



Economic &
Planning Systems

*Public Finance
Real Estate Economics
Regional Economics
Land Use Policy*

DRAFT TECHNICAL MEMORANDUM

To: Joe Alessandri, ECO:LOGIC Engineering
From: Georgette Lorenzen and Dmitry Semenov
Subject: El Dorado County Water Demand Forecast; EPS #11448
Date: March 11, 2003

As a part of the water supply and demand planning process for El Dorado County Water Agency (EDCWA), ECO:LOGIC has retained Economic & Planning Systems (EPS) to produce a countywide water demand forecast based in part on the land use forecasts developed in conjunction with the current General Plan/Environmental Impact Report (EIR) process.

The purpose of this memorandum is to describe the methodology used in determining the water demand forecast for the County.

The first section of this memorandum summarizes the methodology and the results of the water demand forecast development. **Section II** specifies the methodology for land use forecasts development. **Section III** discusses the allocation of land use forecasts to the purveyors' boundaries. **Section IV** described the methodology for water demand factors calculation. This memorandum concludes with the summary of the countywide water demand forecast estimates in **Section V**.

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I. OVERVIEW AND SUMMARY

There are three basic components or steps used to construct the water demand forecast. They are:

1. Land Use Forecasts for the County of El Dorado.
2. Distribution of the Land Use Forecasts between the Five Major Water Purveyors and the Remaining County Areas.
3. Application of Water Demand Factors to the Land Use Forecasts by Purveyor or Other County Areas.

Each of these steps are highlighted below and then discussed in greater detail in the following sections of this memorandum.

LAND USE FORECASTS

For the purposes of the land use forecasts, El Dorado County was divided into two areas:

- The Western Slope; and
- The Tahoe Basin.

Residential and non-residential (employment) land forecasts for the Western Slope area were developed by EPS as part of the current County General Plan/EIR process. The land use forecasts for the Tahoe Basin are based on the 2006 Land Use projections developed by the Tahoe Regional Planning Agency (TRPA) and extended to 2025 by EPS for purposes of this analysis.

Wood Rodgers prepared an agricultural land use analysis for the Western Slope of the County as well as a corresponding projection of water demand from agricultural uses. EPS incorporated the projection of agricultural water demand into this technical memorandum.

For both the Western Slope and the Tahoe Basin, the land use projections are at the Traffic Analysis Zone (TAZ) Level. Land use projections were developed for 2025 and buildout of the General Plan.

DISTRIBUTION OF NEW DEVELOPMENT BY WATER PURVEYOR

There are five major water purveyors in the County. They are as follows:

- In the Western Slope area:
 - El Dorado Irrigation District (EID)
 - Georgetown Divide Public Utility District (GDPUD)
 - Grizzly Flats Community Service District (GFCSD)
- In the Tahoe Basin:
 - South Tahoe Public Utility District (STPUD)
 - Tahoe City Public Utility District (TCPUD)

Outside of the service areas of the water purveyors, the water needs are supplied by smaller water companies and private wells. For the purposes of this study, the territory that is not serviced by the five major purveyors is cumulatively referred to as the “Other County Areas” (OCA).

The land use projections were allocated to each of the five purveyors or the Other County Areas based on the percent distribution of acreage of the purveyors within each TAZ. The TAZs’ boundaries and corresponding water purveyor service areas are shown on the map in **Figure 2**.

WATER DEMAND FACTORS

To estimate the water demand for each of the purveyors as well as the remaining County areas, the land use projections are multiplied by a water demand factor. The water demand factors used are based on data provided by each of the purveyors. As a result, the water demand factors vary for similar land use categories.

ECO:LOGIC and EPS, based on conversations with the purveyors, determined that it was preferable to use the demand factors provided by each purveyor rather than develop comprehensive factors by land use for the Western Slope or the Tahoe Basin. Using the demand factors and or data provided by the purveyors allows for consistency and comparability between planning documents and water supply and demand analyses conducted by each purveyor.

SUMMARY OF WATER DEMAND AT 2025 AND BUILDOUT

Figure 1 summarizes the water demand projections developed both for the Western Slope and the Tahoe Basin under different alternatives for three points in time: the base year (1999 for the Western Slope and 2001 for the Tahoe Basin), 2025, and Buildout. These alternatives provide a range that allows estimating the annual countywide water demand.

On the lower end of the growth forecast (No Project in the Western Slope area and Alternative 1 in the Tahoe Basin), the overall annual system water demand in El Dorado County is estimated to be 109,700 acre feet in 2025 and 129,600 acre feet at buildout.

On the higher end of the growth forecast (1996 General Plan in the Western Slope area and Alternative 2 in the Tahoe Basin), the overall annual system water demand in El Dorado County is estimated to be 120,900 acre feet in 2025 and 162,800 acre feet at buildout.

Figure 1
 El Dorado County Water Demand Forecast
 Water Demand Summary [1]

Description	Acre Feet Per Year				
	Base Year [2]	2025		Buildout	
	Estimated Demand	New Demand (1999-2025)	Total Demand	New Demand (1999-Buildout)	Total Demand
	A	B	C=A+B	D	E=A+D
Western Slope:					
No Project Alternative	56,300	40,600	96,900	59,600	115,900
Roadway Constrained Alternative	56,300	43,600	99,900	68,300	124,600
Environmentally Constrained Altern	56,300	48,100	104,400	71,500	127,800
1996 General Plan	56,300	48,700	105,000	90,300	146,600
Tahoe Basin:					
Alternative 1	9,100	3,700	12,800	4,600	13,700
Alternative 2	9,100	6,800	15,900	7,100	16,200
Range of Demand:					
Low Demand	65,400	44,300	109,700	64,200	129,600
High Demand	65,400	55,500	120,900	97,400	162,800

"summary"

[1] Water demand projections reflect ag adjustment.

[1] 1999 for the Western Slope

2001 for the Tahoe Basin

II. LAND USE FORECASTS

The demand for water in El Dorado County over the next 25 years, in large part, will be related to growth in population and employment. Water demand in the Tahoe Basin will also be related to growth in recreational and tourism activity.

Housing and employment growth forecasts were developed by EPS for the Western Slope of the County, by TAZ, in conjunction with the current General Plan/EIR process. These forecasts are used to maintain consistency with the General Plan process.

It should be noted that this memo estimates water demand for households rather than residential units. Using households rather housing units allows for a standard vacancy factor of 5 percent (a standard industry assumption for vacancies). The residential water demand is projected for households and, therefore, includes an allowance for vacancy.

The land use forecasts for the Tahoe Basin are based on the 2006 Land Use projections developed by the Tahoe Regional Planning Agency (TRPA) and extended to 2025 by EPS for purposes of this analysis. The buildout number of households is determined by the growth limitations currently in place within the Tahoe Basin.

For both the Western Slope and the Tahoe Basin, the land use projections are at the Traffic Analysis Zone (TAZ) Level. Land use projections were developed for 2025 and buildout of the General Plan.

Agricultural land use (both existing and future) was also considered for purposes of estimating the water demand. EPS relied on data provided by Wood Rodgers, Inc. as to the projected water demanded by agricultural users. Wood Rodgers is continuing to review and revise their agricultural water demand analysis. Therefore, the numbers reported in this memorandum are subject to change as more information becomes available.

The land use forecasts are described in greater detail below.

THE WESTERN SLOPE

EPS, in conjunction with the El Dorado County General Plan team as part of the County General Plan/EIR process, developed three land use alternatives that were published in the March 5, 2002 *“El Dorado County Land Use Forecast for Draft General Plan.”* Of the three land use alternatives detailed in the March 5, 2002 report, only two of the three will receive equal weight analysis in the EIR (the No Project Alternative and the 1996 General Plan).

In October of 2002 EPS developed two additional land use alternatives (Environmentally Constrained and Roadway Constrained 6-Lane “Plus”). The housing and employment growth forecasted under these two alternatives fall within the range of the land use forecasted under the No Project Alternative (low) and the 1996 General Plan Alternative (high).

The water demand forecast was developed for four alternatives, which are:

- **The No Project Alternative:** The No Project Alternative is based on the 1996 General Plan, but assumes that the Writ governs land use decisions through 2025 and beyond. The Writ generally prohibits new discretionary approvals of residential development until the County adopts a new General Plan, with the exception of parcels for which a development agreement was entered into prior to the issuance of Writ.
- **The Roadway Constrained 6-Lane “Plus” Alternative:** This alternative assumes that Highway 50 is expanded to no more than six lanes and land parcels which currently do not have approved development agreements or tentative subdivision maps will be allowed to buildout at a maximum density of four units per parcel.
- **The Environmentally Constrained Alternative:** This alternative is based on a reduced overall buildout capacity of the County as determined by reassigned land use designations proposed by County planning staff on a parcel by parcel level. It also includes a mixed-use component for commercial properties, with 10 percent of commercial acres designated to have a residential component. Densities vary between land uses designated as a community region or a rural center. For all residential land uses, excluding the mixed use component, it was assumed that parcels would buildout at maximum densities.
- **The 1996 General Plan Alternative:** This alternative is based on the 1996 General Plan Land Use designations. The main difference between this alternative and the No Project Alternative is that the Writ is not assumed to apply.

