	1,520,685	536.7	\$142,690	4,915	1,301	\$76.6	\$16.4	\$287	\$13.5	\$52,301	243.4	19,202	11,966
2018	1,534,893	537.0	\$150,167	4,884	1,318	\$80.6	\$16.9	\$297	\$13.6	\$52,535	244.9	18,933	12,200
2019	1,550,040	544.2	\$154,705	5,390	1,330	\$84.2	\$17.6	\$308	\$13.7	\$52,862	245.7	19,088	12,233
2020	1,565,033	549.2	\$162,260	5,901	1,338	\$89.1	\$18.0	\$316	\$14.1	\$53,970	246.8	19,219	12,435
2021	1,579,463	554.8	\$169,219	6,221	1,345	\$93.9	\$18.6	\$325	\$14.2	\$54,795	247.7	19,408	12,667
2022	1,593,535	560.6	\$176,552	6,302	1,352	\$99.0	\$19.1	\$335	\$14.6	\$55,705	248.0	19,639	13,017
2023	1,607,239	566.5	\$184,432	6,617	1,358	\$104.5	\$19.7	\$345	\$14.9	\$56,758	248.0	19,880	13,370
2024	1,622,086	572.8	\$192,828	6,532	1,365	\$110.4	\$20.2	\$354	\$15.3	\$57,964	248.0	20,088	13,718
2025	1,636,302	578.9	\$200,436	6,656	1,371	\$116.0	\$20.8	\$364	\$15.7	\$58,938	247.7	20,206	14,079
2026	1,650,062	585.1	\$208,148	6,793	1,378	\$121.8	\$21.4	\$374	\$16.0	\$59,936	247.4	20,279	14,429
2027	1,663,118	591.5	\$215,968	6,917	1,386	\$127.8	\$21.9	\$384	\$16.4	\$60,991	247.7	20,276	14,796
2028	1,675,687	598.0	\$224,107	7,043	1,395	\$134.0	\$22.5	\$394	\$16.8	\$62,070	248.2	20,284	15,184
2029	1,688,191	604.6	\$231,452	6,897	1,404	\$139.9	\$23.1	\$405	\$17.0	\$62,826	248.0	20,342	15,584
2030	1,700,374	611.1	\$238,657	6,711	1,414	\$145.8	\$23.7	\$416	\$17.3	\$63,544	248.4	20,382	16,014
2031	1,711,922	617.4	\$246,096	6,660	1,427	\$151.9	\$24.4	\$427	\$17.5	\$64,337	248.9	20,443	16,431
2032	1,723,087	623.7	\$252,910	6,557	1,440	\$157.7	\$25.1	\$439	\$17.7	\$64,800	249.2	20,536	16,850
2033	1,734,041	629.8	\$260,462	6,369	1,453	\$164.0	\$25.7	\$449	\$18.0	\$65,652	249.8	20,669	17,269
2034	1,744,845	635.8	\$268,355	6,226	1,465	\$170.6	\$26.3	\$460	\$18.2	\$66,399	250.0	20,845	17,674
2035	1,755,480	641.7	\$276,627	6,062	1,475	\$177.5	\$27.0	\$472	\$18.4	\$67,112	251.0	21,026	18,110
2036	1,765,917	647.4	\$285,000	5,862	1,486	\$184.5	\$27.8	\$486	\$18.6	\$67,526	251.7	21,204	18,511
2037	1,776,051	652.9	\$293,848	5,710	1,498	\$191.8	\$28.7	\$502	\$18.8	\$67,916	252.4	21,358	18,883
2038	1,785,783	658.2	\$303,139	5,621	1,509	\$199.5	\$29.6	\$517	\$19.0	\$68,477	253.3	21,488	19,241
2039	1,794,942	663.5	\$312,887	5,568	1,522	\$207.6	\$30.5	\$534	\$19.1	\$68,957	254.2	21,591	19,583
2040	1,803,804	668.7	\$322,694	5,472	1,533	\$215.8	\$31.5	\$551	\$19.3	\$69,454	255.3	21,700	19,901
2041	1,812,659	673.9	\$332,669	5,362	1,545	\$224.2	\$32.4	\$567	\$19.5	\$70,050	256.4	21,845	20,150
2042	1,821,251	678.9	\$342,794	5,318	1,556	\$232.7	\$33.3	\$582	\$19.7	\$70,683	257.8	21,985	20,383
2043	1,829,740	683.9	\$353,108	5,401	1,566	\$241.5	\$34.1	\$597	\$19.9	\$71,362	259.3	22,127	20,615
2044	1,838,214	689.0	\$363,499	5,366	1,576	\$250.4	\$34.9	\$611	\$20.1	\$72,148	260.8	22,262	20,867
2045	1,846,513	694.0	\$373,942	5,241	1,583	\$259.5	\$35.7	\$625	\$20.3	\$72,753	262.4	22,385	21,161
2046	1,854,599	698.9	\$384,431	5,123	1,590	\$268.7	\$36.6	\$640	\$20.5	\$73,380	263.6	22,498	21,402
2047	1,862,555	703.8	\$395,068	5,023	1,596	\$278.0	\$37.4	\$654	\$20.7	\$73,976	265.2	22,614	21,593
2048	1,870,418	708.5	\$406,094	4,974	1,602	\$287.7	\$38.3	\$669	\$20.9	\$74,587	266.8	22,717	21,758
2049	1,878,229	713.2	\$417,543	4,919	1,608	\$297.8	\$39.2	\$685	\$21.1	\$75,217	268.4	22,796	21,905
2050	1,885,911	717.8	\$429,347	4,861	1,614	\$308.2	\$40.1	\$701	\$21.3	\$75,856	269.6	22,852	22,073

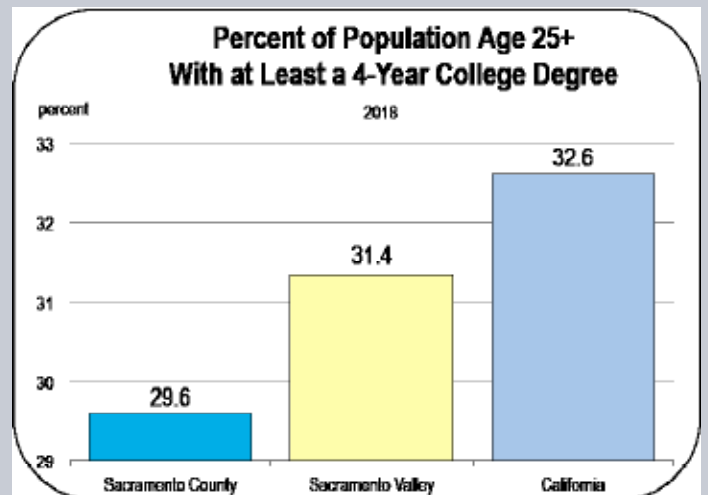
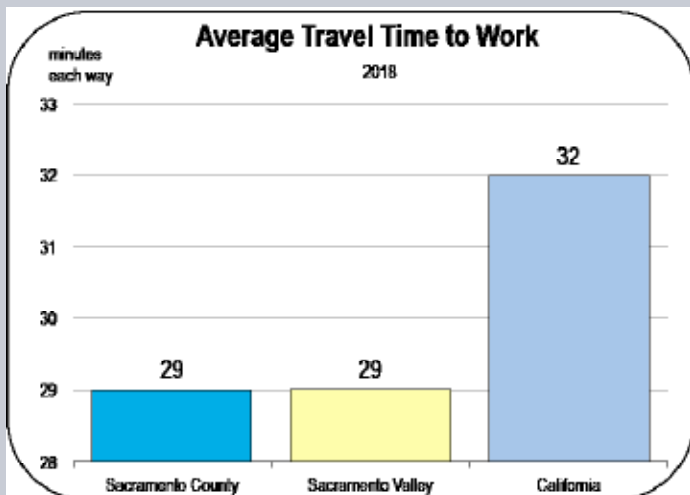
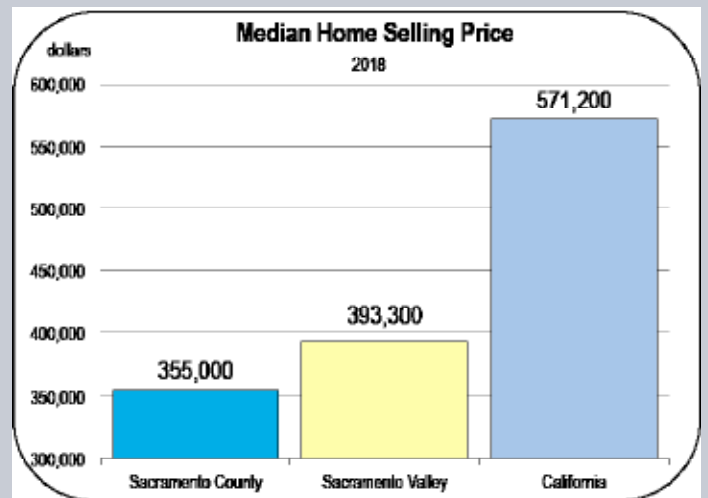
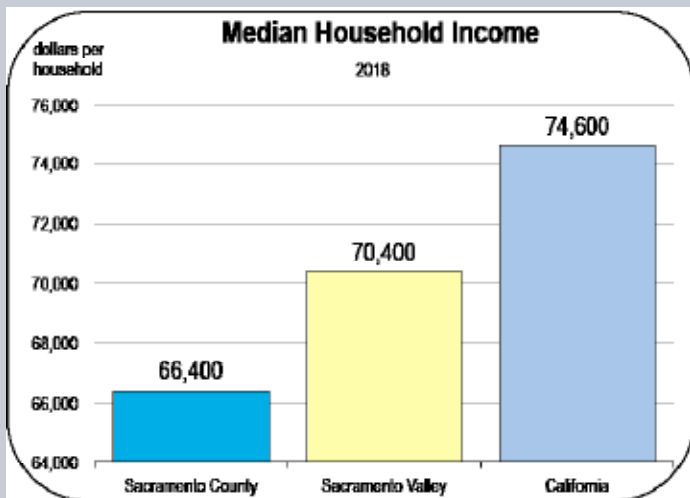
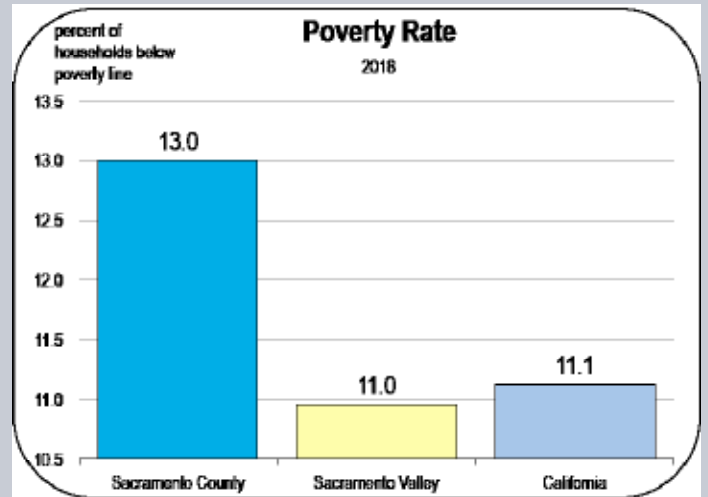
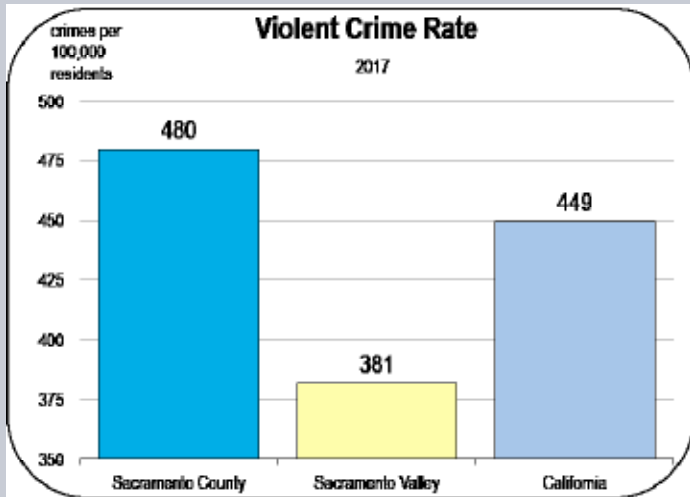
Employment Sectors

2015-2018 History, 2019-2050 Forecast

	Total Wage & Salary	Farm	Construction	Manufac- turing	Transportation & Utilities	Wholesale & Retail Trade (thousands of jobs)	Financial Activities	Professional Services	Information	Health & Education	Leisure	Government
2015	621.3	2.7	31.0	20.8	13.6	77.2	32.7	88.4	10.0	102.0	58.7	163.3
2016	644.0	2.2	32.9	21.1	14.4	79.8	33.2	94.4	9.7	109.5	60.8	164.7
2017	657.5	2.3	35.1	20.9	14.6	81.0	33.6	96.3	8.8	114.9	63.0	165.0
2018	676.8	2.1	38.1	21.1	15.1	82.8	34.6	100.0	8.6	119.9	64.8	166.6
2019	685.7	2.2	39.6	21.0	15.3	83.0	35.2	101.8	8.4	122.3	66.1	167.7
2020	690.7	2.2	39.9	21.1	15.4	82.9	35.5	103.8	8.3	123.7	67.4	167.3
2021	693.2	2.2	40.2	20.7	15.5	82.9	35.7	104.9	8.2	125.0	68.1	166.6
2022	695.9	2.3	40.7	20.6	15.5	83.2	35.9	105.3	8.1	126.6	68.4	166.0
2023	698.9	2.3	41.1	20.6	15.5	83.4	36.2	106.1	8.1	128.1	68.7	165.6
2024	701.6	2.3	41.2	20.5	15.5	83.6	36.3	106.5	8.0	129.8	68.9	165.5
2025	705.0	2.3	40.9	20.6	15.6	83.8	36.5	107.0	8.0	131.6	69.3	166.1
2026	709.2	2.2	40.8	20.6	15.6	84.0	36.8	107.6	8.0	133.5	69.7	166.8
2027	713.6	2.2	40.6	20.6	15.7	84.2	37.0	108.3	8.0	135.5	70.1	167.7
2028	718.2	2.2	40.8	20.7	15.7	84.4	37.2	109.0	8.1	137.4	70.5	168.5
2029	722.9	2.2	40.7	20.7	15.7	84.7	37.4	109.7	8.1	139.7	70.9	169.3
2030	727.3	2.2	40.2	20.7	15.7	84.9	37.5	110.4	8.1	142.0	71.3	170.3
2031	732.0	2.2	40.0	20.8	15.7	85.1	37.7	111.1	8.2	144.4	71.6	171.1
2032	736.8	2.2	39.8	20.8	15.8	85.3	37.9	111.8	8.3	147.0	72.0	171.7
2033	742.3	2.2	39.6	20.8	15.8	85.5	38.1	112.6	8.4	149.7	72.4	173.0
2034	747.2	2.1	39.2	20.9	15.8	85.7	38.3	113.3	8.5	152.3	72.8	174.0
2035	752.1	2.1	38.9	20.9	15.8	85.9	38.5	114.0	8.6	154.9	73.2	174.9
2036	756.2	2.1	38.4	20.9	15.8	86.1	38.7	114.7	8.7	157.4	73.6	175.2
2037	760.1	2.1	37.9	21.0	15.9	86.3	38.9	115.5	8.8	159.9	73.9	175.4
2038	764.4	2.1	37.5	21.0	15.9	86.5	39.1	116.2	9.0	162.4	74.3	175.9
2039	768.6	2.1	37.2	21.0	15.9	86.7	39.3	116.9	9.1	164.9	74.7	176.1
2040	773.0	2.1	37.1	21.1	15.9	86.9	39.5	117.7	9.3	167.2	75.0	176.4
2041	777.5	2.1	36.9	21.1	15.9	87.1	39.7	118.4	9.4	169.6	75.4	177.0
2042	782.2	2.1	36.8	21.1	15.9	87.3	39.9	119.2	9.6	171.8	75.8	177.8
2043	787.1	2.1	36.8	21.2	16.0	87.5	40.1	120.0	9.7	174.0	76.1	178.7
2044	792.3	2.1	36.9	21.2	16.0	87.7	40.3	120.7	9.9	176.0	76.5	179.8
2045	796.8	2.1	36.8	21.2	16.0	87.9	40.5	121.5	10.0	177.9	76.9	180.7
2046	801.1	2.1	36.6	21.3	16.0	88.0	40.7	122.3	10.2	179.7	77.2	181.8
2047	805.5	2.1	36.3	21.3	16.0	88.2	40.9	123.0	10.3	181.5	77.6	182.9
2048	809.9	2.1	36.1	21.3	16.0	88.4	41.0	123.8	10.5	183.3	77.9	183.9
2049	814.4	2.1	36.0	21.4	16.1	88.5	41.2	124.6	10.6	185.1	78.3	185.0
2050	818.9	2.1	35.9	21.4	16.1	88.7	41.4	125.4	10.8	186.8	78.6	186.1

Saramento County Economic Forecast

Socioeconomic Indicators



Appendix D: Wastewater Regulations

Appendix D: Wastewater Regulations



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REGULATIONS FOR WASTEWATER SYSTEMS

Both state and federal regulatory authority exists for the control of water quality in surface waters of California. Under the Clean Water Act (CWA), the Environmental Protection Agency (EPA) regulates municipal and industrial effluent discharges to navigable waters through the issuance of National Pollutant Discharge Elimination System (NPDES) permits. The basic approach used in both state and federal processes is 1) to designate beneficial uses to be protected, 2) to set water quality objectives that are protective of the most sensitive uses, and 3) to control municipal, industrial, and other sources to meet these objectives.

