Municipal Services Review: Volume I

Final

August 2008

Amador Local Agency Formation Commission

Burr Consulting

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ACRONYMS

ACRA	Amador County Recreation Agency
ACSO	Amador County Sheriff's Office
ACTC	Amador County Transportation Commission
ADWF:	Average dry weather flow
af:	Acre-feet
afa:	Acre-feet per annum
AFPA	Amador Fire Protection Agency
AFPD	Amador Fire Protection District
ARSA	Amador Regional Sanitation Authority
AWA	Amador Water Agency
AWS	Amador Water System
BLS	Basic Life Support
BOE	California Board of Equalization
CALFIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAWP	Central Amador Water Project
ccf:	Hundreds of cubic feet
CC&R	Covenants, Conditions and Restrictions
CCTV:	Closed circuit television
CDCR	California Department Corrections and Rehabilitation
CEQA:	California Environmental Quality Act
CFD	Community Facilities District (aka Mello-Roos)
cfs:	Cubic feet per second
CHP	California Highway Patrol
CIP	California improvement program
CSD	Community Services District
CY:	Calendar year
DFG:	California Department of Fish and Game
DOF	California Department of Finance
DPH	California Department of Public Health
DWR:	California Department of Water Resources
EBMUD	East Bay Municipal Utility District
EMD	Emergency medical dispatch
EMS	Emergency medical services
EMT	Emergency medical technician
EPA:	U.S. Environmental Protection Agency
ERAF:	Educational Revenue Augmentation Fund
FEMA:	Federal Emergency Management Agency
FF	Firefighter
FPD	Fire Protection District
FY:	Fiscal year
GIS:	Geographic Information Systems
gpd:	Gallons per day
gpm:	Gallons per minute
I/I	Infiltration and inflow

IRWMP:	Integrated Regional Water Management Plan
ISO:	Insurance Services Organization
JPA:	Joint Powers Authority
JVID	Jackson Valley Irrigation District
LAFCO:	Local Agency Formation Commission
LOS	Level of service (for streets)
MCL:	Maximum Contaminant Level
MCSP	Mule Creek State Prison
mg:	Millions of gallons
mgd:	Millions of gallons per day
MS4:	Municipal separate storm sewer systems
MSR:	Municipal services review
NA:	Not applicable
NFPA	National Fire Protection Association
NP:	Not provided
NPDES:	National Pollutant Discharge Elimination System
OPR:	Governor's Office of Planning and Research
PG&E	Pacific Gas and Electric Company
PMS	Pavement Management System
PSAP	Public Safety Answering Point
PWWF:	Peak wet weather flow
RWQCB:	Regional Water Quality Control Board
SCADA:	Supervisory Control and Data Acquisition
SDWA:	Safe Drinking Water Act
SOI:	Sphere of influence
SR	State Route
SRA	State Responsibility Area
SWRCB:	State Water Resources Control Board
TDS:	Total dissolvable solids
TMDL:	Total maximum daily load
UWMP:	Urban Water Management Plan
USFS	U.S. Forest Service
WWTP:	Wastewater treatment plant

PREFACE

Prepared for the Amador Local Agency Formation Commission (LAFCO), this report is a countywide municipal services review—a state-required comprehensive study of services within a designated geographic area. This MSR focuses on local agencies and other municipal service providers in Amador County.

CONTEXT

Amador LAFCO is required to prepare this MSR by the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Government Code §56000, et seq.), which took effect on January 1, 2001. The MSR reviews services provided by public agencies whose boundaries and governance are subject to LAFCO. Those agencies providing services in the Amador County are the focus of this review. In order to provide comprehensive information on service provision, other service providers—private companies and public agencies which are not subject to LAFCO—are included in this MSR.

MSR STRUCTURE

Volume I provides background on LAFCO and the MSR requirement, a countywide review of growth and anticipated development, and comparative review and analysis of the various agencies providing backbone services—water, wastewater and fire protection. Volume II provides profiles of each local agency. Agency maps and backbone service overview maps are located in Volume III.

The MSR Determinations report contains all of the determinations found in both Volumes I and II. Volume II contains agency-specific determinations, whereas Volume I contains broader determinations relating to growth and backbone services.

CREDITS

The authors extend their appreciation to those individuals at many agencies that provided planning and financial information and documents used in this report. The contributors are listed individually at the end of MSR Volume I.

Amador LAFCO Executive Officer, Roseanne Chamberlain, provided project direction, review and archival research. This report was prepared by Burr Consulting. Beverly Burr served as project manager. Jennifer Stephenson, Alexander Hebert-Brown and Cynthia Schuster provided research analysis. Research assistance was provided by Radu Oprea. Keith Johnson of Amador County GIS provided maps and Alexander Hebert-Brown provided mapping research and assistance.

1. LAFCO AND MUNICIPAL SERVICES REVIEWS

This report is prepared pursuant to legislation enacted in 2000 that requires LAFCO to conduct a comprehensive review of municipal service delivery and update the spheres of influence (SOIs) of all agencies under LAFCO's jurisdiction. This chapter provides an overview of LAFCO's history, powers and responsibilities. It discusses the origins and legal requirements for preparation of the municipal services review (MSR). Finally, the chapter reviews the process for MSR review, MSR approval and SOI updates.

LAFCO OVERVIEW

After World War II, California experienced dramatic growth in population and economic development. With this boom came a demand for housing, jobs and public services. To accommodate this demand, many new local government agencies were formed, often with little forethought as to the ultimate governance structures in a given region, and existing agencies often competed for expansion areas. The lack of coordination and adequate planning led to a multitude of overlapping, inefficient jurisdictional and service boundaries, and the premature conversion of California's agricultural and open-space lands.

Recognizing this problem, in 1959, Governor Edmund G. Brown, Sr. appointed the Commission on Metropolitan Area Problems. The Commission's charge was to study and make recommendations on the "misuse of land resources" and the growing complexity of local governmental jurisdictions. The Commission's recommendations on local governmental reorganization were introduced in the Legislature in 1963, resulting in the creation of a Local Agency Formation Commission, or "LAFCO," operating in every county except San Francisco.

Amador LAFCO was formed as a countywide agency to discourage urban sprawl and encourage the orderly formation and development of local government agencies. LAFCO is responsible for coordinating logical and timely changes in local governmental boundaries, including annexations and detachments of territory, incorporations of cities, formations of special districts, and consolidations, mergers and dissolutions of districts, as well as reviewing ways to reorganize, simplify, and streamline governmental structure. The Commission's efforts are focused on ensuring that services are provided efficiently and economically while agricultural and open-space lands are protected. To better inform itself and the community as it seeks to exercise its charge, LAFCO conducts service reviews to evaluate the provision of municipal services within the County.

LAFCO regulates, through approval, denial, conditions and modification, boundary changes proposed by public agencies or individuals. It also regulates the extension of public services by cities and special districts outside their boundaries. LAFCO is empowered to initiate updates to the SOIs and proposals involving the dissolution or consolidation of special districts, mergers, establishment of subsidiary districts, and any reorganization including such actions. Otherwise, LAFCO actions must originate as petitions or resolutions from affected voters, landowners, cities or districts.

Amador LAFCO consists of five regular members: two members from the Amador County Board of Supervisors, two city council members, and one public member who is appointed by the

other members of the Commission. There is an alternate in each category. All Commissioners are appointed to four-year terms.

Table 1-1: Commission Members, 2008

Appointing Agency	Members	Alternate Members
Two members from the Board of Supervisors appointed by the Board of Supervisors.	Louis Boitano Theodore Novelli	Richard Forster
Two members representing the cities in the county. Must be a city officer and appointed by the City Selection Committee.	Tim Murphy *City of Sutter Creek* Jerry Sherman *City of Ione*	Vacant
One member from the general public appointed by the other four Commissioners.	Jim Vinciguerra	Byron Damiani

MUNICIPAL SERVICES REVIEW ORIGINS

The MSR requirement was enacted by the Legislature months after the release of two studies recommending that LAFCOs conduct reviews of local agencies. The "Little Hoover Commission" focused on the need for oversight and consolidation of special districts, whereas the "Commission on Local Governance for the 21st Century" focused on the need for regional planning to ensure adequate and efficient local governmental services as the California population continues to grow.

Little Hoover Commission

In May 2000, the Little Hoover Commission released a report entitled Special Districts: Relics of the Past or Resources for the Future? This report focused on governance and financial challenges among independent special districts, and the barriers to LAFCO's pursuit of district consolidation and dissolution. The report raised the concern that "the underlying patchwork of special district governments has become unnecessarily redundant, inefficient and unaccountable."

In particular, the report raised concern about a lack of visibility and accountability among some independent special districts. The report indicated that many special districts hold excessive reserve funds and some receive questionable property tax revenue. The report expressed concern about the lack of financial oversight of the districts. It asserted that financial reporting by special districts is inadequate, that districts are not required to submit financial information to local elected officials, and concluded that district financial information is "largely meaningless as a tool to evaluate the effectiveness and efficiency of services provided by districts, or to make comparisons with neighboring districts or services provided through a city or county."[1]

The report questioned the accountability and relevance of certain special districts with uncontested elections and without adequate notice of public meetings. In addition to concerns about

[1] Little Hoover Commission, 2000, page 24.

the accountability and visibility of special districts, the report raised concerns about special districts with outdated boundaries and outdated missions. The report questioned the public benefit provided by health care districts that have sold, leased or closed their hospitals, and asserted that LAFCOs consistently fail to examine whether they should be eliminated. The report pointed to service improvements and cost reductions associated with special district consolidations, but asserted that LAFCOs have generally failed to pursue special district reorganizations.

The report called on the Legislature to increase the oversight of special districts by mandating that LAFCOs identify service duplications and study reorganization alternatives when service duplications are identified, when a district appears insolvent, when district reserves are excessive, when rate inequities surface, when a district's mission changes, when a new city incorporates and when service levels are unsatisfactory. To accomplish this, the report recommended that the State strengthen the independence and funding of LAFCOs, require districts to report to their respective LAFCO, and require LAFCOs to study service duplications.

Commission on Local Governance for the 21st Century

The Legislature formed the Commission on Local Governance for the 21st Century ("21st Century Commission") in 1997 to review statutes on the policies, criteria, procedures and precedents for city, county and special district boundary changes. After conducting extensive research and holding 25 days of public hearings throughout the State at which it heard from over 160 organizations and individuals, the 21st Century Commission released its final report, Growth Within Bounds: Planning California Governance for the 21st Century, in January 2000.[2] The report examines the way that government is organized and operates and establishes a vision of how the State will grow by "making better use of the often invisible LAFCOs in each county."

The report points to the expectation that California's population will double over the first four decades of the 21st Century, and raises concern that our government institutions were designed when our population was much smaller and our society was less complex. The report warns that without a strategy open spaces will be swallowed up, expensive freeway extensions will be needed, job centers will become farther removed from housing, and this will lead to longer commutes, increased pollution and more stressful lives. Growth Within Bounds acknowledges that local governments face unprecedented challenges in their ability to finance service delivery since voters cut property tax revenues in 1978 and the Legislature shifted property tax revenues from local government to schools in 1993. The report asserts that these financial strains have created governmental entrepreneurism in which agencies compete for sales tax revenue and market share.

The 21st Century Commission recommended that effective, efficient and easily understandable government be encouraged. In accomplishing this, the 21st Century Commission recommended consolidation of small, inefficient or overlapping providers, transparency of municipal service delivery to the people, and accountability of municipal service providers. The sheer number of special districts, the report asserts, "has provoked controversy, including several legislative attempts to initiate district consolidations,"[3] but cautions LAFCOs that decisions to consolidate districts should focus on the adequacy of services, not on the number of districts.

[2] The Commission on Local Governance for the 21st Century ceased to exist on July 1, 2000, pursuant to a statutory sunset provision.

[3] Commission on Local Governance for the 21st Century, 2000, page 70.

Growth Within Bounds stated that LAFCOs cannot achieve their fundamental purposes without a comprehensive knowledge of the services available within its county, the current efficiency of providing service within various areas of the county, future needs for each service, and expansion capacity of each service provider. Comprehensive knowledge of water and sanitary providers, the report argued, would promote consolidations of water and sanitary districts, reduce water costs and promote a more comprehensive approach to the use of water resources. Further, the report asserted that many LAFCOs lack such knowledge and should be required to conduct such a review to ensure that municipal services are logically extended to meet California's future growth and development.

MSRs would require LAFCO to look broadly at all agencies within a geographic region that provide a particular municipal service and to examine consolidation or reorganization of service providers. The 21st Century Commission recommended that the review include water, wastewater, and other municipal services that LAFCO judges to be important to future growth. The Commission recommended that the service review be followed by consolidation studies and be performed in conjunction with updates of SOIs. The recommendation was that service reviews be designed to make nine determinations, each of which was incorporated verbatim in the subsequently adopted legislation. The legislature since consolidated the determinations into six required findings.

MUNICIPAL SERVICES REVIEW LEGISLATION

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 requires LAFCO review and update SOIs not less than every five years and to review municipal services before updating SOIs. The requirement for service reviews arises from the identified need for a more coordinated and efficient public service structure to support California's anticipated growth. The service review provides LAFCO with a tool to study existing and future public service conditions comprehensively and to evaluate organizational options for accommodating growth, preventing urban sprawl, and ensuring that critical services are provided efficiently.

Effective January 1, 2008, Government Code §56430 requires LAFCO to conduct a review of municipal services provided in the county by region, sub-region or other designated geographic area, as appropriate, for the service or services to be reviewed, and prepare a written statement of determination with respect to each of the following topics:

- Infrastructure needs or deficiencies;
- Growth and population projections for the affected area;
- Financing constraints and opportunities;
- Cost avoidance opportunities;
- Opportunities for rate restructuring;
- Opportunities for shared facilities;
- Government structure options, including advantages and disadvantages of consolidation or reorganization of service providers;

- Evaluation of management efficiencies; and
- Local accountability and governance.

MUNICIPAL SERVICES REVIEW PROCESS

For local agencies, the MSR process involves the following steps:

- Outreach: LAFCO outreach and explanation of the project
- Data Discovery: provide documents and respond to LAFCO questions
- Map Review: review and comment on LAFCO draft map of the agency's boundary and sphere of influence
- Profile Review: internal review and comment on LAFCO draft profile of the agency
- Public Review Draft MSR: review and comment on LAFCO draft MSR
- LAFCO Hearing: attend and provide public comments on MSR

MSRs are exempt from California Environmental Quality Act (CEQA) pursuant to §15262 (feasibility or planning studies) or §15306 (information collection) of the CEQA Guidelines. LAFCO's actions to adopt MSR determinations are not considered "projects" subject to CEQA.

The MSR process does not require LAFCO to initiate changes of organization based on service review findings, only that LAFCO identify potential government structure options. However, LAFCO, other local agencies, and the public may subsequently use the determinations to analyze prospective changes of organization or reorganization or to establish or amend SOIs. Within its legal authorization, LAFCO may act with respect to a recommended change of organization or reorganization on its own initiative (e.g., certain types of consolidations), or in response to a proposal (i.e., initiated by resolution or petition by landowners or registered voters).

Once LAFCO has adopted the MSR determinations, it must update the SOIs for 33 local agencies, including five cities, 19 independent special districts and nine county dependent districts. The LAFCO Commission determines and adopts the spheres of influence for each agency. A CEQA determination is made by LAFCO on a case-by-case basis for each sphere of influence action and each change of organization, once the proposed project characteristics are sufficiently identified to assess environmental impacts.

SPHERE OF INFLUENCE UPDATES

The Commission is charged with developing and updating the SOI for each city and special district within the county.[4]

An SOI is a LAFCO-approved plan that designates an agency's probable future boundary and service area. Spheres are planning tools used to provide guidance for individual boundary change proposals and are intended to encourage efficient provision of organized community services and prevent duplication of service delivery. Territory cannot be annexed by LAFCO to a city or district unless it is within that agency's sphere.

The purposes of the SOI include the following: to ensure the efficient provision of services, discourage urban sprawl and premature conversion of agricultural and open space lands, and prevent overlapping jurisdictions and duplication of services.

LAFCO cannot regulate land use, dictate internal operations or administration of any local agency, or set rates. LAFCO is empowered to enact policies that indirectly affect land use decisions. On a regional level, LAFCO promotes logical and orderly development of communities as it considers and decides individual proposals. LAFCO has a role in reconciling differences between agency plans so that the most efficient urban service arrangements are created for the benefit of current and future area residents and property owners.

The Cortese-Knox-Hertzberg (CKH) Act requires LAFCO to develop and determine the SOI of each local governmental agency within the county and to review and update the SOI every five years. LAFCOs are empowered to adopt, update and amend the SOI. They may do so with or without an application and any interested person may submit an application proposing an SOI amendment.

LAFCO may recommend government reorganizations to particular agencies in the county, using the SOIs as the basis for those recommendations.

In determining the SOI, LAFCO is required to complete an MSR and adopt the nine determinations previously discussed.

In addition, in adopting or amending an SOI, LAFCO must make the following determinations:

- Present and planned land uses in the area, including agricultural and open-space lands;
- Present and probable need for public facilities and services in the area;
- Present capacity of public facilities and adequacy of public service that the agency provides or is authorized to provide;

[4] The initial statutory mandate, in 1971, imposed no deadline for completing sphere designations. When most LAFCOs failed to act, 1984 legislation required all LAFCOs to establish spheres of influence by 1985.

- Existence of any social or economic communities of interest in the area if the Commission determines these are relevant to the agency; and

The CKH Act stipulates several procedural requirements in updating SOIs. It requires that special districts file written statements on the class of services provided and that LAFCO clearly establish the location, nature and extent of services provided by special districts.

By statute, LAFCO must notify affected agencies 21 days before holding the public hearing to consider the SOI and may not update the SOI until after that hearing. The LAFCO Executive Officer must issue a report including recommendations on the SOI amendments and updates under consideration at least five days before the public hearing.

2. MSR AREA

This chapter provides an overview of Amador County and the municipal service providers within its boundaries. For overviews of each local agency, please refer to MSR Volume II.

AREA OVERVIEW

Amador County is located in the foothills of the Sierra Nevada mountain range, approximately 30 miles southeast of the City of Sacramento, in the heart of the gold country. The County spans 593 square miles, extending from Sacramento County in the west to Alpine County in the east, Calaveras County in the south and El Dorado County in the north. Elevations range from just above sea level in the westernmost portion of the County to over 9,000 feet in the eastern portion of the County, in the Eldorado National Forest.

Amador County is bordered on the south by the Mokelumne River and on the north by the Consumnes River. The fertile soils created by the rivers support agricultural lands—primarily pastureland and cropland for grazing, woodland, harvested cropland, and other cropland—located throughout the western portion of the County. There is a substantial wine-growing industry in Amador County, concentrated north and east of the City of Plymouth, in the Shenandoah Valley.

Prime farmland, unique farmland, and farmland of statewide and local importance make up five percent of the agricultural land in the County, with the remainder consisting of grazing land.[5] County lands protected under the Williamson Act consist of over 93,700 acres, of which six percent is prime Williamson Act farmland. Prime Williamson Act lands are concentrated in the Jackson Valley area, west of the City of Ione, and in the vicinity of the City of Plymouth.[6]

Residential areas are located throughout the County, and consist of approximately 13 percent of land uses countywide. Residential uses are concentrated in the five cities and the unincorporated communities of Buckhorn, Camanche, Drytown, Fiddletown, Pine Grove, Pioneer, Red Corral, River Pines and Volcano. Open space, mineral resource land, timber preserve zones, and vacant land comprised 57 percent of the County area.[7] The Eldorado National forest occupies approximately 79,695 acres in Amador County, or ten percent of the overall size of the forest.[8]

Residential growth has occurred throughout the County, but particularly in the Sutter Creek area. Recent non-residential growth has centered around the Martell area. Future growth is anticipated to be concentrated in the Cities of Ione, Plymouth and Sutter Creek, as well as in the communities of Martell, Pine Grove and Buckhorn.

[5] California Department of Conservation, Farmland Mapping and Monitoring Program, 2006.

[6] California Department of Conservation, Williamson Act Program, 2006.

[7] Amador County General Plan Update Working Paper, *Land Use*, 2008, p. LU-2.

[8] Eldorado National Forest, 2008.

DEMOGRAPHICS: 2000 CENSUS

There were 35,100 residents in Amador County, as of the 2000 Census. The population in the unincorporated communities was 20,503, composing 58 percent of the County population. The City of Ione has the largest overall population among the five cities when the institutionalized (i.e., group quarters) population is included. The City of Jackson has the largest household population among the cities with 3,721 residents living in households, as shown in Table 2-1. The City of Sutter Creek was the third most populous city, followed by Plymouth and Amador.

Table 2-1: Population, Income & Home Ownership by City, 2000

Area/City	Total Population	Household Population	Group Quarters Population	Avg. Household Size	Income per Capita	% Below Poverty Line	% Owner Occupied	% Renter Occupied
Countywide	35,100	30,519	4,581	2.39	$22,869	9%	75%	25%
Amador City	196	196	0	2.31	$17,920	23%	66%	34%
Ione	7,129	2,898	4,231	2.68	$18,459	11%	60%	40%
Jackson	3,989	3,721	268	2.13	$24,941	8%	57%	43%
Plymouth	980	980	0	2.50	$15,302	10%	64%	36%
Sutter Creek	2,303	2,302	1	2.25	$23,449	8%	61%	39%
Unincorporated	20,503	20,422	81	2.42	$23,463	9%	84%	16%

Source: 2000 Census

Note: all data refers to the household population, except the total population and group quarters population.

Population density in the unincorporated areas was 35 per square mile, compared with 903 in the cities. The City of Sutter Creek was the most densely populated among the five cities with 1,376 residents per square mile in 2000; Amador City and Ione were more sparsely populated. On average three quarters of households owned their homes and one quarter rented; rental rates were highest in Jackson and Ione, and lowest in the unincorporated areas. The poverty rate in Amador City was higher than in the rest of the County. Income per capita was higher in Jackson, Sutter Creek and the unincorporated areas, and lower in Plymouth, Amador City and Ione. Similarly, the population was somewhat older in Jackson, Sutter Creek and the unincorporated areas where the proportion age 65 or older was higher than in Amador City, Ione and Plymouth, as shown in Table 2-2.

Table 2-2: Age, Ethnicity & Language by City, 2000

Area/City	% Children	% Age 18-64	% Seniors	% White Non-Latino	% Other Non-Latino	% Latino	% English Speaker	% Not English Speaker
Countywide	22%	58%	20%	92%	4%	4%	99%	1%
Amador City	19%	67%	13%	87%	5%	8%	100%	0%
Ione	31%	56%	13%	88%	7%	6%	99%	1%
Jackson	21%	54%	25%	91%	4%	5%	98%	2%
Plymouth	29%	54%	17%	92%	5%	3%	100%	0%
Sutter Creek	23%	54%	22%	92%	4%	4%	99%	1%
Unincorporated	21%	59%	20%	93%	3%	4%	99%	1%

Source: 2000 Census

Note: all data refers to the household population, except the total population and group quarters population.

Non-Latino Anglo-Americans made up 92 percent of the population in 2000. Other non-Latinos included mostly Native Americans, Asian Americans and people who described their race as two or more different races. Four percent of the population was Latino in 2000. The Latino

population was slightly more significant in Amador City than the remainder of the County. Most (99 percent of) residents were able to speak and understand English even if that was not the primary language spoken at home. Only one percent reported not understanding spoken English.