These land use alternatives are the four equal weight alternatives analyzed in the County General Plan EIR.

The land use forecast alternatives considered in this report project residential housing units (and households) and non-residential employment at 2025 and at buildout of the General Plan. Projected single family and multi-family households and retail, service, and other employment are detailed at the TAZ level.

The base year for the forecast is 1999. An explanation of why 1999 was chosen for the base year is included in the March 5, 2002 Report (see page 15).

Figure 3 summarizes the land use forecasts for these four alternatives. **Appendix A** contains detailed growth projections for all categories under each alternative.

THE TAHOE BASIN

The growth projections for the Tahoe Basin are based on the information provided by the TRPA in 2002. The Tahoe Basin land use projections are also allocated to TAZs and contain the following categories:

- Residential Households
- Hotel/Motel Rooms
- Campground Sites
- Retail Employment
- Service Employment
- Recreational Employment
- Other Employment

For residential households, hotel/motel rooms, and campground sites, the TRPA provided both the total number of units and the number of units with full-time and seasonal occupancy.

The growth in the Tahoe Basin is regulated by the rules established by the TRPA that limit the number of units that can be built annually and specify the total number of remaining developable parcels. According to the TRPA, the total number of parcels available for development in 2001 in the STPUD service area was approximately 2,800 parcels, and approximately 50 parcels in the TCPUD service area.

The TRPA land use forecasts go through 2006. EPS extended the forecasts through 2025 and buildout. The base year for the forecast is 2001 as determined by the TRPA.

The Tahoe Basin has several important demographic and growth factors that need to be considered in developing land use forecasts. Currently, new development in the area is restricted to 116 residential units per year. However, an initiative is currently being considered by the TRPA staff that might reduce the allowable development to 87 units per year. Per the TRPA, the resolution of this issue may take place in early 2003, but the exact date is not finalized as of the writing of this report.

In addition, seasonal occupancy of the Tahoe Basin is an important consideration because a vast majority of the existing homes and future homes are projected to be second homes or tourist rentals. The TRPA estimates that over 44 percent of new households will be seasonally occupied in 2006.

The treatment of these seasonal homes is an important consideration in determining future water demand. As the Tahoe Basin gets closer to buildout and if the demand for tourist rental homes in the area increases, the seasonal occupancy may decrease over time, i.e., greater full time usage. As a result water demand will increase over time. This increase will result in higher maximum daily and hourly peaks and annual total demand.

In order to bracket the potential range of water demand in the Tahoe Basin, we have developed two alternative land use forecasts through 2025 and buildout. They are as follows:

- **Alternative 1: Low Growth/Seasonal Occupancy:** This alternative assumes that the current initiative seeking to further reduce the number of residences that can be built in South Tahoe area (not to exceed 87 units per year) is passed. It also assumes the continuing seasonal occupancy of a portion of units. Under this scenario the area is estimated to reach buildout in 2034.
- **Alternative 2: Moderate Growth/Full Occupancy:** The second alternative assumes the present level of allowable development in South Tahoe (116 residential units per year) and also projects that all residential units, hotel/motel rooms, and campground sites are occupied full-time. Under this scenario the area is estimated to reach buildout in 2027. This is the worst-case scenario. Even though it is very unlikely that full-time occupancy will occur, this alternative allows EPS to estimate the highest possible level of water demand for the area.

The land use forecasts are summarized in **Figure 4**. The buildout capacity was provided by the TRPA. **Appendix B** contains detailed growth projections for all categories under each alternative.

III. ALLOCATION OF GROWTH TO PURVEYOR BOUNDARIES

In order to translate the land use forecasts into water demand for each of the five water purveyors as well as the Other County Areas, it is necessary to determine how much of the projected growth will occur in each of the purveyors boundaries.

To determine the growth to be allocated to each of the water purveyors, an acreage distribution factor was calculated based on the purveyor's existing service area boundaries. These service boundaries were overlaid on to the TAZs' boundaries using the software package ArcView GIS 3.2A. Based on this exercise, growth was allocated to purveyors and Other County Areas on a pro-rata acreage share basis.

Appendix C-1 shows the acreage allocation factors by TAZ for the Western Slope area. **Appendix C-2** shows the acreage allocation factors by TAZ for the Tahoe Basin. Any growth outside of the purveyor boundaries was allocated to the Other County Areas.

While this methodology worked for the majority of the water purveyors and TAZs, some exceptions did exist.

In the Western Slope area, the only modification had to do with Grizzly Flats CSD. The purveyor's service area is completely located within one TAZ and geographically constitutes a very small portion of the TAZ (See **Figure 2**). However, the total number of projected households located in the TAZ (278 households) matches closely to the number of accounts serviced by the purveyor in 1999 (approximately 300 accounts). A simplifying assumption was made to allocate all projected growth within this TAZ to the purveyor boundary.

Currently, the water demand within the GFCSD service area consumes most of the water available to the purveyor. The GFCSD is attempting to secure additional water rights of 400 acre feet per year, which would be enough to meet the water demand for several years beyond 2025 under every growth scenario considered in this report, assuming all growth takes place within the purveyor service area. However, the water demand will become higher than the available water supply as the area approaches the buildout capacity. Additional water rights would have to be secured after 2025, or the new development would have to provide its own water once the purveyor reaches its supply capacity. However, this would only be the case if all future growth within the TAZ is limited to the GFCSD service area.

In the Tahoe Basin area, due to the specifics of land use and growth patterns (a large number of homes are located outside of the purveyor service areas), the pro-rated acreage percentage allocation method described in the beginning of this section did not yield reliable results in the allocation of residential growth to TCPUD and STPUD.

Therefore, the number of residential accounts indicated by the purveyors for the base year was used. The difference between the total number of households provided by the TRPA and the number of the residential accounts services by the purveyors was assigned to the Other County Areas (OCA). The households and businesses within OCA receive water from private wells and numerous smaller water companies. No attempt has been made to generate separate forecasts for these water companies beyond the general OCA estimate (due to the fact that the efforts to obtain the necessary information from the water companies were unsuccessful and that in general these companies have on average relatively few accounts). This allocation became the basis for future growth projections.

The future growth allocation to purveyor boundaries was made based on the development constraints established by the TRPA, historic growth trends reported by the purveyors, and growth estimates generated by the TRPA for the years 2001 through 2006.

Figures 5 and 7 summarize the results of growth allocation to purveyor boundaries for the Western Slope and the Tahoe Basin respectively. **Figure 6** contains the growth allocation detail for the EID's three service regions.

IV. WATER DEMAND FACTORS

Once new growth is allocated either to a water purveyor or to the remaining county areas, a water demand factor is applied to the applicable land use to calculate the estimated water demand in acre feet per year.

The water demand factors used in this analysis were based on data provided by each of the water purveyors. In some cases, simplifying assumptions were made for purposes of this analysis and are detailed in the section for each purveyor below. The water demand factors are summarized in **Figure 8**.

Purveyor-specific water demand factors were used because each service area exhibits unique water demand and growth trends, thus making universal water demand factors unreliable.

Agricultural water demand for the Western Slope was projected by Wood Rodgers, Inc. The assumptions used to determine agricultural water demand are detailed in a separate memorandum prepared by Wood Rodgers. Wood Rodgers is continuing to review and revise the agricultural water demand analysis. Therefore, the numbers reported herein are subject to change.

EL DORADO IRRIGATION DISTRICT

El Dorado Irrigation District (EID) service area is subdivided into three smaller service areas – El Dorado Hills, Western Region, and Eastern Region. Because this analysis is a “big picture” look at water demand, the projections presented herein are for the aggregated the EID service area. However, due to the different pace of growth within the EID Regions, EPS used region-specific demand factors to increase the accuracy of the forecast. The residential and commercial water demand calculations for each of the regions are summarized in **Figures 15 through 18**.

- **Residential Demand:** The residential water demand factors are based on the EID *Administrative Draft Water Supply Master Plan*. See **Figure 9**.
- **Commercial/Industrial/Office (CIO) Demand:** The CIO water demand factor is the total CIO water demand divided by the total number of employees in the EID service area. See **Figure 9**.
- **Agricultural Demand:** The agricultural water demand projections were provided by Wood Rodgers and remain unchanged throughout the different land use alternatives.
- **Recreational Turf Services:** The Recreational Turf Services includes irrigation of golf courses and sports fields. Water demand for these uses was provided by EID (*Administrative Draft Water Supply Master Plan*) and reflects a historic average

water demand for the past 11 years. Historical data does not suggest any growth trends in water use over time.