Federal Wastewater Treatment Regulations

Clean Water Act

The Clean Water Act (33 U.S.C. § 1251 et seq.) is the federal law that governs and authorizes water quality control activities by the EPA. Pursuant to federal law, the EPA has published water quality regulations under Volume 40 of the Code of Federal Regulations (40 CFR). The CWA regulates water pollution through two different and supplementary approaches:

- Water quality and technology-based standards; and
- Section 303 of the CWA requires states to adopt water quality standards for all surface waters of the United States.

The two approaches to regulating water pollution are implemented through the use of discharge permits, which contain mass or concentration-based effluent limits for the pollutants in the permittee's wastewater. These approaches are applied to pollutant dischargers through the implementation of the national wastewater discharge permitting program set up under the CWA. The CWA established national goals to eliminate pollutant discharges to navigable waters and to assure that all navigable waters would be fishable and swimmable.

National Pollutant Discharge Elimination System (NPDES)

The NPDES permit system was established under section 402 of the CWA to regulate municipal and industrial discharges to surface waters of the United States. The discharge of wastewater to surface waters is prohibited unless an NPDES permit has been issued which allows that discharge. Each NPDES permit contains limits on allowable concentrations and/or mass emissions of pollutants contained in the discharge. Under the NPDES program, dischargers are required to monitor and provide reports on compliance with their permit limits. These reports, formally titled Discharge Monitoring Reports (DMRs), are submitted to the appropriate regulatory agency, and they describe water quality data and analysis. The regulatory agency or any interested citizen can review this data to determine whether or not the discharger has complied with its NPDES permit requirements, and, if appropriate, pursue action to enforce compliance.

Storm water: Areas within El Dorado County are subject to the NPDES storm water permit regulations, and are subject to the Municipal Regional Storm water NPDES Permit, Order No.

Water Quality Order No. 2003-0005- DWQ proposed by the State Water Board, now replaced by Water Quality Order No. 2013-0001-DWQ (the “2013 Permit” or “Permit”). The 2013 Permit regulates the discharge of storm water runoff from the municipal separate storm sewer systems (“MS4s”) and other designated storm water discharges from municipalities and flood management agencies throughout El Dorado County. The purpose of the storm water permitting program is to prevent pollution in local waterways. Storm water can adversely impact avian, aquatic, and plant life in receiving waters and can cause serious human health impacts. For example, high mercury levels can make regular consumption of fish unsafe. Urban storm water runoff is one of the largest sources of pollution in the USA.

Enforcement of NPDES guidelines and permits in the western portion of El Dorado County falls within jurisdiction of the Central Valley Regional Water Quality Control Board (CV RWQCB) and is subject to review by the EPA Regional Administrator [EPA Pacific Southwest (Region 9)]. In addition, the RWQCB regulates activities involving discharges to land or groundwater from diffused sources. A Report of Waste Discharge must be filed with the Lahontan RWQCB to obtain a Waste Discharge Requirement (WDR) for these types of non-surface water discharge.

Congress amended the CWA in 1987 to include non-point source pollutants. Non-point source pollutants are often chemicals from lawns or gardens, automobile residues, urban runoff, or household cleaning agents or compounds. Non-point source pollution can also include runoff from agricultural uses. Most non-point source pollutants enter the wastewater stream and the water supply in large quantities and sudden surges, largely due to storm events. Although the EPA has established NPDES requirements for storm water, control of this type of pollution has proven to be difficult and could require upgrades to existing wastewater treatment plants. On August 12, 2015, the EPA¹ approved SWRCB’s Six-Year Plan (2014-2020) with Regional Water Quality Control Boards. These new regulations may further affect the wastewater agencies in El Dorado County, especially those with high storm water infiltration rates.²

Section 303(d) Impaired Waters List and TMDLs

Under Section 303(d) of the CWA, states are required to develop lists of water bodies which will not attain water quality objectives after implementation of required levels of treatment by point source dischargers (municipalities and industries) (40 C.F.R. §130.7(b)(4)). For example, the EPA and RWQCB have placed a few water bodies located in El Dorado County on the 303(d) list including: Slab Creek Reservoir, Oxbow Reservoir, North Canyon Creek, and Coon Hollow Creek. Pollutants that cause the listing for these water bodies include pesticides, mercury, bacteria, and/or general toxicity. The upper Cosumnes River, above Michigan Bar, is listed as

¹ EPA’s approval letter for the Six Year Plan is available on-line at: http://www.waterboards.ca.gov/water_issues/programs/nps/docs/plans_policies/usepa_approval_2014to202020.pdf

² State Water Resources Control Board. Nonpoint Source Pollution (NPS) Control Program. www.waterboards.ca.gov/water_issues/programs/nps.

water quality impaired for invasive species. Additionally, the lower Cosumnes River, below Michigan Bar, is on the 303(d) list for sediment toxicity, *Escherichia coli* (*E. coli*), and invasive species. The South Fork American River has water quality impairments for mercury and is on the 303 (d) list (SWRCB 2017). Activities within El Dorado County that have been identified to contribute to water quality degradation include grading and other construction activities, agricultural uses, confined animals, urban runoff, sewage and other wastewater from treatment plants, industrial sources, and recreation (El Dorado County 2003). See Central Valley RWQCB website at: https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml for additional details.

National Toxics Rule

The EPA established the National Toxics Rules (NTR) to create numeric criteria for priority toxic pollutants for California and 13 other states and territories that were not in complete compliance with the CWA. For California, the NTR established water quality standards for protection of aquatic life and/or human health for 36 pollutants for which water quality criteria exist, but which were not covered under California's statewide water quality regulations.

California Toxics Rule

The Clean Water Act (33 U.S.C. § 1251 et seq.) is the federal law that governs and authorizes water quality control activities by the EPA. Pursuant to federal law, the EPA has the NTR. There are 126 constituents listed in the California Toxics Rule (CTR) criteria, which include the previously issued NTR criteria for California. Some of the key elements of the CTR include:

- Amended numeric standards for 30 toxic pollutants and added new criteria for 8 toxic pollutants to protect aquatic life and human health uses for water bodies.
- Dissolved-based standards for most trace metals and endorsement of the use of translator mechanisms for determination of local metals objectives.
- Provisions for compliance schedules to provide time for permittees to meet the new toxics standards.
- Provisions for mixing zones when calculating toxic constituent effluent limitations.
- Use of interim effluent limits to provide time for dischargers to take actions to meet final limits.

The EPA promulgated numeric water quality criteria for priority toxic pollutants and other water quality standards for waters in the State of California pursuant to section 303(c)(2)(B) of the CWA if those pollutants could be reasonably expected to interfere with the designated uses of states' waters. Although California had adopted numeric criteria for priority toxic pollutants in 1992, the courts ordered California to rescind these water quality control plans in 1994 and the new water quality criteria rule, known as the California Toxics Rule (CTR), temporarily replaced the standards adopted in 1991. The CTR established:

- Ambient aquatic life criteria for 23 priority toxics;
- Ambient human health criteria for 57 priority toxics; and
- Compliance schedule provision.

Under the CTR various regional water quality control boards will issue schedules of compliance for new or revised NPDES permit limits based on the federal criteria when certain conditions are met. Currently each basin plan, as prepared by the regional water quality control board, contains a water quality criterion that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This has been contested by local jurisdictions all over California since it is expected to add significantly to the cost of wastewater treatment.

EPA contends that since California is implementing EPA's current regulations, the CTR will not impose any incremental costs and that the water quality criterion does not directly create economic impacts. EPA staff notes that California has some discretion to develop mechanisms that could result in more flexibility for local areas (e.g., site-specific criteria, phased TMDL program).

For El Dorado County, the Central Valley RWQCB does not require a separate and specific CTR permit. RWQCB determined three years of CTR monitoring data did not measure CTR pollutants in concentrations that resulted in receiving water violations, thus Board eliminated the CTR priority pollutant monitoring requirement. The wastewater agencies that discharge to surface waters were required to complete a number (depending on whether discharger is major or minor, municipal or industrial) of rounds of sampling under the CTR.

California Wastewater Treatment Regulations

The California Water Code is the principal state regulation governing the use of water resources within the State of California. This law controls, among other issues, water quality protection and management, and management of water-oriented agencies. Division 7 of the California Water Code, commonly referred to as the Porter-Cologne Act, is the principal mechanism for regulation of water quality and pollution issues within California. This act established a regulatory program to protect the water quality and beneficial uses of all state waters. The Porter-Cologne Act also established the State Water Resources Control Board and California Regional Water Quality Control Boards (RWQCB) as principal state agencies responsible for water quality control. The SWRCB has divided California into nine regions with the western portion of El Dorado County located in the Central Valley RWQCB, Region 5.

The Porter-Cologne Act grants the SWRCB and regional offices broad powers to protect water quality and is the primary vehicle for implementation of California's responsibilities under the federal CWA. These broad powers include the authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of hazardous materials and other pollutants. The Porter-Cologne Act also includes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil/petroleum product.

The Central Valley RWQCB, as with all other regional boards, must formulate and adopt a water quality plan for its region which must conform to the Porter-Cologne Act. The Porter-Cologne Act also provides that a regional office, such as the Central Valley RWQCB, may include within its regional plan water discharge prohibitions applicable to local conditions, areas, and types of

waste. The regional offices are also authorized to enforce discharge limitations, take actions to prevent violations, and conduct investigations about the quality of any of the waters of the state. Civil and criminal penalties are applicable to persons who violate the requirements of the Porter-Cologne Act or SWRCB/RWQCB orders.

The Porter-Cologne Act also requires dischargers of fill and dredged material to all waters of the state be regulated. Additional protections are provided for wetlands, special aquatic sites and headwaters because these waterbodies have high resource value, are vulnerable to filling, and are not protected by other programs. The Central Valley RWQCB CWA Section 401 program is involved with protection of special-status species and regulation of hydromodification impacts. The RWQCB encourages watershed-level analysis and protection, because some functions of wetlands, riparian areas, and headwater streams—including pollutant removal, flood water retention, and habitat connectivity—are expressed at the watershed or landscape level. (Central Valley RWQCB, 2019).

Other state agencies with jurisdiction or involvement in water quality regulation in California include the Department of Public Health (DPH) for drinking water regulations and water reclamation criteria, the Department of Pesticide Regulation, the Department of Fish and Game, and the Office of Environmental Health and Hazard Assessment.

California Storm Drainage & Flood Control Regulations

Section 10561 of the Water Code addresses runoff recapture and requires that state and local agencies regulating stormwater diversion systems to identify opportunities for capturing that runoff -- including summer season runoff -- for some form of reuse.

Local Wastewater Regulations

El Dorado County has policies and procedures consistent with the Central Valley RWQCB recommendation for connection to a public wastewater system in urbanized areas. Specifically, the County requires sewer be provided for all new residential subdivisions creating more than four lots and all new commercial and industrial uses. Additional details are available in County Resolution 036-2017 available at: https://www.waterboards.ca.gov/centralvalley/board_decisions/tentative_orders/1706/22b_eldoradoco_lamp/eldoradoco_lamp.pdf.

In El Dorado County, the *Standards For The Site Evaluation, Design And Construction Of Onsite Wastewater Treatment Systems (OWTS Manual)*, Effective May 13, 2018, requires an (OWTS) receiving a projected flow over 10,000 gallons per day must be referred to California Regional Water Quality Control Board (RWQCB), Central Valley Region for waste discharge requirements (County Ordinance Code, Chapter 100.32)(El Dorado County, 2018).

As described in Chapter 7 of this MSR, EID has requirements related to the provision of sewer service. Specifically, parcels must be within District boundaries to be eligible for service. Any parcel that is currently outside District boundaries may apply for annexation, provided that the parcel is contiguous with current District boundaries.

Wastewater Solids Regulations

Solids generated at a wastewater treatment facility comprise screenings, grit, primary or raw sludge (PS) and secondary or waste activated sludge (WAS). The screenings and grit are typically dewatered and disposed in a landfill. Sludge generated by a wastewater treatment facility is defined as biosolids once beneficial use criteria, as determined by compliance with EPA regulations, have been achieved through stabilization processes. Stabilization processes are described as those that help reduce pathogens and reduce vector attraction.

Several federal, state, and local regulations are in place that influence whether biosolids from municipal wastewater treatment plants can be reused or disposed of. Increased concerns and debate over biosolids disposal and its associated environmental impacts have led to more stringent revisions and amendments for many of these regulations. Continuing changes in regulations affecting biosolids management make a flexible management program essential.

Federal, state, and local agencies are responsible for regulating biosolids beneficial reuse/disposal. The authority of each agency varies based on the beneficial reuse/disposal methods employed. However, overall guidelines are established by the EPA. These guidelines are in turn implemented by state and local governments. Many state and local agencies in California have developed additional rules, guidelines, and criteria for biosolids management.

In order to implement the long-term biosolids permitting program, required by the Water Quality Act of 1987, the EPA initiated two rule makings. The first rulemaking established requirements and procedures for including biosolids management in NPDES permits, procedures for granting state biosolids management programs primacy over federal programs, or for federal programs to implement biosolids permits if a state so chooses.

The second rulemaking proposed to regulate and control biosolids permitting was 40 CFR Part 503, Standards for the Use and Disposal of Sewage Sludge. This rule addresses three general categories of beneficial reuse/disposal of biosolids including:

- Land application of sewage sludge for beneficial use of organic content;
- Surface disposal of biosolids in a monofill, surface impoundment, or other dedicated site; and
- Incineration of sewage sludge with, or without, auxiliary fuel.

Future Regulatory Considerations

This section provides insight into the future regulatory considerations that may affect County sewer systems' effluent discharges. Identifying future regulatory trends is critical for the following reasons:

- Developing treatment scenarios and alternatives;
- Planning for process and layout requirements for future regulatory compliance; and
- Making budget considerations for major design and construction projects.

Identifying future pollutants of concern (POCs), such as metals, nutrients, and/or pathogens, will help to develop alternatives that are flexible and can be easily expanded or upgraded to treat future POCs. For example, planning may include reserving space in the site layout for nutrient reduction, tertiary filtration, advanced oxidation, or an alternative disinfection method that would provide treatment of future POCs.

Nutrients, including nitrogen and phosphorus, are the leading cause of impairments to the nation’s surface waters and as a result are receiving greater regulatory scrutiny regarding their contribution to the overall quality of the nation’s receiving waters. Although appropriate amounts of nutrients are vital for the health and proper functioning of water bodies, excessive nutrient concentrations can cause water quality degradation.

Nationwide Nutrient Criteria

In November 2007, the National Resources Defense Council (NRDC) filed a petition with the EPA to require that nutrient removal be included in the definition of secondary treatment. The petition stated that “there are many [biological processes] which can achieve total phosphorus levels of 1.0 milligrams per liter (mg/L) as a monthly average, and a total nitrogen of 6 to 8 mg/L as an annual average” (NRDC et al, 2007).

In response to the petition by NRDC, the National Association of Clean Water Agencies (NACWA) wrote to the EPA in February 2008, September 2009, and June 2010 urging the EPA to deny the petition to modify the secondary treatment regulations for several legal, technical, and political reasons including but not limited to the potentially exorbitant cost to publically owned treatment works and the inappropriateness of establishing national limits for local and regional water quality issues (NACWA, 2008; NACWA, 2009). In October 2009, the EPA stated they were actively analyzing the data and information to prepare a report and preliminary response to the NRDC petition. They stated they would consider NACWA, other stakeholders, and all information carefully before taking action on the NRDC petition (U.S. EPA, 2009a).

Due to the scientific uncertainties associated with the development of numeric nutrient criteria and the magnitude of the expected costs of compliance, nutrient water quality policies are very controversial and have sparked several legal actions across the country. The State of Florida has become the initial focus of environmental groups’ efforts to push the EPA to develop federal numeric nutrient criteria to be imposed on the states. The EPA has agreed to a consent decree in the environmental suit, and has made a determination that numeric nutrient standards are necessary in Florida. Proposed criteria for total nitrogen and total phosphorus were released in January 2010. The EPA withdrew federal water quality standards (WQS) applicable to waters of the State of Florida in 2014 because Florida adopted— and EPA approved— relevant numeric nutrient criteria (NNC).

State of California Nutrient Numeric Endpoints

In addition to the increasingly stringent regulation of nutrients, there is a trend towards increasing regulation of emerging microconstituents and bioaccumulative pollutants in treated effluent discharges.

Microconstituents and Bioaccumulative Constituents

Microconstituent, also referred to as “contaminants of emerging concern” (CECs) by the EPA Office of Water, are substances that have been detected in surface waters and the environment and may potentially cause deleterious effects on aquatic life and the environment at relevant concentrations. Microconstituents include:

- Persistent organic pollutants (POPs) such as polybrominated diphenyl ethers (PBDEs; used in flame retardants, furniture foam, plastics, etc.) and other organic contaminants.
- Pharmaceuticals and personal care products (PPCPs), including a wide suite of human prescribed drugs, over-the-counter medications, bactericides, sunscreens, and synthetic musks.
- Veterinary medicines such as antimicrobials, antibiotics, anti-fungals, growth promoters, and hormones.
- Endocrine-disrupting chemicals (EDCs), including synthetic estrogens and androgens, naturally occurring estrogens, as well as many other compounds capable of modulating normal hormonal functions and steroidal synthesis in aquatic organisms.
- Nanomaterials such as carbon nanotubes or nano-scale particulate titanium dioxide.