LAFCO is required to consider "environmental justice," among 14 other factors, when considering boundary changes and other proposals.[9] In this context, "environmental justice" means the fair treatment of people of all races, cultures and incomes with respect to the location of public facilities and public services. The Governor's Office of Planning and Research (OPR) encouraged LAFCOs to compile and analyze data and analysis to identify underserved low-income areas and inequities in the distribution of public facilities and services, among other suggested purposes.[10]

The best available data for identifying the location of low-income people is the 2000 Census. The decennial census includes a short questionnaire that all households are given, with basic questions on gender, age, relationship to the head of household, race, ethnicity, and home ownership. The resulting data are published at the most detailed available census geographic unit: the census block. In Amador County, there are 622 populated census blocks with an average of 21 households in 2000. One in six households are given the long-form census questionnaire with questions on income, employment, education, citizenship, English-speaking ability, and disabilities, among other topics. Due to the smaller sample size for such questions, the data are not published at the census block level, but instead at the census block group level. In Amador County, there were 29 populated block groups, with an average of 439 households per block group, in 2000.

Table 2-3: Race & Ethnicity by Census Geographic Unit, 2000

	Place	Block Group	Block
# of Geographic Units	6	29	622
Average # of Households	2,127	439	21
Minority as % of Households			
Average	10%	8%	10%
Share of Geo Units by % Minority			
0% Minority	0%	0%	46%
1-10% Minority	67%	69%	20%
10-25% Minority	33%	31%	22%
25% or more	0%	0%	12%

Source: authors' calculations from 2000 Census data

In analyzing the census data, the authors found that the block-level data with simple demographics was the most useful. Those data clearly indicate the locations where racial minorities and Latinos are concentrated. As shown in Table 2-3, there were no minorities on roughly half of the blocks, and an above-average share of minorities on 34 percent of blocks in the County.

As LAFCO refines its maps during the upcoming SOI update process, the authors recommend that LAFCO conduct spatial analysis of block-level census data on ethnicity compared with agency boundaries, service areas and facility locations in order to monitor "environmental justice."

[9] Government Code §56668(o).

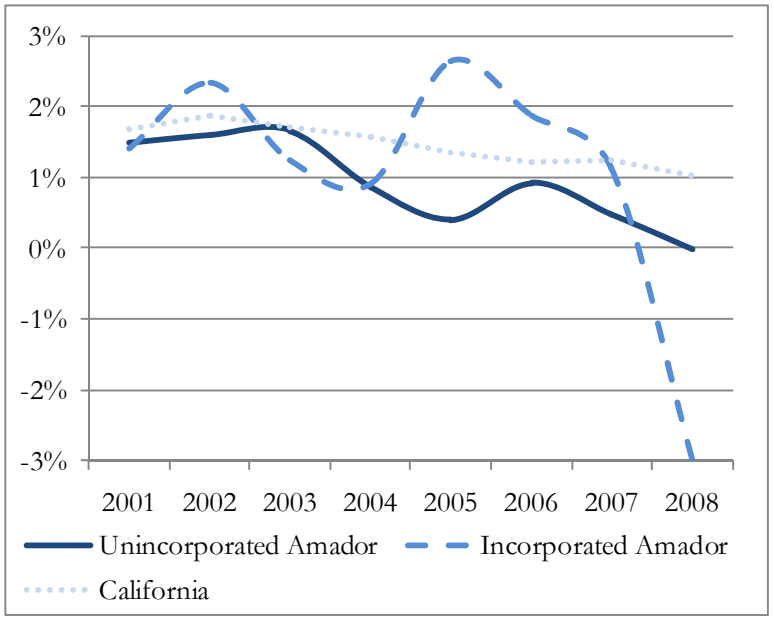
[10] Governor's Office of Planning and Research, *Local Agency Formation Commission Municipal Service Review Guidelines*, August 2003, pp. 31-34.

GROWTH & POPULATION PROJECTIONS

This section reviews population and economic growth, the jobs-housing balance, projected growth and growth areas.

RESIDENTS

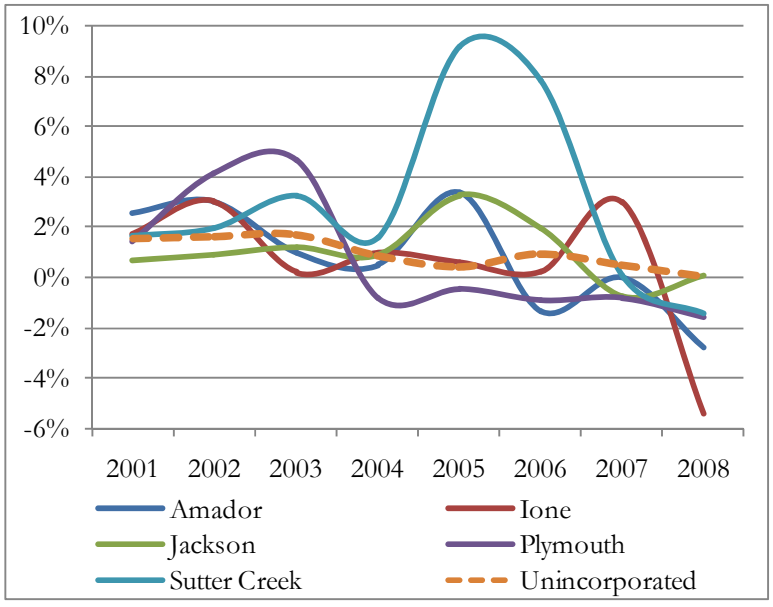
Figure 2-4: Population Growth Rates in Amador County and California



Since the 2000 Census, the countywide population has grown by eight percent, from 35,100 to 37,943 at the beginning of 2008. The population in the unincorporated communities increased from 20,503 to 22,065 over this time period. The total population within cities in Amador County increased from 14,597 in 2000 to 15,878 in 2008, an increase of nine percent.

The population growth rate in unincorporated Amador County has generally been less than in California as a whole, as shown in Figure 2-4. Unincorporated population growth peaked in 2003 at 1.7 percent, matching the statewide population growth for the year, but has since tapered off to virtually no growth in the 2008 period.

Figure 2-5: Population Growth Rates in Amador County



Population growth within cities in Amador County was generally higher than in California as a whole over the 2001-7 period, peaking in 2002 at 2.3 percent and again in 2005 at 2.6 percent. Since 2005 the growth rate within cities has decreased to negative three percent in 2008. All cities in Amador County exhibited no growth—or negative growth—in the 2007-8 period, as shown in Figure 2-5.

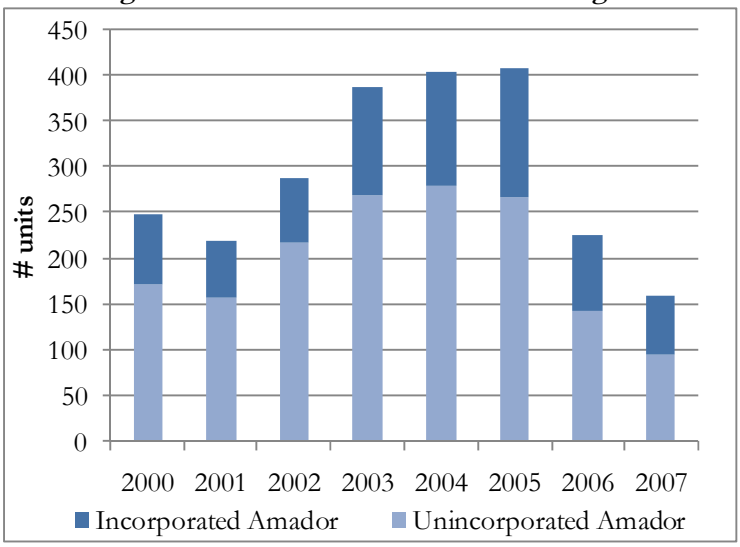
Of the cities in Amador County, Sutter Creek exhibited the most overall growth, from 2,303 in 2000 to 2,902 in 2008 (26 percent). Sutter

Creek attracted a new 112-unit apartment building, which accounts for a significant portion of the recent growth. Over the same period, the City of Jackson grew by eight percent (from 3,989 to 4,319), the City of Amador grew by six percent (from 196 to 208), the City of Plymouth grew by five percent (from 980 to 1,033), and the City of Ione grew by four percent (from 7,129 to 7,416).

Amador County's population density is 64 residents per square mile, including both incorporated and unincorporated areas. There were approximately 2.3 persons per household countywide in 2008.[11]

DEVELOPMENT

Figure 2-6: New Residential Building Permits

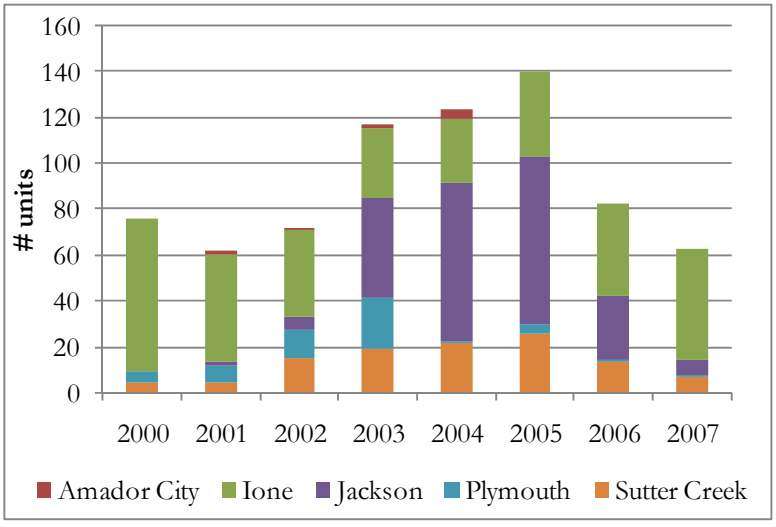


Residential Development

Since 2000, the number of permits issued within unincorporated Amador County has been greater than the combined total number of permits issued within all five cities, as shown in Figure 2-6. The number of permits issued in unincorporated areas peaked from 2003 to 2005, reaching 280 in 2004, but subsequently dropped to 96 in 2007.

From 2000 to 2007, the City of Amador issued seven building permits. There was one permit issued per year from 2001 to 2003, and four issued in 2004, as shown in Figure 2-7.

Figure 2-7: New Residential Building Permits (Incorporated Areas)



The peak number of permits issued by the City of Ione over this time frame was 66 in 2000. The number of permits issued steadily decreased from 2001 to 2004, reaching a low of 28, but subsequently climbed to 48 in 2007.

Within the City of Jackson, permits issued for new residential construction increased from two in 2001, to a peak of 73 in 2005. The

[11] Countywide population density and persons per household are based on the 2008 population reported by the Department of Finance.

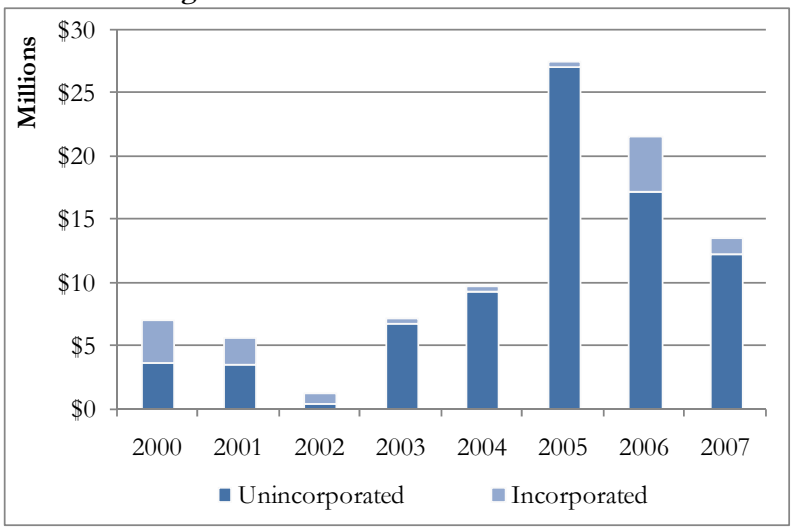
number of permits has decreased since then, down to seven in 2007.

The number of permits issued within the City of Plymouth increased from 2000 to 2003, when the number peaked at 22. From 2004 to 2007 there were fewer than five permits issued per year.

In the City of Sutter Creek, the number of permits issued peaked at 26 in 2005, and subsequently decreased to 14 in 2006 and to seven in 2007.

Non-Residential Development

Figure 2-8: New Non-Residential Permit Value



The value of new commercial, industrial and institutional development in unincorporated Amador County peaked in 2005 at $27 million, and subsequently decreased to $12 million in 2007, as shown in Figure 2-8.[12] Most of the non-residential construction in the unincorporated areas was located in the Martell area.

Within incorporated areas, new non-residential permit values decreased from $3.5 million in 2000 to $357,000 in 2004. Permit values increased to $4.4 million in 2006, but decreased to $1.3 million in 2007. Of the incorporated areas, new non-residential permit values were highest in the City of Jackson, reaching $2.2 million in 2000 and $3.7 million in 2006.

Agricultural Land

Approximately 52 percent of the land area in Amador County, a total of 198,764 acres in 2006, is agricultural land.[13] Most of the farmland (nearly 95 percent) is considered grazing land. Of the remaining five percent, 3,610 acres are prime farmland, 1,717 acres are farmland of statewide importance, 3,596 acres are unique farmland, and 1,272 acres are farmland of local importance.

Prime farmland is land that is most suitable for general intensive agricultural uses, due to its ability to sustain long term production of agricultural crops.[14] The amount of prime farmland within Amador County most recently peaked in 2002 at 3,964 acres, but decreased by almost nine percent

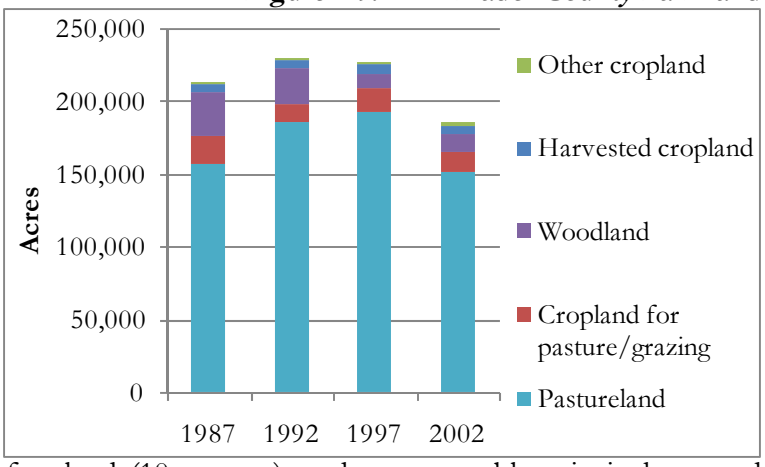
[12] Construction Industry Research Board, 2008.

[13] California Department of Conservation, Farmland Mapping and Monitoring Program 2000-2006.

[14] In order to be considered prime farmland by the Department of Conservation, the area must have been used for irrigated agricultural production at some time during the last four years, and the soil must meet the physical and chemical criteria for prime farmland as determined by the USDA Natural Resources Conservation Service (NRCS). The definition of prime agriculture as specified by LAFCO in Government Code §56064 is similar, although slightly more broad.

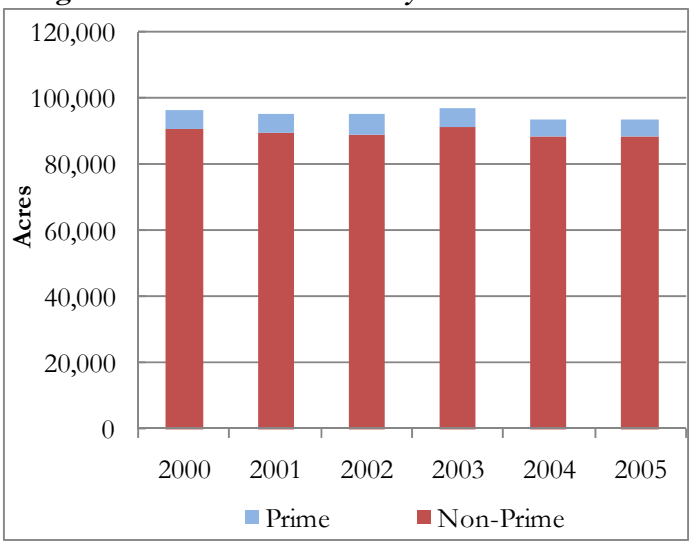
from 2002 to 2006. From 1996 to 2006 the amount of prime farmland decreased by slightly less than one percent.[15]

Figure 2-9: Amador County Farmland



The total acreage of farmland in Amador County decreased by 11 percent from 1987 to 2002, as shown in Figure 2-9.[16] Over this same time period, woodland decreased by nearly 60 percent, cropland for pasture or grazing decreased by nearly 33 percent, and pastureland decreased by three percent. Harvested cropland increased by 11 percent and other cropland doubled from 1987 to 2002. California as a whole saw a comparable loss in total farmland (10 percent), and a comparable gain in harvested cropland (also 10 percent), over the period.

Figure 2-10: Amador County Williamson Act Land



The amount of land protected under the Williamson Act in Amador County decreased by nearly three percent from 2000 to 2005. However, as shown in Figure 2-10, the majority of this loss was to non-prime land. Non-prime Williamson Act farmland is located throughout the western portion of the County, and as far east as Pioneer.

The loss of prime land protected by the Williamson Act was significantly less, only one-fifth of one percent, from 2000 to 2005.[17] Prime Williamson Act farmland is clustered in the Jackson Valley area, west

[15] This represents prime farmland as categorized by the Department of Conservation's Farmland Mapping and Monitoring Program (FMMP), as opposed to those categorized as prime farmland under the Williamson Act. For the most part, Williamson Act prime farmland areas coincide with FMMP prime farmland areas, although the Williamson Act tends to be more inclusive. For instance, in 2004 there were 5,200 acres of prime farmland protected under the Williamson Act in Amador County, but only 3,831 acres of prime farmland categorized by FMMP.

[16] USDA Census of Agriculture, 1997-2002. The 2007 Census of Agriculture had not been released as of the drafting of this report.

[17] The definition of prime agricultural land under the Williamson Act is defined in Government Code §51201, and is similar to the definition used by LAFCO in Government Code §56064. Both of these definitions are slightly more broad than the definition used by the Department of Conservation's FMMP.

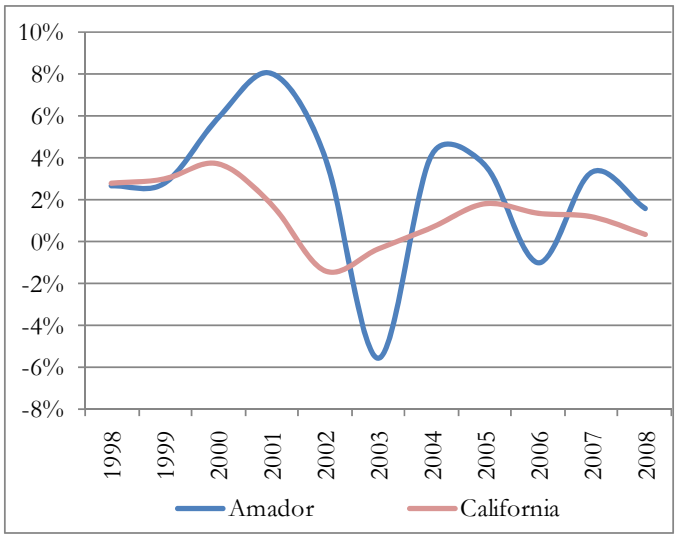
of the City of Ione, and north and east of the City of Plymouth in the Shenandoah Valley. Other pockets of prime farmland are located along SR 16 west of Drytown, east of Sutter Creek along SR 104, southwest of the community of Pine Acres, and in the vicinity of La Mel Heights.

Over the same time period, California as a whole saw a slight decrease in the amount of prime Williamson Act lands (two-fifths of one percent), but a four percent increase in the total amount of land protected by the Williamson Act.

ECONOMY

Jobs

Figure 2-11: Annual Job Growth Rate



There were approximately 13,080 jobs in Amador County in 2008.[18] Job growth in Amador County from 1998 to 2008 has generally been healthier than statewide job growth, as shown in Figure 2-11. The job growth rate for Amador has fluctuated since 1999, reaching a peak of eight percent in 2001 and a low of negative 5.6 percent in 2003. The job growth rate in 2008 was 1.6 percent.

The largest employers in unincorporated Amador County include the Jackson Rancheria Casino and Hotel, Sierra Pine (lumber manufacturing), Volcano Communications Group (utilities), and East Bay Municipal Utility District. There are also many inns, restaurants and wineries in the County. Recent development in the Martell area includes a Lowe's, and the Amador Toyota and Prospect Motors car dealerships.

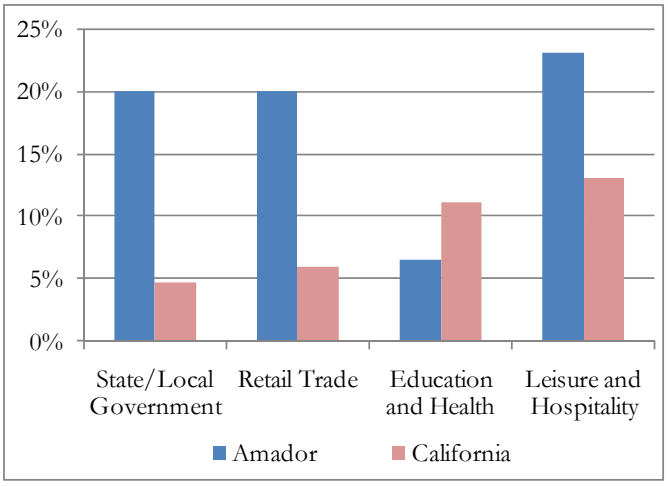
Other major employers in the County include Mule Creek State Prison and Preston Youth Correctional Facility, in the City of Ione. The two facilities make up almost 55 percent of the City's population and are the two most significant employers in the City. Other major employers in the City include Ione Minerals.

Major employers in the City of Jackson include governmental services, including Amador County offices, school district offices, Caltrans, the Department of Motor Vehicles, and CHP. The school district is the largest employer in the City, followed by the County. Other significant employers include a hospital, grocery stores, and two hotels.

The City of Sutter Creek's primary industries are wholesale, retail, agriculture and services. Significant employers in the City include bed and breakfasts and wineries.

[18] California Employment Development Department, Current Employment Statistics.

Figure 2-12: Job Growth by Select Industries, 2003-8



Major employers in the City of Plymouth include a catering company, an inn, and a real estate office. Significant business activities in Amador City includes a bakery and a small hotel; each with approximately six employees. Other businesses in the City include locally-owned retail stores.

The top industries in the County are state and local government (42 percent of jobs), retail trade (15 percent of jobs), educational and health services (10 percent of jobs), and leisure and hospitality (nine percent of jobs).[19] All top industries in Amador County, with the exception of education and health, have seen more growth from 2003 to 2008 than in California as a whole, as shown in Figure 2-12.

Table 2-13: Jobs-Housing Balance, 2006

County	
Amador	0.7
Calaveras	0.3
El Dorado	0.6
Nevada	0.6
Placer	1.0
Tuolumne	0.6

Industries with a high concentration in Amador County relative to California as a whole include mining, state and local government, and retail trade. Industries with a relatively low concentration in Amador County include wholesale trade, professional services, financial activities, and durable manufacturing. Industries that are as likely to be located in Amador County as in the remainder of California include farming, nondurable manufacturing, leisure and hospitality, and education and health services.