- **Ditches:** Water losses associated with the use of ditches for water delivery fluctuate significantly by the year. A conservative approach was taken in the preparation of this report projecting that the future water demand within this category will average approximately 1,500 acre feet annually. The base year shows only 1,000 acre feet due to the fact that it was the actual demand for that year. However, the 1999 demand in this category is also considered to be unusually low.
- **Unaccounted For and Beneficial Uses:** The unaccounted for water is the water that is taken into the system from a purveyor's main sources, but not delivered to the consumers (put to beneficial use or otherwise unaccounted for). This category of water demand is projected to be reduced (as a percentage of active demand) over time based on historical patterns and goals established by EID. This assumption is in line with the EID strategy and performance geared towards reducing leakage and water losses.
- **Latent demand:** Latent demand includes inactive accounts and uninstalled meters, which potentially can generate immediate water demand. Estimated to remain unchanged as a percentage of active demand based on historical data provided by EID that does not indicate any reduction or growth trends.

GEORGETOWN DIVIDE PUD

- **Residential Demand:** The residential water demand factor was provided by GDPUD. No breakout of consumption by residential land uses is available. Therefore, the same factor was used for both single-family and multi-family residences, as shown in **Figure 8**.
- **Commercial/Industrial/Office (CIO) Demand:** The CIO water demand factor was estimated based on the total CIO water demand divided by the total number of employees in the service area.
- **Irrigation Demand:** The agricultural / irrigation water demand projections were provided by Wood Rodgers and remain unchanged throughout the different land use alternatives.
- **Golf Course Demand:** A Property Owners Association is responsible for maintaining a golf course with a water demand that is projected to remain constant over the course of time.
- **Unaccounted For and Beneficial Uses Demand:** This water demand includes operational losses that average 3,000 acre feet per year (per GDPUD) and water system treatment and conveyance that constitutes 4.2 percent of active demand.

- **Latent Demand:** The water factor for latent demand was provided by GDPUD and is assumed to decrease (as a percentage of active demand) over time as additional customers become a part of active demand.

GRIZZLY FLATS CSD

Only one universal per service demand factor was provided by GFSCD that included an allocation for all commercial, unaccounted for, and beneficial water uses. An adjustment was made for the 1999 water demand to account for units with seasonal occupancy. The seasonal occupancy is projected to decrease over time and by 2025 all residencies will have full-time occupancy.

SOUTH TAHOE PUBLIC UTILITY DISTRICT (STPUD)

- **Residential** water demand factors were provided by STPUD and converted from gallons per day to acre feet per year by EPS.
- **Commercial/Industrial/Office (CIO)** demand factor is the total CIO water demand divided by the total number of employees in the service area.
- **Hotel/Motel Rooms and Campground Sites Demand:** EPS estimated the water demand factors for these uses based on data provided by the State Water Resources Control Board of the State of California (*Policy for Implementing the State Revolving Fund for Construction of Wastewater Treatment Facilities*, Table G-1).
- **Unaccounted For and Beneficial Uses Demand:** This water demand factor was provided by STPUD.
- **Latent Demand:** Not included as data is not available.

TAHOE CITY PUBLIC UTILITY DISTRICT (TCPUD)

- **Residential Demand:** Residential water demand factors were provided by TCPUD and converted from gallons per day to acre feet per year by EPS.
- **Commercial/Industrial/Office (CIO):** The CIO water demand factor was estimated based on the total CIO water demand divided by the total number of employees in the service area.
- **Hotel/Motel Rooms and Campground Sites Demand:** EPS estimated the water demand factors for these uses based on data provided by the State Water Resources Control Board of the State of California (*Policy for Implementing the State Revolving Fund for Construction of Wastewater Treatment Facilities*, Table G-1).
- **Unaccounted For and Beneficial Uses Demand:** This water demand factor was not included as no data is currently available.
- **Latent Demand:** Not included as data is not available.

OTHER COUNTY AREAS (OCA)

- Separate calculations were made for the Western Slope and the Tahoe Basin areas due to differences in water demand trends discussed earlier.
- The calculated factors are a weighted average for demand in the areas serviced by purveyors.
- No unaccounted for, beneficial uses, and latent demand factors were calculated due to the fact that the water is supplied through private wells and by smaller water companies that do not have the capability to track these factors.

V. COUNTYWIDE WATER DEMAND FORECAST

Water demand forecasts were estimated based on the growth projections and demand factors described in the previous sections. For residential and employment growth, water demand was estimated by multiplying the projected number of units (households, jobs, etc.) by the appropriate water factor.

For other categories (agricultural, latent demand, etc.), the water demand allocation was made according to the assumptions discussed in the water demand factors section above.

Water demand forecasts were developed for each alternative described above for three points in time: the base year (1999 for the Western Slope and 2001 for the Tahoe Basin), 2025, and Buildout. The results are summarized in **Figure 10**. These alternatives provide a range for the annual countywide water demand.

It should be noted that the base year water demand was estimated based on the historic average water demand factors and variables (households, employment, etc.) calculated based on the methodology specified in this report. While it is not the actual demand recorded by the purveyors for the base year, it is very close to the actual numbers with a very insignificant variance.

For low growth forecast (No Project in the Western Slope area and Alternative 1 in the Tahoe Basin), the overall annual system water demand in El Dorado County is estimated to be 109,700 acre feet in 2025 and 129,600 acre feet at buildout.

For high growth forecast (1996 General Plan in the Western Slope area and Alternative 2 in the Tahoe Basin), the overall annual system water demand in El Dorado County is estimated to be 120,900 acre feet in 2025 and 162,800 acre feet at buildout.

The detailed water demand forecasts for each water purveyor under each alternative are summarized in **Figures 11 through 20**.

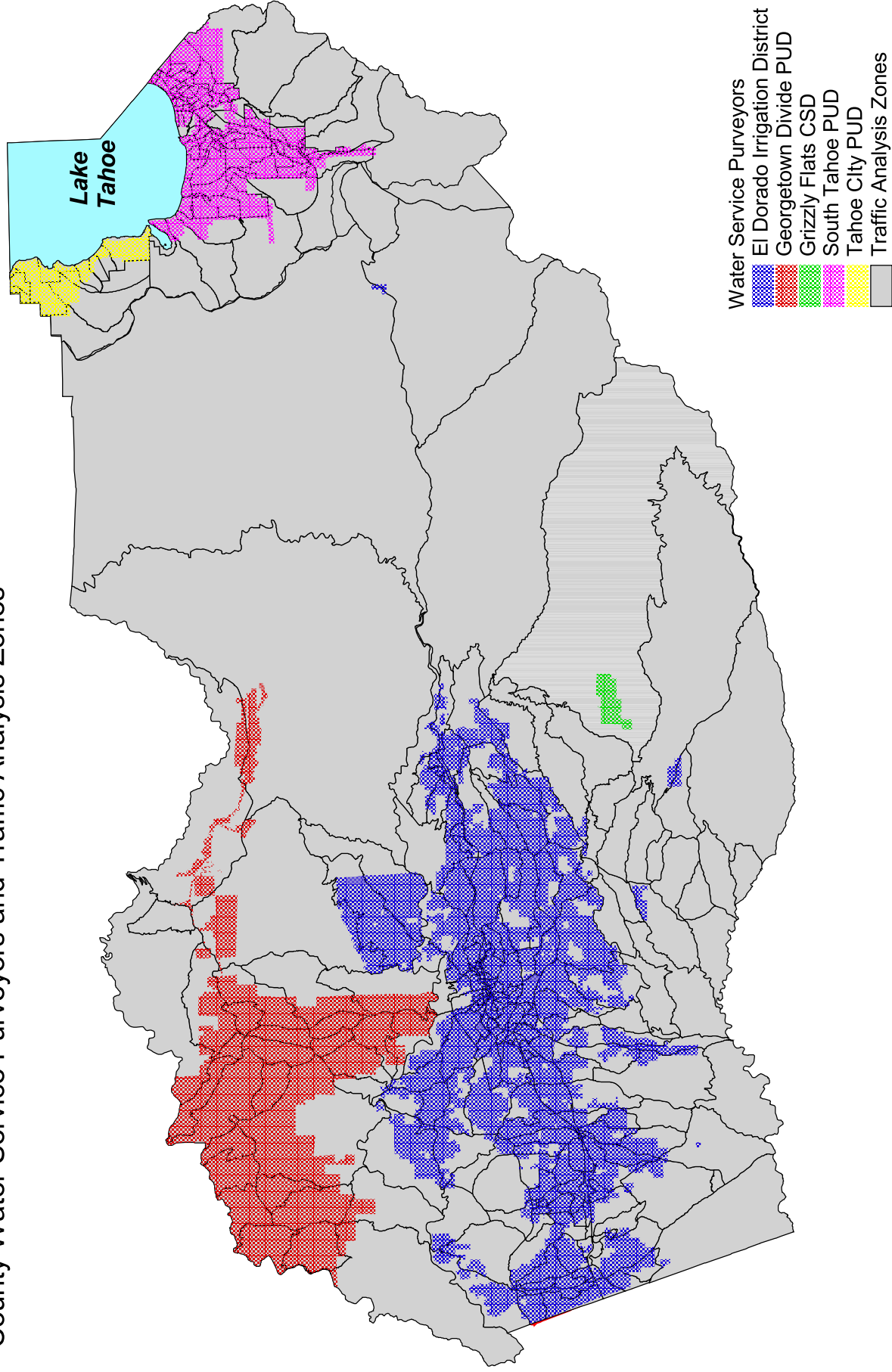
AGRICULTURAL WATER DEMAND

It should be noted that the agricultural water demand forecast for the Western Slope used in this report was developed by Wood Rodgers, Inc. and is still being reviewed and revised. Therefore, the numbers reported herein are subject to change. **Figure 21** provides a comparison of the initial agricultural water demand estimated by EPS based on data provided by the water purveyors with the estimates provided by Wood Rodgers. Wood Rodgers estimates include the potential water demand that could be generated by the agricultural district areas.