Bioaccumulative constituents are substances that are taken up by organisms at faster rates than the organisms can remove them. As a result, these constituents accumulate in the organism and the food chain, and can remain in the environment for long periods of time. Mercury, polychlorinated biphenyls (PCBs), and dioxins are some bioaccumulative constituents that are being increasingly regulated.

Monitoring requirements for these trace pollutants are increasing, including requirements to analyze constituents at lower detection limits. It is likely that water quality criteria followed by new effluent limits will be added to permits. Implementation of CEC standards is not expected to be imminent as the EPA is currently focused on assessing the potential impact CECs have on the environment and human health.

The State Water Resources Control Board (SWRCB) is in the process of developing statewide policies for nutrients. The SWRCB held a scoping meeting in October 2011 to seek input on content for a proposed Nutrient Numeric Endpoint (NNE) framework and policy for inland surface waters.

Biostimulatory Substances Objective and Implementation of Biological Integrity

The existing statutes and regulations are in various forms such as regional narrative or numeric nutrient objectives, an objective in the State Ocean Plan, water quality orders, and TMDLs which

were adopted or are under development by various Regional Water Boards. Currently, there are approximately 32 TMDLs statewide which list nutrients as toxicants or eutrophication-related effects on beneficial uses.

The State Water Resources Control Board (State Water Board) is proposing to adopt a statewide water quality objective for biostimulatory substances along with a program of implementation as an amendment (Biostimulatory Substances Amendment or project) to the Water Quality Control Plan for Inland Surface Water, Enclosed Bays and Estuaries of California (ISWEBE Plan). The Biostimulatory Substances Amendment could include: a statewide numeric objective or a statewide narrative objective (with a numeric translator), and various regulatory control options for point and non-point sources.

It is anticipated that a comprehensive program to implement the water quality objective for biostimulatory substances will be established in three phases as three amendments to the ISWEBE Plan. Each phase would reflect implementation unique to three different water body types. If the Biostimulatory Substances Amendment establishes a numeric water quality objective, rather than a narrative water quality objective, then potentially each subsequent phase would also establish a new numeric water quality objective. The latter depends on whether the numeric water quality objective is developed from factors unique to the different types of waterbodies. The Biostimulatory Amendment would be the first phase, applicable to wadeable streams. The second phase will focus on lakes and the third phase will focus on estuaries, enclosed bays, and non-wadeable rivers.

This project will also now include a water quality control policy to establish and implement biological condition assessment methods, scoring tools, and targets aimed at protecting the biological integrity in wadeable streams (SWRCB, 2017).

California State Recycled Water Policy

The SWRCB adopted a Recycled Water Policy (RW Policy) in 2009 and updated in 2018 to establish more uniform requirements for water recycling throughout the State and to streamline the permit application process in most instances³. The RW Policy includes a goal for the State increase the use of recycled water from 714,000 acre-feet per year (afy) in 2015 to 1.5 million afy by 2020 and to 2.5 million afy by 2030. It also includes goals for stormwater reuse and conservation and potable water offsets by recycled water. The onus for achieving these mandates and goals is placed on both recycled water purveyors and potential users. Since the recycled water project permit process is streamlined, projects will not be required to include a monitoring component. If any regulations arise from new knowledge of risks associated with CECs, then projects will be given compliance

³ Details are at the State Water Board website at www.swrcb.ca.gov/water_issues/programs/water_recycling_policy/.

schedules. New regulations are not expected to arise in the imminent future (SWRCB, 2018).

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Appendix E: Regulatory Requirements - Municipal Water

APPENDIX E: REGULATORY REQUIREMENTS MUNICIPAL WATER

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SURFACE WATER RULES

Federal Regulations

U.S. Clean Water Act (1972)

The Clean Water Act (CWA) is the primary federal statute governing the protection of water quality. The EPA’s implementation of this law provides a comprehensive program to protect the nation’s surface waters. Under CWA Section 304, states are required to ensure that potable water retailed to the public meets specific standards.

Section 303(d) of the CWA requires states to identify water bodies that do not meet water quality objectives and that do not support beneficial uses. The 303(d) list includes the Cosumnes River for Category 5, Deer Creek for Category 3, Carson Creek for Category 3, and the South Fork of the American River for Category 2. Additionally, Folsom Lake, a portion of the American River, and Slab Creek Reservoir are on the 303(d) list for mercury. The Cosumnes River, above Michigan Bar, is on the 303(d) list for invasive species.

U.S. Safe Drinking Water Act (1974)

Under the Safe Drinking Water Act (SDWA, 42 USC Sections 300f et seq.), U.S. EPA regulates contaminants of concern to domestic water supply. Contaminants of concern relevant to domestic water supply are defined as those that pose a public health threat or that alter the aesthetic acceptability of the water. The California Department of Public Health (CDPH) has been granted primary enforcement responsibility for the SDWA. Title 22 of the California Administrative Code establishes CDPH authority, and stipulates drinking water quality and monitoring standards.

State Regulations

California Water Code

The California Water Code outlines the general state authority and responsibilities over water in California. Most of the state regulations described below are codified into the California Water Code. The entire Water Code is available on-line at: <http://leginfo.legislature.ca.gov/faces/codes.xhtml>. Other state codes applicable to drinking water include the Corporations Code, Education Code, Food and Agricultural Code, Government Code, Health and Safety Code, and the Public Resources Code.

California Porter-Cologne Water Quality Control Act (1969)

The Porter-Cologne Act provides the statutory authority for the protection of water quality in California. Consistent with the Porter-Cologne Act, the state adopts water quality policies, plans, and objectives to protect the state's waters. The Act outlines the obligations of the SWRCB and nine RWQCBs to adopt and periodically update basin plans.

Water Quality Control Plan

The State Water Resources Control Board and nine RWQCBs are responsible for ensuring implementation and compliance with the provisions of the CWA and the Porter-Cologne Act. In the EID service area, the Central Valley Region Basin Plan, The Sacramento River Basin & The San Joaquin River Basin sets forth water quality standards for the surface and ground waters. Additionally, groundwater recharge is identified as a beneficial use in the Basin Plan.

Urban Water Management Planning Act (1983)

The Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, Section 10610 et seq.) requires water suppliers to document water supplies available during normal, single dry, and multiple dry water years during a 20-year projection period, and to document the existing and projected future water demand during a 20-year projection period. The Act applies to municipal water suppliers that serve more than 3,000 customers or provides more than 3,000 afy of water.

Senate Bill 610 and Senate Bill 221

SB 610 (now CEQA Guidelines Section 15155) amended the Water Code requirements within the CEQA process and broadened the types of information required in a UWMP. SB 221 is applicable within the Subdivision Map Act and it allows jurisdictions to condition a tentative map such that

documentation from a public water supplier regarding availability of sufficient water supply is needed.

Water Management & Efficiency Legislation

California's Water Code contains two new laws which aims to make California more resilient to impacts of future droughts. The legislation was approved as SB 606 (Hertzberg) and AB 1668 (Friedman) and it emphasizes efficiency and stretching existing water supplies in cities and farms. Efficient water use is the most cost-effective way to achieve long term conservation goals, as well provide the water supply reliability needed to adapt to the longer and more intense droughts climate change is causing in California. Specifically, the laws call for creation of new urban efficiency standards for indoor use, outdoor use, and water lost to leaks, as well as any appropriate variances for unique local conditions. The State Water Board will adopt these standards by regulation no later than June 30, 2022, after full and robust public and stakeholder processes. Each urban retail water agency will annually, beginning November 2023, calculate its own objective, based on the water needed in its service area for efficient indoor residential water use, outdoor residential water use, commercial, industrial and institutional (CII) irrigation with dedicated meters, and reasonable amounts of system water loss, along with consideration of other unique local uses (i.e., variances) and "bonus incentive," or credit, for potable water reuse, using the standards adopted by the Board. (DWR, 2018). Specifically, SB606 is codified as Water Code Section 10632 which requires each urban water supplier to conduct an annual water supply and demand assessment and submit an annual water shortage assessment report to DWR on or before July 1 of each year. The annual report should include information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan.

Integrated Regional Water Management – Planning Act of 2002

Integrated regional water management (IRWM) was officially established by the State of California in 2002 through the passage of the Integrated Regional Water Management Planning Act (SB 1672). Special districts, such as water agencies, are typically separate entities with clearly defined service areas within which they have exclusive authority to provide services. However, many water agencies receive water supplies from a source that is shared with other water agencies. Projects and plans developed by one water agency may conflict with projects or plans of another agency that shares the same source of water. IRWM provides a mechanism for regional planning to reduce potential conflicts. Additionally, IRWM supports collaborative prioritization of water-related efforts in the region in a systematic way to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, efficient urban development, and the protection of agriculture. Various bond acts approved by California voters have provided over \$1.5 billion in State funding to support and advance integrated, multi-benefit regional projects. Cities, counties, water districts, community/environmental groups, Tribes and others across the State have worked collaboratively to organize and establish 48 regional water management groups, covering over 87 percent of the State's area and 99 percent of its population. Over the years, numerous IRWM planning grants have helped RWMGs develop, adopt and update IRWM plans to identify strategies and projects to address the unique needs and conditions of their regions.

Detailed information about IRWM is available from DWR at: <https://water.ca.gov/Programs/Integrated-Regional-Water-Management>.

Recycled Water Regulations

Recycled water is regulated by the U.S. Environmental Protection Agency (EPA), the State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCB), and the CA Department of Health Services (DHS). Resolution No. 77-1 from the SWRCB, allows the SWRCB and RWQCB to encourage and consider funding of water reclamation projects that do not impair water rights or beneficial instream uses. Recycled water is safely used for irrigation of home landscapes, vegetable gardens, parks, schoolyards, golf courses, and agriculture throughout California. However, recycled water is not for human consumption. Information about EID's recycled water program is provided in Chapter 7 of this MSR.

Title 22

Title 22 of California's Water Recycling Criteria was authored in 1975 as California's guidelines on the discharged and use of treated and recycled water. The standards require the California Department of Health Services to develop and enforce water and bacteriological treatment standards for water recycling and reuse. State discharge standards for reclaimed water and its reuse are regulated by under the Water Recycling Criteria and the 1969 Porter-Cologne Water Quality Control Act.

California Water Code (Division 3, Dams and Reservoirs)

The State of California inspects dams to prevent failure in order to safeguard life and protect property. DWR Division of Safety of Dams implements this legislation.

Local Regulations

El Dorado County has several policies related to water quality including its General Plan. The County Environmental Health Department also aims to ensure drinking water is safe. The Placerville General Plan also contains several policies related to public services and health of the natural environment.

RULES GOVERNING GROUNDWATER

The California Water Code indicates groundwater law applies to underground water not flowing in known and definite channels. Whereas "surface waters, and subterranean streams flowing through known and definite channels" (Water Code § 1200.) are legally classified as surface water. Groundwater is subject to California's constitutional requirement that all water used be put to reasonable and beneficial use. There are two types of groundwater rights in California: overlying rights and appropriative rights. Overlying rights are similar to riparian rights with surface water. Appropriative groundwater rights are similar to a surface water appropriative right (Burch, 2005).

Overlying Rights for Groundwater

In California, property overlying a groundwater basin has entitlements to the percolating groundwater of the basin beneath the lands for reasonable beneficial uses on the overlying land. This entitlement is equal and correlative with respect to other property owners within the same groundwater basin exercising their respective rights; that is, each property owner is entitled to a reasonable share of the available groundwater. (*Katz v. Walkinshaw* (1903) 141 Cal. 116.) As a result, one property owners' rights do not have priority over any other property owner, regardless of when the rights are exercised. The quantity attributed to the water entitlement is a function of the number of parties rightfully producing the available water (Burch, 2005).

Although overlying property owners can extract as much groundwater as is reasonably needed for use on overlying land; during times with reduced groundwater supply, each overlying property owner must reduce extractions proportionately (*Wright v. Goleta Water District* (1985) 174 Cal.App.3d 74,84.). Overlying groundwater rights are generally superior to appropriative rights. (*City of Pasadena v. City of Alhambra* (1949) 33 Cal.2d 908, 926. See Hutchins, *The California Law of Water Rights* (1956) p. 441 et seq.)

Appropriative Right to Groundwater

If there is surplus groundwater, it may be appropriated for use on non-overlying land. An appropriative right to groundwater is a right to use groundwater outside of the groundwater basin or for public service in communities overlying the basin, as long as enough water is left to meet all overlying landowner needs. (*Tehachapi-Cummings County Water Dist. v. Armstrong* (1975) 49 Cal.App.3d 992, 1000 n.6, 1001.) There are three basic types of groundwater appropriators:

1. strangers to the groundwater basin (who do not own or use groundwater on overlying lands) who act to appropriate available groundwater;
2. overlyers who use all or a portion of their groundwater on lands that do not overlie the groundwater basin; or
3. an overlying municipality that extracts available groundwater for municipal purposes (Burch, 2005).

The EID studied within this MSR is an overlying municipality that does not extract available groundwater for municipal purposes¹.

Overlyers have priority above appropriators and priority follows the rule of "first in time, first in right." (*City of Pasadena v. City of Alhambra, supra*, 33 Cal.2d at p. 926.) Earlier appropriative users have priority over later appropriative users. If a groundwater basin is overdraft, such that **groundwater** use exceeds the amount of recharge into an aquifer, no appropriative rights can

¹ Please note that in El Dorado County, some water agencies do extract groundwater including: Kirkwood Meadows Public Utility District, South Tahoe PUD, and Tahoe City PUD.

be acquired, except by prescription. (*City of Pasadena v. City of Alhambra, supra*, 33 Cal.2d at pp. 926-27; *City of Los Angeles v. City of San Fernando, supra*, 14 Cal.3d at p. 278.)

Sustainable Groundwater Management Act (SGMA)

Effective in 2015, the Sustainable Groundwater Management Act (SGMA) codified Assembly Bill No. 1739 and Senate Bill Nos. 1168 and 1319 which require local regions to create a groundwater sustainability agency (GSA) and to adopt groundwater management plans. Under the SGMA, DWR designated groundwater basins in the State as high, medium, low or very low priority for purposes of groundwater management. This Act requires local regions to create a GSA and to adopt groundwater management plans for groundwater basins or subbasins that are designated as medium or high priority. There are no GSAs or Basins within or near EID. The closest GSA's are to the Tahoe Valley – Tahoe South Groundwater Basin to the east and the Sacramento Central Groundwater Authority to the west.

Local Groundwater Rules

Permits for Wells: The El Dorado County Environmental Health Department requires a permit prior to the installation of a well. This permit process is intended to ensure the protection of the natural resource from a health and safety perspective.

Other Groundwater Rules

Adjudicated Basins: In some areas of California, groundwater basins are managed pursuant to rules established in an adjudication of groundwater rights. An adjudication is a court proceeding which establishes the relative rights of all parties claiming an interest in the water source. In these equitable proceedings the court usually maintains continuing jurisdiction, supervising, through a special master or watermaster, the use of water from the adjudication basins (Burch, 2005). The groundwater basin areas within or near El Dorado County are not adjudicated.

Water Quality Regulation: As is the case with surface water, various federal statutes control the use of water from groundwater basins. These statutes deal primarily with the discharge of pollutants, but may also regulate the pumping of groundwater (Burch, 2005).

Springs: When the flow of a spring naturally becomes part of the flow of a stream system which extends beyond the property on which the spring arises, rights to use are obtained as either riparian or appropriative surface water rights. When the flow does not naturally leave the land upon which it arises, the flow is exclusively owned by the owner of the land and can be used on that land for reasonable, beneficial purposes (Burch, 2005).

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American River Watershed Methylmercury TMDL & Mercury Control Program Information Sheet



Responsible Agency

California Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Drive #200 Rancho Cordova, CA 95670

Mercury Impairment, TMDL Development and Basin Planning

The Central Valley Water Board identified eight waterways in the American River Watershed as impaired because some fish have elevated levels of methylmercury that may harm human and wildlife consumers. The eight impaired water bodies, as numbered on the map to the right, are: (1) lower American River; (2) Lake Natoma; (3) Folsom Lake; (4) North Fork American River (North Fork Dam to Folsom Lake); (5) South Fork American River (Slab Creek Reservoir to Folsom Lake); (6) Slab Creek Reservoir; (7) Oxbow Reservoir; and (8) Hell Hole Reservoir.



American River Watershed Mercury-Impaired Water Bodies
Red lines indicate impaired rivers and orange outlines indicate impaired reservoirs.

The Central Valley Water Board, a part of the California Environmental Protection Agency, is developing a plan to reduce levels of mercury in American River Watershed fish. The plan is called a “total maximum daily load” (TMDL) because it includes identifying the total amount of mercury that waters can contain and still provide safe fishing for people and wildlife. In addition, the TMDL will specify how much mercury reductions are required from various sources. The Water Board will amend the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (the Basin Plan) to be able to implement regulatory provisions of the TMDL.

Beginning in November 2010, Board staff will hold a series of meetings and work with stakeholders to develop options for a regulatory program that reduces both inorganic mercury and methylmercury sources. Draft reports will be made available for public review and comment prior to a Central Valley Water Board hearing, which is anticipated to be in spring 2012. A preliminary Straw Proposal, future reports, and other notices for the American River Watershed TMDL can be obtained at:

www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/american_river_hg/

The TMDL development and Basin Planning process involves:

- Identifying methylmercury fish tissue concentrations to protect humans and wildlife that consume fish in the watershed;

- Analyzing methyl and inorganic (total) mercury sources and how much reduction is needed from sources to achieve safe fish methylmercury levels;
- Identifying possible ways to reduce methylmercury and inorganic mercury levels;
- Developing specific requirements for land owners, land managers, and/or agencies to reduce inorganic mercury and/or methylmercury
- Cost analysis and environmental analysis of the potential impacts to comply with the California Environmental Quality Act and other government codes; and
- Stakeholder involvement throughout the TMDL development and Basin Planning process.