Jobs-Housing Balance

Table 2-14: Amador Residents by Place of Work, 2000

Workplace	Working Residents	% of Working Residents
Amador County	9,843	74%
Sacramento County	1,375	10%
San Joaquin County	585	4%
Calaveras County	331	2%
El Dorado County	257	2%
Santa Clara County	150	1%
Other Locations	837	6%

Source: Census 2000

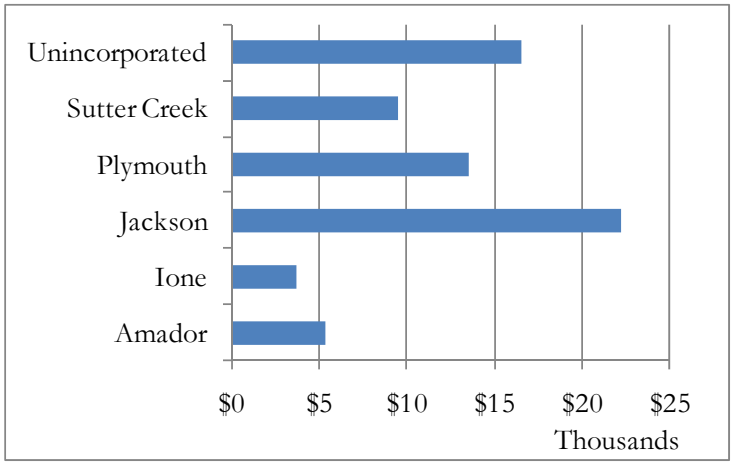
The jobs-housing balance in Amador County is slightly higher than that of neighboring counties, as shown in Table 2-13. Of the six counties in the area, Placer County stands out as having the best jobs-housing ratio, with the number of jobs nearly equal to the number of housing units.

Of working Amador County residents, twenty-six percent worked outside of the County as of 2000. As shown in Table 2-14, Sacramento County was the most popular destination for commuting Amador County residents, with nearly 10 percent of all working Amador County residents traveling to the area.

[19] Local government is disproportionately concentrated in Amador County relative to California as a whole, as the U.S. Department of Labor's Bureau of Labor Statistics includes employment at the Jackson Rancheria Casino and Hotel in the local government industry.

Taxable Sales

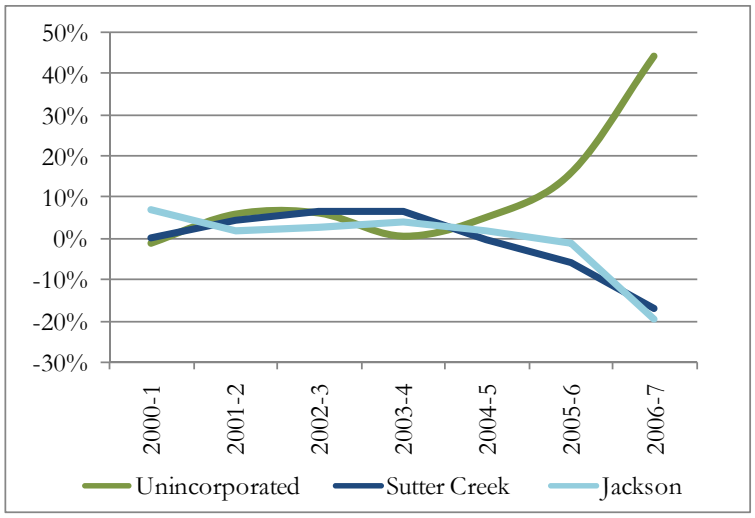
Figure 2-15: Amador County Taxable Sales per Capita, 2007



The amount of taxable sales has increased by 35 percent from 2000 to 2007 in Amador County as a whole. Taxable sales increased by 49 percent over the same time period in unincorporated Amador County, by 35 percent in the City of Plymouth and by 21 percent in the City of Ione. Taxable sales decreased by nine percent in the City of Sutter Creek, four percent in the City of Jackson and three percent in Amador City from 2000 to 2007.

The City of Jackson had $22,252 in taxable sales per capita in 2007, as shown in Figure 2-15. Unincorporated Amador County and the City of Plymouth also showed a significant amount of sales tax per capita, at $16,572 and $13,523, respectively. The City of Sutter Creek had $9,520 in taxable sales per person in 2007, followed by Amador City at $5,365 and the City of Ione at $3,712.

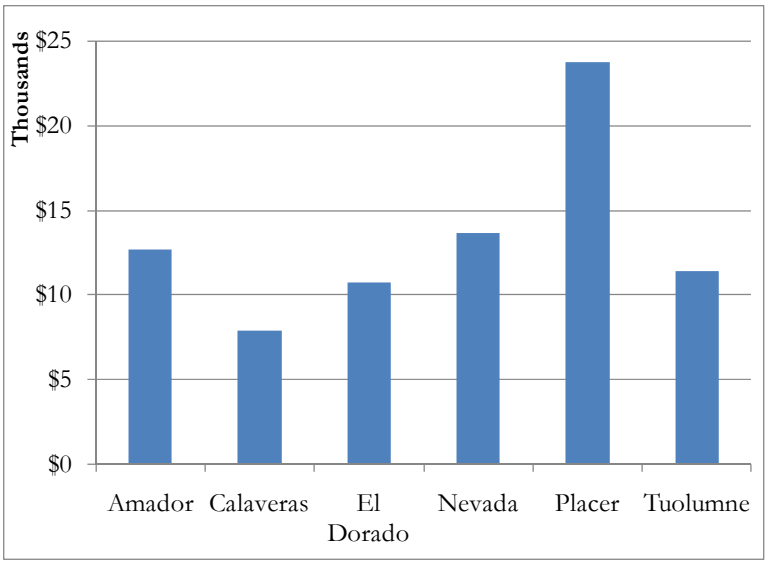
Figure 2-16: Taxable Sales Annual Growth Rates



The taxable sales annual growth rate shows a stark contrast between unincorporated Amador County and the Cities of Sutter Creek and Jackson. As shown in Figure 2-16, the amount of taxable sales in unincorporated Amador County increased by 15 percent from 2005-6, and by 44 percent from 2006-7. By comparison, taxable sales decreased by one percent from 2005-6 and 19 percent from 2006-7 in the City of Jackson, and by six percent in 2005-6 and 17 percent in 2006-7 in the City of Sutter Creek.

Figure 2-17: Taxable Sales per Capita in Neighboring Counties, 2006

The level of taxable sales per capita in Amador County is comparable to that in surrounding counties, as shown in Figure 2-17. In 2006 Amador County had $12,714 in taxable sales per capita, as compared to $10,750 in El Dorado, $13,629 in Nevada and $11,413 in Tuolumne. Of the six counties in the area, Placer stood out with the highest level of taxable sales per capita at $23,721, and Calaveras had the lowest level at $7,918.



PLANNED & PROPOSED DEVELOPMENT

There are 53 proposed and planned developments within the County, covering in excess of 5,000 acres, including over 500 acres of non-residential development, with nearly 9,000 potential new dwelling units, as shown in Table 2-18.[20] Although the timing of many developments is uncertain due to current economic conditions, the plans illustrate that population could increase by as many as 20,995 in the coming years due to new residential development.[21] For a list of all planned and proposed developments in Amador County, see Table 2-19.

Table 2-18: Summary of Planned and Proposed Developments in Amador County

Of the 24 planned and proposed developments located in unincorporated Amador County, the communities of Buckhorn, Kirkwood and Pine Grove have five each, Martell has four, and Pioneer has two. Additionally, two projects are located in

	# of Projects	Acres	Dwelling Units	Non-Residential Acres
Ione	12	648	3,468	20
Jackson	5	645	759	61
Plymouth	6	733	1,028	0
Sutter Creek	6	1,079	1,602	0
Unincorporated[1]	24	2,148	2,137	474
Total	53	5,251	8,994	555

Note:
(1) Developments within the SOI of a city are included in the total for that city.

[20] The total acreage of developments is understated due to acreage information not being provided for eight projects in Ione, five in Sutter Creek, and one in unincorporated Amador County, as of the drafting of this report. The number of dwelling units is understated due to dwelling unit information not being provided for two projects in Ione.

[21] Based on the total number of planned and proposed dwelling units, and the average population per household in unincorporated Amador County and the five cities in 2008, according to the Department of Finance.

unincorporated Amador County in the vicinity of Sutter Creek, and another is located in the vicinity of Amador City.[22] Two of the projects in the Martell area are non-residential, business park projects.

Table 2-19: Planned and Proposed Developments in Amador County

Development	Developer	General Location	Acres	Units	Non-Residential Acres[1]
City of Ione					
Broussard Parcel Map	Broussard	In Bounds	NP	2	0
Castle Oaks	JTS	In Bounds	NP	475	10
Castle Ridge	Doug Knutsen/KORAF Corp.	In Bounds	8.6	65	0
Howard	NP	In Bounds	NP	550	0
Ione 20/Gold Ridge	Galleli & Son	In Bounds	20.0	49	10
Q-Ranch	NP	In SOI	400.0	822	0
Ringer Ranch (Part of Rancho Arroyo Seco)	Amador Ranch Associates	In Bounds	134.0	523	0
St. Andrews Place	NP	In Bounds	NP	25	0
Washington Place	NP	In Bounds	NP	6	0
Waterman Parcel (Part of Rancho Arroyo Seco)	Amador Ranch Associates	In Bounds	85.0	NP	NP
Wildflower	Ryland Homes	In Bounds	NP	277	0
Yaegar	NP	In SOI	NP	674	0
City of Jackson					
Jackson Gate	Cameron Stewart	In Bounds	6.5	26	0
Jackson Hills Golf Course and Residential Community	New Faze Development	Partial Bounds	516.0	540	0
Saint Patrick's Green	Diocese of Sacramento	In Bounds	58.0	185	2.0
Stonecreek	D&L Development	In Bounds	5.0	8	0
The Home Depot Store	The Home Depot U.S.A., Inc.	In Bounds	59.0	0	59.0
City of Plymouth					
Arroyo Woods	Jim Buell	Outside SOI	101.0	127	0
Cottage Knoll	Stephanie McNair	Partial SOI	82.4	304	0
Oak Glen	Marlon Ginney	In Bounds	12.3	47	0
Shenandoah Ridge	Bob Reeder	Partial Bounds	148.3	136	0
Shenandoah Springs	Stephanie McNair	In Bounds	23.8	64	0
Zinfandel	Bob Reeder	Partial SOI	364.7	350	0
City of Sutter Creek					
Bryson Drive Cottages	Sidle Construction/Web Partners	In Bounds	1.6	12	0
Crestview	Aleytha Collins	In Bounds	19.7	48	0
Fitzgerald Estates	Pat Fitzgerald	In Bounds	23.7	22	0
Gold Rush Ranch	Gold Rush Ranch, LLC	Bounds/SOI	945.0	1,334	NP
Golden Hills	Stan Gamble/Trafalger	In Bounds	53.8	79	0
Powder House	Stan Gamble/Trafalger	In Bounds	34.7	107	0

continued

[22] Proposed and planned development information consists of projects that were actively proposed or planned during the course of the MSR study. Some proposed development projects are in the initial planning phase and have not yet filed with the relevant land use authority.

Development	Developer	General Location	Acres	Units	Non-Residential Acres[1]
Within Unincorporated Amador County and Outside Cities' Spheres of Influence					
NP	NP	Amador City	21.0	18	0
Aparicio Subdivision	Hertzig & Aparicio	Sutter Creek	31.0	5	0
Black Oak Ridge	Toma Family Partnership	Pine Grove	40.0	7	0
Fairway Pines PD	Fairway/Glenmoor Partners	Buckhorn	23.9	109	NP
Fairway Vista II (formerly Cambra Pines)	Fairway Vista II, LLC	Buckhorn	30.6	69	0
Golden Vale Subdivision	Geneva Real Estate	Martell	383.0	607	NP
Martell Business Park	Sierra Pacific Industries	Martell	374.0	56	374.0
Mokelumne Bluffs	Sutter Creek Villages, Inc.	Pine Grove	137.9	98	0
Palisades Unit 5	Kirkwood Mountain Resort, LLC	Kirkwood	NP	15	0
Palisades Unit 6	Kirkwood Mountain Resort, LLC	Kirkwood	8.1	21	0
Petersen Ranch (Revised)	Frederick Petersen	Pine Grove	141.2	58	0
Pine Acres North	Thomas Martin & Associates	Pine Grove	44.2	106	0
Quail Ridge	Martin Eng	Pioneer	82.0	81	0
Red Tail Ridge	Paul & Jordon Bramell	Pioneer	31.0	5	0
Revised Pine Grove Bluffs	Del Rapini	Pine Grove	32.0	28	0
Sentinels West	The Sentinels West at Kirkwood,	Kirkwood	1.9	18	0
Sherrill Subdivision	Gary & Judy Sherrill	Sutter Creek	97.0	4	0
Sierra West Business Park	Sierra West Business Park, LLC	Martell	70.0	26	70.0
Silver Pointe	Richard Reynolds	Buckhorn	233.0	46	0
The Pines at Mace Meadows	Ciro & Kimberly Toma	Buckhorn	4.1	13	0
The Sixteenth Fairway	Edward Rockower	Buckhorn	5.9	5	0
Thunder Mountain Lodge (Revised)	TML Development	Kirkwood	2.2	67	0
Timber Creek Village Unit 1	Kirkwood Mountain Resort, LLC	Kirkwood	153.0	7	0
Wicklow Subdivision	Lemke Construction, Inc.	Martell	201.0	750	29.5

Note:
(1) Non-residential acres exclude parks and open space.

A potential development project not counted in Table 2-19 is the Rancho Arroyo Seco. Located to the north, west and south of the City of Ione, the Rancho Arroyo Seco consists of 16,100 acres of land (15,860 acres in unincorporated territory outside of the City of Ione SOI). The development is still in the early planning phase, and the number of acres to be developed and the number of dwelling units had not been proposed by the developer as of the drafting of this report.

GROWTH STRATEGIES

Amador City

Amador City's planning area is contiguous with its SOI.[23] Amador City's growth strategies emphasize preservation of the historical character of the area, especially the historic "Gold Rush" character of the downtown commercial buildings. The City indicates it may be amenable to an SOI expansion, although it has not pursued or formalized a proposed SOI. The city engineer has

[23] In order to be considered part of the "planning area," an area must be identified as such in the general plan and feature substantial planning content on the area, including zoned and planned land uses, even if outside bounds.

suggested expansion so that the Old Highway 49 segments between the SR 49 bypass and Sutter Creek are split between the two cities' SOIs, as both Amador City and Sutter Creek value historic character. The City is concerned about the type of land uses the County might approve adjacent to the City, as the City may be more focused on historical character than the County is.[24]

City of Ione

Ione's existing planning area is contiguous with its SOI. The primary guiding goals for land use and development in the City of Ione include the enhancement and restoration of the central business district, the encouragement of cluster development and planned-unit development, the use of energy-efficient construction and development, and the preservation of open spaces.

With regard to specific growth plans, the City has interest in expanding its SOI to several areas.[25] First, the City is interested in expansion to the area north of SR 88, west of SR 104, and east of SR 124 to the south of the City. Second, the City is interested in the area north of SR 104 between Mule Creek State Prison and Irish Hill Road. Third, the City is interested in the area between the Castle Oaks Mobile Home Park along West Marlette Avenue to Old Stockton Road, in the vicinity of the City's wastewater treatment plant.

Wastewater capacity and water availability are the most significant constraints to growth.[26] The City has developed various capital strategies to providing adequate wastewater capacity to serve anticipated growth, and anticipates that reduced wastewater flows from Sutter Creek, Martell and the Ione Water Treatment Plant in the coming years will also help free up capacity to serve growth.

City of Jackson

Jackson's planning area is contiguous with its SOI. The City's Draft Land Use Element contains a policy to pursue a sphere of influence expansion with the intent of eventually annexing surrounding properties to act as a buffer between the County's commercial area and the City's residents.[27] Specifically, the City reports interest in SOI expansion to the north.[28]

The City plans to focus expansion to areas where infrastructure already exists or is easily extended.[29] Other City growth strategies include maintenance of agricultural lands as open space conservation areas, promoting the scenic development of the Jackson Creek Corridor, preserving the floodway, riparian, and steep hillside areas, and preserving the historic downtown district.[30]

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[24] Interview with Roark Weber, City Engineer, City of Amador, January 16, 2008.

[25] City of Ione response to Amador LAFCO Request for Information, 2008.

[26] Ibid.

[27] City of Jackson, *General Plan Land Use Element*, 2004, p. 16.

[28] Interview with Mike Daly, City Manager, City of Jackson, January 16, 2008.

[29] Ibid.

[30] City of Jackson, *General Plan Land Use Element*, 2004, pp. 15-17; City of Jackson Land Use, Circulation and Zoning Project: Draft Environmental Impact Report, Volume I, 2007.

The City of Jackson reports that the most significant growth constraint is city boundaries, as well as fiscal issues related to a growing commercial base just north of City bounds.[31]

City of Plymouth

Plymouth's planning area is much larger than its bounds or SOI, and includes a City-designated area of concern.[32] As part of its general plan update process, the City drafted an analysis of land use goals with relevant policy recommendations.[33] The City plans to establish clear policies for the annexation of land. It will first focus development as in-fill within bounds before focusing on growth areas on the fringe of the current urban area. To facilitate planning, the City would like to adopt a 20-year SOI in conjunction with Amador County, and subsequently annex the lands within it.

Plymouth has developed a proposed SOI that would encompass 5,477 acres. This proposed SOI is larger than the City's current SOI. The proposed SOI reaches beyond City limits in all directions except in a small area in the northwest corner of the City. It includes developments proposed outside of current city bounds, Williamson Act lands, and parcels between.[34]

The overall goal of Plymouth's growth strategies is to maintain the rural, small-town, Western character of the built environment. This entails maintaining a defined edge between urban and rural environments and protecting ridgelines from development. By way of residential development, the City will encourage node-type rather than linear developments. In addition, the City plans to adopt anti-monotony regulations in residential development, required variation in several aesthetic qualities, such as height, roofing materials, and overall design. Commercial development will be concentrated at major intersections and along highway frontages and primary roadways. The City wishes to avoid "strip" development. Smaller-scale neighborhood retail may be constructed along smaller roads. Within the downtown area, the city plans to adopt a minimum (versus a maximum) building height. Lastly, mixed-used planning will be encouraged in the Auto-Urban Commercial District.

There is currently insufficient water and wastewater to support development in the City, but there are increased development proposals due to the pending availability of adequate water through an agreement with AWA.[35] No annexations or SOI adoption will occur until this MSR and the City's General Plan are adopted.

[31] Ibid.

[32] The planning area is all areas given a future land use designation in the City's general plan update Figure 3.2.A. The planning area's approximate area is 11.9 square miles, more than four times the size of the City's SOI.

[33] City of Plymouth, *General Plan Existing Land Use Character Map*, 2007.

[34] Ibid, p. 25.

[35] Ibid, p. 24.

City of Sutter Creek

Sutter Creek's planning area differs from both its bounds and SOI. The area excludes the southwest extension of city bounds and SOI, but includes additional areas to the northwest and southeast of the SOI. The additional northwest area extends along Tonzi Road and covers approximately 0.3 square miles. The additional southeast area abuts the City of Jackson's SOI and includes the airport. This area covers an additional 0.35 square miles.

The City's current (1994) land use element espouses goals to maintain Sutter Creek's rural, small town atmosphere, its historic qualities and its current levels of public services and facilities. The City aims to improve the local economy by recruiting and maintaining tourism and related businesses in the historic areas, and orderly development of non-polluting industries in the Sutter Hill/Martell area. The City encourages in-fill development rather than sprawling or strip-type commercial development. The City is also considering the designation of a portion of the City for a redevelopment project.[36]

The City's growth strategies aim to avoid conflict over sales tax revenues in Martell while advancing municipal interests. Favored growth areas are largely to the west of the City, and are intended to accommodate rather than induce growth. Specifically, the City's annexation strategy includes four main priority areas: the East Ridge area, East and West Allen Ranch along both sides of the Bypass, Bowers Ranch (Valley View), and Ridge Road (SR 104) frontage between SR 88 and SR 49. Other areas of interest for Sutter Creek include the lower Ridge Road area to SR 88 and the Sutter Creek Gateway area.[37] The City has request an expedited annexation for the Old Ridge Road area (Sutter Hill East) in order to provide sewer services to residents there. The majority of this area is within the City's current SOI.[38]

Sutter Creek City Council defined one high-priority SOI expansion area for the City: the Council would like LAFCO to add the West Allen, Bowers and Munn Ranch areas north of Gold Rush to the SOI. The City views this area as the "natural expansion area" for the City in the coming decades.[39] The City reports that it has the infrastructure and capacity to serve each of these growth areas. The City Council anticipates that a reasonable tax split may be negotiated with the County regarding this proposed SOI expansion.[40]

Countywide

The general plan update sets primary guiding goals for land use and development in Amador County including maintaining and enhancing distinct communities, the retention of important farmlands, developing a business-friendly environment, improving the job-housing ratio, protecting

[36] City of Sutter Creek, *FY 07-08 Budget*, p. I-2.

[37] Ibid.

[38] Gee, J. "Sutter Creek requests an exception to LAFCO policy." *Amador Ledger-Dispatch*, August 21, 2007.

[39] City of Sutter Creek, *General Plan Land Use Element*, 1994, p. LU-26.

[40] Sutter Creek City Council, *Manager's Report on Municipal Service Review: Annexation and Sphere of Influence Update Strategy*, February 19, 2008.

resources important to tourism, maintaining the rural lifestyle valued by County residents, and directing development to higher density.[41]

Residential growth is generally limited to areas with slopes under 25 percent and west of the Range 13 East line, a vertical boundary located approximately 2.5 miles east of Buckhorn.[42] The County identified sewer, water and roadway capacity as being the major constraints to growth.[43]

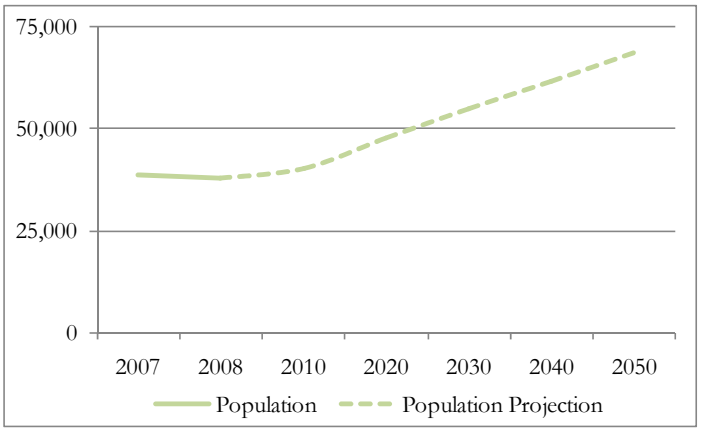
The Amador Economic Development Corporation's Strategic Plan for FY 06-07 identifies several goals with associated strategies to retain and expand business activities in the County. The plan encourages workforce development for residents, suggesting linkages with job training agencies and the establishment of a community college in the area. It also advocates recruiting industries to diversify the local economy, potentially by creating campus-style business parks suitable for high-tech industry. Other strategies include minimizing deterrents to business location within the County, encouraging local government's long-range economic planning, promoting the County at trade shows, and assisting entrepreneurs with business financing.

The County is in the process of updating its general plan, which will identify growth strategies through 2030. The County reported that it anticipates completing the update by the end of 2009. Its General Plan Advisory Committee is considering three alternative growth strategy plans which will guide the drafting of the general plan. In addition, a fourth alternative is under development.

POPULATION PROJECTIONS

Countywide

Figure 2-20: Countywide DOF Population Projection



Population projections for the County vary depending on the data source that is used. The California Department of Finance (DOF) projects a countywide population of 47,593 by 2020 and 54,788 by 2030. This would amount to an increase over the 2008 population of 25 percent and 44 percent, respectively, and is shown in Figure 2-20.

Another method of projecting population is to use planned and proposed developments as a guide. There are 8,994 new housing units planned or proposed in Amador County as of the drafting of this report.[44] Once absorbed, the countywide population will

[41] Amador County, *Preliminary General Plan Goals and Policies*, August 2007.

[42] Amador County, *Land Use General Plan Update Working Paper*, January 2008, p. LU-7.

[43] Interview with Susan Grijalva, Yuba County Planning Director, June 19, 2008.

[44] For a list of all planned and proposed developments in the County see Table 8-1.

grow by about 20,995 if new homeowners' households are comparable in size to existing households. The countywide population would grow to 58,635 at build-out of all planned and proposed development projects that currently exist, an increase of 55 percent over the countywide population in 2008.