Figure 2

El Dorado County Water Agency
County Water Service Purveyors and Traffic Analysis Zones

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Figure 3
El Dorado County Water Demand Forecast
Western Slope Growth Projections Summary

Description	Residential [1]						Employment			
	Housing Units			Households			Retail	Service	Other	Total
	Single-Family	Multi-Family	Total	Single-Family	Multi-Family	Total				
Existing Units (1999)	39,631	5,189	44,820	37,649	4,930	42,579	6,464	15,425	8,545	30,434
No Project										
Through 2025										
New Units/Employees (1999-2025)	19,927	1,507	21,434	18,942	1,442	20,384	9,282	16,123	10,783	36,188
Total Units/Employees (Incl. Existing)	59,558	6,696	66,254	56,591	6,372	62,963	15,746	31,548	19,328	66,622
Through Buildout										
New Units/Employees (1999-Buildout)	27,141	2,379	29,520	25,792	2,280	28,072	22,049	37,068	25,243	84,360
Total Units/Employees (Incl. Existing)	66,772	7,568	74,340	63,441	7,210	70,651	28,513	52,493	33,788	114,794
Roadway Constrained										
Through 2025										
New Units/Employees (1999-2025)	24,194	1,645	25,839	22,984	1,579	24,563	8,515	15,423	10,517	34,455
Total Units/Employees (Incl. Existing)	63,824	6,835	70,659	60,633	6,509	67,142	14,979	30,848	19,062	64,889
Through Buildout										
New Units/Employees (1999-Buildout)	38,852	2,806	41,658	36,909	2,687	39,596	23,027	37,748	25,913	86,688
Total Units/Employees (Incl. Existing)	78,482	7,996	86,478	74,558	7,617	82,175	29,491	53,173	34,458	117,122
Environmentally Constrained										
Through 2025										
New Units/Employees (1999-2025)	25,852	6,447	32,299	24,559	6,137	30,696	11,384	18,886	12,441	42,711
Total Units/Employees (Incl. Existing)	65,482	11,636	77,119	62,208	11,067	73,275	17,848	34,311	20,986	73,145
Through Buildout										
New Units/Employees (1999-Buildout)	40,704	14,374	55,077	38,682	13,671	52,353	18,384	29,311	20,014	67,709
Total Units/Employees (Incl. Existing)	80,334	19,563	99,897	76,331	18,601	94,932	24,848	44,736	28,559	98,143
1996 General Plan										
Through 2025										
New Units/Employees (1999-2025)	27,369	5,122	32,491	26,014	4,876	30,890	11,021	18,630	12,545	42,196
Total Units/Employees (Incl. Existing)	67,000	10,311	77,311	63,663	9,806	73,469	17,485	34,055	21,090	72,630
Through Buildout										
New Units/Employees (1999-Buildout)	61,375	17,317	78,692	58,313	16,475	74,788	23,027	37,748	25,913	86,688
Total Units/Employees (Incl. Existing)	101,006	22,506	123,512	95,962	21,405	117,367	29,491	53,173	34,458	117,122

"ws_growth"

[1] Residential Households are 95% of Residential Housing Units (to account for a 5% vacancy factor).

Source: EPS.

Figure 4
El Dorado County Water Demand Forecast
Tahoe Basin Growth Projections Summary

Description	Residential Households	Hotel/Motel Rooms	Campground Sites	Employment			
				Retail	Service	Recreation	Other
Existing Units (2001)	15,831	5,888	1,498	3,464	3,015	235	2,287
"Low Growth" Alternative							
Through 2025							
New Units (1999-2025)	6,060	1,573	838	572	602	(28)	425
Total Units	21,891	7,461	2,336	4,036	3,617	207	2,712
Through Buildout							
New Units (1999-Buildout)	8,095	2,140	1,140	779	818	(37)	567
Total Units	23,926	8,028	2,638	4,243	3,833	198	2,854
"Moderate Growth" Alternative							
Through 2025							
New Units (1999-2025)	13,984	3,657	1,291	677	710	26	465
Total Units	29,815	9,545	2,789	4,141	3,725	261	2,752
Through Buildout							
New Units (1999-Buildout)	14,531	3,817	1,371	779	818	35	567
Total Units	30,362	9,705	2,869	4,243	3,833	270	2,854

"tb_growth"

Source: TRPA and EPS.

Figure 5
El Dorado County Water Demand Forecast
Western Slope Growth Projections Summary

Description	Units	Total for 1999					Total for 2025					Total for Capacity				
		NS	EID	GFCSD	GDPUD	Total	NS	EID	GFCSD	GDPUD	Total	NS	EID	GFCSD	GDPUD	Total
No Project Alternative																
Residential:																
Single-Family Units	Households	8,627	22,749	263	2,791	34,430	14,571	35,279	393	3,129	53,372	17,513	37,318	1,079	4,312	60,222
Multi-Family Units	Households	644	4,126	-	160	4,930	834	5,365	4	169	6,372	1,026	5,892	29	263	7,210
Mobile Home Units	Households	947	1,936	15	321	3,219	947	1,936	15	321	3,219	947	1,936	15	321	3,219
Total Units		10,218	28,811	278	3,272	42,579	16,352	42,580	412	3,619	62,963	19,486	45,146	1,123	4,896	70,651
Employment:																
Retail Employment	Employees	587	5,626	2	249	6,464	2,508	12,916	2	320	15,746	5,590	21,366	6	1,551	28,513
Service Employment	Employees	3,061	11,711	26	627	15,425	7,760	23,001	27	760	31,548	13,668	35,821	33	2,971	52,493
Other Employment	Employees	1,395	6,662	23	465	8,545	4,295	14,459	23	551	19,328	8,166	23,572	27	2,023	33,788
Total Employment:		5,043	23,999	51	1,341	30,434	14,563	50,376	52	1,631	66,622	27,424	80,759	66	6,545	114,794
Roadway Constrained Alternative																
Residential:																
Single-Family Units	Households	8,627	22,749	263	2,791	34,430	15,823	37,954	408	3,229	57,414	20,960	42,597	1,881	5,901	71,339
Multi-Family Units	Households	644	4,126	-	160	4,930	869	5,469	5	166	6,509	1,135	6,125	57	300	7,617
Mobile Home Units	Households	947	1,936	15	321	3,219	947	1,936	15	321	3,219	947	1,936	15	321	3,219
Total Units		10,218	28,811	278	3,272	42,579	17,639	45,359	428	3,716	67,142	23,042	50,658	1,953	6,522	82,175
Employment:																
Retail Employment	Employees	587	5,626	2	249	6,464	2,379	12,249	2	349	14,979	5,636	22,096	6	1,753	29,491
Service Employment	Employees	3,061	11,711	26	627	15,425	7,502	22,505	27	814	30,848	13,713	36,085	33	3,342	53,173
Other Employment	Employees	1,395	6,662	23	465	8,545	4,155	14,297	23	587	19,062	8,200	23,962	27	2,269	34,458
Total Employment:		5,043	23,999	51	1,341	30,434	14,036	49,051	52	1,750	64,889	27,549	82,143	66	7,364	117,122

Figure 5
El Dorado County Water Demand Forecast
Western Slope Growth Projections Summary