Sources of Inorganic Mercury and Methylmercury in the American River Watershed

Sources of inorganic mercury in the American River Watershed include tunnels and hydraulic mine workings from historic gold mining operations, municipal discharges, urban and agricultural runoff, and deposition from the air. Methylmercury, a highly toxic form of mercury, is formed by particular bacteria in lakes and stream beds. Methylmercury sources include production within wetland, river, and reservoir sediments, municipal wastewater, agricultural drainage, and urban runoff.

Mercury was mined from the Coast Ranges of California starting in the late 1800s. Much of this mercury was transported to the Sierra Nevada and Klamath-Trinity Mountains to be used for placer gold mining operations. While it is essential to clean up mine sites, mercury lost during historic mining activities is now distributed along miles of downstream streams and rivers. Controlling erosion and transport of contaminated sediment, limiting mercury releases to water and the atmosphere from modern sources, and determining effective ways to reduce production of methylmercury are also important for reducing fish mercury levels in a timely fashion.

Potential Control Options

In general, there are two ways to reduce methylmercury:

- Reduce the amount of inorganic mercury available in sediment to be converted to methylmercury in open water and wetland areas; and
- Control activities that enhance the production and/or loss of methylmercury.

The TMDL will not list specific practices or methodologies that must be implemented to control methylmercury and inorganic (total) mercury. Possible actions that could be taken in order to achieve reductions in mercury and methylmercury loads include: mine site cleanups, reducing contaminants from dredge tailings and other mine-related material, trapping contaminated sediment, stabilizing stream banks, managing reservoirs through aeration or other means to minimize methylmercury levels, managing contaminated sediment within reservoirs, reducing loads from urban areas through pollution prevention and storm water management, and minimizing methylmercury-containing discharges from managed wetlands.

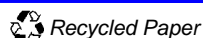
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Simply enter your name and email address and check "American River Watershed Methylmercury TMDL".
















California Environmental Protection Agency



Appendix F: EPA Drinking Water Standards

National Primary Drinking Water Regulations




















Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
 Acrylamide	TT ⁴	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/wastewater treatment	zero
 Alachlor	0.002	Eye, liver, kidney, or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
 Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
 Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
 Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
 Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
 Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
 Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
 Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
 Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
 Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
 Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
 Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
 Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
 Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04

LEGEND

Appendix F: EPA Drinking Water Standards

					
DISINFECTANT	DISINFECTION BYPRODUCT	INORGANIC CHEMICAL	MICROORGANISM	ORGANIC CHEMICAL	RADIONUCLIDES

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
 Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	zero
 Chloramines (as Cl ₂)	MRDL=4.0 ¹	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	MRDLG=4¹
 Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	zero
 Chlorine (as Cl ₂)	MRDL=4.0 ¹	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	MRDLG=4¹
 Chlorine dioxide (as ClO ₂)	MRDL=0.8 ¹	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	MRDLG=0.8¹
 Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	0.8
 Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	0.1
 Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	0.1
 Copper	TT ⁵ ; Action Level=1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	1.3
 <i>Cryptosporidium</i>	TT ⁷	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
 Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	0.2
 2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	0.07
 Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	0.2
 1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	zero
 o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	0.6
 p-Dichlorobenzene	0.075	Anemia; liver, kidney, or spleen damage; changes in blood	Discharge from industrial chemical factories	0.075
 1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero

LEGEND



DISINFECTANT



DISINFECTION BYPRODUCT



INORGANIC CHEMICAL



















MICROORGANISM



ORGANIC CHEMICAL



RADIONUCLIDES

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
 1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	0.007
 cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	0.07
 trans-1,2-Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	0.1
 Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from industrial chemical factories	zero
 1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	zero
 Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	0.4
 Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	zero
 Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	0.007
 Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	zero
 Diquat	0.02	Cataracts	Runoff from herbicide use	0.02
 Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	0.1
 Endrin	0.002	Liver problems	Residue of banned insecticide	0.002
 Epichlorohydrin	TT ⁴	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	zero
 Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	0.7
 Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	zero
 Fecal coliform and <i>E. coli</i>	MCL ⁶	Fecal coliforms and <i>E. coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	zero⁶

LEGEND



DISINFECTANT



DISINFECTION BYPRODUCT



INORGANIC CHEMICAL


















MICROORGANISM



ORGANIC CHEMICAL



RADIONUCLIDES

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
 Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	4.0
 <i>Giardia lamblia</i>	TT ⁷	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
 Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	0.7
 Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	n/a⁹
 Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	zero
 Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	zero
 Heterotrophic plate count (HPC)	TT ⁷	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	n/a
 Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	zero
 Hexachloro-cyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	0.05
 Lead	TT ⁵ ; Action Level=0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	zero
 <i>Legionella</i>	TT ⁷	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	zero
 Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, and gardens	0.0002
 Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	0.002
 Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock	0.04
 Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	10

LEGEND



DISINFECTANT



DISINFECTION BYPRODUCT



INORGANIC CHEMICAL







MICROORGANISM



ORGANIC CHEMICAL



RADIONUCLIDES

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
 Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
 Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
 Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
 Picloram	0.5	Liver problems	Herbicide runoff	0.5
 Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
 Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
 Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
 Simazine	0.004	Problems with blood	Herbicide runoff	0.004
 Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
 Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
 Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
 Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
 Total Coliforms	5.0 percent ⁸	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and <i>E. coli</i>	Naturally present in the environment	zero
 Total Trihalomethanes (TTHMs)	0.080	Liver, kidney, or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a ⁹
 Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
 2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
 1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07

LEGEND

 DISINFECTANT
Appendix F: EPA Drinking Water Standards









 DISINFECTION
Standards

 INORGANIC
CHEMICAL







 MICROORGANISM

 ORGANIC
CHEMICAL

 RADIONUCLIDES
F-5

Contaminant	MCL or TT ¹ (mg/L) ²	Potential health effects from long-term ³ exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L) ²
 1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	0.2
 1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	0.003
 Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	zero
 Turbidity	TT ⁷	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites, and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	n/a
 Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	zero
 Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	zero
 Viruses (enteric)	TT ⁷	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	zero
 Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	10

LEGEND

					
DISINFECTANT	DISINFECTION BYPRODUCT	INORGANIC CHEMICAL	MICROORGANISM	ORGANIC CHEMICAL	RADIONUCLIDES

NOTES

1 Definitions

- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or E. coli-positive triggers repeat samples - if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or E. coli-negative triggers repeat samples - if any repeat sample is fecal coliform-positive or E. coli-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:

- **Cryptosporidium:** 99 percent removal for systems that filter. Control provisions to include *Cryptosporidium* in their existing water filters. Unfiltered systems are required to include *Cryptosporidium* in their existing water filters.

- **Giardia lamblia:** 99.9 percent removal/inactivation
- **Viruses:** 99.9 percent removal/inactivation
- **Legionella:** No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- **Turbidity:** For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- **HPC:** No more than 500 bacterial colonies per milliliter
- **Long Term 1 Enhanced Surface Water Treatment:** Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- **Long Term 2 Enhanced Surface Water Treatment:** This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- **Filter Backwash Recycling:** The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.
- **No more than 5.0 percent samples total coliform-positive in a month.** (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or E. coli. If two consecutive TC-positive samples, and one is also positive for E. coli or fecal coliforms, system has an acute MCL violation.
- **Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:**
 - **Halooacetic acids:** dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
 - **Trihalomethanes:** bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

NATIONAL SECONDARY DRINKING WATER REGULATION

National Secondary Drinking Water Regulations are non-enforceable guidelines regarding contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, some states may choose to adopt them as enforceable standards.

Contaminant	Secondary Maximum Contaminant Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	Noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

FOR MORE INFORMATION ON EPA'S
SAFE DRINKING WATER:



visit: epa.gov/safewater



call: (800) 426-4791

ADDITIONAL INFORMATION:

To order additional posters or other ground water and drinking water publications, please contact the National Service Center for Environmental Publications at: **(800) 490-9198**, or email: nscep@bps-lmit.com.



Appendix G: Basics of Municipal Revenue

Understanding the Basics of Municipal Revenues in California: Cities, Counties and Special Districts

2016 Update



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OVERVIEW

Each one of California's 39 million residents lives within the boundaries of one of the state's 58 counties. Nearly 33 million people also live in one of California's 482 cities.ⁱ Californians are also served by 2,156 independent special districts.

Counties, cities and special districts provide a vast array of municipal services to residents and businesses. These services include public safety (police, fire and emergency services), parks and recreation, roads, flood protection, sewers, water, electricity, refuse disposal, recycling and other utilities. Counties have an additional role as a provider for many state-mandated services, such as foster care, public health care, jails, criminal justice and elections.ⁱⁱ

These municipal local governments rely on a variety of revenues to pay for the services and facilities they provide. The amount and composition of revenues:

- Differ between cities, counties and special districts largely because of differences in responsibilities; and
- Vary among cities, among counties and among special districts depending in part on differences in governance responsibilities.

There is a complex web of legal rules for collecting and using the variety of revenues available to municipal governments in California. These rules derive from the state constitution, state statute and court cases further interpreting those laws.

This guide provides an overview of the sources of county, city and special district revenues in California. It is an introduction to a complex topic. You can find further information in the resources listed on the last page.

How To Use This Information

These materials are not technical or legal advice. You should consult technical experts, attorneys and/or relevant regulatory authorities for up-to-date information and advice on specific situations.

CITY REVENUES IN CALIFORNIA

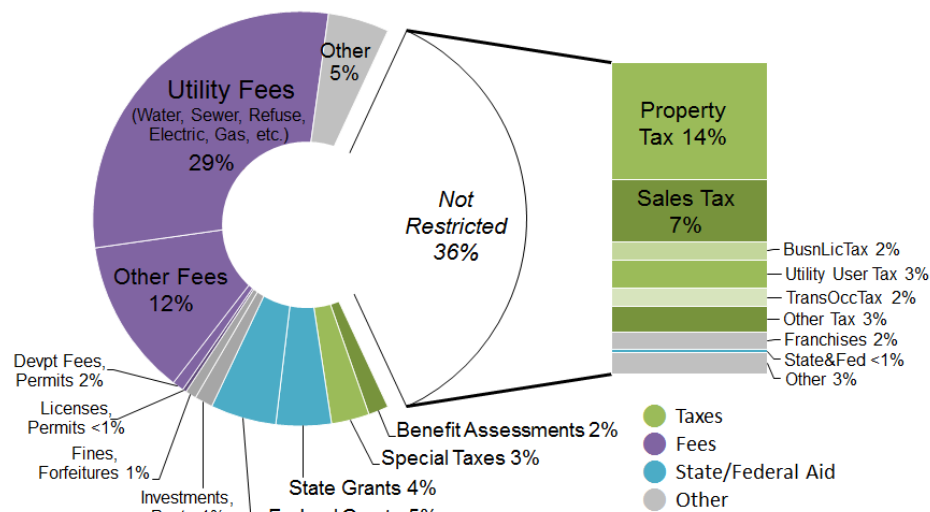
Incorporated cities (including those that refer to themselves as “towns”) are responsible for a broad array of essential frontline services tailored to the needs of their communities. These include:

- Law enforcement and crime prevention,
- Fire suppression and prevention, natural disaster planning and response, emergency medical response and transport,
- Land use planning and zoning, building safety,
- Local parks and open spaces, recreation,
- Water supply, treatment and delivery,
- Sewage collection, treatment and disposal,
- Storm water collection and drainage,
- Solid waste collection, recycling and disposal,
- Local streets, sidewalks, bikeways, street lighting and traffic controls, and
- Public transit.

Cities that are responsible for providing all or most of these functions are called “full service” - the services can be provided in-house or contracted through a private entity or another public agency. In other cities, some of these functions are the financial responsibility of other local agencies such as the county or special districts. For example, in about thirty percent of California cities, a special district provides and funds fire services. In sixty percent, library services are provided and funded by another public agency such as the county or a special district.

The mix of service responsibilities and local choice regarding service levels affects the amount and composition of revenues of each city.

California City Revenues



This is a statewide mash-up of city revenues. Individual cities vary.
 Source: Author's computations from data from California State Controller 2014-15.
 Does not include the City/County of San Francisco.

COUNTY REVENUES IN CALIFORNIA

California counties are responsible for three general areas of municipal services: 1) delegated state and federal programs, 2) countywide public services and 3) essential frontline services for residents not receiving those services from a city or special district, often in unincorporated areas (outside city boundaries).

In unincorporated areas, counties provide the essential frontline services that cities provide that are not provided by a special district. These can include police protection (through a county sheriff), roads, planning and building safety.

Counties also provide public services to all county residents, whether they live in or outside of cities. These countywide functions include:

- Public assistance (notably welfare programs and aid to the indigent),
- Public health services (including mental health and drug/alcohol services),
- Local elections,
- Local corrections, detention and probation facilities and programs (including juvenile detention), and
- Property tax collection and allocation for all local agencies, including school districts.

Funding from the federal and state government, primarily for health and human services, is the largest source of county revenues. Property taxes and sales and use taxes are the primary funding sources for many county services that do not have a dedicated state or federal funding source.

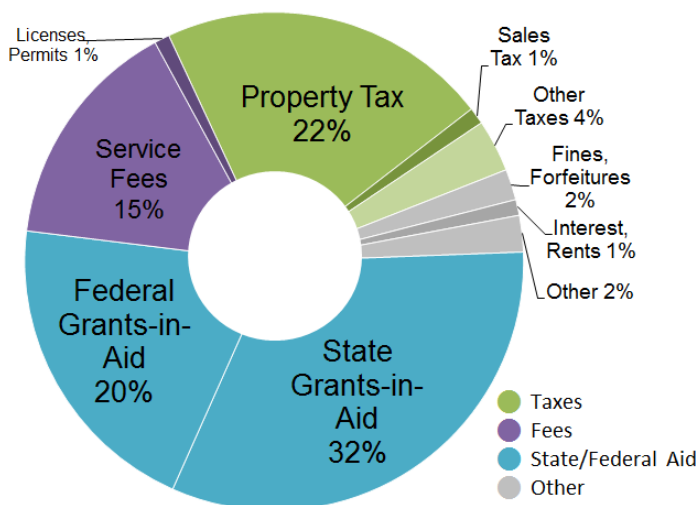
General and Functional Revenues

Municipal revenues may be viewed as falling into two broad categories: general revenues and functional revenues.

General revenues can be used for any legitimate public purpose. General purpose taxes, especially property and sales taxes, account for most general city revenues statewide.

Functional revenues are restricted by law to a particular use. These include funds derived from fees or rates that the local agency charges for public services, including municipal utilities such as water, sewer, and garbage collection, airports, marinas, harbors and water ports. Functional revenues also include most state or federal grants as they are usually restricted for particular programs.

California County Revenues



Source: Author's computations from data from California State Controller 2014-15. Includes the County/City of San Francisco.

SPECIAL DISTRICT REVENUES IN CALIFORNIA

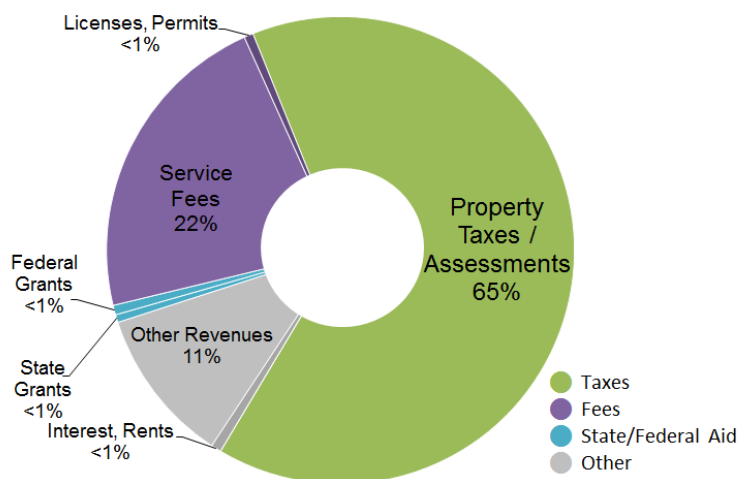
Most special districts provide one or a few municipal services to a particular geographic area. These include both enterprise and non-enterprise services. Enterprise services are funded primarily through charging a fee for service. For example, water and irrigation districts charge utility rates and fees from consumers of those services. Non-enterprise services generally do not lend themselves to fees and are primarily funded by property taxes, with relatively small amounts of fee and state and federal grant revenue. Library and fire protection services are examples of non-enterprise services.

Other districts are multifunction, providing a number of municipal services. Community services districts (CSDs) can provide as many as 32 different types of services, approximating the scope of some cities. Multifunction districts have both enterprise and non-enterprise elements and may, like cities or counties, use an array of different revenue sources.