Amador City

Amador City reports that there are six vacant parcels within its existing bounds. An additional 13 residents could be accommodated with growth in the City, based on the average population per household in 2008 reported by the DOF.[45] Additionally, there is a possible 18-unit development located in unincorporated Amador County outside of the Amador City SOI, although the project is still in the early planning phase. With build-out of the existing city limits the Amador City population would reach 230, an increase of six percent. With build-out of the 18-unit development in the vicinity of Amador City, the area population would reach 268, an increase of 24 percent.

Wastewater flow projections for Amador City project an increase of 32 percent from 2005 to 2015, 66 percent from 2005 to 2025, and an increase of 95 percent from 2005 to build-out.

City of Ione

There are 12 planned and proposed developments located within the existing boundary and SOI of the City. There would be a total of 3,468 new dwelling units at build-out (in addition to the 1,495 dwelling units in 2008), yielding approximately 8,739 new residents to the City.[46] At build-out, the total population of the City would be 12,265, an increase of 248 percent over the 2008 population.[47]

The City anticipates there will be approximately 3,500 equivalent dwelling units within the City at build-out.[48] This would amount to a population of 8,820, or an increase of 150 percent over the 2008 (non-institutional) population. Wastewater flow projections for the City of Ione also forecast significant growth, projecting an increase of over 200 percent by 2015, 400 percent by 2025, and 1,340 percent at build-out.

City of Jackson

The City of Jackson's general plan forecasts a 2025 population of 6,108, an increase of 41 percent over the 2008 population for the City. The general plan estimate is based on the build-out of 985 planned and proposed dwelling units that existed as of 2004.

There are currently five planned and proposed dwelling units within, or partially within, the existing boundaries of the City. The development plans call for 759 new dwelling units to be

[45] The number of new residents at build-out is based on the average population per household in 2008 reported by the DOF for each city and unincorporated area.

[46] The number of dwelling units associated with one of the twelve projects was not provided as of the drafting of this report.

[47] The population for the City of Ione excludes the institutional populations of Mule Creek State Prison and Preston Youth Correctional Facility.

[48] City of Ione, *General Plan Land Use Element*, 1989.

constructed, which would increase the population by approximately 1,520. The City's population at build-out of current development plans would be 5,839, an increase of 35 percent over the 2008 population. Wastewater flow projections for the City of Jackson project an increase of seven percent by 2015, 22 percent by 2025, and 340 percent at build-out.

City of Plymouth

There are five planned and proposed developments located within, or partially within, the existing boundary and SOI of the City. There is an additional development located outside of the existing SOI that will eventually be annexed to the City. Taken together, the six development projects will yield a total of 1,028 dwelling units, and approximately 2,447 new residents. At build-out of the projects located within the City's existing bounds the population would be 3,177 an increase of 208 percent over the 2008 population. Annexation and build-out of the Arroyo Woods development located outside of the City's existing bounds and SOI would add an additional 302 residents.

The City's land use plan for the proposed SOI in the general plan update would accommodate a population of 5,572, an increase of 439 percent over the 2008 population. Wastewater flow projections for the City forecast an increase of 55 percent by 2015, 109 percent by 2025, and 600 percent at build-out.

City of Sutter Creek

There are six planned and proposed developments located within the Sutter Creek boundary and SOI, representing a total of 1,602 dwelling units. Build-out of these developments would add approximately 3,420 new residents to the City. At build-out, the total population of the City would be 6,322, an increase of 118 percent over the 2008 population. Wastewater flow projections for the City forecast an increase of 178 percent by 2015, 248 percent by 2025, and 357 percent at build-out.

Unincorporated Amador County

Table 2-21: Residential Development Projects Outside of Cities' SOI

	# of Projects	Dwelling Units	Population Increase
Amador City	1	18	41
Buckhorn	5	242	551
Kirkwood	5	128	292
Martell	2	1,357	3,091
Pine Grove	5	297	677
Pioneer	2	86	196
Sutter Creek	2	9	21
Total	22	2,137	4,868

There are 22 planned and proposed residential development projects located in unincorporated Amador County, outside of cities' spheres of influence. Communities with planned or proposed development projects include Buckhorn, Kirkwood, Martell, Pine Grove, Pioneer, and outside of the cities of Amador City and Sutter Creek. At build-out, the 22 residential development projects will add 2,137 dwelling units, and a potential 4,868 new residents. This would amount to a 31 percent increase over the unincorporated population in 2008.

Wastewater flow projections for the unincorporated portion of Amador County (excluding Martell) forecast an increase of 33 percent at build-out. Wastewater flow for the Martell area in 2015 is projected to be six times greater than the 2005 level, and 18 times greater than the 2005 level by 2025. Significant planned and proposed developments in the Martell area include the residential

subdivisions of Golden Vale and Wicklow (1,357 total dwelling units), and the non-residential Sierra West and Martell Business Parks (a total of 82 non-residential lots).

SERVICE PROVIDERS

Municipal services are provided to constituents in the County by 26 local agencies under LAFCO jurisdiction, as well as joint powers authorities, federal and state agencies, the County, non-profit organizations, and private service providers. Local government agencies under LAFCO jurisdiction include the five cities, eight community services districts, eight county service areas, four fire protection districts, three water and irrigation districts, and miscellaneous districts, as shown in Table 2-22. Amador County is the largest provider of municipal services not subject to LAFCO.

The agencies provide services through multiple service configurations, including service by agency employees or volunteers, contracts with other providers, or jointly with a contracted provider, as shown in Table 2-23. The five cities, Amador Water Agency, Kirkwood Meadows PUD, and East Bay MUD are all professionally managed agencies that provide services primarily with paid staff. Many of the rural districts rely on board members and volunteers to provide services. To look up providers by geographic areas, refer to the overview maps in Volume III.

Table 2-22: Service Providers

Cities	Memorial District
City of Amador	Ione Memorial District
City of Ione	Resource Conservation District
City of Jackson	Amador Resource Conservation District
City of Plymouth	Water Districts
City of Sutter Creek	Amador Water Agency
Cemetery Districts	Drytown County Water District
Township No. 2 Public Cemetery District	East Bay Municipal Utility District [2]
Community Services Districts	Jackson Valley Irrigation District
Fiddletown CSD	Kirkwood Meadows Public Utilities District [2]
Pine Acres CSD	River Pines Public Utilities District
Pine Grove CSD	Willow Spring Water District [1]
Rabb Park CSD	County Service Areas
Ranch House Estates CSD	CSA 1 -Silver Lake Pines, Tiger Creek Estates [1]
Ridgewood Acres CSD	CSA 2 - Mace Meadows Water [1]
Sunset Heights CSD	CSA 3 - Lake Camanche Water Bond
Volcano CSD	CSA 4 - Martell Drainage[1]
Fire Districts	CSA 5 - Street Maintenance
Amador FPD	CSA 6 - Septic Monitoring
Jackson Valley FPD	CSA 7 - Solid Waste Disposal Financing [1]
Lockwood FPD	CSA 8 - Carbondale Industrial Park [1]
Sutter Creek FPD	

Note: (1) Inactive agency that has not been dissolved.
(2) Multi-county local agency for which the principal LAFCO is other than Amador.

Table 2-23: Service Configuration

Service Provider	Water							Sewer				Fire					Police			Streets				Parks		Misc.				
					Retail																									
	Water Supply	Groundwater Extrct	Groundwater Mgmt	Water Treatment	Domestic	Irrigation	Recycled	Collection	Treatment	Disposal	Stormwater/Drainage	Structure Protection	Wildland Protection	Emergency Medical	Ambulance	Dispatch	Law Enforcement	Traffic	Dispatch	Maintenance	Lighting	Sweeping	Traffic Signals	Maintenance	Recreation	Cemetery	Mosquito Control	Resource Conservatn	Septic Monitoring	Other
Local Agencies Subject to LAFCO Jurisdiction																														
City of Amador								●	●	○	●	○	○	○	○		○	○	○	▲	○			●	○	●				
City of Ione							●	●	●	●	●	●	●	●	○	○	●	●	○	▲	○	▲		●	○					
City of Jackson	○			○	●	●		●	●	●	●	●	●	●	○	○	●	●	▲	▲	○	●		●	○	●				
City of Plymouth	●	●		●	●			▲	▲	▲	●	○	○	○	○		○	○	○	▲	○	●		●	○	●				
City of Sutter Creek								●	○	○	▲	○	○	○	○		●	●	○	▲	●	●		●	○	●				
Amador FPD												●	●	●		○														
Amador RCD																												●		
Amador Water Agency	●	●	●	●	●	●		●	●	●																				
Drytown County Water District	○			○	●	●																								
East Bay MUD	●	●		●	●	●	●	●	●	●														●	●					
Fiddletown CSD		●		●	●			▲	▲	▲																				
Ione Memorial District																														●
Jackson Valley FPD												●	●	●		○														
Jackson Valley Irrigation District	●				●	●																		○	○					
Kirkwood Meadows PUD		●		●	●	●		●	●	●		●	●	●		○								●			●			●
Lockwood FPD												●	●	●		○														
Pine Acres CSD																				○	○									●
Pine Grove CSD	○	●		○	●																			●						
Rabb Park CSD	○			○	●																									
Ranch House Estates CSD																				○										
Ridgewood Acres CSD																				○										
River Pines PUD	●	●		●	●			●	●	●																				
Sunset Heights CSD											●									○	○									
Sutter Creek FPD												●	●	●		○														
Township Cemetery No. 2																										●				
Volcano CSD	●	●		●	●	●															○			●	○	○				
Willow Spring Water District																														

Service Provider	Water							Sewer				Fire					Police			Streets				Parks		Misc.				
					Retail																									
	Water Supply	Groundwater Extrct	Groundwater Mgmt	Water Treatment	Domestic	Irrigation	Recycled	Collection	Treatment	Disposal	Stormwater/Drainage	Structure Protection	Wildland Protection	Emergency Medical	Ambulance	Dispatch	Law Enforcement	Traffic	Dispatch	Maintenance	Lighting	Sweeping	Traffic Signals	Maintenance	Recreation	Cemetery	Mosquito Control	Resource Conservatn	Septic Monitoring	Other
Local Agencies Subject to LAFCO Jurisdiction																														
CSA 1 (Silver Lake Pines)					Δ			Δ	Δ	Δ		Δ	Δ	Δ			Δ													
CSA 2 (Mace Meadows Unit 1)					Δ																									
CSA 3 (Lake Camanche)	Δ	Δ		Δ	Δ			Δ	Δ	Δ																				●
CSA 4 (Martell CSA)								Δ			Δ																			
CSA 5 (Countywide)																				●	●									
CSA 6 (Countywide)																													●	
CSA 7 (Countywide)																														Δ
CSA 8 (Carbondale)																				●										
Major Non-LAFCo Providers																														
ACRA																								●	●					
ARSA								●	○	●																				
American Legion Ambulance														●	●															
County of Amador								▲	▲	▲	●						●	●	●	▲	○	●	○			●			●	
California Dept. of Forestry												●	●	●		●														
California Highway Patrol																	●	●	●											
Jackson Rancheria							●	●	●	●		●	●	●			●	●												
Mule Creek State Prison								●	●	●		●	●	●		○														
Preston Youth Correctional Facility								●	○	○																				
U.S. Forest Service													●												●					

Key:

● *indicates service provided currently by agency staff*

○ *indicates service provided directly by contract with another service provider*

▲ *indicates service provided by agency staff and by contract with another provider*

Δ *indicates services previously authorized for inactive agencies*

3. FIRE & EMS SERVICES

This chapter reviews the fire and EMS services provided by local government agencies in Amador County. The chapter reviews how these services are provided by the cities, special districts, state and federal agencies and private entities. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, service adequacy, and financing. Government structure options are identified for agencies under LAFCO jurisdiction.

PROVIDER OVERVIEW

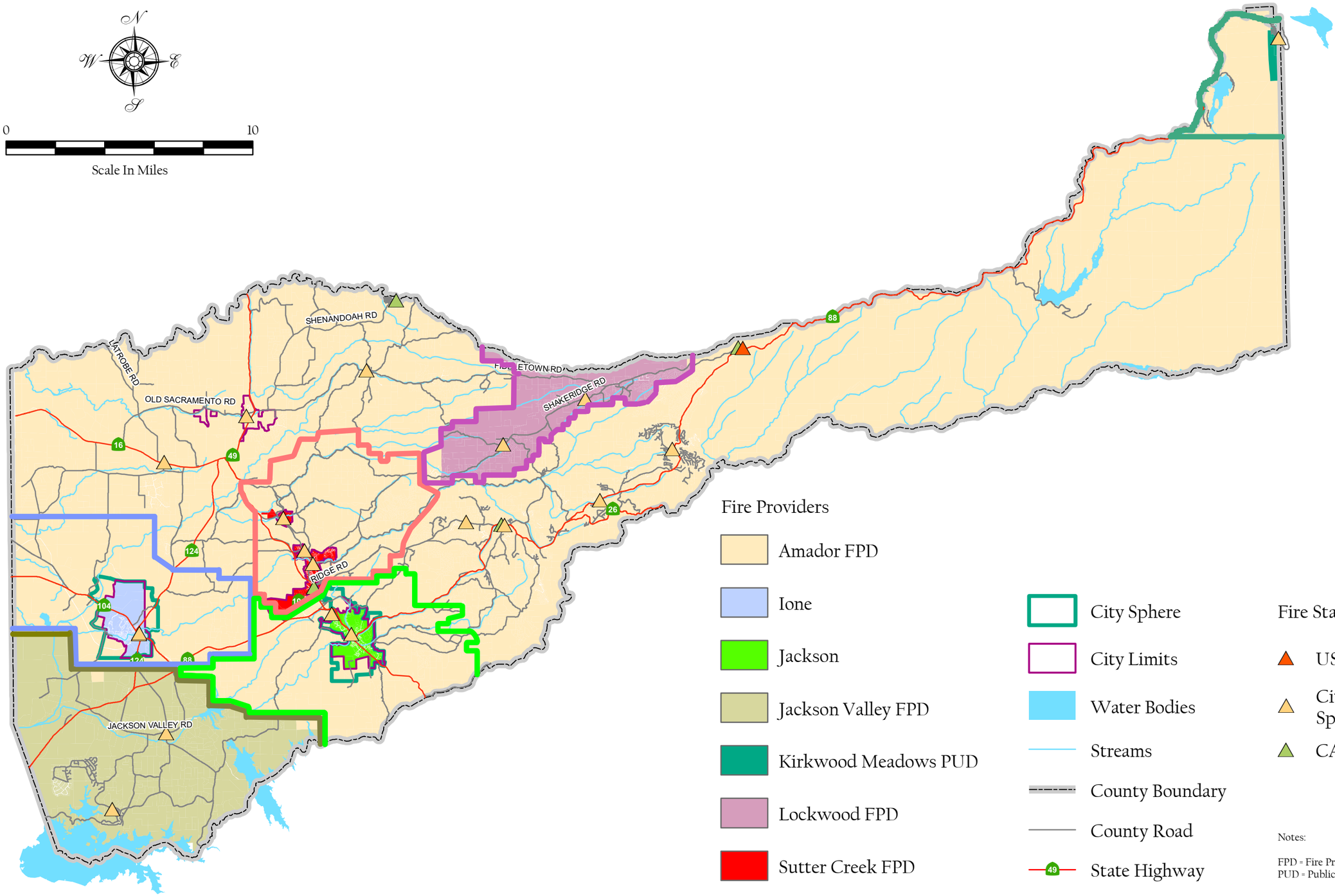
This section provides an overview of the various fire and emergency medical service (EMS) providers. The focus of the fire review is the seven local agencies under LAFCO jurisdiction with fire and EMS responsibilities. There are two cities providing such services and five fire protection districts. There are also four providers which are not under LAFCO jurisdiction—U.S. Forest Service, CALFIRE, Jackson Rancheria, and Mule Creek State Prison—for a total of 11 fire and EMS providers, as shown in Table 3-1. In addition, American Legion Ambulance Service, a non-profit organization, provides advanced life support and ambulance service to all of Amador County. For calls involving emergency medical services, the fire and EMS jurisdiction provides basic life support (BLS) until American Legion Ambulance Service arrives. For a map of each provider's facilities and boundaries, refer to Figure 3-2.

Table 3-1: Fire Provider Overview

		Sworn Staffing	
	Stations	Total Volunteer & Call Firefighters	Total Full-time Firefighers
LAFCO Providers			
City of Ione	2	33	0
City of Jackson	2	24	0
Amador FPD	7	57	0
Jackson Valley FPD	2	14	0
Lockwood FPD	2	16	0
Sutter Creek FPD	3	24	1
Kirkwood Meadows PUD	1	15	0.4
Non-LAFCO Providers			
CALFIRE[1]	3.5	0	36
Mule Creek State Prison[2]	1	32	6
Jackson Rancheria	1	0	15
US Forest Service[1]	0.5	0	5

Notes:
(1) CALFIRE and USFS share the Dew Drop station.
(2) Prisoners at Mule Creek State Prison provide call firefighter staffing.

The providers under LAFCO jurisdiction rely primarily on volunteer and call firefighters to provide services. Volunteers are unpaid, while call firefighters receive minimal reimbursement per response. Fire stations are not staffed, and personnel are deployed from their homes or places of work. Kirkwood Meadows PUD and Sutter Creek FPD are the only providers with paid staffing, although they also rely primarily on call firefighters. The providers not under LAFCO jurisdiction operate staffed stations.



Amador County
Fire Service Map

Map created by: Amador County GIS Division
810 Court Street, Jackson CA 95642 (209) 223-6591
Date: June 24, 2008

SERVICE PROVIDERS

City of Ione

The Ione Fire Department (IFD) provides fire prevention, protection and suppression services, as well as low-angle rescue and water rescue services. In addition to serving its boundary area, Ione serves approximately 38 square miles outside its bounds.

Services are provided by 33 call firefighters and 12 support staff. The Department reports that it has no problems recruiting call firefighters; there is a five-person waiting list for positions. All fire suppression personnel are certified Firefighter Level 1 by the end of 18 months with the Department.

City of Jackson

The Jackson Fire Department (JFD) provides fire protection and suppression services, as well as BLS response for medical emergencies. Jackson serves not only its boundary area but also approximately 45 square miles outside its bounds.

The City relies entirely on call firefighters for service. As of early 2008, the City had 24 call firefighters. The City struggles to retain its goal of 20 to 25 call firefighters on the roster at any given time.

Amador Fire Protection District

Amador Fire Protection District (AFPD) provides fire suppression, fire prevention, emergency medical, and rescue services in its boundaries and by contract to the City of Plymouth. The City reimburses AFPD based on the number of parcels within the City's boundaries. Plymouth retains ownership of the stations, while the District is responsible for maintenance. AFPD also provides building inspection services for Sutter Creek FPD and the City of Jackson and collects impact fees for Jackson Valley FPD and Lockwood FPD. The District was formed from the consolidation of several former fire providers and encompasses a majority of the unincorporated territory within the County.

AFPD provides fire services with 57 call firefighters. Eight of the 57 firefighters serve within the Plymouth city limits. AFPD reports that most new volunteers are recruited by word-of-mouth.

Jackson Valley Fire Protection District

The Jackson Valley Fire Protection District (JVFPD) provides fire prevention, protection and suppression services, as well as BLS emergency response. The District's boundaries overlap with the CALFIRE State Response Area throughout its bounds, except a few parcels in the Federal Response Area. By law, in areas of overlap CALFIRE provides primary wildland fire response and JVFPD provides primary structure fire response.[49]

[49] Pursuant to Health and Safety Code §13811.

All firefighter personnel in the District are call firefighters. There are a total of 14 call firefighters, including the fire chief and an assistant chief. Call firefighter turnover is high as many move on to professional firefighting jobs.

Lockwood Fire Protection District

Lockwood Fire Protection District (LFPD) provides fire protection, fire suppression and BLS. The District also provides community burn assistance for vegetation burning and inspects commercial sites within LFPD bounds for AFPD. Like JVFPD and AFPD, the District overlaps with the State and Federal Responsibility Areas. The District holds primary responsibility for fire structure responses. The District serves its boundary area and approximately one square mile outside its bounds.

Sixteen call firefighters, including the Chief, comprise the District's sworn personnel. LFPD has a training officer, and aims to provide new volunteers with the education component of training needed to become a State-certified Firefighter 1.

Sutter Creek Fire Protection District

Sutter Creek Fire Protection District (SCFPD) provides fire prevention, fire suppression services, basic life support, and rescue services. In addition, the District provides public assistance, building inspections and public education. The District serves its boundary area in addition to approximately 39 square miles outside its bounds.

The District is staffed by 24 call firefighters across three battalions, two of which were recently hired to provide part-time paid staffing. The two part-time firefighters were hired in April 2008 by AFPD to staff SCFPD Station 141 for 16 to 20 hours on the weekends; the two firefighters perform equipment testing and responding to service calls.

Kirkwood Meadows Public Utility District

The Kirkwood Volunteer Fire Department directed by the Kirkwood Meadows Public Utility District (KMPUD) provides year-round structural fire protection services. The Department is also responsible for snow removal around fire hydrants. KMPUD stretches into three counties: Amador, Alpine and El Dorado. Alpine is the principal LAFCO and has jurisdiction over the District.

The Department has one paid employee, the fire chief, who works 16 hours per week. Fifteen call firefighters work under the chief. Call firefighters may sign up for on-call shifts, which are served outside of the station. There are four 12-hour shift positions each day.

NON-LAFCO REGULATED PROVIDERS

California Department of Forestry and Fire Protection

The California Department of Forestry and Fire Protection (CALFIRE) provides fire prevention, suppression, and fire related law enforcement for timberlands, wildlands and urban forests in the State Responsibility Area (SRA). The SRA encompasses most of the unincorporated portion of the westernmost two-thirds of Amador County, and excludes the cities and the federal responsibility area in the easternmost part of the County. CALFIRE also responds to other types of

emergencies, including structure fires, vehicle accidents, medical aids, swift water rescues, search and rescues, hazardous material spills, train wrecks, and natural disasters.

Through an agreement with AFPD called the Amador Plan, CALFIRE maintains by contract staffed stations during non-fire season to ensure response to all service calls throughout the County. As response by call and volunteer firefighters may not be dependable, CALFIRE responds to all service calls in the County, in addition to the response by the local fire provider with primary responsibility for the area where the event is reported. CALFIRE also provides fire dispatch for each of the fire providers in the County as part of the plan. CALFIRE is reimbursed by AFPD for services provided throughout the County, including areas inside other Amador County fire provider boundaries.

U.S. Forest Service

The U.S. Forest Service (USFS) provides emergency medical response, fire prevention, fire suppression and fire education services in the Federal Responsibility Area (FRA). The FRA in the County is concentrated in the eastern portion of Amador and also along the central Amador-Calaveras County line. Educating citizens about wildland fires includes interaction with individual citizens, public forums, public events, schools, publications, and grants.[50]

Fire related services are provided by a total of five full-time paid firefighters who operate the Dew Drop Fire Station during fire season. The Dew Drop Fire Station, in Pioneer, is open year-round and has one fire engine. It is operated cooperatively with CALFIRE. The station is operated year-round with one CALFIRE engine staffed by two engineers per shift and augmented during declared fire season with one USFS engine.

Mule Creek State Prison

Mule Creek State Prison (MCSP) Fire Department provides fire suppression and emergency medical response services to prison grounds and to areas outside of the prison through automatic aid agreements with Preston Youth Correctional Facility, Amador FPD and the City of Ione. The agreement with Preston is for fire suppression services only, the AFPD agreement covers response for fires, traffic accidents and hazmat incidents within a six-mile radius, and the Ione agreement covers all non-medical calls. The station is staffed by six full-time personnel: one fire chief, four fire captains and a hazardous materials specialist. Also, eight inmates per shift serve as firefighters.

Jackson Rancheria

The Jackson Rancheria Fire Department is the County's only fire agency with full-time paid staff not funded by the State. The Department was created in response to growth and development on the tribal lands. Trainees were recruited from existing Casino staff and graduated from training in October 2007. The Department responds only on tribal property between SR 88 and Ridge Road east of Jackson. AFPD is negotiating terms with the Rancheria to respond off of the tribal property. The station is staffed by a total of 13 firefighters and two lieutenants.