Description	Units	Total for 1999					Total for 2025					Total for Capacity				
		NS	EID	GFCSD	GDPUD	Total	NS	EID	GFCSD	GDPUD	Total	NS	EID	GFCSD	GDPUD	Total
Environmentally Constrained Alternative																
Residential:																
Single-Family Units	Households	8,627	22,749	263	2,791	34,430	16,030	39,067	486	3,406	58,989	20,423	45,164	1,770	5,755	73,112
Multi-Family Units	Households	644	4,126	-	160	4,930	1,222	9,261	9	575	11,067	1,824	14,387	53	2,337	18,601
Mobile Home Units	Households	947	1,936	15	321	3,219	947	1,936	15	321	3,219	947	1,936	15	321	3,219
Total Units		10,218	28,811	278	3,272	42,579	18,199	50,264	510	4,302	73,275	23,194	61,487	1,838	8,413	94,932
Employment:																
Retail Employment	Employees	587	5,626	2	249	6,464	2,938	14,476	3	431	17,848	4,317	18,843	6	1,682	24,848
Service Employment	Employees	3,061	11,711	26	627	15,425	8,613	24,711	29	958	34,311	11,052	30,439	33	3,212	44,736
Other Employment	Employees	1,395	6,662	23	465	8,545	4,757	15,524	25	680	20,986	6,426	19,923	27	2,183	28,559
Total Employment:		5,043	23,999	51	1,341	30,434	16,308	54,711	57	2,069	73,145	21,795	69,205	66	7,077	98,143
1996 General Plan Alternative																
Residential:																
Single-Family Units	Households	8,627	22,749	263	2,791	34,430	16,832	39,690	409	3,513	60,444	27,754	54,023	2,391	8,575	92,743
Multi-Family Units	Households	644	4,126	-	160	4,930	1,324	8,083	5	394	9,806	2,949	16,116	66	2,274	21,405
Mobile Home Units	Households	947	1,936	15	321	3,219	947	1,936	15	321	3,219	947	1,936	15	321	3,219
Total Units		10,218	28,811	278	3,272	42,579	19,103	49,709	429	4,228	73,469	31,650	72,075	2,472	11,170	117,367
Employment:																
Retail Employment	Employees	587	5,626	2	249	6,464	2,727	14,328	2	428	17,485	5,636	22,096	6	1,753	29,491
Service Employment	Employees	3,061	11,711	26	627	15,425	8,150	24,921	27	957	34,055	13,713	36,085	33	3,342	53,173
Other Employment	Employees	1,395	6,662	23	465	8,545	4,550	15,833	23	684	21,090	8,200	23,962	27	2,269	34,458
Total Employment:		5,043	23,999	51	1,341	30,434	15,427	55,082	52	2,069	72,630	27,549	82,143	66	7,364	117,122

"ws_allocation"

Source: EPS.

Figure 6
El Dorado County Water Demand Forecast
EID Growth Projections Summary by Region

Description	Units	Total for 1999				Total for 2025				Total for Capacity			
		Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total
No Project Alternative													
Residential:													
Single-Family Units	Households	8,974	8,730	5,045	22,749	10,498	10,886	13,895	35,279	11,541	11,655	14,122	37,318
Multi-Family Units	Households	1,957	2,075	94	4,126	2,307	2,457	601	5,365	2,419	2,836	637	5,892
Mobile Home Units	Households	898	928	110	1,936	898	928	110	1,936	898	928	110	1,936
Total Units		11,829	11,733	5,249	28,811	13,703	14,271	14,606	42,580	14,858	15,419	14,869	45,146
Employment:													
Retail Employment	Employees	2,840	2,300	486	5,626	3,975	5,724	3,217	12,916	6,080	10,585	4,701	21,366
Service Employment	Employees	5,222	4,169	2,320	11,711	5,835	6,367	10,799	23,001	7,353	14,045	14,423	35,821
Other Employment	Employees	3,499	2,456	707	6,662	4,243	3,723	6,493	14,459	5,797	9,099	8,676	23,572
Total Employment:		11,561	8,925	3,513	23,999	14,053	15,814	20,509	50,376	19,230	33,729	27,800	80,759
Roadway Constrained Alternative													
Residential:													
Single-Family Units	Households	8,974	8,730	5,045	22,749	11,154	11,876	14,924	37,954	13,673	13,516	15,408	42,597
Multi-Family Units	Households	1,957	2,075	94	4,126	2,303	2,505	661	5,469	2,474	2,946	705	6,125
Mobile Home Units	Households	898	928	110	1,936	898	928	110	1,936	898	928	110	1,936
Total Units		11,829	11,733	5,249	28,811	14,355	15,309	15,695	45,359	17,045	17,390	16,223	50,658
Employment:													
Retail Employment	Employees	2,840	2,300	486	5,626	4,447	4,665	3,137	12,249	6,342	11,037	4,717	22,096
Service Employment	Employees	5,222	4,169	2,320	11,711	6,037	6,101	10,367	22,505	7,400	14,223	14,462	36,085
Other Employment	Employees	3,499	2,456	707	6,662	4,532	3,627	6,138	14,297	5,929	9,333	8,700	23,962
Total Employment:		11,561	8,925	3,513	23,999	15,016	14,393	19,642	49,051	19,671	34,593	27,879	82,143

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Figure 6
El Dorado County Water Demand Forecast
EID Growth Projections Summary by Region

Description	Units	Total for 1999				Total for 2025				Total for Capacity			
		Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total
Environmentally Constrained Alternative													
Residential:													
Single-Family Units	Households	8,974	8,730	5,045	22,749	10,985	12,420	15,662	39,067	12,580	15,536	15,536	43,652
Multi-Family Units	Households	1,957	2,075	94	4,126	2,783	4,945	1,533	9,261	3,512	8,781	8,781	21,074
Mobile Home Units	Households	898	928	110	1,936	898	928	110	1,936	898	928	928	2,754
Total Units		11,829	11,733	5,249	28,811	14,666	18,293	17,305	50,264	16,990	25,245	25,245	67,480
Employment:													
Retail Employment	Employees	2,840	2,300	486	5,626	4,805	6,141	3,530	14,476	5,787	9,247	9,247	24,281
Service Employment	Employees	5,222	4,169	2,320	11,711	6,207	7,559	10,945	24,711	6,764	11,975	11,975	30,714
Other Employment	Employees	3,499	2,456	707	6,662	4,761	4,450	6,313	15,524	5,417	7,705	7,705	20,827
Total Employment:		11,561	8,925	3,513	23,999	15,773	18,150	20,788	54,711	17,968	28,927	28,927	75,822
1996 General Plan Alternative													
Residential:													
Single-Family Units	Households	8,974	8,730	5,045	22,749	11,400	12,945	15,345	39,690	15,876	20,170	17,977	54,023
Multi-Family Units	Households	1,957	2,075	94	4,126	2,319	4,652	1,112	8,083	3,039	11,164	1,913	16,116
Mobile Home Units	Households	898	928	110	1,936	898	928	110	1,936	898	928	110	1,936
Total Units		11,829	11,733	5,249	28,811	14,617	18,525	16,567	49,709	19,813	32,262	20,000	72,075
Employment:													
Retail Employment	Employees	2,840	2,300	486	5,626	4,444	6,482	3,402	14,328	6,342	11,037	4,717	22,096
Service Employment	Employees	5,222	4,169	2,320	11,711	6,076	7,681	11,164	24,921	7,400	14,223	14,462	36,085
Other Employment	Employees	3,499	2,456	707	6,662	4,549	4,611	6,673	15,833	5,929	9,333	8,700	23,962
Total Employment:		11,561	8,925	3,513	23,999	15,069	18,774	21,239	55,082	19,671	34,593	27,879	82,143

"eid_allocation"

Source: EPS.

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Figure 7
El Dorado County Water Demand Forecast
Tahoe Basin Growth Projections Summary

Description	Units	Total for 2001				Total for 2025				Total for Capacity			
		NS	STPUD	TCPUD	Total	NS	STPUD	TCPUD	Total	NS	STPUD	TCPUD	Total
Alternative 1													
Residential Units	Households	2,766	12,509	556	15,831	6,567	14,718	606	21,891	7,935	15,371	620	23,926
Motel / Hotel Rooms	Rooms	388	5,490	10	5,888	411	7,040	10	7,461	420	7,598	10	8,028
Campground Sites	Sites	456	750	292	1,498	754	1,290	292	2,336	862	1,484	292	2,638
Employment:													
Retail Employment	Employees	171	3,280	13	3,464	193	3,830	13	4,036	202	4,028	13	4,243
Service Employment	Employees	238	2,731	46	3,015	289	3,282	46	3,617	307	3,480	46	3,833
Recreation Employment	Employees	13	222	-	235	39	168	-	207	48	150	-	198
Other Employment	Employees	115	2,172	-	2,287	140	2,572	-	2,712	149	2,705	-	2,854
Total Employment:		537	8,405	59	9,001	661	9,852	59	10,572	706	10,363	59	11,128
Alternative 2													
Residential Units	Households	2,766	12,509	556	15,831	13,897	15,298	620	29,815	14,371	15,371	620	30,362
Motel / Hotel Rooms	Rooms	388	5,490	10	5,888	552	8,953	40	9,545	560	9,103	42	9,705
Campground Sites	Sites	456	750	292	1,498	813	1,460	516	2,789	833	1,502	534	2,869
Employment:													
Retail Employment	Employees	171	3,280	13	3,464	193	3,935	13	4,141	202	4,028	13	4,243
Service Employment	Employees	238	2,731	46	3,015	289	3,390	46	3,725	307	3,480	46	3,833
Recreation Employment	Employees	13	222	-	235	39	222	-	261	48	222	-	270
Other Employment	Employees	115	2,172	-	2,287	140	2,612	-	2,752	149	2,705	-	2,854
Total Employment:		537	8,405	59	9,001	661	10,159	59	10,879	706	10,435	59	11,200

"tb_allocation"

Source: EPS, South Tahoe PUD, Tahoe City PUD, TRPA.