Types of Special Districts

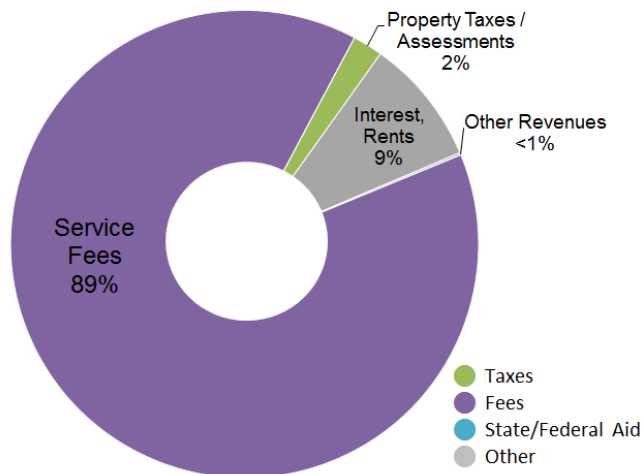
- Air Quality Management / Air Pollution Districts
- Airport Districts
- Cemetery Districts
- Community Services Districts
- Flood/Drainage Districts
- Fire Districts
- Harbor Districts
- Healthcare Districts
- Irrigation Districts
- Library Districts
- Memorial Districts
- Municipal / Resort Improvement Districts
- Open Space Districts
- Parks and Recreation Districts
- Police Protection / Ambulance Districts
- Public Utility Districts
- Reclamation Districts
- Resource Conservation Districts
- Sanitary Districts
- Waste Management Districts
- Water Districts

California Special District Revenues
Typical District (fire) Providing Non-Enterprise Services



Source: Author's computations from data from California State Controller 2014-15.

California Special District Revenues
Typical District (water) Providing Enterprise Services



Source: Author's computations from data from California State Controller 2014-15.

THE STATE LEGISLATURE, LOCAL GOVERNMENTS AND THE VOTERS

The options available to local officials in governing, managing their finances and raising revenues to provide services needed by their communities are limited. Voters have placed restrictions as well as protections in the state constitution. The state's voters and the California Legislature have acted in various ways, to support and provide, and to limit and withdraw financial powers and resources from cities, counties and special districts.

Some of the most significant limitations on the local revenue-raising include:

- Property taxes may not be increased except with a two-thirds vote to fund a general obligation bond.
- The allocation of local property tax among a county, and cities, special districts and school districts within each county is controlled by the Legislature.
- Voter approval is required prior to enacting, increasing or extending any type of local tax.
- Assessments to pay for public facilities that benefit real property require property owner approval.
- Fees for the use of local agency facilities and for services may not exceed the reasonable cost of providing those facilities and services.
- Fees for services such as water, sewer and trash collection are subject to property owner majority protest.

The Legislature has enacted many complicated changes in state and local revenues over the past 30 years. Voters have approved state constitutional protections limiting many of these actions at times followed by even more complicated maneuvers by the Legislature in efforts to solve the financial troubles and interests of the state budget.

Reacting to actions of the Legislature and the deterioration of local control of fiscal matters, local government interests placed on the ballot, and voters approved, Proposition 1A in 2004 and Proposition 22 in 2010. Together, these measures prohibit the state from:

- Enacting most local government mandates without fully funding their costs. The definition of state mandate includes a transfer of responsibility or funding of a program for which the state previously had full or partial responsibility.
- Reducing the local portion of the sales and use tax rate or altering its method of allocation, except to comply with federal law or an interstate compact.
- Reducing the combined share of property tax revenues going to the county as well as cities and special districts in a county.
- Borrowing, delaying or taking motor vehicle fuel tax allocations, gasoline sales tax allocations, or public transportation account funds.

TAXES

According to the California Constitution, every local agency charge is a “tax,” unless it falls into a list of specified exceptions:ⁱⁱⁱ

- User fees for a specific benefit, privilege, service or product provided to the payor. Items include: fees for parks and recreation classes, some utilities, public records copying fees, DUI emergency response fees, emergency medical and ambulance transport service fees.
- Regulatory fees for reasonable regulatory costs of issuing licenses and permits, and performing inspections and enforcement such as health and safety permits, building permits, police background checks, pet licenses, bicycle licenses and permits for regulated commercial activities.
- Rental fees imposed for entrance to or use of government property. These include: facility room rentals, equipment rentals, park, museum and zoo entrance fees, golf greens fees, on and off-street parking and tolls.
- Fines or penalties such as parking fines, code enforcement fees and penalties, late payment fees, interest charges and other charges for violation of the law.
- A charge imposed as a condition of property development such as building permit fees, construction and grading permits, development impact fees and fees for California Environmental Quality Act requirements.
- Benefit assessments and property related fees imposed in accordance with the provisions of Article XIII D (Proposition 218) such as a lighting and landscape assessment and fees for property related services such as many retail water and sewer fees.^{iv}

In contrast to an assessment or a fee, a tax need not be levied in proportion to specific benefit to a person or property. Tax revenues are an important source of funding for both county and city services and for many special districts. In addition to local taxes, counties rely significantly on tax dollars allocated from the state and federal governments.

	TAX- General	TAX- Parcel or Special (earmarked)	G.O. BOND (w/tax)	Fee / fine / rent
City / County	Majority voter approval	Two-thirds voter approval	Two-thirds voter approval	Majority of the governing board*
Special District	n/a	Two-thirds voter approval	Two-thirds voter approval	Majority of the governing board*
K-14 School	n/a	Two-thirds voter approval (parcel tax)	55% voter approval**	Majority of the governing board*
State	For any law that will increase the taxes of any taxpayer, two-thirds of each house of the Legislature - or approval of majority of statewide voters.		Statewide majority voter approval	Majority of each house
<small>* Additional procedures apply for property related fees. ** Per Proposition 39 (2000), maximum tax rate limits and other conditions apply for a 55% threshold school bond or threshold is two-thirds.</small>				

Counties and cities may impose a variety of taxes. Taxes fall into one of two categories: general or special.

A general tax is imposed to raise general-purpose revenues. Counties and cities may use revenues from a general tax for any lawful public purpose. A majority of voters must approve the decision to impose, increase or extend a general tax. A general tax may only be submitted for voter approval at an election for city council or board of supervisors unless a unanimous vote of the governing board declares an emergency.

A special tax is a tax imposed for a specific purpose. For example, a city may increase the sales and use tax by adding a special use tax for public safety, the acquisition of open space or transportation projects. All taxes imposed by special districts are considered special taxes. Since the tax is for a specific purpose, the revenues may only be used for that purpose. Two-thirds of voters must agree to enact, increase or extend a special tax.

County Property Tax Administration

County Assessor.

The assessor sets values on property and produces an annual property tax assessment roll.

County Auditor-Controller.

The auditor-controller receives the assessed values from the assessor and calculates the amount of property tax due.

County Treasurer-Tax Collector.

The treasurer-tax collector administers the billing, collection, and reporting of property tax revenues levied annually throughout California for not only the county, but also cities, schools and special districts.

	General Tax	Special Tax
Use of Revenues	Unrestricted	Specific purpose
Governing Body Approval	<ul style="list-style-type: none"> • Counties and general law cities: two-thirds • Charter cities: majority • Transactions and use taxes: two-thirds • Special districts may not adopt general taxes. 	Majority
Voter Approval	Majority	Two-thirds
Other Rules	A general tax election must be consolidated with a regularly scheduled general election of members of the governing body, unless an emergency is declared by unanimous vote (among those present) of the governing body.	Special tax funds must be deposited in a separate account. The taxing agency must publish an annual report including: 1) the tax rate; 2) the amounts of revenues collected and expended; and 3) the status of any project funded by the special tax.

PROPERTY TAXES

All counties and cities in California receive property tax revenues. Many special districts do too. For all counties and most cities and non-enterprise special districts, property taxes are the largest source of discretionary revenues.

How Property Taxes Are Calculated in California

The property tax is imposed on “real property” (land and permanently attached improvements such as buildings) and tangible personal property (movable property such as boats, aircraft and business equipment).

The maximum tax rate permitted on real property for general purposes is one percent of the property’s assessed value plus voter approved rates to fund indebtedness (general obligation bonds, requiring two-thirds voter approval).

The tax rate is applied to the assessed value (AV) of the property. The assessed value of real property is the “full cash value” of the property in 1975-76 or at change of ownership, whichever is more recent, adjusted annually by the change in the Consumer Price Index (CPI), not to exceed an annual increase of two percent. The value of new construction is additional. If a property changes hands, then the assessed value becomes the full cash value upon change in ownership.

If a property’s market value falls below its factored base year value, it may be temporarily reassessed to its lower actual value but in future years may be reassessed at the lesser of its actual value or its factored base year value. This can result in increases of more than two percent as a property’s actual value returns to its earlier value, as when the housing market rebounds from a slump.

Property Tax Revenue Distribution

Counties allocate property taxes to the county as well as cities, special districts and school districts within the county according to state law. Allocations among local agencies vary from place to place due to differences in the service responsibilities among agencies serving different areas and differences in the tax rates enacted by those agencies prior to Proposition 13 in 1978. Full-service cities generally receive higher shares than those that do not provide the complete range of municipal services. For example, in a city where fire services are provided by a special district, the city will get a lower share, with a portion of the property tax revenues going instead to the special district.

Property tax revenues among local governments are, of course, also dramatically affected by differences in the assessed value of properties among jurisdictions. A ten percent share in a community of average property values will result in less revenue than in a similar size wealthy bedroom community, or a community that also has a sizable business/industrial area.

Property Tax in Lieu of Vehicle License Fee

In addition to their regular apportionment of property taxes, cities and counties receive property tax revenues in lieu of Vehicle License Fees (VLF). In 2004, the Legislature permanently reduced the VLF rate from two percent to 0.65 percent and compensated cities and counties for their revenue loss with a like amount of property taxes, dollar-for-dollar. Each agency's property tax in lieu of VLF allocation increases annually in proportion to the growth in gross assessed valuation in that city or county.

What is "ERAF?"

The property tax revenues received by school districts in each county include amounts from the county "Educational Revenue Augmentation Fund" (ERAF) created by the California Legislature in 1991 as a way to reduce state general fund spending on schools. These funds receive some property tax that was previously allocated to counties, cities and special districts.

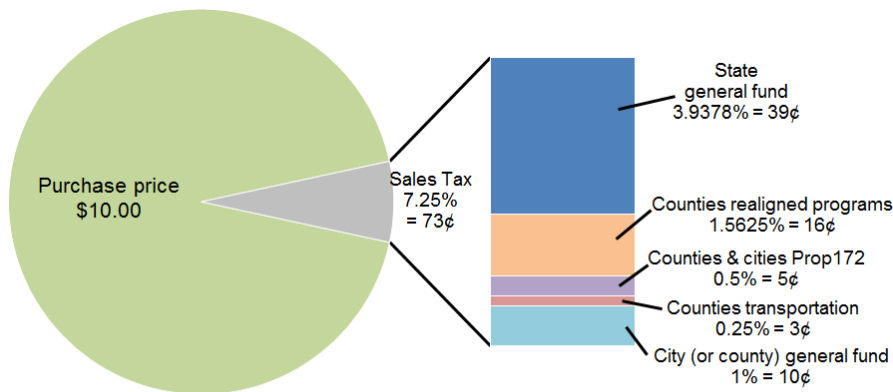
Since 2004, California's Constitution has prohibited the Legislature from increasing the amount of property tax shifted from counties, cities and special districts to ERAF or similar schemes. The state Constitution requires a two-thirds vote of the Legislature to change the allocation of property tax among the county, cities and special districts within a county.

SALES AND USE TAXES

Consumers are familiar with the experience of going to a store, buying something and having an amount added for sales tax. Services are generally exempt from the sales tax as well as certain items, like most groceries and medicine. The sales tax is assessed as a percentage of the amount purchased.

The “base” statewide sales tax rate of 7.25 percent includes amounts to:

- The state general fund (3.9375 percent),^v
- County realignment programs (state health/ welfare and corrections / law enforcement programs shifted from the state, 1.5625 percent),
- Supplemental local law enforcement grants (0.50 percent),^{vi}
- Transportation programs in the county where the transaction occurs (0.25 percent), and
- The city where the transaction occurs (1.00 percent).^{vii} If the transaction occurs in an unincorporated area, the 1.00 percent amount goes to the county.



Rates effective January 1, 2017 after the expiration of the 0.25% Proposition 30 temporary rate.

In addition to the base, statewide rate of 7.25 percent, local voters may authorize additional “transactions and use tax” rates. These additional rates raise the total effective rate to as much as 9.75% in some locations.

Cities, counties and countywide transportation agencies may impose sales tax rates to be added on to the “base” statewide sales and use tax rate. The add-on rates are actually “transactions and use taxes” and are allocated to the jurisdiction where the taxed product is received or registered (as in the case of a motor vehicle purchase). Over 120 cities have enacted transaction and use taxes of up to one percent, most commonly with majority voter approval for general purposes. Many counties and county transportation agencies have enacted rates, most commonly with two-thirds vote for specific purposes. Under current state law, the maximum combination of transactions and use tax rates in any location may not exceed two percent.^{viii}

State Sales and Use Tax Administration

The State Board of Equalization collects local sales and use tax revenues from the retailer and sends revenue from local rates and allocations back to cities and counties. In addition to administering the sales and use tax system, the State Board of Equalization collects and allocates other state taxes including fuel, tobacco and alcohol taxes.

The “Use Tax” Part of the Sales and Use Tax

California’s sales tax has a relative called the “use tax.” While the sales tax is imposed on the seller, the use tax is imposed on the purchaser and at the same rate as the sales tax. The most common example of use tax is for the purchase of goods from an out-of-state retailer for use in California.

Out-of-state retailers doing business in California are required to report to the State Board of Equalization the jurisdiction to which sold items are delivered. If the retailer has a physical presence (nexus) in California, they must collect use tax when goods are delivered to purchasers in this state. If the seller does not collect and remit the use tax, the purchaser is legally obligated to report and pay.

Business License Tax (BLT)

Most cities and a few counties have enacted business license taxes. Business license tax rates are set individually by each city and county most commonly based on gross receipts (overall business revenue) or levied at a flat rate, but may be based on the quantity of goods produced, number of employees, number of vehicles, square footage of the business or some combination of factors.

If a business operates in more than one city, a city may only tax that portion of the business's activities conducted within the city. In most cases, business license taxes are not imposed for regulatory purposes (as the term "license" might imply) but to raise revenues for general municipal purposes (i.e. a tax). If imposed as a fee to pay for the cost of regulating the business, the fee may not exceed the reasonable cost of regulating the business. (See "regulatory fees.")

Transient Occupancy Tax (TOT) or Hotel Bed Tax

Most cities and some counties impose a transient occupancy tax or hotel bed tax on persons staying thirty days or less in hotels, motels and similar lodgings, including mobile homes. A county may impose a transient occupancy taxes only in the county area outside city limits. Typically, the lodging provider collects the tax from guests and turns the funds over to the county or city.

Transient occupancy taxes are imposed by most cities and counties and range from three and a half percent to 15 percent. For cities with a transient occupancy tax, it provides seven percent of general revenues on average, and as much as 17 percent in some cities. Any increase or extension of a local tax requires voter approval.

Utility User Tax (UUT)

Many cities impose utility user taxes on the consumption of utility services, including (but not limited to) electricity, gas, water, sewer, telephone (including mobile phone and long distance), sanitation and cable television. Counties may levy utility user taxes in county area outside city limits. Any increase or extension of a local tax requires voter approval.

Utility companies usually collect utility user's taxes from their customers as part of their regular billing procedures and remit the funds collected to the city or county which imposed the tax.

Over 150 cities and a few counties levy utility user rates varying from one to 11 percent. For those jurisdictions with utility user taxes, it provides an average of 15 percent of general revenue and often as much as 22 percent.

Parcel Tax

A parcel tax is a special tax on a parcel – or unit – of real property. Unlike the property tax, a parcel tax may not be based on the value of property. Instead, parcel taxes are generally based on a flat per-parcel rate.

A parcel tax may be enacted, increased or extended by a city, county, special district or school district only with two-thirds voter approval, even for general purposes.

Documentary Transfer Taxes and Property Transfer Taxes

A documentary transfer tax is a tax imposed on the transfer of interests in real estate. Counties tax at a rate of 55 cents per \$500 of the property's value. Cities may impose the tax at up to one half of that amount, which is credited to the payment of the county tax. The Constitution allows charter cities^{ix} to

enact a property transfer tax, with voter approval, on the value of real estate that is sold. In these cases, the entire county documentary transfer tax rate goes to the county. All cities and counties in California have documentary transfer taxes or property transfer taxes.

Other Taxes

A city or county may impose other types of taxes within the limitations of and if not prohibited by state law. These include: admissions taxes, parking taxes, construction/development taxes, local vehicle registration taxes.

SERVICE CHARGES, ASSESSMENTS AND FEES

Utility Rates

Utility rates are fees for utility services charged to users who pay for special district, county or city provided water, sewer, electric or other utility services. Utility rates cover some or all of the cost of providing the service, which may include operations, maintenance, overhead, capital improvements and debt service.

Utility rates for water, sewer services and certain other utilities belong to a special category of fees called a “property-related fees.” A local government must follow certain specific procedures to impose, extend or increase a property-related fee.

To impose a property-related fee, the agency must first hold a public hearing. At the hearing, a majority of affected property owners can prevent the fee’s adoption by filing written protests. If a majority of affected property owners do not protest the fee and the fees pays for sewer, water or refuse collection, then an election is not required and the governing body may approve the fee. Other property-related fees require approval, either of two-thirds of the electorate residing in the affected area or of a majority of the owners of the property who would pay the fee.

Benefit Assessments

Assessments are charges by cities, counties or special districts on real property to pay for public facilities or services within an area which benefit either real property or businesses. A common type of assessment is one used to pay for landscaping and lighting in a neighborhood. The amount of the assessment must reflect the special benefit to the property that results from the improvements. Assessments on property are typically collected through the owner’s annual property tax bill.

A local government must follow certain specific procedures to impose benefit assessments. When a local agency considers an assessment, a majority of property owners may defeat the assessment in a public hearing procedure. If the proposed assessment is not defeated in a public hearing procedure, then a majority of the property owners subject to the charge must approve the assessment by a mailed ballot. The property owners’ votes are weighted according to how much their property will be charged.