[50] Amador Fire Safety Council, "Amador County Fire Hazard Reduction Plan," 2004.

American Legion Ambulance

American Legion Ambulance Service, a non-profit organization, provides advanced life support and ambulance service to all of Amador County. For calls involving emergency medical services, the fire provider provides BLS response until American Legion Ambulance Service arrives.

CALSTAR

CALSTAR is a public nonprofit helicopter ambulance supported by corporations and hospitals throughout the nation. The organization provides emergency helicopter transport to hospitals from its Auburn station in Placer County. CALSTAR has applied to operate a helicopter out of Westover Field in Amador County. Helicopter transport is also provided in Amador County by the California Highway Patrol and several other private vendors.

Amador Fire Safe Council

The Amador Fire Safe Council is a non-profit organization that provides educational workshops, distributes fire preparedness materials, and helps to develop community fire plans.

MUTUAL AND AUTOMATIC AID

There are extensive mutual and automatic aid arrangements for fire and emergency medical services that cross jurisdictional boundaries throughout Amador County. Mutual aid refers to reciprocal service provided under a mutual aid agreement, a pre-arranged plan and contract between agencies for reciprocal assistance upon request by the first-response agency. In addition, the fire service providers rely on automatic aid primarily for coverage of areas with street access limitations and freeways. Automatic aid is based on the concept that the nearest available unit responds first. It refers to reciprocal service provided under an automatic aid agreement, a prearranged plan or contract between agencies for an automatic response for service with no need for a request to be made (i.e., the assisting provider is dispatched directly). All public safety agencies are required to provide mutual aid in times of extreme disaster as part of the California Governor's Office of Emergency Services Master Mutual Aid Agreement.

Providers in Amador County have defined service areas that are dependent on the ability to provide fast response to calls rather than using jurisdictional boundaries as the basis for determining the initial response unit. These service response areas are defined in a series of automatic aid agreements between AFPD and other providers. For a map of fire providers' primary service areas, refer to Figure 5-2. AFPD has automatic aid agreements with the following providers:

- City of Ione: The City is reimbursed $2,200 per year to respond to calls in an area surrounding Ione from the intersection of SR 124 and SR 88, east to the Amador-Sacramento county line, west to Sunnybrook, and north level to Carbondale. AFPD also provides and maintains a rescue vehicle for use by IFD.

- City of Jackson: The City responds to an area outside of the City that extends south to the Amador-Calaveras County line; east of the City to the Clinton area, west to near Jackson Valley Road, and northward through a portion of Martell. The northern boundary extends above SR 88 but does not include all of the "Martell Triangle", the area formed between SRs 88, 104 and 49. The City is reimbursed by AFPD $145 per service call in 2008.

- Sutter Creek FPD: The District is paid by AFPD to respond to service calls in the Sutter Creek vicinity, including east of Sutter Creek to Carpenter's Gulch, north to the intersection of New Chicago Road and North Quartz Mountain Road, west to the intersection of Vaira Ranch Road and SR 49, and south to the intersection of SR 88 and SR 104. The area includes the area north of the railroad tracks in the unincorporated community of Martell.

- Kirkwood Meadows PUD: AFPD reimburses the District $72 per response and $2,200 annually to respond to calls in Silver Lake and southward to Plasse in the Kirkwood vicinity.

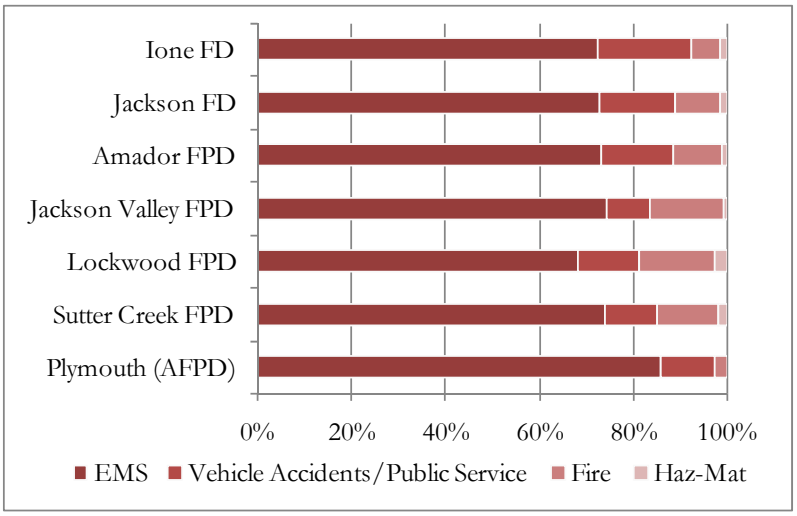
To augment service in times of significant or multiple simultaneous service calls, each of the municipal providers, including Ione FD, Jackson FD, AFPD, JVFPD, LFPD, SCFPD and CALFIRE have a joint mutual aid agreement with each other. In addition, AFPD has a reciprocal mutual aid agreement with Pioneer FPD in El Dorado County. KMPUD has mutual aid agreements with AFPD in Amador County and Markleeville VFD, Woodfords VFDs, and Lake Valley FD in neighboring counties.

AFPD also has an agreement with CALFIRE to keep three of the four CALFIRE stations staffed during non-fire season. This agreement, in use throughout the State, is commonly referred to as the Amador Plan. Without the agreement, CALFIRE would staff its stations only during fire season, usually May to October, and significantly reduce or eliminate staff during the non-fire season. The Amador Plan guarantees that CALFIRE will maintain staff at the State-owned stations to provide backup fire response throughout the County between November and April. As part of the contract, CALFIRE also provides dispatching services to all Amador County fire providers. AFPD is billed quarterly for services rendered during that period by CALFIRE for the fire protection and dispatching services provided pursuant to the agreement.

SERVICE DEMAND

Figure 3-3: Fire Department Service Calls, 2007

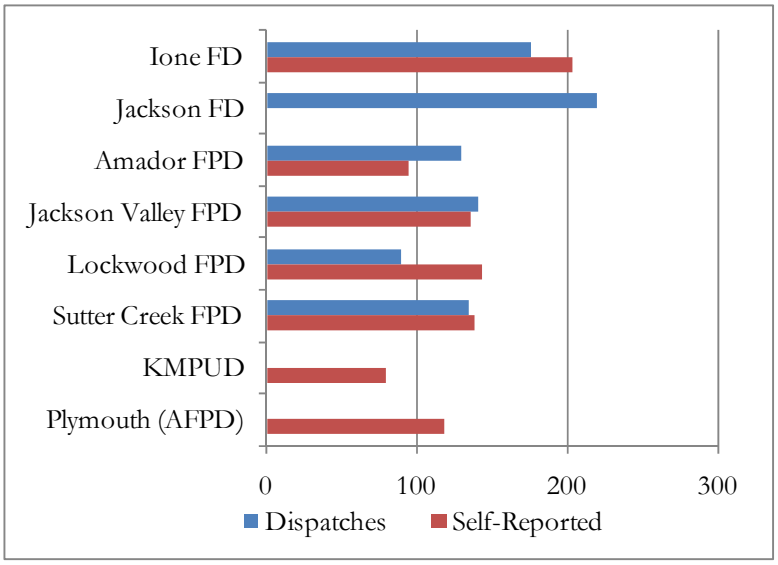
There were almost 5,000 calls for fire or EMS service in the County in 2007, excluding wildland fire calls for CALFIRE.[51] In other words, there were approximately 14 service calls throughout the County on an average day. Fire departments provide first-response service to EMS calls, and typically arrive at the scene to assist the victim prior to arrival of an American Legion ambulance.



[51] The source for calls for service is CALFIRE dispatch. A call for service does not indicate the number of responses by each jurisdiction, as multiple jurisdictions may respond to a single call. The number of reported calls is presumed to include false alarms.

A majority of the calls (73 percent) in the County were medical emergencies, and another 15 percent were vehicle accidents. Vehicle accidents compose a relatively high share of Ione FD service calls. Calls for fire-related events (structure, vehicle and wildland) accounted for 10 percent of the incident volume on average, and 16 percent of calls in JVFPD and Lockwood FPD, as shown in Figure 3-3. Rural districts in the foothills with extensive wildland areas and a greater wildfire hazard tended to have a higher share of calls related to fire.

Figure 3-4: Service Calls per Capita (1,000), 2007



Districts countywide averaged 148 dispatched service calls per 1,000 residents in 2007.[52]

The volume of service demand may vary between jurisdictions based on the population's age and access to primary health care, visitor counts, highway miles and risk of wildland fires within the agency's boundaries.

The number of service calls per 1,000 residents varied from 79 in Kirkwood Meadows PUD to 219 within the City of Jackson's service area.

Each of the jurisdictions experiences different peak periods of demand. Urban areas tend to experience most service calls during daytime hours on weekdays, while rural and wilderness areas have the highest calls for service in the evenings and on weekends when residents have returned home from work. Jackson receives most calls between 10 a.m. and 5 p.m. LFPD reported that call volume is highest in the evenings and on weekends. KMPUD also experienced most calls on the weekends, most likely due to the influx of recreational tourists. AFPD reported a majority of its calls are received in the afternoon between noon and 6:00 p.m.

The entire County is classified as moderate to very high fire hazard severity based on CALFIRE analysis of fuels, terrain and weather. Territory in the upcountry portion of the County, east of Sutter Creek and Jackson, was ranked as a very high fire hazard severity zone. The remainder of the County is classified as moderate to high fire hazard.

The wildland interface areas—where structures and development meet or intermingle with undeveloped wildlands or vegetative fuel—are expanding as more people build homes in such areas.

[52] Dispatched calls represent CALFIRE dispatches. Population is the estimated residential population in the providers' service area; for KMPUD, population was adjusted to represent both permanent residents and average visitor counts.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

DISPATCH AND COMMUNICATIONS CONNECTIVITY

Emergency 911 calls are initially routed to a Public Safety Answering Point (PSAP)—a facility equipped and staffed to receive 911 calls, and may only be transferred one time. For all calls from landlines in Amador County the PSAP is the Amador County Sheriff's communication center. The first-response dispatcher immediately determines whether a 911 call is related to a police, fire or medical emergency. All fire and medical 911 calls in Amador County, including those within KMPUD's boundaries, are routed to CALFIRE's Camino Interagency Command Center, located in El Dorado County, which in turn dispatches a CALFIRE unit as well as the appropriate local jurisdiction responder. The Camino Interagency Command Center serves local fire providers in El Dorado County and Amador County, and dispatches CALFIRE personnel in Alpine, San Joaquin and Sacramento counties.

Dispatch for fire and medical calls is increasingly becoming regionalized and specialized, with dispatching provided by CALFIRE to all fire providers. Through this regionalization and specialization of dispatching services, the fire providers in Amador are able to reap benefits from economies of scale, standardized communication protocols for the entire County or region and highly skilled, centralized dispatch service staff.

Emergency 911 calls from cellular phones are initially routed to the California Highway Patrol in Stockton, and then to the Sheriff. The Federal Communications Commission (FCC) mandated that cell phone vendors enable cell phones to be located when they dial 911 by 2006. Wireless providers have chosen to either update handsets with GPS capabilities or modify the cell phone network.

The fire providers indicated that dispatching calls from cell phones is particularly inefficient due to multiple transfers, length of time the caller spends on hold and lack of location information. Response times are further delayed when callers that are unfamiliar with the area are unable to describe rural locations to the dispatch personnel. All new cell phones are now equipped with GPS; however, it will take a few years for all old phones to be replaced by phones with GPS capability and/or construction of specialized cell phone towers. As of April 2008, the Amador County Sheriff's office was not yet able to take calls which identify a caller's latitude and longitude.[53] CALFIRE can identify a cell phone caller's position, if the caller is transferred to the command center; however, the sheriff takes the information for a majority of the calls and then transfers the information only (not the caller) to CALFIRE for dispatch.

All fire providers in Amador County communicate through the same radio systems. Due to shared radio frequencies, there is effective inter-agency communication. When multiple service providers respond to an incident, the first unit to arrive on scene is responsible for incident command. The first responder implements the appropriate protocol and notifies other providers whether and when sufficient personnel have arrived on scene. For incidents such as vehicle

[53] California Department of General Services, Sacramento Region Cutovers, URL accessed 6/13/08, http://www.td.dgs.ca.gov/Services/911/we911.htm

accidents, universal command protocols dictate that law enforcement becomes responsible for incident coordination once it arrives on scene.

Generally, all agencies indicated that they were satisfied with dispatch services. Providers reported challenges with dispatch regarding delays due to multiple transfers of cell phone calls and problems with weak radio signals resulting in interference from Sutter County providers. It is anticipated that the interference from Sutter County will be eliminated when providers change to narrow bandwidth radios, which must occur by 2013 to comply with federal requirements. CALFIRE reported that it welcomes input from the local agencies on dispatch concerns, and that it responds to input from the chiefs to make improvements to the system.

FACILITY AND EQUIPMENT CONDITIONS

There are currently 25 fire stations in use in the County, including those owned and operated by state and federal providers not subject to LAFCO jurisdiction. Table 3-5 summarizes the station locations, conditions and equipment of each provider.

Agencies provided the facility age and an assessment of each facility's condition and deficiencies. Of the 24 stations responsible for first response, 15 were reported as being in good or excellent condition, 6 in fair condition and 3 in poor condition. The following infrastructure deficiencies and needs were identified by the agencies:

- Ione: Station 161 needs a back-up generator and exhaust system. To accommodate anticipated future demand, Station 162 is to be replaced with a new station, which is expected to be operational in the fall of 2008. The fire department identified a need to improve pressure and increase emergency water reserves. In order to address these issues, the City plans to install an additional one to two-million gallon above-ground storage tank, to replace all four-inch water mains, to replace wharf hydrants with steamer hydrants, and to finish cross connections of water mains. The City reported a need for a more versatile ladder truck and a replacement engine.

- Jackson: Facility needs include a new roof at Station 131, bedrooms at Station 132, a meeting/training room, and eventually a new station to replace Station 131. Station 131 needs to be replaced, because modern apparatus do not fit inside it.[54] There were no plans for a new station as of the drafting of this report. Equipment needs include three new Type 1 engines, a quick-attack mini pumper, and a water tender. The City has authorized the Department to purchase its first water tender as of March 2008.[55]

- Plymouth: The City's fire station is in fair condition. The facility is being remodeled in 2008. Upon completion, the station will have a new kitchen and sleeping quarters.

- Amador FPD: The District indicated a need to connect all of the stations' computers through a wireless network to allow ease of access when reported incidents. The District plans to address this by installing wireless internet in all stations, along with the necessary IT support and

[54] Interview with Chief Morton, City of Jackson, January 17, 2008.

[55] Correspondence with Mike Daly, City Manager, City of Jackson, March 25, 2008.

software by the end of 2008. The District plans to build two new stations in the communities of Pine Grove and Martell by 2011 to mitigate the increase demand for service in those areas. The Martell station will also serve as a training center and emergency operations center. The District needs and has formal plans to acquire a two Type 4 engines and a squad vehicle in FY 07-08, a Type 1 engine in FY 09-10, and aerial equipment in Martell in FY 11-12.[56] The District reports it also needs an aerial apparatus (minimum of 110 feet), but it has not been planned for purchase due to financing constraints.

- Jackson Valley FPD: Station 171 was built in 1953, is in poor condition, and needs electrical and sewer plumbing repairs. Station 172 was built in 1986 and is in good condition. The station needs a new roof and HVAC repair. The District does not presently have sufficient resources to fund these repairs. The District reports it needs a new utility truck or fire chief vehicle.

- Lockwood FPD: Station 151 was built in 2001 and is scheduled for remodeling in 2008, although it is reported as being in good condition.[57] Station 152 was built in 2006 and is in excellent condition. Needs identified by the District include 1) a large generator for districtwide emergency use during power outages, 2) an additional squad vehicle and Chief's vehicle, 3) six spot lights, 4) an enclosed and secure fuel area, 5) a new roof at Station 2, 6) exhaust systems in both stations, 7) automatic station doors, 8) additional water sources, and 9) replacement of older an older water tender by 2018.

- Sutter Creek FPD: SCFPD operates three fire stations. One station is reported as being in poor condition; the others are in good and excellent condition. The District has plans to replace the station in poor condition with a new station in Sutter Hill, but did not provide the timing, cost or financing source for the new station. A new station will be needed in the proposed Gold Rush Development to meet the increased need for service.[58] Accordingly, the development will include a site for a public safety facility that is expected to include a fire station as well as professional office space for SCFPD. The District reports that it needs multiple new fire vehicles, but has not purchased these due to financial constraints. The District did not specify the exact type and quantity of vehicles needed.

- Kirkwood FPD: The District's fire station is in good condition. The District did not report any current or anticipated needs. There are no plans for new facilities at this time. No infrastructure or equipment needs were reported by the Department; however, the Department does not have wildland fire equipment.

- CALFIRE: The agency did not report any immediate needs for facilities or equipment. CALFIRE has an ongoing capital replacement program, and Station 60 will be due for replacement in 2010.

[56] AFPD, *Capital Improvement Plan: 2007-08*, 2007.

[57] LFPD, *Capital Improvement Plan*, FY 03-04.

[58] Interview with Jim McCart, Fire Chief, AFPD, January 17, 2008.

Table 3-5: Fire Station Condition and Apparatus

Station	Location	Condition	Apparatus
City of Ione			
Station 161	22 Jackson St. Ione, CA 95640	Good	3 Type 1 Engines, Type 2 Water Tender, Type 3 Engine/Water Tender, & Telesquirt, Type 3 rescue, support service unit
Station 162 Old	on SR 124 across from Howard Park	Good (closure pending)	55-Ft ladder truck, Type 2 Engine, Type 3 Engine, Water Rescue Unit with 2 Boats, Type 4 Grass Unit
Station 162 New	600 Preston Avenue Ione, CA 95640	Under Construction	To be transferred from old Station 162
City of Jackson			
Station 131	175 Main Street Jackson, CA 95642	Poor	2 Type 1 Engines, Type 5 Rescue Unit
Station 132	10600 Argonaut Ln. Jackson, CA 95642	Good	Type 1 Engine, Type 3 Engine & Telesquirt (75 ft.)
Amador Fire Protection District			
Station 111	26517 Meadow Dr. Pioneer, CA 95666	Good	Engine, Rescue
Station 112	23770 Van de Hei Ranch Rd. Pioneer, CA 95666	Good	Two engines, Water tender, Squad
Station 114	19840 Highway 88 Pine Grove, CA 95665	Fair	Two Engines, two Squads, Utility Vehicle
Station 115	18655 Ridge Rd. Pine Grove, CA 95665	Fair	Engine
Station 121	16850 Demartini Rd. Plymouth, CA 95669	Good	Two Engines, Water Tender, Squad
Station 122	18534 Sherwood St. Plymouth, CA 95669	Fair	Two Engines, Squad, Utility Vehicle
Station 123	14410 Jibboom St. Fiddletown, CA 95629	Excellent	2 Engines, Water Tender
Jackson Valley Fire Protection District			
Station 171	2480 Quiver Drive Ione, CA	Poor	2 Type 2 Engines, 2 Water Tenders (NP gal.)
Station 172	5700 Buena Vista Rd Ione, CA	Good	Type 2 Engine
Lockwood Fire Protection District			
Station 151	23141 Shakeridge Rd Volcano, CA	Good	Type 1 Engine, Type 3 Engine, Water tender (4,000 gal.)
Station 152	19315 Shakeridge Rd Volcano, CA	Excellent	Type 3 Engine, Water tender (4,000 gal.), command vehicle
Sutter Creek Fire Protection District			
Station 141	350 Hanford Street Sutter Creek, CA	Excellent	2 Type 1 Engines, Type 2 Engine, Water Tender (3000 gal)
Station 142	18 Main Street Sutter Creek, CA	Fair	Type 3 Engine, Rescue unit
Station 143	10791 Water Street Amador City, CA	Poor	Antique Engine

continued

Station	Location	Condition	Apparatus
Kirkwood Meadows Public Utility District			
Kirkwood Meadows	33540 Loop Rd Kirkwood, CA	Good	NP
CALFIRE			
Station 10	29300 Dew Drop Bypass Pioneer, CA	Excellent	One engine
Station 30	15035 Shenandoah Rd River Pines, CA	Good	One engine
Station 60	11660 Highway 49 Sutter Creek, CA	Fair	Two engines, one dozer
Station 80	19597 Highway 88 Pine Grove, CA	Good	Two engines
Mule Creek State Prison			
MCSP	4001 Highway 104 Ione, CA	Fair	Two Type 1 Engines, Type 3 Wildland Engine, Squad, Hazmat Decon Truck, chief vehicle
Jackson Rancheria			
Jackson Rancheria	Dalton Rd.	Excellent	Two engines

SERVICE ADEQUACY

Fire and emergency medical service adequacy measures include response times, ISO ratings and coverage adequacy.

STANDARDS

For fire and paramedic service, there are service standards relating to response times, dispatch times, staffing, and water flow.

Response Times

Particularly in cases involving patients who have stopped breathing or are suffering from heart attacks, the chances of survival improve when the patient receives medical care quickly. Similarly, a quick fire suppression response can potentially prevent a structure fire from reaching the "flashover" point at which very rapid fire spreading occurs—generally in less than 10 minutes.[59]

The guideline established by the National Fire Protection Association[60] (NFPA) for fire response times is six minutes at least 90 percent of the time, with response time measured from the 911-call time to the arrival time of the first-responder at the scene.[61] The fire response time guideline established by the Center for Public Safety Excellence (formerly the Commission on Fire

[59] NFPA Standard 1710, 2004.

[60] The National Fire Protection Association is a non-profit association of fire chiefs, firefighters, manufacturers and consultants.

[61] Guideline for a full structure fire is response within ten minutes by a 12-15 person response team at least 90 percent of the time.

Accreditation International) is 5 minutes 50 seconds at least 90 percent of the time.[62] These standards are summarized in Table 3-6.

Fire providers in Amador County provide first-response to emergency medical calls and basic life support (BLS) prior to American Legion Ambulance Service arriving on the scene to provide advanced life support (ALS) and ambulance transport. The BLS medical response time guideline established by the California EMS Agency is five minutes in urban areas, 15 minutes in suburban or rural areas, and as quickly as possible in wilderness areas. The cities of Ione, Jackson, Plymouth, and Sutter Creek are classified as urban areas. Suburban or rural areas include the Camanche North Shore area, areas east and west of the cities of Jackson and Sutter Creek, and the communities along SR 88 east of Jackson, including Pine Grove. All other areas are classified as wilderness areas.

Table 3-6: Fire and Medical Response Time Standards (minutes)

Agency Providing Guideline	Dispatch	Fire	Full Structure Fire	Basic Life Support	Advanced Life Support	Ambulance Transport
National Fire Protection Association	1:00	6:00	10	6	10	
Center for Public Safety Excellence	0:50	5:50		5:50		
CA EMS Agency						
Urban/Metro				5:00	8	8
Suburban/Rural				15	20	20
Wilderness				AQAP	AQAP	AQAP
Mountain-Valley EMS						
Urban/Metro					8	8
Suburban/Rural					20	20
Wilderness					AQAP	AQAP

(1) AQAP means as quickly as possible.

California EMS guidelines for ALS first-response are eight minutes in urban areas and 20 minutes in suburban areas. The Mountain-Valley EMS Agency has established ALS and ambulance transport response time criteria specific to Amador County for the private provider—American Legion Ambulance Service.

NFPA recommends a 60-second standard for dispatch time, the time between the placement of the 911 call and the notification of the emergency responders. The Center for Public Safety Excellence recommends a 50-second benchmark for dispatch time.