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Figure 8
El Dorado County Water Agency
Water Demand Factors by Purveyor, 1999 to Buildout

District	Units of Consumption	Water Demand Factors		
		1999	2025	Buildout
El Dorado Irrigation District [1]				
Single-Family Residential Units [2]	af/yr/du	See Figure 9	See Figure 9	See Figure 9
Multi-Family Residential Units	af/yr/du	See Figure 9	See Figure 9	See Figure 9
Commercial / Industrial / Office	af/yr/employee	See Figure 9	See Figure 9	See Figure 9
Agricultural Demand [7]	af/yr	5,950	13,745	13,745
Recreational Turf Services [19]	af/yr	1,720	1,720	1,720
Ditches [21]	af/yr	1,000	1,500	1,500
Unaccounted for & Beneficial Uses Water [22]	% of active demand [3]	18.31%	15.00%	12.00%
Latent Demand	% of active demand [3]	6.71%	7.00%	7.00%
Georgetown Divide PUD [4]				
Single-Family Residential Units [2] [5]	af/yr/du	0.48	0.48	0.48
Multi-Family Residential Units [5]	af/yr/du	0.48	0.48	0.48
Commercial / Industrial / Office [6]	af/yr/employee	0.18	0.18	0.18
Irrigation [7]	af/yr	4,351	7,710	9,114
Property Owners Association [8]	af/yr	123	123	123
		3,000 af +	3,000 af +	3,000 af +
Unaccounted for & Beneficial Uses Water [9]	af/yr	4.2%	4.2%	4.2%
Latent Demand [11]	% of active demand [10]	22%	20%	15%
Grizzly Flats CSD [12] [13]				
Single-Family Residential Units [2]	af/yr/du	0.47	0.42	0.42
Multi-Family Residential Units	af/yr/du	0.47	0.42	0.42
Commercial / Industrial / Office	af/yr/employee	0.50	0.47	0.42
South Tahoe PUD [14]				
Single-Family Residential Units [2] [15]	af/yr/du	0.32	0.35	0.35
Hotel/Motel Rooms [20]	af/yr/u	0.11	0.11	0.11
Campground Sites [20]	af/yr/u	0.03	0.03	0.03
Commercial Units	af/yr/account	3.39	4.00	4.00
Commercial / Industrial / Office	af/yr/employee	0.24	0.27	0.27
Unaccounted for & Beneficial Uses Water	af/yr	1,018	1,243	1,243
Tahoe City PUD [15] [16]				
Single-Family Residential Units [2] [17]	af/yr/du	0.49	0.49	0.49
Hotel/Motel Rooms [20]	af/yr/u	0.11	0.11	0.11
Campground Sites [20]	af/yr/u	0.03	0.03	0.03
Commercial Units	af/yr/account	0.49	0.49	0.49
Commercial / Industrial / Office	af/yr/employee	0.08	0.08	0.08
Other County Areas - Western Slope [18]				
Single-Family Residential Units	af/yr/du	0.69	0.72	0.70
Multi-Family Residential Units	af/yr/du	0.28	0.29	0.29
Commercial / Industrial / Office	af/yr/employee	0.11	0.15	0.14
Agricultural Demand [7]	af/yr	-	2,860	9,685
Other County Areas - Tahoe Basin [18]				
Residential Units [2]	af/yr/du	0.33	0.35	0.35
Hotel/Motel Rooms	af/yr/u	0.11	0.11	0.11
Campground Sites	af/yr/u	0.03	0.03	0.03
Commercial / Industrial / Office	af/yr/employee	0.24	0.27	0.27

"demand_factors"

Notes for **Figure 8:**

- [1] Based on EID December 2001 Administrative Draft of Master Supply Water Plan.
- [2] Assumes mobile home units have the same water demand as single-family units.
- [3] Active demand in EID includes all residential, irrigation, commercial, and recreational uses.
- [4] Based on consumption/revenue data by route, 1995-2000, compiled by Eco:Logic.
- [5] No breakout of consumption by residential land uses is available.
- [6] Based on 126 Commercial / Industrial / Office (CIO) connections in 2000 with a mean 6.2 employees per establishment.
- [7] Agricultural demand data (including base year) was provided by Wood Rodgers, Inc.
- [8] Property Owner Association (POA) demand is not expected to increase in the future.
- [9] Unaccounted for / beneficial uses water and losses for 2000 was estimated at 3,257 af.
This includes 257 af for treatment and conveyance (4.2% of active demand) and 3,000 af estimate of operational losses (leakage, evaporation, etc.). Projection for future is 3,000 af/yr plus 4.2% of active demand.
- [10] Active demand in GDPUD includes all residential, irrigation, commercial and POA uses.
- [11] Latent demand for the district in 2000 was estimated at 1,352 af. Active demand in 2000 was 6,178 af.
- [12] Based on March 11, 1998 Investigation of Off-Stream Storage report.
- [13] Includes all commercial, unaccounted for and beneficial water uses but no latent water demand.
- [14] Based on Draft STPUD Urban Water Management Plan, June 2002.
- [15] Based on TCPUD Water Master Plan from October 2001. Rubicon zone is the only service area in El Dorado County (552 connections anticipated in 2002).
- [16] Includes all unaccounted for water and beneficial water uses, but not latent demand.
- [17] No breakout of consumption by land use is available.
- [18] No Service Area demand is the weighted average of the demand factors for all purveyors.
- [19] Based on historical data provided in Table 4-B of EID Administrative Draft Water Supply Master Plan. Assumed to remain constant.
- [20] Based on Policy for Implementing The State Revolving Fund for Construction of Wastewater Treatment Facilities, State Water Resources Control Board, State of California, Table G-1: Estimated water consumption at different types of establishments.
- [21] Water demand for ditches is projected to be approximately 1,500 af/year. 1999 was a low year for this type of water use.
- [22] The 1999 factor is an estimate calculated by EPS. It is different percentage-wise from the one reported by EID due to the fact that EID calculates it as a percentage of total demand, and EPS calculates it as a percentage of active demand as defined above (see Note [3]).
- [23] Agricultural demand data (including base year) was provided by Wood Rodgers, Inc.

Figure 9
El Dorado County Water Agency
Water Demand Factors - EID [1]

Description	Region						Total Consumption
	El Dorado Hills		Western		Eastern		
	Unit Consumption	Households/ Employees	Unit Consumption	Households/ Employees	Unit Consumption	Households/ Employees	
Single-Family Residential [2]	0.79	6,805	0.79	11,235	0.62	8,613	19,592
Multi-Family Residential [4]	0.43	585	0.28	3,592	0.25	1,856	1,721
Commercial / Industrial Per Unit [4]	3.58	217	1.72	598	2.68	310	2,636
Commercial / Industrial Per Employee [3]	0.22	3,513	0.12	8,925	0.07	11,561	2,636

"EID_factors"

[1] Assumes that demand factors do not change over time.

[2] Used demand factors for Medium Density Residential Units from the Administrative Draft Water Supply Master Plan.

[3] Per base-year allocation to regions.

[4] Administrative Draft Water Supply Master Plan and 2002 Update To The Water Supply & Demand Report, May 20, 2002.

Source: El Dorado Irrigation District, *Administrative Draft Water Supply Master Plan* and *2002 Update To The Water Supply & Demand Report, May 20, 2002* .

Figure 10
El Dorado County Water Demand Forecast
Water Demand Summary [1]

Description	Acre Feet Per Year				
	Base Year [2]	2025		Buildout	
	Estimated Demand	New Demand (1999-2025)	Total Demand	New Demand (1999-Buildout)	Total Demand
	A	B	C=A+B	D	E=A+D
Western Slope:					
No Project Alternative	56,300	40,600	96,900	59,600	115,900
Roadway Constrained Alternative	56,300	43,600	99,900	68,300	124,600
Environmentally Constrained Alternative	56,300	48,100	104,400	71,500	127,800
1996 General Plan	56,300	48,700	105,000	90,300	146,600
Tahoe Basin:					
Alternative 1	9,100	3,700	12,800	4,600	13,700
Alternative 2	9,100	6,800	15,900	7,100	16,200
Range of Demand:					
Low Demand (No Project & Alt. 1)	65,400	44,300	109,700	64,200	129,600
High Demand (1996 GP & Alt. 2)	65,400	55,500	120,900	97,400	162,800

"summary"

[1] Water demand projections reflect ag adjustment.