User Fees

A city, county or special district may impose fees, charges and rates for services and facilities it provides. Examples include fees for checking plans for new construction or for recreation classes. The amount of a fee may not exceed the cost of providing the service or granting a benefit or privilege. This cost may include overhead, capital improvements and debt service.

Regulatory Fees

Regulatory fees pay for the cost of issuing licenses and permits, performing investigations, inspections and audits and the administrative enforcement of these activities. Examples include a fee to pay for the cost of processing pesticide license applications or a fee to inspect restaurants for health and safety compliance.

Development Impact Fees

Development impact fees are imposed on new construction (like new houses, apartments, shopping centers or industrial plants). They pay for improvements and facilities required to serve new development and to reduce the impacts of new development on a community.

Development impact fees (also known as “AB 1600 fees” after legislation adopted that governs such fees) pay for community amenities such as streets, sewers, parks and schools. They may not be used for day-to-day operating expenses.

The ordinance or resolution establishing the fee must explain the connection between the development project and fee. For example, a library impact fee must be connected to the demand for library services created by the construction of the development project.

The amount of the fee must not exceed the cost of providing the service or improvement that the fee pays for.

Local Debt Financing Tools

Local governments borrow money to pay for land, facilities and equipment that may require more funding than current revenues provide. Not a revenue source, but a way to leverage the timing of revenues, debt financing methods are important tools in government finance. Local governments may issue bonds and other debt instruments to finance improvements and services. These loans are paid off through taxes, assessments or fees. A variety of debt financing tools are available:

- **General Obligation Bonds.** General obligation bonds are essentially IOUs issued by public entities to finance large projects. General obligation bonds are backed by property tax revenue, which is used to repay the bond over a twenty- to thirty-year period. Increasing the property tax to repay the debt requires two-thirds voter approval and may only be done to acquire or improve real property.
- **Lease-Purchase Agreements.** In a lease-purchase agreement, sometimes called “certificates of participation,” the agency leases an asset for a period of years with the option to purchase the land or improvement at the end of the lease. The amount of the lease is equivalent to the principal and interest that would be paid if the transaction were financed as a loan.
- **Benefit Assessment and Special Tax Financing.** Benefit assessment financing is supported by benefit assessments on the property to fund acquisition of property and improvement of infrastructure and additional facilities of benefit to the property that is charged. Similarly special taxes, such as Mello-Roos taxes, may be financed with bonds to provide public improvements.
- **Revenue Bonds.** Revenue bonds are issued to acquire, construct or expand public projects for which fees, charges or admissions are charged. Because the debt service is paid from income generated by the facility or related service, such debt is considered self-liquidating and generally does not constitute debt of the issuer, subject to constitutional debt limitations.
- **Tax Allocation (Tax Increment).** Tax allocation bonds (sometimes referred to as tax-increment financing) are issued by Enhanced Infrastructure Financing Districts or Community Revitalization and Investment Authorities and repaid from the growth in property tax revenue (i.e., tax increment) and other designated revenues over a certain period, largely as a result of the funded projects in the area.

REVENUES FROM OTHER GOVERNMENT AGENCIES

Counties, cities and many special districts also receive revenues from the state and federal government. For example, over half of county revenues statewide come from state and federal sources. This reflects the role of counties in implementing state policy and programs for health and human services.

Gas Tax or Highway Users Tax

The state imposes per gallon tax on gasoline of 27.8 cents as of July 1, 2016. These funds are apportioned to cities and counties, primarily on the basis of their populations. Local gas tax revenues must be spent on research, planning, construction, improvement and maintenance of public streets, highways and mass transit. The federal government's 18.4 cents per gallon rate pays primarily for federal highways with some local grants.

Motor Vehicle License Fee (VLF)

The Motor Vehicle License Fee is a state imposed and collected tax on ownership of a registered vehicle. Counties receive vehicle license fee revenues to fund certain health, social service and public safety programs that were realigned to counties in 1991 and 2011.

State Public Safety Sales Tax

Proposition 172, a ballot measure approved in 1993, imposed a one-half percent state sales tax to be used for local public safety activities. The state distributes Proposition 172 revenues to each county based on its proportionate share of statewide taxable sales. Many cities receive a share of those funds based on losses to the state's ERAF property tax diversions.

State Mandate Reimbursement

The state constitution requires the Legislature to reimburse local governments for their costs to implement a state-mandated new program or higher level of service in an existing program. The Constitution requires the Legislature to suspend most state mandates in any year in which full funding is not provided for that mandate. The Commission on State Mandates determines the level of reimbursement in response to a claim for reimbursement filed by a local agency. The process typically takes several years during which time, local governments must spend money to comply with the mandate.

Federal and State Grants and Aid

The federal and state governments provide a wide variety of funds to counties, and a more limited set to cities and special districts. Federal and state grants comprise a large proportion of county revenues because of the many programs and responsibilities counties carry out on behalf of the federal and state governments. These funds are almost entirely restricted to specified uses. Examples include certain health, mental health, social and child welfare services.

Categorical grants support a defined program area. Categorical grants typically go to local agencies that either meet predetermined funding criteria or compete for project funding through an application process.

Block grants provide funding to a broad functional area. For example, federal Community Development Block Grant (CDBG) funds support local housing and economic development activities.

RENT FOR USE OF PUBLIC PROPERTY

Rents, Royalties and Concessions

Another way cities and counties and some special districts pay for public services is to charge rent for use of the public's property. An example is royalties from natural resources taken from land the public owns. Others include selling advertisements in publications or on buses, as well as, receiving a percentage of net profits from concessionaires operating on public property.

Franchise Fees

Franchise fees are a form of rent for use of public streets and roadways. Examples of businesses that pay franchise fees include trash collectors, cable television companies, electric utilities and oil and natural gas pipeline companies. Federal and state law limits the amount of some franchise fees (for example, video and cable television franchise fees). Franchise fees for provision of video services (like television programming) are limited and administered by the state.

FINES, FORFEITURES AND PENALTIES

Violations of the law often result in a fine of some kind. Fines, forfeitures and penalties may be imposed for many reasons. Typical examples include traffic violations, court fines, penalties and interest on late or unpaid taxes.

- State law determines the distribution of fines and bail forfeitures imposed by the state.
- State law apportions revenues for parking violations and surcharges between issuing agencies and the counties.
- A city or county may impose fines, forfeitures and penalties for civil violation of local ordinances.
- Bail for local code violations charged criminally is established by the local courts with input from the city or county.

Maintenance of Effort Requirements (MOE)

When cities and counties receive funding for programs from the state or federal government, such funding may come with strings attached. A common condition is that the city or county commit to a certain level of funding. This commitment is called "maintenance of effort."

Local agencies also receive reimbursement for revenue lost as a result of some tax exemptions and reductions. An example includes the homeowners' property tax exemption, which eliminates the property tax on a small portion of the assessed valuation of owner-occupied residential property.

OTHER REVENUES

There are other local government revenues, comparatively minor in amounts. These include interest earned on investments, sales of surplus property and gifts.

ACKNOWLEDGEMENTS

Special thanks to Michael Coleman whose expertise contributed to the 2016 update of this publication. Michael Coleman is a leading expert on California local government revenues, spending and financing. He is the creator of CaliforniaCityFinance.com, the California Local Government Finance Almanac, an online resource of data, analyses and articles on California municipal finance and budgeting.

The Institute also appreciates the contributions from the staff of the California Special Districts Association, the California State Association of Counties and the League of California Cities for their contributions and suggestions to this revised document.

ENDNOTES

ⁱ California Department of Finance, Demographic Research Unit www.dof.ca.gov/Forecasting/Demographics/Estimates/

ⁱⁱ Cal. Const. art. XI, § 1(a). *See also* Cal. Gov't Code § 23002 ("The several existing counties of the State and such other counties as are hereafter organized are legal subdivisions of the State."). *People ex rel. Younger v. County of El Dorado*, 5 Cal. 3d 480, 491, 96 Cal. Rptr. 557 (1971)

ⁱⁱⁱ Cal. Const. art XIII, section 1(e)

^{iv} A complete discussion of this list of seven exceptions can be found in the *Proposition 26 Implementation Guide* published by the League of California Cities.

^v Proposition 30 imposed an additional state general fund sales tax of 0.25 percent from 2013 through 2016, for a total base rate of 7.5% during that time.

^{vi} See "State Public Safety Sales Tax" under "Revenues From Other Government Agencies."

^{vii} In some cities, by historic agreement, the city collects less than 1.00 percent, with the difference allocated to the county. For example, in San Mateo county each city receives 0.95% of transaction within its jurisdiction and 0.05% goes to the county general fund. For a full list of local sales tax rates see Table 23A of the California State Board of Equalization Annual Report.

<http://www.boe.ca.gov/annual/table23a.htm>

^{viii} Except in the counties of Los Angeles, Alameda and Contra Costa where the maximum is 2.5 percent. Revenue and Tax Code §7251 et seq.

^{ix} For more information on Charter Cities see www.cacities.org/chartercities

Resources for Further Information

Coleman, Michael. *California Municipal Revenue Sources Handbook*, League of California Cities 2014.

Multari, Michael, Michael Coleman, Kenneth Hampian, Bill Statler. *Guide to Local Government Finance in California*, Solano Press Books, 2012.

California Legislative Analyst's Office. www.lao.ca.gov

"California Local Government Finance Almanac: Data, Statistics, Analyses on California City, County and Special District Finance." www.californiacityfinance.com

"Financial Management for Elected Officials." Institute for Local Government. www.ca-ilg.org/post/financialmanagement

"Learn About Cities." League of California Cities. www.cacities.org/Resources/Learn-About-Cities

"What Do Counties Do?" California State Association of Counties. www.csac.counties.org/californias-counties

"What are Special Districts and What Do They do?" California Special Districts Association. www.csda.net/special-districts/

ABOUT THE INSTITUTE FOR LOCAL GOVERNMENT

The Institute for Local Government (ILG) is the nonprofit 501(c)(3) research and education affiliate of the League of California Cities, the California State Association of Counties and the California Special Districts Association. Its mission is to promote good government at the local level with practical, impartial and easy-to-use resources for California communities.

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Appendix H: Grants for Disadvantage Communities

Appendix H: Grants for Disadvantaged Communities

Disadvantaged communities in California are specifically targeted for investment of proceeds from the State's cap-and-trade program. These investments are aimed at improving public health, quality of life and economic opportunity in California's most burdened communities at the same time reducing pollution that causes climate change.

Authorized by the California Global Warming Solutions Act of 2006 (AB 32), the cap-and-trade program is one of several strategies that California uses to reduce greenhouse gas emissions that cause climate change. The funds must be used for programs that further reduce emissions of greenhouse gases.

In 2012, the Legislature passed Senate Bill 535 (de Leon), directing that 25 percent of the proceeds from the Greenhouse Gas Reduction Fund go to projects that provide a benefit to disadvantaged communities. The legislation gave CalEPA responsibility for identifying those communities. In 2016, the Legislature passed AB 1550 (Gomez), which now requires that 25 percent of proceeds from the fund be spent on projects located in disadvantaged communities.

For more information on SB 535 and AB1550 implementation, go to:

- Cal EPA page on Greenhouse Gas Reduction Investments to Benefit Disadvantaged Communities at: <https://calepa.ca.gov/EnvJustice/GHGInvest/>.
- ARB's page on Disadvantaged and Low-income Communities Investments at: <https://ww3.arb.ca.gov/cc/capandtrade/auctionproceeds/communityinvestments.htm>
- Cool California's Funding Wizard at: <https://fundingwizard.arb.ca.gov/category/disadvantaged-communities>.



CPUC Fact Sheet

Expanding Solar in Disadvantaged Communities

One of California's most influential policies driving the adoption of rooftop solar has been Net Energy Metering (NEM), a program that allows residential customers to sell electricity from their solar panels back to the grid. However, as solar adoption and investment have increased throughout the state, low income and disadvantaged communities (**DACs**) have lagged behind: for example, just 17 percent of all rooftop solar in Pacific Gas and Electric Company's service territory is located in DACs, and only 0.4 percent of PG&E's rooftop solar belongs to low income residents in DACs. DACs are defined as the top 25 percent most disadvantaged communities in California according to CalEnviroScreen 3.0.

To address this gap, Assembly Bill 327 (Perea, 2013) directed the California Public Utilities Commission (CPUC) to develop "specific alternatives designed for growth among residential customers in disadvantaged communities."

Commissioner Martha Guzman Aceves' [alternate proposal](#) implements AB 327 by establishing three new targeted programs: the **DAC-SASH** program, the **DAC-Green Tariff**, and a **Community Solar Green Tariff** program. Each program takes a different approach to address the diverse hurdles facing expanded solar adoption in these communities. These programs are in addition to the [Solar on Multifamily Affordable Housing program](#) - AB 693 (Eggman) - that was established in December 2017 and is nearing its 2018 launch.

The DAC – Single-family Solar Homes (DAC-SASH) program

\$10 million annually; \$3 per Watt for systems 1 kW-5 kW in size ~ 3.3 MWs annually

Modeled on the existing, successful SASH program, DAC-SASH will provide up-front financial incentives for solar installation on homes owned by low income residents in DACs. The program will allow for greater eligibility and help overcome barriers like lack of access to capital or credit. The DAC-SASH program will provide \$10 million in incentives annually through 2030, to be funded by utility greenhouse gas allowance revenues or public purpose program funds.

The DAC – Green Tariff program

20% bill discount; up to 70 MWs for PG&E and SCE, and 18 MWs for SDG&E

Subscribing customers will receive 100 percent renewable energy purchased by their utility (not generated by onsite solar panels), similar to the existing Green Tariff/Shared Renewables Program. However, the DAC-Green Tariff program will provide a 20 percent *discount* on electricity bills for low income customers who live in DACs, and projects must be located in DACs. This option overcomes barriers to solar for customers who rent their home, cannot afford solar, or whose home is unsuitable for solar. The DAC-Green Tariff program will be funded by utility greenhouse gas allowance revenues or public purpose program funds.

Community Solar Green Tariff

Local, community-sponsored solar; up to 18 MWs for PG&E and SCE, 5 MWs SDG&E

While similar to the DAC-Green Tariff, this program includes many community-driven elements like job creation and solar in the community. Projects will be sited within a top 25% DAC, and subscribers must also be in a top 25% DAC within 5 miles of the project. Participants will receive a 20% bill discount, and the program requires demonstration of community involvement and interest, including site preferences. This approach is intended to ensure customers in disadvantaged communities have access to local solar power, with an assured economic benefit and robust community involvement. The Green Tariff Community Solar program will be funded by utility greenhouse gas allowance revenues or public purpose program funds.

More Information and Next Steps

Parties to the proceeding may comment on these proposals by June 11, 2018. The CPUC may consider the proposal and a related proposal from an Administrative Law Judge at its June 21, 2018, Voting Meeting in San Francisco.

Documents related to this proceeding are available at:

https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:A1706030.

Information about Commissioner Guzman Aceves is available at:

www.cpuc.ca.gov/Guzman_Aceves/

To receive electronic updates on this proceeding, sign-up for the CPUC's free subscription service at <http://subscribecpuc.cpuc.ca.gov>, and use proceeding number R.14-07-002. Through the subscription service you can also subscribe to our press releases to receive news and event announcements.

The public is invited to comment to the CPUC at the Voting Meeting, or through written comments to:

Email: public.advisor@cpuc.ca.gov

Address: California Public Utilities Commission
Public Advisor's Office
505 Van Ness Ave., San Francisco, CA 94102

The CPUC regulates services and utilities, safeguards the environment, and assures Californians' access to safe and reliable utility infrastructure and services.

For more information on the CPUC, please visit www.cpuc.ca.gov.

Appendix I: Fire Water Supply without a Purveyor

EL DORADO COUNTY REGIONAL FIRE PROTECTION STANDARD



Fire Water Supply without a Purveyor Residential & Commercial

STANDARD #D-003

EFFECTIVE 01-04-2016

1. PURPOSE

1.1. The California Fire Code (CFC) requires an approved water supply capable of providing the required fire flow for fire protection to premises upon which facilities, buildings or portions of buildings which are hereinafter constructed or moved into within the jurisdiction. The CFC further explains that the water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow. The CFC gives the minimum fire flow for residential one- and two-family dwellings as 1,000 gallons per minute for 60 minutes for dwellings 3,600 square feet or smaller. Many areas of El Dorado County do not have a water purveyor with piped underground supply lines to provide this fire flow. The tank size required to accomplish this minimum supply would be 60,000 gallons and the system would require a fire pump rated at 1000 gallons per minute for a single home. The CFC allows this supply to be reduced by 50% when the home is equipped with automatic fire sprinklers (AFS). This would still require 30,000 gallons of water storage plus the pumping system. The CFC gives the fire chief the authority to reduce the fire flow requirements for buildings in rural areas where the development of full fire flow requirements is impractical. The purpose of this standard is to communicate the *minimum* level of water storage and delivery system requirements for one- and two-family dwellings that can be approved under the reduced fire flow allowance within the fire jurisdictions that adopt this standard.

2. SCOPE

2.1. This standard identifies *minimum* fire water supply requirements for one- and two-family dwellings and associated buildings in rural and suburban El Dorado County where an adequate reliable water supply does not exist. The CFC allows the fire code official to use the NFPA 1142 standard or the California Wildland-Urban Interface Code to develop these modified local standards.