Staffing

For structure fires, NFPA recommends that the response team include 14 personnel—a commander, five water supply line operators, a two-person search and rescue team, a two-person ventilation team, a two-person initial rapid intervention crew, and two support people. The NFPA guidelines require fire departments to establish overall staffing levels to meet response time standards, and to consider the hazard to human life, firefighter safety, potential property loss, and the firefighting approach. NFPA recommends that each engine, ladder or truck company be staffed by four on-duty firefighters, and that at least four firefighters (two in and two out), each with

[62] Commission on Fire Accreditation International, 2000.

protective clothing and respiratory protection, be on scene to initiate fire-fighting inside a structure. The Occupational Safety and Health Administration standard requires that when two firefighters enter a structure fire, two additional firefighters will remain on the outside to assist in rescue activities.[63]

For emergency medical response with advanced life support needs, NFPA recommends the response team include two paramedics and two basic-level emergency medical technicians.

Training

According to the California State Fire Marshal, all volunteer and call firefighters must acquire Firefighter I certification; however, there is no time limit as to how long they may work before attaining certification. Firefighter I certification requires completion of the 259–hour Firefighter I course, which includes training on various fireground tasks, rescue operations, fire prevention and investigation techniques, and inspection and maintenance of equipment. In addition to the course, Firefighter I certification also requires that the applicant have a minimum of six months of volunteer or call experience in a California fire department as a firefighter performing suppression duties.[64] In addition, California State Law requires that all volunteer/call firefighters must successfully complete an EMS First Responder/CPR or EMT course within one year of beginning service and maintain this certification through a refresher course every three years.[65]

RESPONSE TIMES

Response times reflect the time elapsed between the dispatch of personnel and the arrival of the first responder on the scene. As such, response times do not include the time required to transport a victim to the hospital. The response times include the dispatching time of fire personnel.

Figure 3-7: Fire Provider Response Times (minutes), 2007

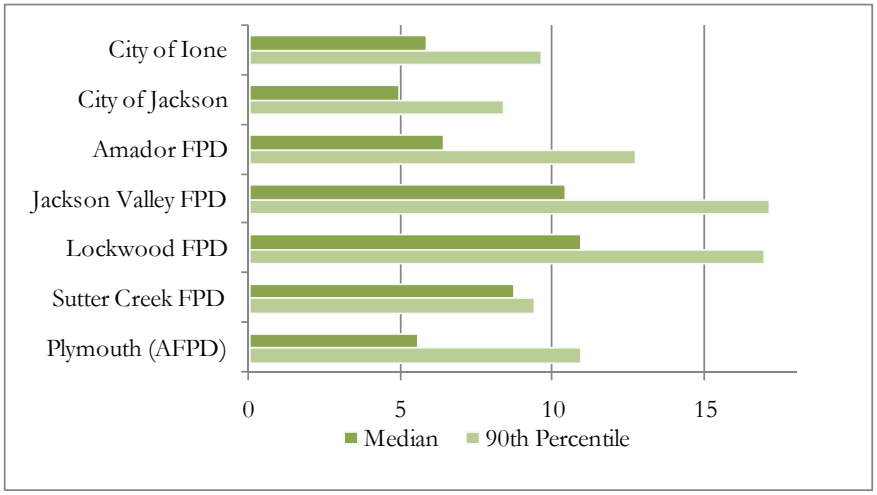


Figure 3-7 shows the jurisdictions' 2007 median response times and 90th percentile response times (response time achieved 90 percent of all service calls). KMPUD did not provide its overall median and 90th percentile response times.

All of the providers exceeded NFPA fire response guidelines of six

[63] 29 CFR 1910.134

[64] State Fire Marshall, Course Information and Required Materials, 2007, p. 44.

[65] Health and Safety Code §1797.182.

minutes 90 percent of the time. The agencies reported that they hope to improve their response times through additional coverage with new planned stations and paid firefighter positions.

The more urban providers—the City of Ione, the City of Jackson and SCFPD—had the fastest response times. Although these providers did not meet the urban response time standard, they do respond to both urban areas (within their bounds) and suburban and rural areas where they provide automatic aid in the AFPD service area. Service calls to areas outside bounds make up about half of Ione's service calls, one-third of Jackson's service calls and one-tenth of SCFPD's service calls.

AFPD response times meet the California EMS BLS guidelines of 15 minutes in suburban and rural areas. AFPD exceeded urban response time standards of eight minutes in Plymouth, where response times were almost 11 minutes 90 percent of the time.

Jackson Valley and Lockwood FPDs reported the longest response times, most likely due to the rural nature of the districts, irregular terrain, limited road access in some areas and reliance on call firefighters. Both districts met the "as quickly as possible" guideline for wilderness areas.

Table 3-8: American Legion Response Times

Zone	90th Percentile	EMS Standard	Zone Designation	Area Description
1	22:48	ASAP	Wilderness	Jackson Valley
2	19:12	ASAP	Wilderness	South of SR 16 to SR 88
3	12:00	8	Urban	City of Ione
4	16:00	ASAP	Wilderness	North and west of Plymouth
5	15:24	ASAP	Wilderness	City of Plymouth surrounding area
6	29:00	ASAP	Wilderness	Fiddletown, River Pines, Drytown
7	15:00	20	Suburban	West of Jackson and Sutter Creek
8	09:00	20	Urban Goal	Jackson and Sutter Creek
9	18:00	ASAP	Rural Goal	Ridge Road and SR 88 east of Jackson to Pine Grove
10	18:00	20	Rural	Pine Grove
11	30:00	ASAP	Wilderness	Lockwood
12	22:00	ASAP	Wilderness	Lockwood, Rabb Park, Silver Lake Pines, Mace Meadows
13	19:18	20	Suburban	Pioneer and Volcano
14	34:00	ASAP	Wilderness	East of Brooks Station to Bear River Road
15	59:59	ASAP	Wilderness	East of Bear River Road to the countyline
1a	25:24	ASAP	Rural Goal	Camanche North Shore
3a	16:00	8	Urban	Ione adjacent
5a	12:00	20	Urban Goal	City of Plymouth
9a	14:00	20	Suburban	Pine Grove
12a	27:36	20	Suburban	Along SR 88 in the upcountry

American Legion Ambulance exceeded California EMS response time standards in three of its designated response time zones—the area in and surround the City of Ione (Zones 3 and 3a) and the area along SR 88 in the upcountry near the community of Pine Grove (Zone 12a). Response times were particularly long in the extreme eastern portions of the County near the community of Kirkwood (Zone 15), where the ambulance responded within one hour 90 percent of the time.

The agencies described areas where prompt response is challenging due to lengthier travel time or access issues. These areas are listed in Table 3-9.

Table 3-9: Difficult-to-Serve Areas

	Area	Reason
Ione FD	Buffalo Ridge	Lack of fire accessible roads
Jackson FD	10-12 impassable bridges	Narrow streets and bridges
AFPD	Areas surrounding Ione, Jackson and Sutter Creek[1]	Distance from an AFPD station
JVFPD	Lake Pardee	Distance and windy roads
LFPD	Sherwood Forest	Blocked access by fencing
SCFPD	No areas reported	
KMPUD	Silver Lake	Road and weather conditions

Notes:
(1) These areas are served by other providers through automatic aid agreements.

Another challenge to prompt response times includes the jurisdictions' reliance on call firefighters. Call firefighters are dispatched from their homes and jobs for service calls. Response times are greatly increased if the firefighter must return to the station for an engine. Each firefighter's ability and time needed to respond depends on the flexibility of his or her employer and the location of the firefighters' home or job in relation to the call and time of day. Providers reported that response by call firefighters is generally lowest during business weekdays, when most firefighters are at their paid jobs.

ISO CLASSIFICATION

Table 3-10: Fire Provider ISO Ratings

Agency	Class
Ione FD	5
Jackson FD	5/9
SCFPD	5/9
AFPD	6/9 and 8B/9
JVFPD	7/9
LFPD	8/9
KMPUD	4

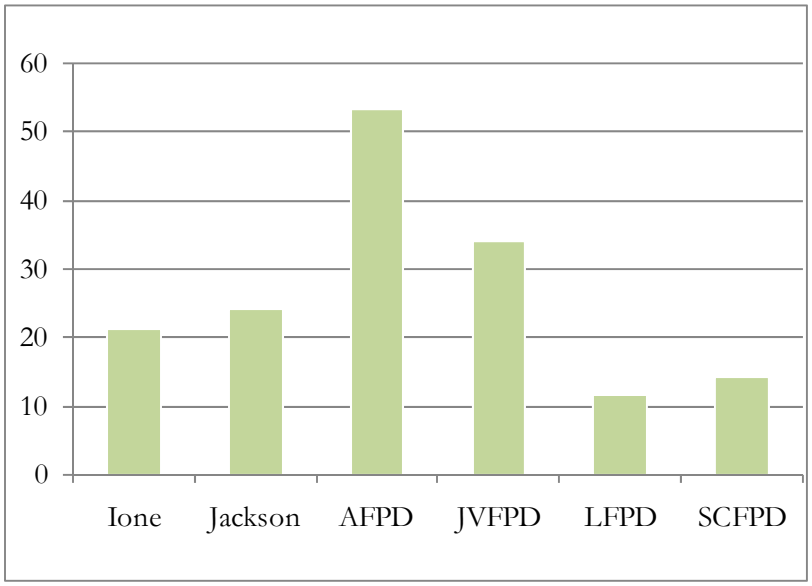
The Insurance Service Office (ISO), an advisory organization, classifies fire service in communities from 1 to 10, indicating the general adequacy of coverage. Communities with the best systems for water distribution, fire department facilities, equipment and personnel and fire alarms and communications receive a rating of 1. A Public Protection Classification (PPC) rating has a direct bearing on the cost of property insurance for every home and building in a community.[66] The PPC ratings of each of the jurisdictions are shown in Table 3-10. In the case of split classifications, the first class generally applies to properties within five miles of a station and 1,000 feet of a hydrant. The second class applies to areas within five miles of a station but beyond 1,000 feet of a hydrant.

Kirkwood Meadows PUD had the most favorable ISO rating of the providers. Generally, the urban providers, such as Ione FD, Jackson FD and Sutter Creek FPD, had more favorable ratings due to access to reliable water systems and reserves and lower response times. Providers in the rural and wilderness areas generally received ratings of 9 for those areas lacking fire hydrants due to lack of water supplies and longer response times.

[66] The ISO classification affects fire insurance for both residential and commercial properties. Generally, property owners in communities with a lower PPC rating pay a lower fire insurance premium than property owners in communities with a higher PPC rating.

COVERAGE ADEQUACY

Figure 3-11: Service Area per Fire Station (square miles)

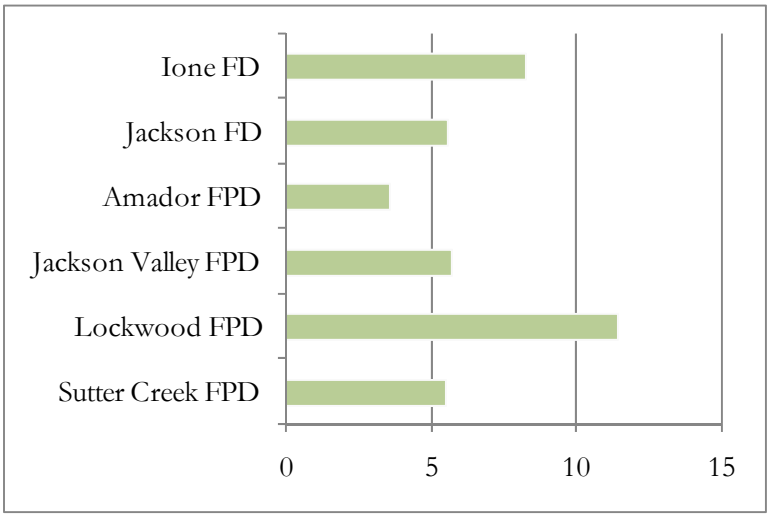


In urban areas, fire stations are typically located strategically within five minutes driving distance from potential victims. In rural areas, fire stations tend to be located strategically within 15 minutes driving distance. The driving distance is affected not only by the size of the service area, but also by congestion, topography and street layouts.

As indicated in Table 3-11, the service area size for each fire station varies significantly between FDs.[67] The stations serve a median of 23 square miles. AFPD serves the most expansive area, with 53 square miles served per station on average. LFPD stations serve 12 square miles each. Ione and Jackson serve 21 and 23 square miles respectively from each station. Densely populated urban areas tend to have smaller service areas. For example, the median provider in the East San Francisco Bay serves 3.7 square miles per station.

Amador providers rely primarily on volunteers and call firefighters. CALFIRE provides 24-hour coverage from staffed stations, and responds to all incidents. In a mature urban area, the staffing configuration is typically four paid firefighters per station at all times.

Figure 3-12: Sworn Staff per 1,000 Population, 2008



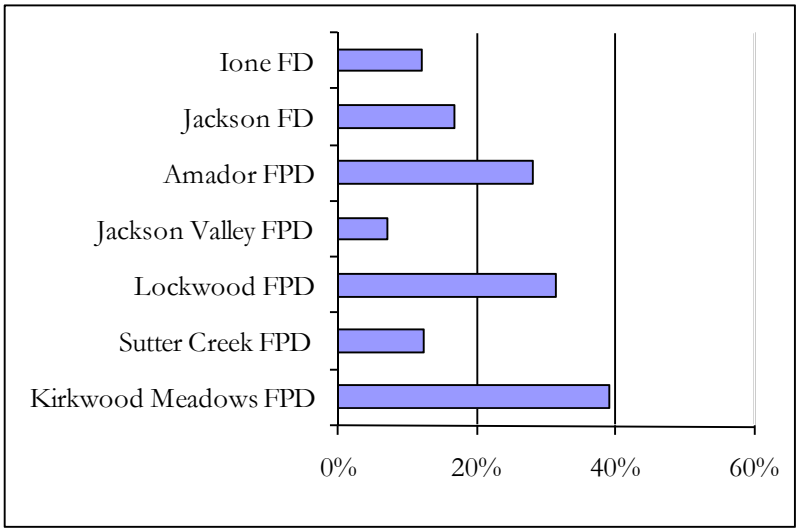
Each of the municipal fire providers relies almost entirely on call firefighters who receive a minimal stipend per service call. KMPUD employs a single firefighter for 16 hours a week. An SCFPD station is staffed eight to 10 hours a day on Saturdays and Sundays by two personnel. All other stations are unstaffed. Firefighter staffing per 1,000 residents is shown in Figure 3-12.

Staffing levels vary from 3.6 call

[67] Service area per station calculated by dividing the agency's service area (boundaries and area served through automatic aid agreements) by the number of stations.

firefighters per 1,000 residents in the AFPD service area to 11.4 in LFPD. The number of firefighters serving within a particular jurisdiction is an approximate indicator of adequacy. The providers' call firefighters may have differing availability and reliability. A district with more firefighters could have fewer resources if scheduling availability is restricted.

Figure 3-13: Call Firefighter Separation Rate, 2007



The providers indicated that retaining call firefighter staff is a challenge. Some move on to professional careers in firefighting. Others may separate due to time constraints or a need to be compensated. In 2007, Amador jurisdictions reported on average that 21 percent of call firefighters separated. Separation rates are shown in Figure 3-13. However, the agencies also reported that such firefighters are generally replaced on an ongoing basis and staffing levels remain relatively constant. High turnover rates of call firefighters pose a particular challenge, as new hires require substantial training to be able to respond to calls and to reach State certification standards.

Firefighters in Amador County vary in age from 18 to 68 and have between one and 50 years of experience. Of the jurisdictions that reported, the average age of a call firefighter in the County is 34. Call firefighters have on average six years of tenure with their respective jurisdictions. Jurisdictions' staffing levels have remained relatively constant, as the agencies have been able to fill open positions. While there are no reported formal retention programs, the providers' staffing strategies are to retain trained staff and ensure that qualified and reliable staff continue to give their time.

TRAINING

Table 3-14: Percent of Sworn Staff Certified, 2008

Agency	% Firefighter I Certified	% EMT I Certified
Ione FD	91%	67%
Jackson FD	25%	79%
AFPD	21%	44%
JVFPD	36%	50%
LFPD	31%	31%
SCFPD	21%	33%
KMPUD	NP	NP

Each agency provides varying levels of training to its firefighters. Agencies reported a challenge meeting state training standards given constrained budgets, call firefighters with limited time, and high firefighter turnover. Each provider requires that firefighters attend a minimum amount of training activities in order to remain active, for additional training activities attendance is encouraged but not mandatory.

Providers countywide have on average 34 percent of personnel certified to the State standard of Firefighter I and 51 percent are certified at the EMT I level or higher. Among the providers, Ione FD reported the highest percentage of firefighters being

certified to the Firefighter I level, and Jackson FD has the greatest share of personnel certified at the EMT I level.

Initial training of firefighters is offered by AFPD to all jurisdictions and includes a 67-hour course, which is held annually. In addition, providers offer regular training exercises for cadets working towards the Firefighter I certification and regularly collaborate with other county providers for major training exercises, as discussed further under *Regional Collaboration*.

Ione

IFD requires 40 hours of training of each firefighter prior to any fire activities. The Department holds weekly drills and sub-drills. All fire suppression personnel must be certified Firefighter Level 1 by the end of 18 months with the Department.

Jackson

The City offers training to call firefighters once a week for at least two hours each session; however, sessions generally run approximately three hours. Weekly trainings are augmented by the AFPD initial training class, junior college classes and weekend training activities in collaboration with other providers. The training offered is intended to aid the firefighter in becoming certified as a Firefighter I.

AFPD

Initial training for firefighting in the District is a 67-hour course, which is held annually and is open to all providers in the County. State-mandated training is provided by or through AFPD, including medical and hazardous materials training. The District provides emergency vehicle operation training in-house; drivers must take this course no less than once every two years. AFPD battalions each have scheduled training one day per week. Call firefighters must attend at least half of these training events to remain active.

JVFPD

Training is provided in conjunction with other providers as well as within the District. Call firefighter training is approximately 240 hours. All JVFPD volunteers must attend at least 50 percent of the District's weekly training sessions, which each last two to three hours. The District aims to have all personnel certified by the State at the Firefighter Level 1, and for all personnel to be EMT-1 certified by the close of FY 07-08.

LFPD

LFPD has a training officer, and aims to provide new volunteers with the 348-hour education component of training needed to become a State-certified Firefighter 1. For call firefighters to maintain their status within the District requires attendance at one training session monthly. The District holds training sessions on a weekly basis, with approximately ten firefighters attending each session on average. EMT training is provided through locally-recognized providers.

SCFPD

Required training time in the District is 110 to 150 hours annually, as specified by a training officer. Regular training is held on Wednesday nights and more often as needed.

KMPUD

Call firefighters generally attend 100 to 200 hours of training per year. Firefighters meet on Wednesday nights at 5:30 pm for regular training events. Volunteers are trained per the State's Fire Training Certification for Volunteer Firefighters curriculum as well as with the International Fire Service Training Association's training manual. Attendance for specialty training is difficult due to work conflicts.

MANAGEMENT

While public sector management standards do vary depending on the size and scope of the organization, there are minimum standards. Well-managed organizations evaluate employees annually, prepare a budget before the beginning of the fiscal year, conduct periodic financial audits to safeguard the public trust, maintain relatively current financial records, periodically evaluate rates and fees, plan and budget for capital needs, and conduct advance planning for future growth.

Table 3-15: Fire Agency Management Practices

	Ione	Jackson	AFPD	JVFPD	LFPD	SCFPD	KMPUD
Evaluate employees annually	A	A	I	I	I	N	A
Prepare timely budget	A	A	A	A	A	A	A
Periodic financial audits	A	A	A	A	A	A	A
Current financial records	A	A	A	A	A	A	A
Evaluate rates	A	I	A	I	I	A	I
Capital planning	A	A	A	I	A	N	I
Advance growth planning	A	A	I	N	N	N	A

Note:
A = Practiced adequately, I= Practiced but improvement needed,
N= Not practiced

An evaluation of the adequacy of management practices is shown in Table 3-15. The first four indicators are self-explanatory. Adequate evaluation of rates and fees means updating fire assessments and development impact fees with reasonable frequency. Adequate capital planning would involve a multi-year capital improvement plan (or comparable planning effort) for capital replacement and, if relevant, expansion. Advance growth planning is adequate when it discloses existing capacity and anticipated needs throughout the existing service area and SOI.

Three of the seven providers evaluate employees at least annually. AFPD and JVFPD reported completing employee evaluations during each firefighter's probationary period; however, due to a lack of time, these evaluations are not completed regularly by AFPD. LFPD performs evaluations on an as-needed basis. SCFPD staff are not evaluated.

All of the providers prepare timely budgets, complete financial audits on a regular basis and were able to provide up-to-date financial records.

AFPD most recently updated its special benefit assessment in 2007. Sutter Creek, Ione and KMPUD updated their fire related development impact fees in 2008, 2005 and 2003 respectively, but all other providers have not updated their assessments or development impact fees in the last five years (since 2003). Of the four providers that charge an assessment (AFPD, JVFPD, KMPUD

and LFPD), only AFPD's is adjusted for inflation. AFPD has not updated its development impact fee since 1991.

Each of the providers has adopted a formal capital improvement plan; however, JVFPD's and KMPUD's plans are outdated. JVFPD reported that it is in the process of updating its 10-year plan. KMPUD originally adopted a capital plan for fire services through 2003. The plan has not been updated since then.

Three of the seven providers, including Ione, Jackson, and KMPUD have conducted advanced growth planning for their service areas and SOIs. The other providers have not completed a comprehensive plan for projected growth.

LOCAL ACCOUNTABILITY AND GOVERNANCE

Accountability of a governing body is signified by a combination of several indicators. The indicators chosen here are limited to: 1) constituent interest in the agency's activities as indicated by the rate of contested elections, 2) agency efforts to engage and educate constituents through outreach activities in addition to legally required activities such as agenda posting and public meetings, and 3) transparency of the agency as indicated by cooperation with the MSR process and information disclosure. These measures are shown in Table 3-16.

Table 3-16: Fire Agency Accountability and Governance Measures

	Ione	Jackson	AFPD	JVFPD	LFPD	SCFPD	KMPUD
Contested election since 1994	✓	✓	✓	×	×	✓	✓
Constituent outreach activities	✓	✓	✓	✓	✓	×	✓
MSR Disclosure	✓	✓	✓	✓	✓	✓	✓

Note:
✓ = Occurred or adequately practiced, × = Did not occur or not practiced

Members of the governing bodies of Jackson Valley and Lockwood FPDs are regularly appointed due to a lack of contested elections. Other providers have had at least one contested election in recent years.

All agencies prepare and post meeting agendas and make minutes available as required. Additional outreach efforts include websites and educational and awareness programs. Several providers have websites to offer information by way of constituent outreach, including Ione, Jackson, Amador FPD (via the County website), Lockwood FPD, and KMPUD. JVFPD does not have a website but orchestrates a fire prevention week and hosts other community events. SCFPD does not have a website and did not report other constituent outreach activities.

Each of the agencies demonstrated accountability in its disclosure of information and cooperation with LAFCO. All agencies provided information on calls for service, ISO ratings, facilities, growth, service challenges, and regional collaboration. KMPUD did not provide its 90th percentile response time, and JVFPD did not provide its current development impact fee and date the fee was last updated.

SHARED FACILITIES

FACILITY SHARING STATUS

Fire and EMS providers in the County rely on each other for mutual and automatic aid assistance to optimize response times and engage in sharing of fire station space with other organizations. Jurisdictions throughout the County rely on CALFIRE for dispatching. A majority of the providers share their stations with other agencies for occasional use.

AFPD shares facilities with multiple agencies: Station 114 in Pine Grove is shared with American Legion Ambulance; Station 122 in Plymouth is shared with Amador County Sheriff; and Station 111 in Pioneer is serving as temporary quarters for CALFIRE. In addition, Station 123 in Fiddletown is open to the community for polling and election events.