[2] 1999 for the Western Slope
2001 for the Tahoe Basin

Figure 11
 El Dorado County Water Agency
 El Dorado County Western Slope Water Demand Forecast

No Project
 Western Slope

Purveyor / Demand Component	Total Water Demand (af/yr)		
	1999	2025	Buildout
El Dorado Irrigation District			
Residential			
Single-Family Households	16,446	26,086	27,519
Multi-Family Household	1,111	1,523	1,673
Mobile Home Households	1,377	1,377	1,377
Commercial			
Retail Employees	577	1,657	2,696
Service Employees	1,369	3,541	5,336
Other Employees	691	2,170	3,384
Other			
Agricultural Demand	5,950	13,745	13,745
Recreational Turf Services	1,720	1,720	1,720
Ditches	1,000	1,500	1,500
Unaccounted for & Beneficial Uses Water	5,536	7,998	7,074
Latent Demand	2,030	3,732	4,127
Total Water Demand for EID	37,806	65,049	70,151
Georgetown Divide PUD			
Residential			
Single-Family Households	1,351	1,514	2,087
Multi-Family Household	77	82	127
Mobile Home Households	155	155	155
Commercial			
Retail Employees	46	59	285
Service Employees	115	140	546
Other Employees	86	101	372
Other			
Irrigation	4,351	7,710	9,114
Property Owners Association	123	123	123
Unaccounted for & Beneficial Uses Water	3,265	3,415	3,538
Latent Demand	1,387	1,977	1,922
Total Water Demand for GDPUD	10,956	15,277	18,270
Grizzly Flats CSD			
Residential			
Single-Family Households	124	165	453
Multi-Family Household	-	2	12
Mobile Home Households	7	6	6
Commercial			
Retail Employees	1	1	3
Service Employees	13	13	14
Other Employees	12	11	11
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for GFCS D	157	197	499
Other County Areas - Western Slope			
Residential			
Single-Family Households	5,992	10,427	12,326
Multi-Family Household	179	242	301
Mobile Home Households	658	678	667
Commercial			
Retail Employees	67	371	809
Service Employees	351	1,147	1,979
Other Employees	160	635	1,182
Other			
Agricultural Demand	-	2,860	9,685
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for Other County Areas	7,406	16,358	26,948
Total Water Demand for Western Slope	56,324	96,881	115,869

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Figure 12
 El Dorado County Water Agency
 El Dorado County Western Slope Water Demand Forecast

Roadway Constrained
 Western Slope

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Purveyor / Demand Component	Total Water Demand (af/yr)		
	1999	2025	Buildout
El Dorado Irrigation District			
Residential			
Single-Family Households	16,446	28,087	31,327
Multi-Family Household	1,111	1,561	1,747
Mobile Home Households	1,377	1,377	1,377
Commercial			
Retail Employees	577	1,551	2,771
Service Employees	1,369	3,429	5,369
Other Employees	691	2,101	3,426
Other			
Agricultural Demand	5,950	13,745	13,745
Recreational Turf Services	1,720	1,720	1,720
Ditches	1,000	1,500	1,500
Unaccounted for & Beneficial Uses Water	5,536	8,261	7,558
Latent Demand	2,030	3,855	4,409
Total Water Demand for EID	37,806	67,188	74,948
Georgetown Divide PUD			
Residential			
Single-Family Households	1,351	1,563	2,856
Multi-Family Household	77	80	145
Mobile Home Households	155	155	155
Commercial			
Retail Employees	46	64	322
Service Employees	115	150	614
Other Employees	86	108	417
Other			
Irrigation	4,351	7,710	9,114
Property Owners Association	123	123	123
Unaccounted for & Beneficial Uses Water	3,265	3,418	3,577
Latent Demand	1,387	1,991	2,062
Total Water Demand for GDPUD	10,956	15,362	19,387
Grizzly Flats CSD			
Residential			
Single-Family Households	124	171	790
Multi-Family Household	-	2	24
Mobile Home Households	7	6	6
Commercial			
Retail Employees	1	1	3
Service Employees	13	13	14
Other Employees	12	11	11
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for GFCSD	157	204	848
Other County Areas - Western Slope			
Residential			
Single-Family Households	5,992	11,323	14,752
Multi-Family Household	179	252	333
Mobile Home Households	658	678	667
Commercial			
Retail Employees	67	352	816
Service Employees	351	1,108	1,985
Other Employees	160	614	1,187
Other			
Agricultural Demand	-	2,860	9,685
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for Other County Areas	7,406	17,186	29,424
Total Water Demand for Western Slope	56,324	99,941	124,607

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Figure 13
 El Dorado County Water Agency
 El Dorado County Western Slope Water Demand Forecast

Environmentally Constrained
 Western Slope

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Purveyor / Demand Component	Total Water Demand (af/yr)		
	1999	2025	Buildout
El Dorado Irrigation District			
Residential			
Single-Family Households	16,446	28,995	33,541
Multi-Family Household	1,111	2,740	4,237
Mobile Home Households	1,377	1,377	1,377
Commercial			
Retail Employees	577	1,834	2,324
Service Employees	1,369	3,738	4,453
Other Employees	691	2,251	2,781
Other			
Agricultural Demand	5,950	13,745	13,745
Recreational Turf Services	1,720	1,720	1,720
Ditches	1,000	1,500	1,500
Unaccounted for & Beneficial Uses Water	5,536	8,685	7,881
Latent Demand	2,030	4,053	4,598
Total Water Demand for EID	37,806	70,637	78,158
Georgetown Divide PUD			
Residential			
Single-Family Households	1,351	1,649	2,785
Multi-Family Household	77	278	1,131
Mobile Home Households	155	155	155
Commercial			
Retail Employees	46	79	309
Service Employees	115	176	591
Other Employees	86	125	401
Other			
Irrigation	4,351	7,710	9,114
Property Owners Association	123	123	123
Unaccounted for & Beneficial Uses Water	3,265	3,432	3,614
Latent Demand	1,387	2,059	2,192
Total Water Demand for GDPUD	10,956	15,787	20,415
Grizzly Flats CSD			
Residential			
Single-Family Households	124	204	743
Multi-Family Household	-	4	22
Mobile Home Households	7	6	6
Commercial			
Retail Employees	1	1	3
Service Employees	13	14	14
Other Employees	12	12	11
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for GFCSD	157	241	800
Other County Areas - Western Slope			
Residential			
Single-Family Households	5,992	11,471	14,374
Multi-Family Household	179	355	535
Mobile Home Households	658	678	667
Commercial			
Retail Employees	67	434	625
Service Employees	351	1,273	1,600
Other Employees	160	703	930
Other			
Agricultural Demand	-	2,860	9,685
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for Other County Areas	7,406	17,773	28,415
Total Water Demand for Western Slope	56,324	104,438	127,788

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Figure 14
 El Dorado County Water Agency
 El Dorado County Western Slope Water Demand Forecast

1996 General Plan
 Western Slope

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Purveyor / Demand Component	Total Water Demand (af/yr)		
	1999	2025	Buildout
El Dorado Irrigation District			
Residential			
Single-Family Households	16,446	29,417	39,979
Multi-Family Household	1,111	2,360	4,708
Mobile Home Households	1,377	1,377	1,377
Commercial			
Retail Employees	577	1,819	2,771
Service Employees	1,369	3,791	5,369
Other Employees	691	2,334	3,426
Other			
Agricultural Demand	5,950	13,745	13,745
Recreational Turf Services	1,720	1,720	1,720
Ditches	1,000	1,500	1,500
Unaccounted for & Beneficial Uses Water	5,536	8,709	8,951
Latent Demand	2,030	4,064	5,222
Total Water Demand for EID	37,806	70,837	88,768
Georgetown Divide PUD			
Residential			
Single-Family Households	1,351	1,700	4,150
Multi-Family Household	77	191	1,101
Mobile Home Households	155	155	155
Commercial			
Retail Employees	46	79	322
Service Employees	115	176	614
Other Employees	86	126	417
Other			
Irrigation	4,351	7,710	9,114
Property Owners Association	123	123	123
Unaccounted for & Beneficial Uses Water	3,265	3,431	3,672
Latent Demand	1,387	2,052	2,400
Total Water Demand for GDPUD	10,956	15,743	22,069
Grizzly Flats CSD			
Residential			
Single-Family Households	124	172	1,004
Multi-Family Household	-	2	28
Mobile Home Households	7	6	6
Commercial			
Retail Employees	1	1	3
Service Employees	13	13	14
Other Employees	12	11	11
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for GFCS D	157	205	1,066
Other County Areas - Western Slope			
Residential			
Single-Family Households	5,992	12,045	19,534
Multi-Family Household	179	384	864
Mobile Home Households	658	678	667
Commercial			
Retail Employees	67	403	816
Service Employees	351	1,204	1,985
Other Employees	160	672	1,187
Other			
Agricultural Demand	-	2,860	9,685
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for Other County Areas	7,406	18,246	34,738
Total Water Demand for Western Slope	56,324	105,030	146,640