3. EXEMPTIONS

3.1. Where El Dorado County has determined that **no** permit is required for construction.

4. AUTHORITY

- 4.1. California Fire Code
- 4.2. NFPA 1142, NFPA 22, NFPA 24
- 4.3. California Wildland – Urban Interface Code

- 4.4. California Code of Regulations, Title 19, Section 4291
- 4.5. California Code of Regulations, Title 14, Fire Safe Regulations SRA

5. **DEFINITIONS**

- 5.1. **Fire Flow** – The flow rate of a water supply measured at 20 pounds per square inch residual pressure that is available for fire fighting.
- 5.2. **Fire Flow Calculation Area** – The floor area of all floor levels within the exterior walls and under the horizontal projections of the building roof.
- 5.3. **Water Purveyor** – A public utility, a mutual water company, a government agency or special district, or other entity owning and operating a water system and holding a valid permit from the California State Department of Public Health to purvey water. (such as El Dorado Irrigation District, Georgetown Divide Public Utility District, or South Tahoe Public Utility District)
- 5.4. **Hose Stream Allowance** – Water supply that is dedicated to the use of the fire department for the suppression of any type of fire.
- 5.5. **Sprinkler Demand – NFPA 13D** – Water supply required to meet the design flow rate of a residential automatic fire sprinkler system designed and installed by a California licensed C-16 contractor for ten minutes' minimum.
- 5.6. **Domestic Water Supply** – Water that is used for domestic consumption only.

6. **PERMITS and OTHER CODES AND STANDARDS**

- 6.1. Construction of water supply systems built to these standards shall meet all additional requirements of the El Dorado County Building Department for permits and compliance with other applicable federal, state or local codes. Plan submittal requirements are detailed in section 8.1 of this standard.

7. **COMMERCIAL WATER SUPPLY- WITHOUT A PURVEYOR**

- 7.1.1. Commercial projects will be allowed to use this standard ONLY when the local water purveyor is unable to provide water supply to the site, and has indicated this in written communication addressed to the fire department.
- 7.1.2. All commercial water supply without a purveyor shall be designed by a certified engineer.
- 7.1.3. Back up electrical / generators are required in State Fire Marshal regulated occupancies.
- 7.1.4. When a purveyor is within 1000' feet of the project site, the project shall be required to request Annexation into El Dorado Irrigation District. (EID).

8. INSTALLATION REQUIREMENTS

8.1. PLANS

- 8.1.1. Plans shall be submitted and approved by the fire department prior to installation.
- 8.1.2. Each fire agency may have a different submittal requirement for providing either paper plan set(s) or digital plans.
- 8.1.3. Scaled plans shall include the plan view and elevation view of access roads and driveways, structures, tank size, tank location, hydrant location, and all associated piping.
- 8.1.4. Submitted plans shall include the manufacturer's specification sheets for the tank and all system components.

8.2. INSTALLATION TIMELINE

- 8.2.1. The required water supply system shall be operational prior to occupancy of the new construction.

8.3. TANK CONSTRUCTION

- 8.3.1. Tanks shall be manufactured with materials designed specifically for residential potable water storage requirements.
- 8.3.2. Tanks shall be installed following the tank manufacturer's requirements for foundation, venting, flexible piping attachments, corrosion protection and other manufacturer required features.
- 8.3.3. Above ground plastic tanks shall be constructed with UV light protection.
- 8.3.4. Tanks are required to be connected to a water supply that will keep the required water levels maintained. (auto fill)

8.4. TANK LOCATION

- 8.4.1. Water storage tanks shall be located a minimum of 30 feet from the closest structure to be protected and a minimum of 10 feet from the property line, roads or driveways. Where this requirement is impractical a fire barrier may be required by the fire official.
- 8.4.2. Combustible vegetation shall be maintained clear for 30 feet around the tank or to the property line.
- 8.4.3. Footings, foundation(s) or other supports shall be constructed per the tank manufacturer's specifications. Soil grading adjacent to the tank shall be performed to prevent water run-off from eroding the foundation, footings or support.
- 8.4.4. Elevation of the tank floor shall be the same level or higher than the outlet of the hydrant. Exception: Elevation of the tank floor may be no more than 5 feet below the fire hydrant outlet where the plan view distance from the hydrant to the tank outlet is no more than 20 feet.

- 8.4.5. Where topography allows, the water tank should be located at an elevation that is as high above the hydrant outlet as reasonably possible.
- 8.4.6. Where topography does not allow compliance with (8.4.4) above, the fire code official may consider a system design with a brass or bronze check valve installed at the tank end of the piping in an above ground horizontal pipe section downstream from the tank shut-off valve.
- 8.4.7. Water storage tanks may be located within a structure. Combustible vegetation clearance and distance to property line requirements for structures detailed in CRC, Title 19, Section 4291, must still be met.

8.5. TANK SIZE

- 8.5.1. Tank systems covered by this standard shall provide, at a minimum, the capacity of Hose Stream Allowance indicated on Table 8.5.1 based on the size of the structure to be protected. Additional water capacity may be added to the tank system to provide either residential fire sprinkler system water supply and/or domestic water supply. See 8.5.2 and 8.5.3 below. These water supply needs may be provided by systems separate from the hose allowance system. Systems that provide water for a combination of hose allowance and either automatic fire sprinklers or domestic use, shall be designed with either piping or controls that assure that hose stream allowance water is always reserved for fire department use. See (Figure 1) for graphics showing some possible approved design methods.
- 8.5.2. If additional water storage capacity is needed in the tank for automatic fire sprinkler system design, the tank size shall be increased 500 gallons minimum, or the amount specified by the Licensed California C-16 Contractor who designs and builds the sprinkler system per the NFPA 13D standard.
- 8.5.3. If additional water storage capacity is required by the building owner for domestic use, the tank size shall be increased 500 gallons minimum.

Table 8.5.1 Hose Stream Allowance - Minimum Tank Size Determination	
Building Size in Square Feet	Minimum Tank Size
3,500 or Less	3,000
3501 - 5,000	4,000
5001 - 6,500	6,000
6,501 or Greater	Provide Engineering Calculations when required by Fire Code Official
NOTE: This Table is Hose Stream tank sizing only. If AFS or Domestic water are stored in the same tank the tank size must be increased accordingly. See 8.5.2 & 8.5.3	

8.6. TANK VENTING

- 8.6.1. Rapid use of water during firefighting operations requires sufficient tank venting to prevent tank collapse or fire water delivery impairment. Tanks shall be provided with a vent above the maximum water level. Tank vents shall have a cross sectional area greater than or equal to one half the area of the hydrant supply pipe or the tank fill pipe, whichever is larger.
- 8.6.2. Tank vents shall be provided with a screened inlet configured to prevent the impairment of the vent or tank intrusion by birds, mammals, insects or debris.
- 8.6.3. Tank vents shall be installed above the potential snow level for the site elevation. Approval required by the Fire Code Official.

8.7. PIPING

- 8.7.1. Tank piping attachments for fill, venting, supply, overflow, or drain shall meet the requirements of the tank manufacturer.
- 8.7.2. All supply piping shall be designed and installed to provide 250 gallons per minute of flow rate minimum to a fire department apparatus pumping at draft at the hydrant location.
- 8.7.3. Above ground piping shall be Schedule 40 galvanized steel pipe minimum.
- 8.7.4. Tank fill piping shall be $\frac{3}{4}$ inch minimum.
- 8.7.5. Hydrant supply piping attachment point on the tank shall be $2\frac{1}{2}$ inch minimum.
- 8.7.6. Hydrant supply piping shall be $2\frac{1}{2}$ inch minimum for all above ground piping and shall continue as galvanized pipe to the underground piping with a minimum of a 2-foot horizontal galvanized section at the tank end and the hydrant end of the underground piping. See (Figure 2)
- 8.7.7. Underground piping installations using no more than 20 feet of underground piping on the horizontal run may be constructed of $2\frac{1}{2}$ inch pipe.
- 8.7.8. Where underground piping is longer than 20 feet and no greater than 100 feet, the underground piping shall be 4 inch. Underground piping up to 4 inch may be constructed with schedule 40 minimum PVC pipe. See (Figure 2) Underground piping greater than 100 feet in length shall be designed by an engineer.
- 8.7.9. Underground galvanized steel piping shall be coated and wrapped.
- 8.7.10. All underground piping shall be placed on 6 inches of sand or other fill material approved for underground utilities and covered 6 inches minimum with the same material prior to backfill. See (Figure 2) Underground piping shall be buried 24 inches below finished grade unless it is routed under roads or driveways in which case it shall be buried 36 inches minimum below finished grade.

- 8.7.11. Underground non-metallic piping shall have a tracer wire buried with the pipe.
- 8.7.12. Hydrant supply piping may be approved to remain above ground between the tank and the hydrant when approved by the fire code official.

8.8. HYDRANTS

- 8.8.1. Hydrant location shall be located no closer than 50 feet from protected structures.
- 8.8.2. Hydrant location shall be no more than 250 feet from protected structures as measured along the route of a road or driveway.
- 8.8.3. The center height of the hydrant outlet shall be 18 to 24 inches above the finished grade. See (Figure 2)
- 8.8.4. The center height of the hydrant outlet shall be no greater than 5 feet above the bottom elevation of the water supply tank. See (Figure 2) See also detailed requirements in paragraph 8.4.4
- 8.8.5. The hydrant outlet shall be 2½ inch minimum. The hydrant outlet shall be 2½ inch NST male hose thread (also known as NH and NS).
- 8.8.6. The male hose threaded outlet shall be provided with a lugged protective cap.
- 8.8.7. The hydrant may be a single assembly or may be a 2½ inch gate or ball valve with an appropriate 2½ inch hose thread adapter on the outlet.
- 8.8.8. The hydrant shall be visible and accessible.
- 8.8.9. The hydrant shall be located adjacent to a fire apparatus turnout from the driveway or the road that intersect with that driveway as approved by the fire department per the current El Dorado County driveway standard and Title 14 requirements for driveways, roads, and clearances.
- 8.8.10. The hydrant shall be located no closer than (4) four feet nor farther than (12) twelve feet from a roadway and in a location where fire apparatus using it, will not block the roadway.
- 8.8.11. The hydrant shall be painted per the local fire department requirements.
- 8.8.12. A permanent sign shall be attached to the hydrant stating “NO PARKING - Drafting Fire Hydrant - _____ Gallons”. Permanent lettering characters shall be 1½ inch minimum and shall be red in color on a white background.
- 8.8.13. The hydrant shall have (8) eight feet of clearance from weeds and flammable vegetation.
- 8.8.14. A reflectorized blue marker, with a minimum dimension of 3” inches, shall be located on the driveway address sign and within 3’ feet of the draft hydrant on a post or sign.
- 8.8.15. Dry hydrants shall be installed on projects where there is a potential snow level for the site elevation. Approval required by the Fire Code Official.

8.9. FREEZE PROTECTION

- 8.9.1. All aboveground water piping shall be designed and installed to protect against freezing.
- 8.9.2. The water tank shall be protected against freezing when required by the fire code official.

8.10. WATER LEVEL ASSURANCE

- 8.10.1. An approved method shall be used to provide automatic water storage fill to the minimum level of fire department hose allowance.
- 8.10.2. The system shall be designed such that when the source water supply to the water storage system is impaired, the hose stream allowance will be reserved for firefighting only. The methods used to provide this assurance may include tank plumbing design/configuration and/or approved electric control systems. See (Figure 1)
- 8.10.3. A sight gauge may be required as part of the water level assurance design.

8.11. INSPECTIONS/TESTING

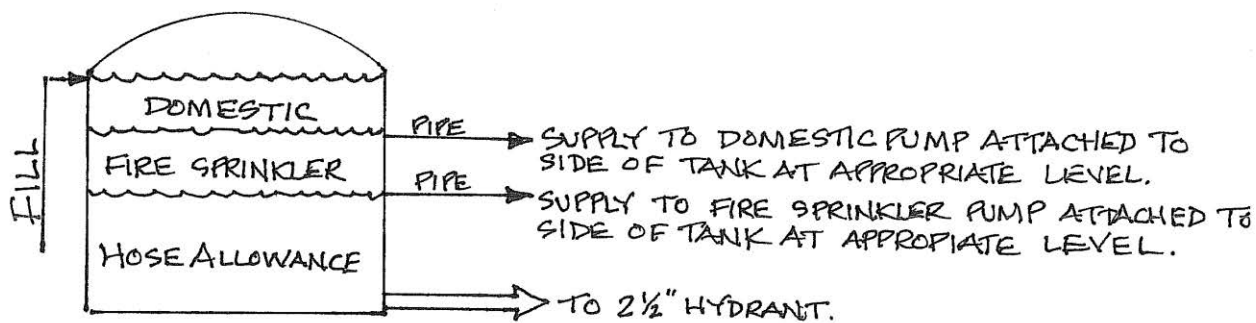
- 8.11.1. All underground piping shall be inspected by the fire department prior to covering with fill. Piping shall be pressurized for the inspection with water or air at 20 psig or the maximum expected system pressure, whichever is greater. There shall be no evidence of leaks.
- 8.11.2. Systems designed with a check valve per paragraph 8.4.6 may require a draft primer pump performance test to verify that the check valve will hold water up to the hydrant for 30 minutes' minimum.
- 8.11.3. A final inspection including functional test of liquid level controls shall be performed by the fire department prior to building occupancy of new construction

8.12. WATER STORAGE TANK INSPECTION, TESTING, & MAINTAINANCE

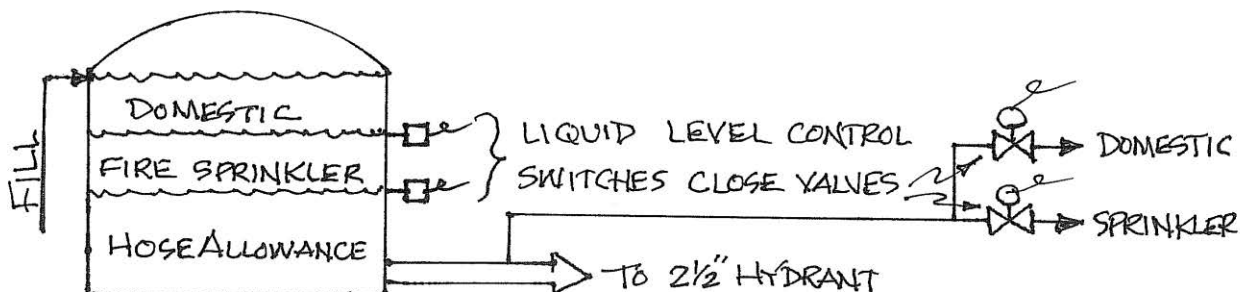
- 8.12.1. Owners of residential water systems, installed per the requirements of this standard, shall perform necessary ongoing maintenance and repairs to the system to assure the proper performance of the system as it was designed and installed. All inspections, testing, maintenance, and record keeping shall comply with all requirements per Title 19, Division 1, Chapter 5. See Table 9.1 for ITM Schedule. Impairments to the fire protection water supply system shall be reported immediately to the fire department.
- 8.12.2. Vegetation and combustible debris (i.e. leaves, pine needles, branches, etc.) shall be kept at a minimum 30' foot clearance from the fire water tank to prevent flames impinging on the tank structure.