Jackson City Station 132 is used by the City police for meetings. The JVFPD stations are open to the CHP and Sheriff as needed. LFPD facilities are available for community functions, elections, County Board election meetings, and emergency resources. SCFPD Station 141 is open for community elections and classes.

In addition to sharing of stations with outside agencies, the jurisdictions practice extensive collaboration and facility sharing with other fire and EMS providers during training sessions. Firefighters from each of the jurisdictions participate in fire marshal classes, classes at the CALFIRE Academy, and EMT certification offered by American Legion.

The Ione Fire Department hosts training and collaboration events with AFPD, JVFPD, CALFIRE, Mule Creek, American Legion, and CHP. The Department also trains the Ione PD on medical drills.

Jackson FD, AFPD, SCFPD and CALFIRE collaborate in regional training events that rotate venues on a regular basis. LFPD hosts training events quarterly, and participates in regional training hosted by CALFIRE and AFPD.

OPPORTUNITIES

Opportunities for future facility sharing include consolidation of service providers, further access to station space for outside organizations, countywide training facilities for use by all fire service providers, and access to further CALFIRE training at the CALFIRE Academy in Ione.

Consolidation of service providers, such as Jackson City and SCFPD with AFPD, offers the opportunity for greater facility sharing. This government structure option is discussed later in this chapter.

AFPD is considering partnerships with American Legion Ambulance, Amador County Sheriff, and the Pine Grove Community Group in its new Pine Grove station. For the planned station in the Martell area, AFPD will partner with SCFPD, and the County Office of Emergency Services, and will include a fire training facility for countywide use.

LFPD opens its stations as emergency shelters for residents of the District during incidents of severe weather (e.g., blizzards) and power outages.

Many of the providers expressed interest in further access to classes and training held at the CALFIRE Academy in Ione to meet stringent State requirements for call firefighter training. CALFIRE policies reserve its training programs and facilities for state purposes; outside agencies may rent access to training facilities when they are not needed by CALFIRE.

REGIONAL COLLABORATION

In addition to mutual and automatic aid agreements, regional collaboration efforts benefit participating agencies by pooling resources, minimizing costs and improving safety and efficiency.

Amador Fire Protection Authority

In 2003, seven cities and fire districts in Amador County joined together to form AFPA for the purpose of planning enhanced fire protection in the County on a regional and consolidated basis. Amador Fire Protection Agency (AFPA) is a regional Joint Powers Authority consisting of each of the LAFCO fire service providers in Amador County, with the exception of KMPUD. CALFIRE provides input through a representative on the advisory team.

AFPA is a JPA that works to improve the existing volunteer-based fire services through Amador County. The County population is growing and call volume is increasing significantly (up 30% over last 5 years). AFPA seeks to ensure the system evolves to meet growing needs. AFPA intends to encourage local advancement to paid staff positions while maintaining and strengthening the local volunteer system. AFPA considers consolidation a future governance option.

AFPA has recommended plans for future revenue growth through Proposition 172 fund reallocation and through an AFPA-supported sales tax increase to support fire protection. The AFPA Board has approved a motion to seek a ½-cent sales tax increase on the November 2008 ballot. The plan for allocation of these funds must be submitted to the County's election officials by June 28. For detailed information on the AFPA, refer to Chapter 29 in Volume II.

Consolidation

Amador County has a history of consolidation of fire providers. Pine Acres, Pine Grove and Volcano CSDs consolidated their fire and EMS related services with AFPD in 1994. These providers served small rural areas with limited resources to provide adequate financing for services. As part of AFPD, these communities can leverage their resources with other communities to provide for improved fire service.

As new developments and growth have increased in recent years, urban providers are considering consolidation or a formal partnership agreement as an option to meet the increasing demands generated by population growth. AFPD, the City of Jackson and SCFPD are discussing the possibility of consolidation or related alternatives to promote sharing of resources and improved response coordination in the cities of Jackson, Sutter Creek and Amador City (served by SCFPD), as well as the unincorporated Martell community, located between Jackson and Sutter Creek. AFPD's automatic aid agreements with both SCFPD and Jackson FD include provisions for the parties to jointly work on developing a regular fire authority in the Jackson, Martell and Sutter Creek areas.

The three agencies have agreed to meet at least quarterly. The focus of planning is to provide some level of paid firefighter staffing for the area. The providers are considering related financing mechanisms.

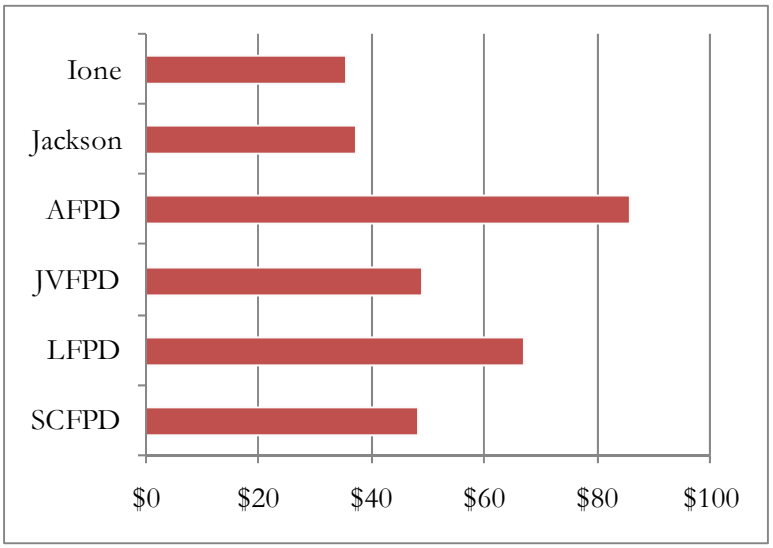
FINANCING

The financial ability of agencies to provide services is affected by available financing sources and financing constraints, as well as management practices. This section discusses the major financing constraints faced by fire service providers, identifies the revenue sources currently available to the service providers, and assesses the financial ability of agencies to provide services.

OPERATING COSTS

The municipal fire providers in Amador County spent approximately $2.4 million in FY 06-07 on fire operations, which is the equivalent of $72 per capita. The median provider spent $58 per capita.

Figure 3-17: Fire Operating Expenditures per Capita, FY 06-07



Expenditures vary among providers. AFPD expenditures per capita were $86.[68] AFPD expenditures include County-funded payments for CALFIRE dispatch services that benefit all providers except KMPUD. KMPUD had the highest operating costs of approximately $177 per capita. The District is an active tourist location. While the area has a small year-round population, recreational tourists increase the demand for fire and EMS services, which greatly exaggerates the costs per resident.

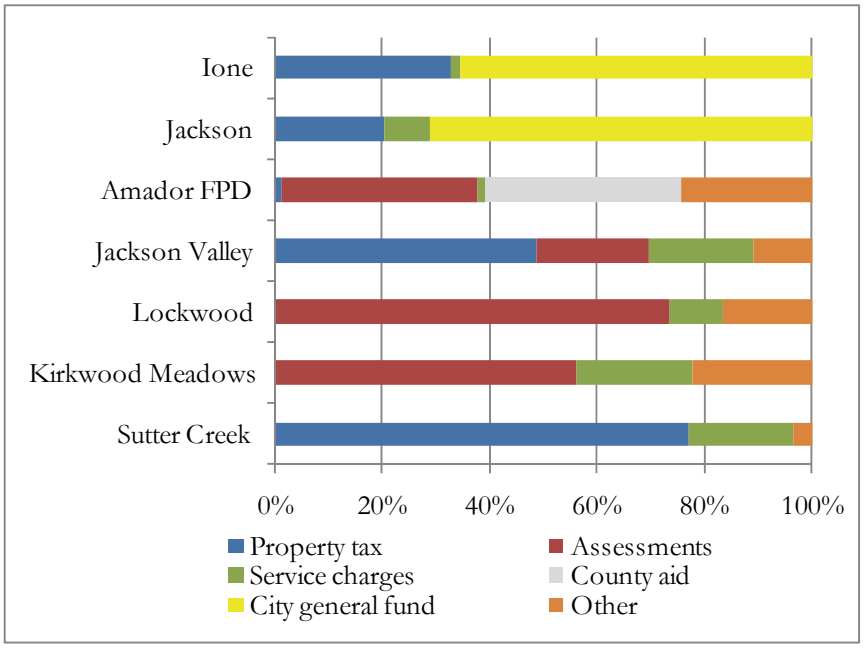
The Ione and Jackson service areas had the lowest expenditures per capita of $35 and $37 respectively.

[68] The measure is calculated as FY 06-07 operating expenditures divided by the residential population in the provider's first-in service area. In the case of Kirkwood PUD, the population includes permanent residents and the estimated average visitor population.

Fire-related expenditures per capita are higher in other jurisdictions. The median California city spent $116 per capita on fire operating expenditures. In neighboring counties, the median city spent $103 per capita[69] and the median fire district spent $111 per capita.[70] Expenditures per capita tend to be highest among providers serving ski resorts and among large, urban providers. Every municipal provider in Amador County, with the exception of KMPUD, had lower expenditures than the median neighboring city and fire district, due to the agencies' reliance on call firefighters that are reimbursed minimally for each response.

FINANCING OPERATIONS

Figure 3-18: Funding Sources as Percent of Operating Revenues, FY 06-07



Fire service providers rely on a variety of revenue sources to fund fire department operating costs, primarily property taxes, benefit assessments, service charges and contributions from city general funds.

Fire funding sources differ markedly among the cities and the districts formed before and after Proposition 13 was adopted in 1978. The cities rely on their general fund revenues for financing and do not impose assessments. The older fire districts—JVFPD and SCFPD—rely primarily on property taxes, and the more recently formed fire districts rely primarily on assessments, as shown in Figure 3-18.

The most significant financing constraints for fire and EMS services are legal requirements that limit property taxes and require voter approval of new taxes and tax increases.

[69] Authors' estimates based on FY 04-05 State Controllers Office data on fire operating costs among 21 cities in the neighboring counties of Calaveras, El Dorado, Nevada, Placer, Sacramento, San Joaquin, Stanislaus, and Tuolumne.

[70] Authors' estimates based on FY 05-06 State Controller's Office data on fire expenditures of 58 fire districts in six neighboring counties: Calaveras, El Dorado, Placer, Nevada, Sacramento, and Stanislaus. The source for population in each district was the respective MSR.

Assessments

Assessments are the primary funding source, and contribute 29 percent of revenue on average. AFPD, JVFPD, LFPD and KMPUD have imposed voter-approved special benefit assessments on parcels or dwelling units to fund services.

Table 3-19: Fire Assessments, FY 07-08

	FY 07-08[1]	Last updated	Adjusted for inflation
AFPD	$33	2007	X
JVFPD	30	1999	
LFPD	70	2002	
KMPUD	80	2003	

Notes:
(1) Assessment calculated for a parcel with a 2,000 square foot home.

KMPUD levies the largest assessement of the four providers with an $80 assessment per average dwelling unit, or $.04 per square foot. Only AFPD's assessment is adjusted annually for inflation. A financing opportunity for JVFPD is to update its assessment rates, which were last updated nearly 10 years ago. When providers update their assessments, they may wish to impose an automatic increase for inflation to ensure adequate revenues and reduce the frequency needed for assessment rate evaluation and voter approval.

Property Taxes

Property taxes made up 16 percent of operating revenues among municipal fire providers. As a funding source, property taxes are constrained by statewide initiatives that have been passed by voters over the years.

This funding source is particularly important to those agencies that existed prior to adoption of Proposition 13: SCFPD (composing 77 percent of its revenue), JVFPD (49 percent), the City of Ione (33 percent), and the City of Jackson (20 percent). AFPD, LFPD and KMPUD were formed in the 1980s, after Proposition 13 went into effect. AFPD receives minimal property tax, and the other two receive no property tax revenue.

Proposition 13, which California voters approved in 1978, limits the ad valorem property tax rate, limits growth of the assessed value of property, and requires voter approval of certain local taxes. Generally, this measure fixes the ad valorem tax at one percent of value, except for taxes to repay certain voter approved bonded indebtedness. In response to the adoption of Proposition 13, the Legislature enacted Assembly Bill 8 (AB 8) in 1979 to establish property tax allocation formulas. Generally, AB 8 allocates property tax revenue to the local agencies within each tax rate area based on the proportion each agency received during the three fiscal years preceding adoption of Proposition 13. This allocation formula benefits local agencies which had relatively high tax rates at the time Proposition 13 was enacted.

Proposition 98, which California voters approved in 1988, requires the State to maintain a minimum level of school funding. In 1992 and 1993, the Legislature began shifting billions of local property taxes to schools in response to State budget deficits. Local property taxes were diverted from local governments into the Educational Revenue Augmentation Fund (ERAF) and transferred to school districts and community college districts to reduce the amount paid by the State general fund. Local agencies throughout the State lost significant property tax revenue due to this shift.

Districts formed after 1978 do not receive substantial property tax.

Service Charges

Service charges made up 7 percent of operating revenues among municipal fire providers.

Service charges include fees charged for contract service, fire inspection and building approvals. In exchange for providing contract service, the City of Plymouth pays AFPD the equivalent of AFPD's benefit assessment (if it were charged in the City). Providers may charge fees on a cost-recovery basis, and are not required to obtain voter approval for fee increases.

In addition, service charges include payments made by AFPD to other service providers in exchange for providing automatic aid service to areas that are located outside the providers' bounds and in the AFPD responsibility area. There are constraints on AFPD payments for automatic aid service:

The City of Ione provides automatic aid response to approximately 38 square miles of AFPD territory. Automatic aid made up approximately half of the City's service calls. AFPD paid the City $2,200 annually for this service, which makes up less than one percent of its operating revenue. This agreement expires June 30, 2011.

AFPD pays Kirkwood Meadows the same annual payment as Ione plus $72 per response. This agreement also expires on June 30, 2011.

The City of Jackson provides automatic aid response to approximately 45 square miles of AFPD territory. AFPD pays $145 per call in 2008, with the amount scheduled to increase to $150 per call in 2009; the agreement expires at the close of 2009. By comparison, the City's overall costs amounted to $160 per service call in FY 06-07.

Similar to Jackson, Sutter Creek FPD provides automatic aid response to approximately 39 square miles of AFPD territory. The District's overall costs amounted to $352 per service call in FY 06-07. By comparison, AFPD paid the District $145 per call in 2008.

General Funds

The two cities finance fire and EMS services through general fund revenue, which includes property taxes, motor vehicle in-lieu funds, sales and use taxes, and franchise fees. The amount funded by property tax was reported above.

The City of Ione finances its entire fire operating budget through its general fund. Fire and EMS services absorbed eight percent of the City's general fund resources in FY 06-07. Fire operating expenditures are also funded entirely out of Jackson's general fund; comprising 3.8 percent of all general fund expenditures.

Proposition 218, which California voters approved in 1996, requires voter- or property owner-approval of increased local taxes, assessments, and property-related fees. Majority voter approval is required for imposing or increasing general taxes such as business license or utility taxes. The requirement does not apply to user fees, development impact fees and Mello-Roos districts. The cities may impose a utility users tax or increase the transient occupancy tax or business license tax, subject to economic competition considerations and voter approval. Another financing opportunity is economic development, which enhances sales tax revenues.

Proposition 172

Proposition 172 was enacted to help offset property tax revenue losses of cities and counties that were shifted to the ERAF for schools in 1992. Proposition 172, enacted in 1993, provides the revenue of a half-cent sales tax to counties and cities for public safety purposes, including police, fire, district attorneys, corrections and lifeguards. Proposition 172 also requires cities and counties to continue providing public safety funding at or above the amount provided in FY 92-93.[71]

Proposition 172 provided less generous fiscal mitigation to cities than to counties. The cities of Ione, Plymouth and Amador receive minimal funds from Proposition 172, and the cities of Jackson and Sutter Creek do not receive any funds. The County received $2.4 million in Proposition 172 funds in FY 06-07, which it has historically used to fund law enforcement services. Proposition 172 funds do offer a financing opportunity for fire protection. The County plans to transfer a portion of the Proposition 172 funds over the next 8 years until 2016 to fire services through the AFPA.[72] In 2016, the AFPA will be receiving 38 percent of the County's Proposition 172 funds. AFPA will then disperse the funds to the various fire providers based on call volume and/or population served. The allocation percentage is the same as the sales tax proposal discussed below. Refer to Table 5-20 for the estimated allocation percentage.

Sales Tax

Sales tax revenue is currently only collected by the two cities for fire services as part of the general fund expenditures. However, the jurisdictions are supporting a second attempt at a sales tax measure on the November 2008 ballot. The original attempt was made in 2006, when AFPA proposed a ¼-cent sales tax. The measure was defeated by a vote of 61 percent in support (of the 2/3 required) and 39 percent against the measure.

Table 3-20: Sales Tax Measure Proposed Disbursement

	Initial Disbursement	Allocation Percentage[1]	Balance Disbursement	Total Disbursement
City of Ione	$50,000	10.5%	$173,250	$223,250
City of Jackson	50,000	17.3%	285,450	335,450
Amador FPD	100,000	48.4%	798,600	898,600
Jackson Valley FPD	50,000	8.6%	141,900	191,900
Lockwood FPD	50,000	3.1%	51,150	101,150
Sutter Creek FPD	50,000	12.1%	199,650	249,650
Total	350,000	100.0%	1,650,000	2,000,000

Notes
(1) Allocation factor determined by percentage of total service calls and percentage of population served weighted evenly.

More recently, all of the agencies have shown support for a proposal of a ½-cent sales tax, which would collect approximately $2 million annually in additional revenue for fire services.[73]

[71] The maintenance of effort provision for local public safety spending requires cities and counties to fund public safety at the 1992-93 levels, adjusted annually by a cost-of-living factor commencing with the 1994-95 fiscal year.

[72] Amador Ledger Dispatch, *Fire Officials Consider Unifying*, February 1, 2008.

[73] Interview with Jim McCart, Chief, AFPD, June 23, 2008.

The Board of Supervisors passed the resolution to put the measure on the November 2008 ballot.[74] The additional revenues would be used solely to finance full-time firefighters to augment call firefighter service in each of the providers' boundaries.[75] The sales tax will be dispersed by AFPA to each jurisdiction according to call volume (including those in the automatic aid areas) and the size of population served, in addition to a flat disbursement of approximately $50,000. The current automatic aid agreements would be eliminated and new auto aid agreements would be negotiated based on the closest resource without reimbursement.[76]

The jurisdictions are considering pooling their resources through regional agreements with neighboring providers to hire full-time paid staff.[77] AFPD, Jackson FD and Sutter Creek FPD are considering plans to staff four stations at all times with a single engineer on each shift and augmented with a captain at each station during weekdays. The four staffed stations would be in Jackson, Sutter Creek, Pine Grove, and Plymouth. Lockwood FPD hopes to be included in this plan. Jackson Valley FPD and Ione FD are discussing the possibility of sharing at least three full-time staff to provide paid coverage of both service areas at all times.

Community Facilities District Fees

There are two community facilities districts (CFDs) in Amador County that are sources of revenue for the fire departments to address facility and staffing needs in response to new development—one in the City of Ione and one throughout unincorporated Amador County, including the cities of Plymouth, Jackson and Sutter Creek. Ione City Council passed resolutions in 2006 to create CFDs dedicated to levying special taxes in the new subdivisions. The City charges $500 annually for each new housing unit in those areas. Amador County established a CFD for fire protection services in 2006, which levies a fee of approximately $515.30 per new single family dwelling unit annually and adjusts annually to inflation. Fees are dispersed to the respective fire providers. A majority of the funds are from the new development in Martell. Total revenues in FY 06-07 were approximately $12,000.[78]

CAPITAL FINANCING

Fire service providers rely primarily on development impact fees for financing new facilities. Other capital financing approaches include the use of community facilities district (CFD) fees, reserve funds, and grant-funded capital purchases.

[74] Interview with Jim McCart, Chief, AFPD, June 17, 2008.

[75] Ibid.

[76] AFPA, *Proposal for Distribution of Revenue from 172 and Possible Sales Tax Measure*, 2008, p. 1.

[77] Interview with Jim McCart, Chief, AFPD, June 17, 2008.

[78] Interview with Jim McCart, Chief, AFPD, June 17, 2008.

Development Impact Fees

Table 3-21: Fire Development Impact Fees

	FY 07-08	Last updated
Ione	$1,302	2005
Jackson	2,150	2002
AFPD	250	1991
JVFPD	NP	NP
LFPD	1,500	NP
SCFPD	1,729	2008
KMPUD	940	1998

The County, cities, special districts, school districts, and private utilities impose development impact fees on new construction for purposes of defraying the cost of putting in place public infrastructure and services to support new development.

Development impact fees generally depend upon land use, fire flow to the structure and installation of sprinklers. In Amador County, each of the providers charge flat development impact fees for residential dwelling units, regardless of access to water supplies. Of the agencies that collect development impact fees, AFPD collects the least while the City of Jackson collects the most per housing unit, as shown in Table 3-21. AFPD does not distribute any portion of its development impact fees to other districts providing automatic aid.

To impose development impact fees, a jurisdiction must justify the fees as an offset to the impact of future development on facilities. The fees must be committed within five years to the projects for which they were collected, and the city or county must keep separate funds for each development impact fee.

Amador County has experienced growth and development in recent years. As growth occurs there will be a greater demand placed on public infrastructure and services. In order to recover the costs associated with growing jurisdictions should consider imposing or updating development impact fees.

Table 3-22: California Fire Development Impact Fees, 2006

County	Jurisdiction	DIF
El Dorado	El Dorado Co.	$1,800
Orange	Brea	1,388
San Joaquin	Ripon	1,248
Santa Clara	Gilroy	1,240
Santa Barbara	Santa Maria	1,013
San Luis Obispo	Paso Robles	746
Sacramento	Elk Grove	462
San Bernadino	Rialto	390
San Joaquin	Lodi	387
Santa Barbara	Carpinteria	380
Alameda	Fremont	321
Fresno	Clovis	321
Solano	Vacaville	265
San Bernadino	Redlands	254
Ventura	Santa Paula	247
San Bernadino	Highland	165
Shasta	Redding	129

Source: Duncan Associates, 2006

Of the jurisdictions that levy development impact fees, only Ione and Sutter Creek have updated development impact fees in the last five years (since 2003). The City of Sutter Creek updated its fire development impact fee, which is transferred to the District, in 2008. AFPD has not updated its fees since 1991.

By comparison, the fire development impact fees for jurisdictions throughout California in 2006 are shown in Table 3-22. Of the 39 cities and counties identified, 17 levy a development impact fee specifically for fire services. The median development impact fee of the 17 cities shown is $387, which is less than the fee levied by every Amador fire agency, with the exception of AFPD.

FINANCIAL ABILITY

All providers' financial ability to provide services is constrained by available revenues and legal limitations on revenue increases.

Both cities reported that financing is adequate to deliver municipal services, but is not ample enough to provide the fire protection service levels desired. Specifically, the cities reported a presently unfunded need for full-time paid firefighters.

The districts generally reported that the current financing level is not adequate to deliver services, and indicated that additional funding to provide for paid staffing is needed to provide adequate service levels to meet both existing and future demand.

Available financing does not yield adequate revenues to transition from call to paid firefighters. Service levels are minimal; however, providers have been proactive in finding new revenue sources such as the CFDs, the transfer of Proposition 172 funds from the County and the proposed ½-cent sales tax. Should the sales tax proposal pass in November, the jurisdictions hope to begin the transition to urban service levels. The proposed sales tax increase is projected to yield a total of $2 million. By comparison, the approximate annual cost of funding four paid firefighters to staff a single fire station on a 24-hour basis is $1 million. Although the proposed sales tax increase would not fund 24-hour staffed stations, in conjunction with the other revenue sources it could fund full-time staffing of a few stations strategically throughout the County or part-time staffing during weekday hours when there is limited availability from call firefighters.

Service providers need to evaluate and update assessments and development impact fees to ensure that they are achieving cost recovery, and should index rates to increase automatically with inflation. AFPD and its contract service providers (particularly Ione and SCFPD) should evaluate appropriate compensation for automatic aid services to ensure that providers have the financial ability to provide services. The allocation of development impact fees associated with AFPD areas, such as Martell, that are served by contract providers should be evaluated to ensure there is adequate funding for future growth-related capital needs.