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Figure 15
El Dorado County Water Agency
El Dorado Irrigation District - Residential and Commercial Water Demand Forecast by Service Region

Demand Component	Total Water Demand (af/yr)											
	1999				2025				Buildout			
	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total
Single-Family Households	5,564	6,897	3,986	16,446	6,509	8,600	10,977	26,086	7,155	9,207	11,156	27,519
Multi-Family Household	489	581	40	1,111	577	688	258	1,523	605	794	274	1,673
Mobile Home Households	557	733	87	1,377	557	733	87	1,377	557	733	87	1,377
Retail Employees	204	265	107	577	286	660	711	1,657	437	1,220	1,040	2,696
Service Employees	375	480	513	1,369	419	734	2,388	3,541	528	1,619	3,189	5,336
Other Employees	251	283	156	691	305	429	1,436	2,170	417	1,049	1,919	3,384
Total Water Demand for EID				21,570				36,353				41,985

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Figure 16
 El Dorado County Water Agency
 El Dorado Irrigation District - Residential and Commercial Water Demand Forecast by Service Region

Roadway Constrained
 EID Res & Comm

Demand Component	Total Water Demand (af/yr)											
	1999				2025				Buildout			
	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total
Single-Family Households	5,564	6,897	3,986	16,446	6,915	9,382	11,790	28,087	8,477	10,678	12,172	31,327
Multi-Family Household	489	581	40	1,111	576	701	284	1,561	619	825	303	1,747
Mobile Home Households	557	733	87	1,377	557	733	87	1,377	557	733	87	1,377
Retail Employees	204	265	107	577	320	538	694	1,551	456	1,272	1,043	2,771
Service Employees	375	480	513	1,369	434	703	2,293	3,429	532	1,639	3,198	5,369
Other Employees	251	283	156	691	326	418	1,357	2,101	426	1,076	1,924	3,426
Total Water Demand for EID				21,570				38,107				46,016

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Environmentally Constrained

EID Res & Comm

Figure 17
El Dorado County Water Agency
El Dorado Irrigation District - Residential and Commercial Water Demand Forecast by Service Region

Demand Component	Total Water Demand (af/yr)											
	1999				2025				Buildout			
	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total
Single-Family Households	5,564	6,897	3,986	16,446	6,811	9,812	12,373	28,995	7,800	12,273	13,468	33,541
Multi-Family Household	489	581	40	1,111	696	1,385	659	2,740	878	2,459	900	4,237
Mobile Home Households	557	733	87	1,377	557	733	87	1,377	557	733	87	1,377
Retail Employees	204	265	107	577	345	708	781	1,834	416	1,066	842	2,324
Service Employees	375	480	513	1,369	446	871	2,420	3,738	486	1,380	2,587	4,453
Other Employees	251	283	156	691	342	513	1,396	2,251	389	888	1,504	2,781
Total Water Demand for EID				21,570				40,934				48,713

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1996 General Plan
EID Res & Comm

Figure 18
El Dorado County Water Agency
El Dorado Irrigation District - Residential and Commercial Water Demand Forecast by Service Region

Demand Component	Total Water Demand (af/yr)											
	1999				2025				Buildout			
	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total	Eastern	Western	El Dorado	Total
Single-Family Households	5,564	6,897	3,986	16,446	7,068	10,227	12,123	29,417	9,843	15,934	14,202	39,979
Multi-Family Household	489	581	40	1,111	580	1,303	478	2,360	760	3,126	823	4,708
Mobile Home Households	557	733	87	1,377	557	733	87	1,377	557	733	87	1,377
Retail Employees	204	265	107	577	319	747	752	1,819	456	1,272	1,043	2,771
Service Employees	375	480	513	1,369	437	885	2,469	3,791	532	1,639	3,198	5,369
Other Employees	251	283	156	691	327	531	1,476	2,334	426	1,076	1,924	3,426
Total Water Demand for EID				21,570				41,098				57,630

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Figure 19
 El Dorado County Water Agency
 El Dorado County Tahoe Basin Water Demand Forecast

Alternative 1
 Tahoe Basin

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Purveyor / Demand Component	Total Water Demand (af/yr)		
	2001	2025	Buildout
South Tahoe PUD			
Residential			
Residential Households	4,054	5,140	5,368
Commercial			
Hotel/Motel Rooms	604	774	836
Campgrounds	21	36	42
Retail Employees	781	1,049	1,104
Service Employees	650	899	953
Recreation Employees	53	46	41
Other Employees	517	705	741
Other			
Unaccounted for & Beneficial Uses Water	1,018	1,243	1,243
Latent Demand	-	-	-
Total Water Demand for STPUD	7,698	9,893	10,328
Tahoe City PUD			
Residential			
Residential Households	274	299	306
Commercial			
Hotel/Motel Rooms	1	1	1
Campgrounds	8	8	8
Retail Employees	1	1	1
Service Employees	3	3	3
Other Employees	-	-	-
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for TCPUD	288	312	319
Other County Areas - Tahoe Basin			
Residential			
Residential Households	916	2,331	2,815
Commercial			
Hotel/Motel Rooms	43	45	46
Campgrounds	13	21	24
Retail Employees	41	53	55
Service Employees	56	79	84
Recreation Employees	3	11	13
Other Employees	27	38	41
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for Other County Areas	1,099	2,577	3,078
Total Water Demand for Tahoe Basin	9,085	12,782	13,725

"tahoe_1"

Figure 20
 El Dorado County Water Agency
 El Dorado County Tahoe Basin Water Demand Forecast

Alternative 2
 Tahoe Basin

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Purveyor / Demand Component	Total Water Demand (af/yr)		
	2001	2025	Buildout
South Tahoe PUD			
Residential			
Residential Households	4,054	5,343	5,368
Commercial			
Hotel/Motel Rooms	604	985	1,001
Campgrounds	21	41	42
Retail Employees	781	1,078	1,104
Service Employees	650	929	953
Recreation Employees	53	61	61
Other Employees	517	716	741
Other			
Unaccounted for & Beneficial Uses Water	1,018	1,243	1,243
Latent Demand	-	-	-
Total Water Demand for STPUD	7,698	10,395	10,513
Tahoe City PUD			
Residential			
Residential Households	274	306	306
Commercial			
Hotel/Motel Rooms	1	4	5
Campgrounds	8	14	15
Retail Employees	1	1	1
Service Employees	3	3	3
Other Employees	-	-	-
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for TCPUD	288	329	330
Other County Areas Demand - Tahoe Basin			
Residential			
Residential Households	916	4,932	5,099
Commercial			
Hotel/Motel Rooms	43	61	62
Campgrounds	13	23	23
Retail Employees	41	53	55
Service Employees	56	79	84
Recreation Employees	3	11	13
Other Employees	27	38	41
Other			
Unaccounted for & Beneficial Uses Water	-	-	-
Latent Demand	-	-	-
Total Water Demand for Other County Areas	1,099	5,196	5,376
Total Water Demand for Tahoe Basin	9,085	15,919	16,219

"tahoe_2"

Figure 21
El Dorado County Water Demand Forecast
Agricultural Water Demand Projections Comparison - Western Slope

Description	Base Year (af/yr) [3]			2025 (af/yr)			Buildout (af/yr)		
	Initial Estimate [1]	Wood Rodgers Estimate [2]	Difference	Initial Estimate [1]	Wood Rodgers Estimate [2]	Difference	Initial Estimate [1]	Wood Rodgers Estimate [2]	Difference
EID	5,239	5,950	711	5,239	13,745	8,506	5,239	13,745	8,506
GDPUD	4,463	4,351	(112)	4,463	7,710	3,247	4,463	9,114	4,651
GFCSD	-	-	-	-	-	-	-	-	-
Other County Areas	-	-	-	-	2,860	2,860	-	9,685	9,685
Total	9,702	10,301	599	9,702	24,315	14,613	9,702	32,544	22,842

"ag_comp"

Sources: EPS; Wood Rodgers, Inc.

[1] As shown in EPS Draft Technical Memorandum (El Dorado County Water Demand Forecast) dated December 19, 2002 (based on data provided by purveyors.
 [2] Used in current report.
 [3] Base year is 1999 for the Initial Estimate and 2000 for Wood Rodgers estimates.