FIGURE 1

a) SINGLE TANK - MECHANICAL LEVEL ASSURANCE



b) SINGLE TANK - ELECTRICAL LEVEL ASSURANCE



c) MULTIPLE TANKS

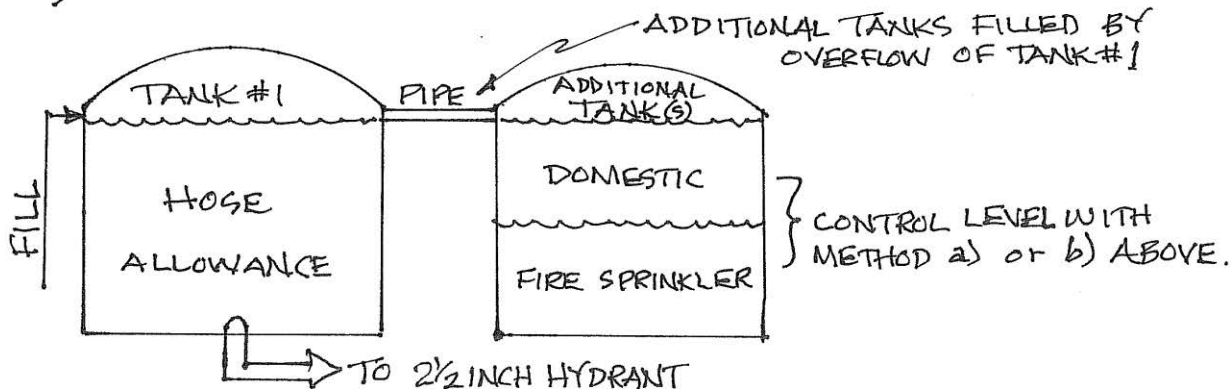
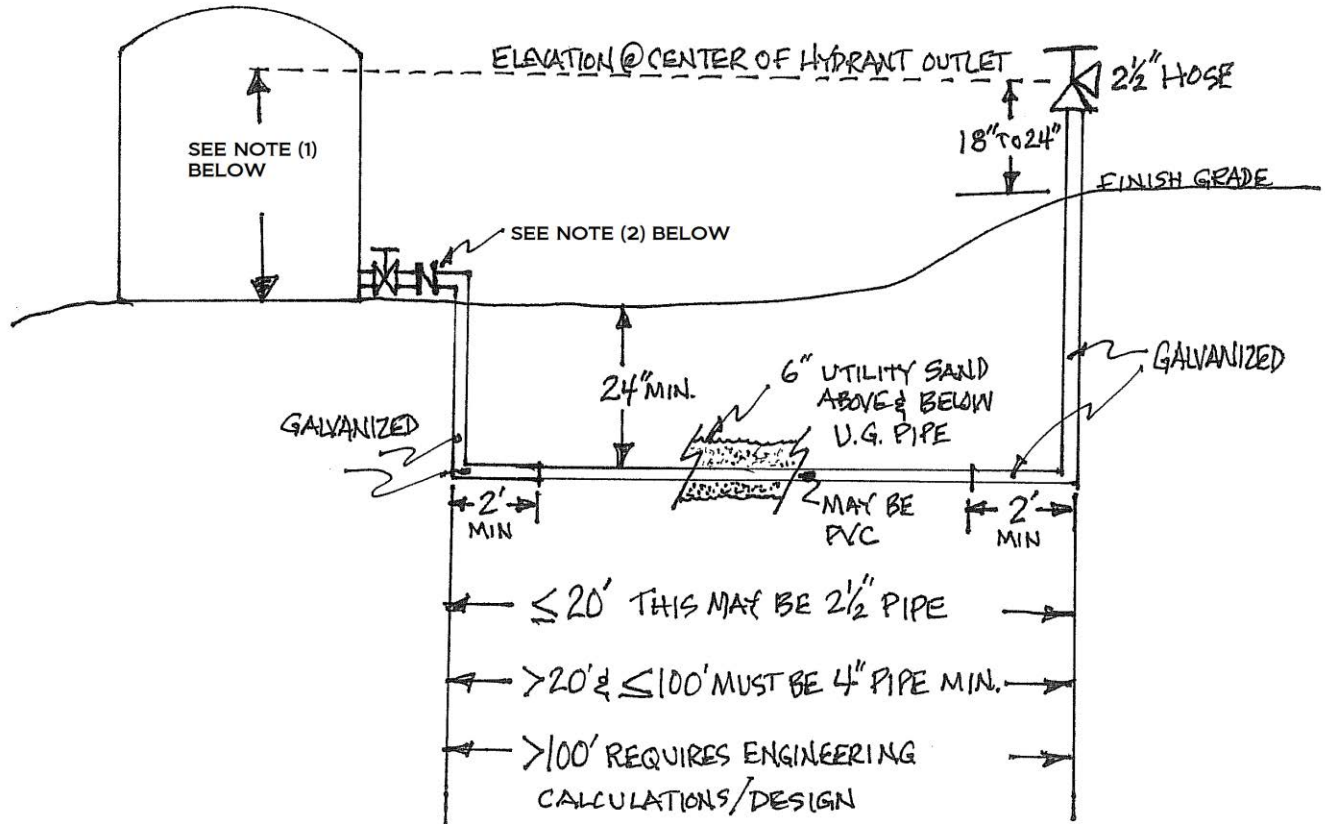


FIGURE 2



NOTES:

- 1.) MAXIMUM 5 FEET OF DROP FROM HYDRANT OUTLET TO THE TANK BOTTOM ALLOWED ONLY WHEN CONDITIONS IN PARAGRAPHS 8.4.4, 8.4.5, & 8.4.6 ARE MET
- 2.) WHERE TOPOGRAPHY DOES NOT ALLOW COMPLIANCE WITH (8.4.4) ABOVE, THE FIRE CODE OFFICIAL MAY CONSIDER A SYSTEM DESIGN WITH A BRASS OR BRONZE CHECK VALVE INSTALLED AT THE TANK END OF THE PIPING IN AN ABOVE GROUND HORIZONTAL PIPE SECTION DOWNSTREAM FROM THE TANK SHUT-OFF VALVE. (SEE PARAGRAPH 8.4.6)

Appendix J: Watershed Descriptions

Within EID's service area, there are two principal watersheds:

- American River, and
- Cosumnes River.

American River

The American River is a 120-mile-long river in California that runs west from the Sierra Nevada mountain range to its confluence in the Sacramento Valley with the Sacramento River, which is part of the San Francisco Bay watershed. This major river is fed by melting snowpack of the Sierra Nevada and its numerous headwaters and tributaries, including the North Fork American River, the Middle Fork American River, and the South Fork American River. The watershed basin comprises 2,150 square miles.

The most relevant portion of the River to EID is the South Fork American River (HUC 18020129) which contains Coloma, the site best known for the discovery of gold in 1848. Today, the River continues to have high quality water, although the River is dammed extensively for irrigation, flood control, and hydroelectric power. The American River watershed supports a Mediterranean-type ecosystem, temperate, and montane ecosystems, and is the home of a diverse array of fish and wildlife. The American River has historically provided over 125 miles of riverine habitat to anadromous and resident fishes. Presently, use of the American River by anadromous salmonids is limited to the 23 miles of river below Nimbus Dam. A map of the American River watershed in relation to EID is provided in Figure J-1 (next page).

Cosumnes River

Flowing from the western slope of the central Sierra Nevada mountains, the Cosumnes starts as North, Middle and South forks cutting canyons through the El Dorado and Amador County before converging just east of Highway 49. The entire stretch of the Cosumnes River between the confluence of the forks and a point one mile above Michigan Bar delineates the boundary line between El Dorado County and Amador County; below this point, the River flows into southern Sacramento County.

The North Fork, about 49.3 miles long, begins at the Singleton Springs in El Dorado County, at the head of Leek Spring Valley, 7,400 feet above sea level. It flows west, past the unincorporated community of Meiss, receiving Van Horn Creek and Butte Creek from the right. At Somerset, it is joined by its largest tributary, Camp Creek, from the right. Below Camp Creek it flows through the granite narrows of the Cosumnes River Gorge, a popular rock-climbing area. The River then

turns abruptly south and passes Nashville before joining the Middle Fork near Enterprise. Some water is diverted from two tributaries of the North Fork – Camp Creek and Sly Park Creek – for irrigation in the Camino area. Sly Park Dam, which creates 41,000-acre-foot Jenkinson Lake, is the largest water storage facility in the Cosumnes River watershed, and a primary water supply for EID. The dam and reservoir are part of the extensive Central Valley Project. However, the project has limited effects on river flows and does not block historic salmon spawning runs.

As one of the last rivers flowing from the west slope of the Sierra without a major dam, the Cosumnes is a remarkable example of a healthy watershed. However, its salmon and steelhead populations have been harmed by invasive fish species and pollution from illegal mining activity, as well as the two irrigation diversion structures near Rancho Murieta.

The County's watersheds are a critically important component to the protection of El Dorado's pristine water supplies. The EID is committed to ensuring a robust, high quality source of water for their service territory, which will help avoid unnecessary treatment expenses. EID works collaboratively with other agencies, non-profit organizations, and other private partners to protect and manage this critical resource. EID actively seek grants and matching funding sources to leverage public dollars with like-minded public agencies, such as the U.S. Forest Service, and non-profit and private partners.

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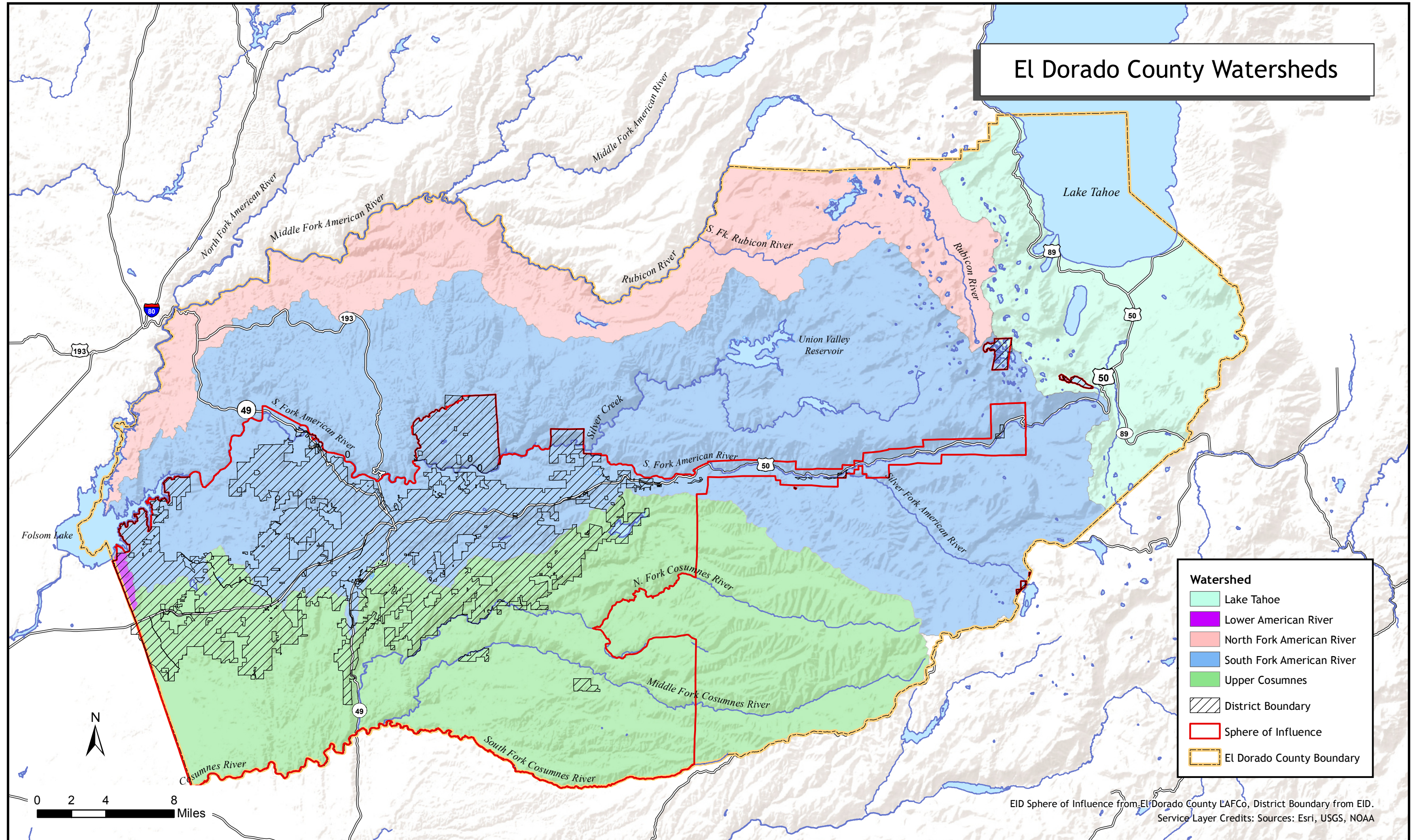


Figure J-1, Appendix J

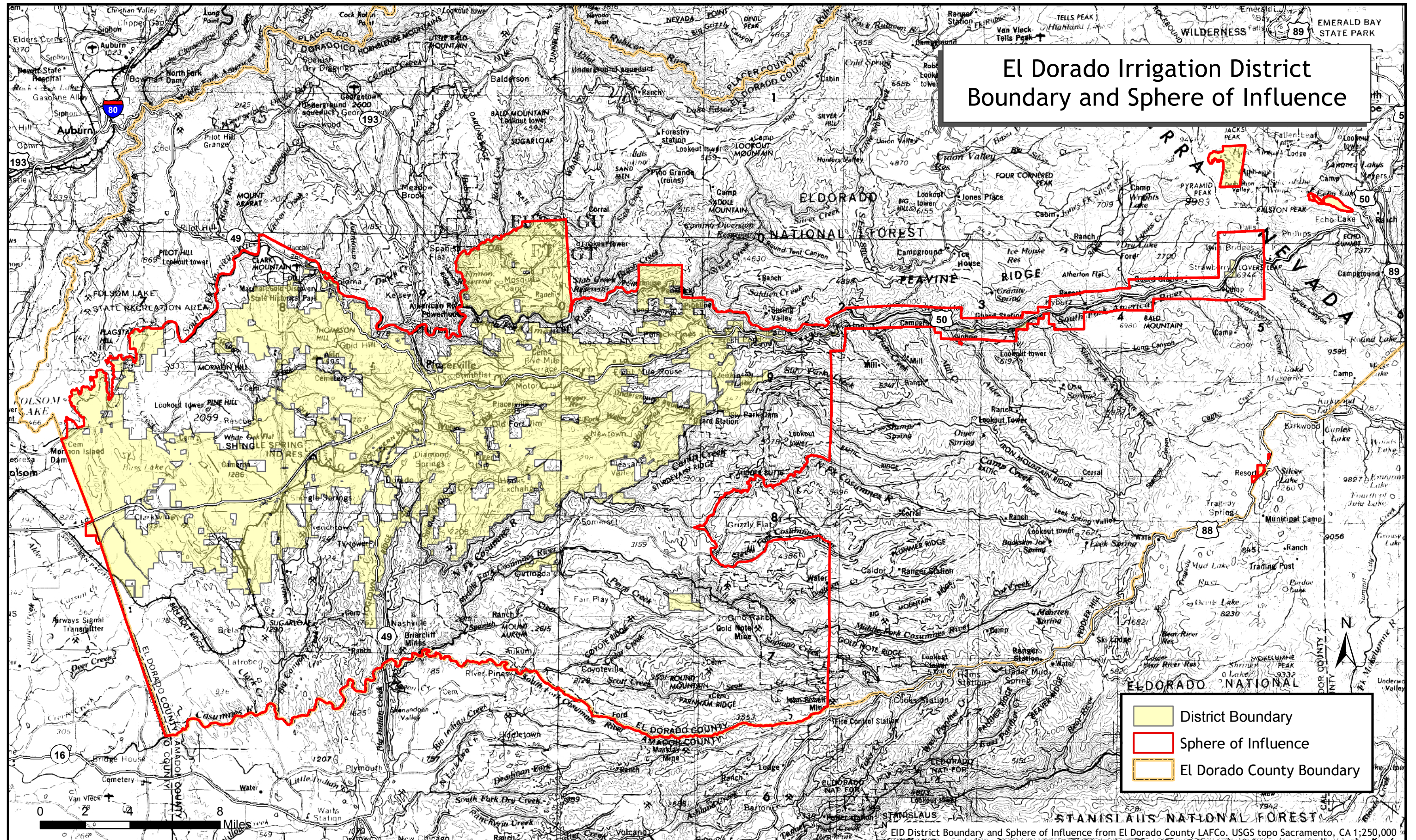


Figure J-2, Appendix J

APPENDIX K: OTHER SERVICE PROVIDERS

Residents of the EID service area receive public services from an array of service providers such as El Dorado County, City of Placerville, several school districts, multiple local fire protection agencies, El Dorado Transit, Cameron Park Airport District, several community service districts, private utility companies, and several state and regional agencies as described in detail in Table K-1, below. This list shows that residents interact with networked array of private and public service providers. Understanding and documenting EID’s place within this network is one of the objectives of this MSR/SOI Update. LAFCO may utilize this information to support its determination regarding accountability for community service needs, including government structure and operational efficiencies.

Table K-1: Local Agency Service Providers

Agency	Legislative Authority	Service Offered
El Dorado County		<p>In both incorporated and unincorporated areas, the County provides the following services: public assistance, library elections, tax assessment and collection, treasury management, official records, public and behavioral health, social programs, corrections, animal shelter, library, and information technology systems and GIS.</p> <p>In unincorporated areas, the County also provides the following: law enforcement, planning services, building inspection, road maintenance, snow removal, and economic development.</p>
City of Placerville	California Government Code	Law enforcement, planning services, building inspection, road maintenance, snow removal, and economic development.
Several school districts including: <ul style="list-style-type: none"> • Black Oak Mine Unified School District 	District California Education Code	Educational services

<ul style="list-style-type: none"> • Buckeye Union School District • Camino Union School District • El Dorado Union High School District • Gold Oak Union School District • Gold Trail Union School District • Indian Diggings School District • Latrobe School District • Mother Lode Union School District • Pioneer Union School District • Placerville Union School District • Pollock Pines Elementary School District • Rescue Union School District • Silver Fork School District 		
<p>Several fire protection districts and providers including:</p> <ul style="list-style-type: none"> • El Dorado County Fire Protection District • El Dorado County Water District (EDH Fire) • Cameron Park CSD • Rescue FPD • Diamond Springs-El Dorado FPD • Pioneer FPD, • Garden Valley FPD, and • Mosquito FPD 	<p>Health and Safety Code</p>	<p>Fire protection, rescue, and emergency services</p>
<p>El Dorado Transit</p>	<p>Public Utilities Code § 107000 et seq.</p>	<p>Fixed route bus service and dial-a-ride services in the western slope of El Dorado County.</p>
<p>Cameron Park Airport District</p>	<p>Airport District Act</p>	<p>Airport services</p>
<p>Community Services Districts:</p> <ul style="list-style-type: none"> • Audubon Hills • Cameron Estates • Cameron Park • Connie Lane 	<p>California Government Code Section 61000 et seq.</p>	<p>Roadway services. Park services. Other services as listed in CSD MSR.</p>

<ul style="list-style-type: none"> • East China Hill • El Dorado Hills • Golden West • Greenstone Country • Hillwood • Holiday Lake • Knolls Property Owners • Lakeview • Marble Mountain Homeowners • Motara Circle • Nashville Trail • Rising Hill Road • Rolling Hills • Sierra Oaks • West El Largo 		
Pacific Gas and Electric	Public Utilities Code	Electricity, natural gas
Comcast	Public Utilities Code	Cable television and internet
Caltrans	n/a	Highway transportation and maintenance along Highways 49, 50, 88, 89, and 193.
Sacramento Area Council of Governments		Regional planning services for transportation, affordable housing, and strategic growth.