GOVERNMENT STRUCTURE OPTIONS

This section discusses issues with and alternatives to the current organization of fire service in Amador County in light of current financial constraints and anticipated demand. It identifies options to the current government structure of fire service providers, including consolidation of service providers.

Generally, consolidation of fire providers promotes efficiency, professionalism and public safety. The primary benefit of consolidation is economies of scale, which may be achieved in several areas. Larger fire providers can more efficiently coordinate deployment of fire personnel when multiple incidents occur simultaneously or large incidents occur, as they control staffing at a greater number of adjacent fire stations. Consolidation may offer opportunities to share and/or reconfigure fire station locations and apparatus, particularly in the urbanized portion of the County. This may apply to training and communication facilities, as well as fire stations. Newly consolidated districts

reported observing cost savings from reduced management personnel and insurance costs.[79] Other cost saving opportunities may be the closing of redundant stations and the elimination of surplus administrative staff. Combining resources may allow districts to sell surplus vehicles, reducing the overall age of fleet. Given the providers' challenge with constrained financing levels consolidation would only be beneficial if the agencies could reap significant cost savings from improved efficiency

Consolidation could take many forms legally and geographically. There are three basic legal approaches: consolidate providers into a newly formed fire district with an independently elected board, consolidate providers into the County-dependent district AFPD, and formation of a joint powers authority for provision of fire service. Consolidation into a newly formed fire district has the advantages of offering local control and accountability to participating areas, the opportunity to develop funding and service configuration approaches that benefit all participants, and the opportunity for the consolidated entity to focus on service levels in urban areas that can afford them. Consolidation into the County-dependent AFPD has the advantages of access to professional management and staff at the County, and fewer transition costs; disadvantages include pre-existing financing structures that limit compatible consolidation partners, as well as reduced local control and accountability for consolidating agencies. A joint powers authority offers the advantages of a more ephemeral and potentially more limited consolidation (e.g., training), continued accountability and local control, and a potential structure to overcome inherent financial incompatibilities among the providers.

There are three basic geographic approaches to consolidation: urban core, rural and countywide.

The urban core approach would involve the centrally-located urban areas of Jackson, Sutter Creek and Martell, where there are presently significant service challenges and conflicts. The advantage of focusing on the urban area is that providers there have compatible needs with respect to service level enhancements and available financing; whereas, rural areas typically lack the density to finance urban service levels. Through automatic aid agreements with AFPD, the City of Jackson and SCFPD provide service to the community, as AFPD does not have stations in the area. Demand for service in the area has greatly increased, as a result of significant commercial development, putting greater demand on the entirely call firefighter providers—Jackson and SCFPD. Consolidation of the three providers could potentially reduce administrative, training and facility costs, capitalize on pooled resources, and promote more comprehensive planning efforts for fire service facilities and needs in this rapidly urbanizing area. AFPD, the City of Jackson and SCFPD are in the process of discussing consolidation or another formal governmental structure to promote sharing of resources, improved response coordination, and the transition to full-time firefighters.

Consolidation of Ione with AFPD and urban providers is an option as the City is anticipating a significant increase in demand due to planned and proposed developments. Consolidation might offer enhanced training resources. The City agrees that consolidation would be beneficial by allowing paid staff to be present throughout Amador County; however, the City indicated that any attempts at consolidation should be approached slowly and can be achieved through small steps.[80] A

[79] Marin LAFCO, 2004.

[80] Interview with Chief Mackey, City of Ione, January 17, 2008.

concern is the distance between Ione and other urbanized areas may limit the benefits of consolidation for Ione.

The rural approach would involve consolidation of Lockwood FPD into AFPD in order to enhance professionalism and funding for this area. Amador has a history of consolidation beginning in 1994 when four agencies transferred their fire service responsibilities to AFPD. These providers generally served small rural areas with limited resources to provide adequate financing for services. As part of AFPD, these communities were able to leverage their resources with other communities to provide for improved fire service. Lockwood FPD identified consolidation with AFPD as an alternative of interest due to challenges in training and the District's desire for increased financing and service levels. A variant might include JVFPD; however, the District did not identify consolidation as an option presently under consideration. Challenges to consolidation include the isolated nature of both districts, particularly LFPD, and the lack of population density and associated financial resources.

Countywide fire consolidation of all of the fire providers is an option, with the exception of the area served by KMPUD. KMPUD serves an isolated area along the eastern border of the County. The nearest station operated by another provider (CALFIRE) is 16 miles away. The cost of expanding services and infrastructure to the area with topographical challenges and low residential density would likely be significant.

4. WATER

This chapter reviews domestic and irrigation water services in Amador County, including how these services are provided by the special districts, cities and other providers not under LAFCO jurisdiction. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, service adequacy, and financing. Government structure options are identified for local agencies under LAFCO jurisdiction.

OVERVIEW

This section provides an overview of the water service providers, water service areas, and water regulatory context in Amador County.

SERVICE PROVIDERS

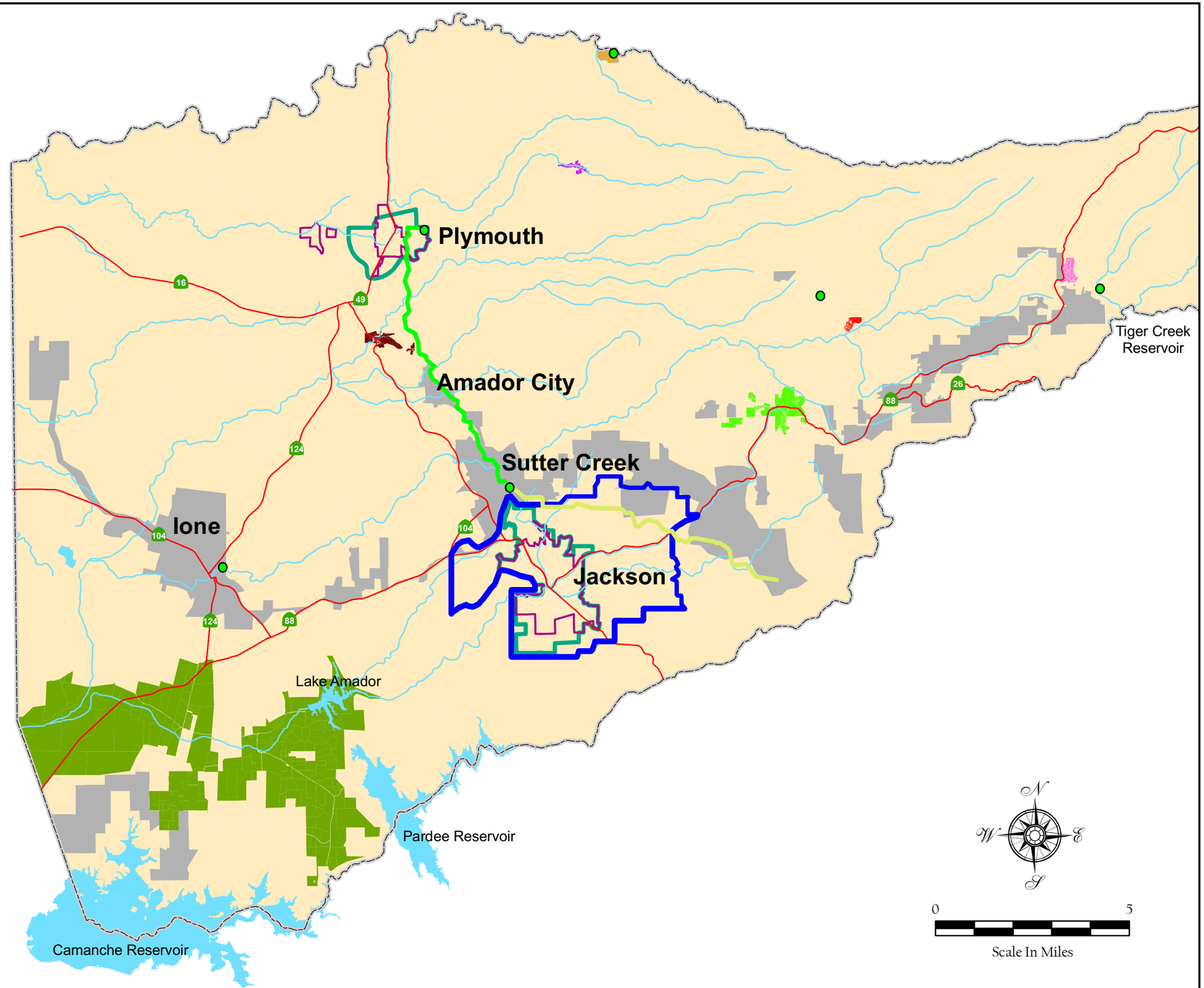
There are 13 domestic (potable) water providers and three recycled water providers in Amador County, as shown in Table 4-1. While Jackson Valley Irrigation District provides untreated water primarily for irrigation purposes, the District also provides potable water through a concessionaire at the Lake Amador Recreation Area. In addition, three of the domestic providers (Amador Water Agency, City of Jackson and Kirkwood Meadows PUD) also provide water for irrigation and landscaping purposes. For a geographic overview of the water suppliers, please refer to Figure 4-2.

Table 4-1: Amador Water Service Providers

Agency	# of Connections	Retail			Services			
		Potable	Irrigation	Recycled	Treatment	Distribution	Wholesale	Maintenance
Amador Regional Sanitation	2				✓	✓		✓
Amador Water Agency	6,807	✓	✓		✓	✓	✓	✓
City of Ione	1			✓	✓	✓		✓
City of Jackson	2,099	✓	✓			✓		✓
City of Plymouth	480	✓			✓	✓		
Drytown County Water District	62	✓				✓		✓
EBMUD[1]	NP	✓			✓	✓	✓	✓
Fiddletown CSD	66	✓			✓	✓		✓
Jackson Valley Irrigation District	181	✓	✓			✓		✓
Kirkwood Meadows PUD[1]	848	✓	✓		✓	✓		✓
Mace Meadows Water Association[1]	406	✓				✓		✓
Pine Grove CSD	360	✓				✓		✓
Rabb Park CSD	107	✓				✓		✓
River Pines PUD	210	✓			✓	✓		✓
Volcano CSD	75	✓			✓	✓		

Notes:
(1) Agencies not under Amador LAFCO jurisdiction.

- Drytown County Water District
- Fiddletown CSD
- Jackson Valley Irrigation District
- Pine Grove CSD
- Rabb Park CSD
- River Pines PUD
- Volcano CSD
- City Sphere
- City Limits
- AWA Water Service Area
- Major Water Bodies
- Streams
- County Boundary
- State Highway
- Water Treatment Plant
- Planned Plymouth Pipeline
- AWS Transmission Pipeline
- Jackson Service Area



Map created by: Amador County GIS Division
810 Court Street, Jackson CA 95642 (209) 223-6591
Date: June 13, 2008

Amador County Water Service Map

Active Agencies

This section provides an overview of each of the 15 active water purveyors in Amador County. Each active water purveyors' service area, number of connections served and amount of water produced or purchased in 2006 is summarized in Table 4-3. For a detailed profile of each individual agency, please refer to Volume II.

Table 4-3: Active Water Systems

Water Purveyor/System	Connections	Water (af)	Service Area
AWA Supplied Water Systems			
AWA - Amador Water System	5,629	10,545	
Treated Water AWA Retail Area	3,289	2,390	Amador City, Ione, Sutter Creek, Martell
Treated Water Wholesale Area	2,162	2,019	
City of Jackson	2,099	1,225	City of Jackson
Drytown CWD	62	43	Drytown
Mule Creek State Prison	1	751	Prison facility
Raw Water Service Area	178	1,004	Preston, Unamin (Ione), agricultural uses
Canal Losses	0	5,132	Amador & Ione Canals
AWA - CAWP System	3,431	1,120	
Treated Water AWA Retail Area	2,558	833	Gayla Manor, Jackson Pines, Pioneer, Mace Meadows (part), Buckhorn, etc.
Treated Water Wholesale Area	873	287	
Mace Meadows Water Assoc.	406	98	Mace Meadows (part)
Pine Grove CSD	360	172	Pine Grove
Rabb Park CSD	107	17	Rabb Park
AWA - Lake Camanche	723	232	Lake Camanche Village
AWA - La Mel Heights	59	18	La Mel Heights
Independent Water Systems			
Potable Water	1,679	426	
City of Plymouth	480	245	Plymouth
EBMUD recreation areas	NP	28	Pardee, Lake Camanche North Shore
Fiddletown CSD	66	18	Fiddletown
Kirkwood PUD	848	73	Kirkwood
River Pines PUD	210	41	River Pines
Volcano CSD	75	20	Volcano
Raw & Recycled Water	184	11,221	
Amador Regional Sanitation	2	100	Bowers and Hoskins ranches
City of Ione	1	557	Castle Oaks Golf Course
Jackson Valley Irrigation	181	10,564	Jackson Valley
Exported Water (EBMUD)[1]	379,827	235,410	East San Francisco Bay area

Note: (1) Exported water is the average amount of Mokelumne River water supplied to the EBMUD service area.

Amador Water Agency (AWA) conveys wholesale and retail treated and untreated surface water to water systems throughout much of Amador County, as well as raw water to agricultural accounts. AWA provides treated water directly to four distinct service areas:

- The largest of these is the Amador Water System (AWS) service area of Amador City, Drytown, Ione, Jackson, Sutter Creek, and Martell; this area had been served by PG&E until the system was purchased by AWA in 1985. Plymouth will become part of the AWS system once a pipeline

project is completed. Within the AWS system, the City of Jackson and Drytown County Water District purchase water wholesale from AWA and distribute it themselves. This area relies on surface water from the Mokelumne River for which AWA contracts with PG&E for use of its pre-1914 water rights. The Ione area is served by a different water treatment plant than the remainder of the AWS system, but AWA plans to upgrade its Tanner water treatment plant to serve the entire area and close the Ione plant.

- The Central Amador Water Project (CAWP) service area encompasses 19 upcountry communities, including Mace Meadows, Pine Grove, Gayla Manor, Jackson Pines, Pioneer, Sunset Heights, and Ranch House Estates. Pine Grove CSD, Rabb Park CSD and Mace Meadows Water Association purchase water wholesale from AWA and distribute it themselves. This area relies on surface water from the Mokelumne River.

- In the Lake Camanche Village service area, AWA serves treated groundwater to 723 connections. By 2015, AWA plans to shift this area from groundwater to surface water due to growth in the area and concerns with groundwater quality and basin overdraft.

- In the La Mel Heights service area, which is located northwest of Volcano, AWA serves treated groundwater to 59 connections.

AWA serves water directly to 6,807 connections. Total water use was 13,017 acre-feet (af) in 2006, although demand declined subsequently as the piping of Amador Canal dramatically reduced water losses. AWA also provides contract maintenance services to the City of Plymouth, Volcano Community Services District, Drytown County Water District, River Pines Public Utility District, and Pine Grove Community Services District.

AWA Water Distributors

There are five active water purveyors that purchase their water supplies from AWA.

The City of Jackson began providing water service in 1993, when it acquired the Citizens Utilities Company. The City purchases treated surface water from AWA and distributes it to residential and commercial users. The City provided water treatment services until 1999 when it began purchasing treated water from AWA; the City's treatment plant is now inactive. The City provides the necessary maintenance and operation of the water distribution system directly through its three water staff. Major improvements are completed by private contractors. The City serves 2,099 connections, and purchased 1,225 af from AWA in 2006. The City inherited a water service area from Citizens Utilities Company that extends outside of City bounds in all directions. However, the City only provides service within that area to 144 connections in Martell, to the north and west of the City limits. The City has not extended infrastructure to its entire service area, in which there are pockets where AWA provides retail water service.

Drytown County Water District (DCWD) purchases treated surface water from AWA and distributes it to residential and commercial users. The District does not provide water treatment services. The District provides a majority of the necessary maintenance and operation of the water distribution system directly through its part-time water manager, and, in addition, maintains a contract with AWA for additional maintenance support should the need arise. DCWD serves 62 connections, and purchased 43 and 45 af from AWA, respectively, in 2006 and 2007.

First Mace Meadows Water Association purchases treated surface water from AWA's Buckhorn Treatment Plant in the CAWP system. The Association maintains a distribution system that serves 406 residential connections in the Mace Meadows subdivision, and purchased approximately 98 af in 2006. The Association does not serve the entire subdivision; AWA provides retail service to a portion (Unit 1) of the subdivision. As a private company, it is not subject to LAFCO jurisdiction.

Pine Grove Community Services District (PGCSD) purchases treated surface water from AWA through the CAWP system and distributes it to residential and commercial users. The water is treated at AWA's Buckhorn Treatment Plant, passes through the CAWP transmission pipeline and fills the three storage tanks serving the District. The District also uses groundwater for non-potable uses, such as firefighting and to provide bulk water to developers for construction sites. PGCSD maintains and operates the water distribution system directly through its part-time water manager. AWA provides contractual services—major capital improvements and repairs—on a reimbursable basis. PGCSD serves 360 connections, and purchased 172 and 182 af of water from AWA in 2006 and 2007, respectively.

Rabb Park Community Services District (RPCSD) purchases treated surface water from AWA through the CAWP system and distributes it to users. Connections served by RPCSD are entirely residential. The District provides necessary maintenance and operation of the water distribution system directly through its two part-time maintenance workers. Major capital improvements are completed by contractors. RPCSD serves 107 connections, and purchased 17 af of water from AWA in 2006.

Although not classified as water purveyors, Mule Creek State Prison and Preston Youth Correctional Facility also purchase water from AWA. Mule Creek State Prison purchases treated water. Preston purchases raw and treated water from AWA.

Independent Water Systems

There are six potable water purveyors with their own water rights that do not rely on AWA for water supplies. In addition, there are three purveyors of raw and recycled water.

The City of Plymouth provides treated water for domestic uses. AWA has operated and maintained the water treatment plant and distribution system through a contract with the City since 2004. City water sources consist of groundwater and surface water from the Cosumnes River through the Arroyo Ditch. Due to difficulties in maintaining the Arroyo Ditch, the City has relied on groundwater since 2001.[81] Groundwater levels have also posed a challenge to the City, turbidity levels have risen and groundwater levels dropped below the pump intake levels. As a result of these challenges, the Department of Public Health has issued a moratorium on new connections to the system. To resolve these issues, Plymouth and AWA plan to extend a pipeline from the AWA Tanner Treatment Plant in Sutter Creek to Plymouth. The City serves 480 connections, and produced 275 af of water in 2005. The City serves three connections outside its bounds.

East Bay Municipal Utilities District's (EBMUD) water system serves approximately 1.3 million people in a 325-square-mile area in Alameda and Contra Costa counties near San Francisco, as well as recreation areas at Pardee and Camanche North Shore in Amador County and Camanche South

[81] DPH, *Plymouth Annual Inspection Report*, 2005, p. 1. The City reported that it conducts groundwater recharge via the ditch.

Shore in Calaveras County, which are located outside District bounds. EBMUD operates reservoirs and aqueducts to export water from the Mokelumne River watershed to its primary service area in the East Bay, and also uses the river for hydroelectric development. On average, the District supplies 235,410 af of Mokelumne River water to its East Bay service area. EBMUD serves groundwater from three wells to residents and visitors to its Camanche North Shore area, and serves other recreation areas through surface water supplies. Although the three recreation areas and hunt club are operated by concessionaires, EBMUD is responsible for water services. EBMUD is subject to Alameda LAFCO jurisdiction.

Fiddletown Community Services District (FCSD) supplies treated groundwater for domestic water service to residential connections. The District owns operates and maintains the domestic water well and distribution system directly with District staff. The District relies entirely on groundwater for water service. All water is pumped from a single well, treated with chlorine and stored in the storage tank. Due to challenges with water quality at its old well, the District installed a new well in 2006, which has eliminated water quality problems. The District serves 66 connections, and produced 18 af of water in 2006. FCSD serves seven water connections outside its bounds.

Kirkwood Meadows Public Utility District (KMPUD) provides treated water for domestic and irrigation uses to its service area located in Amador, Alpine and El Dorado counties. KMPUD relies entirely on groundwater to provide water services to 848 connections. The District owns, operates and maintains the water system directly through district staff. KMPUD produces about 73 af. KMPUD is subject to Alpine LAFCO jurisdiction.

River Pines Public Utility District (RPPUD) supplies treated water to domestic users. The District provides water from a combination of groundwater and surface water sources. The groundwater source is a shallow, fractured rock aquifer underlying the River Pines community. The District diverts surface water from the South Fork Cosumnes River, which flows through the east part of the community. Water services include groundwater pumping, treatment of surface and groundwater, distribution and billing. The District relies on AWA staff (via contract) for emergency maintenance services and technical services. RPPUD serves 210 connections, and produced 41 af of water in 2007. The District serves 19 connections outside its bounds in El Dorado County.

Volcano Community Services District (VCSD) provides groundwater extraction, water treatment and water distribution services to the community of Volcano. AWA provides routine maintenance and reporting by contract. The water source is groundwater under the influence of surface water from the Cleveland Tunnel, which is an inactive mine tunnel, and the back-up water source is groundwater wells with relatively low yields. VCSD serves 75 connections, three of which are outside its bounds, and produced 20 af of water in 2006.

Jackson Valley Irrigation District (JVID) supplies raw water to agricultural, fish farm, industrial and domestic uses. The primary water sources are Jackson Creek and the Mokelumne River. A portion of the flows through Jackson Creek are composed of wastewater effluent from the City of Jackson, which is treated to tertiary levels. JVID holds diversion rights, but not storage rights to Mokelumne River water; its diversion rights are subject to reversion to upstream needs and AWA has a pending application for a portion of those rights. JVID distributes 10,564 af to 181 connections. Most of the water is used for irrigation. JVID also sells bottled water to domestic users that are not connected to private wells. There are 60-62 homes that rely on Lake Amador for domestic water. Prior to the early 1980s, the County allowed residences to connect to Lake Amador as a water source. The water is not potable and contains treated wastewater effluent. JVID supplies

bottled water at cost to affected customers. JVID also supplies raw water outside its bounds to a mobile home community, cement factory and farmers, and contracts with a concessionaire at Lake Amador Recreation Area to provide domestic water services to visitors.

There are three recycled water providers: the City of Jackson, the City of Ione and Amador Regional Sanitation Authority.

The remainder of the County is served by private wells and minor drinking water systems, such as those at various mobile home parks for domestic water. There were approximately 7,100 residences in 2008 in Amador County that were not served by the public water systems discussed above. Those homes rely on groundwater for their water supply. In addition, many agricultural users are reliant on their own private groundwater wells and surface water rights for irrigation. The growers in the northwest portion of the County are outside of any irrigation providers' service areas. While AWA encompasses the entire County, its irrigation customers are concentrated in the southern portion of the County within the Amador Water System service area and there is no infrastructure in the northwest to provide surface water to farmers.

Inactive Agencies

There are several agencies that previously provided water services but are now inactive.

The Willow Springs Water District is currently inactive. The District formerly served irrigation water from Arroyo Ditch, which is owned by the City of Plymouth, but no water has been available to the District for over 20 years and the District does not appear to hold any water rights. District landowners rely on private wells.

County Service Areas 1, 2 and 3 provided water services to the communities of Silver Lake Pines, Tiger Creek Estates, Sierra Highlands, Mace Meadows, and Camanche Village. In 2001, AWA began providing operations, maintenance, administration and accounting and billing for these CSA's water system.[82] AWA formed water improvement districts in compliance with Proposition 218 requirements to collect water rates from the former CSA areas,[83] and the County transferred ownership of all water related assets to AWA for operation and maintenance including all property, equipment and specified account balances related to water services. These CSAs have not provided water related services since this transfer of assets, according to County financial records. CSA 2 has not provided any services since 2003. CSA 1 continues to provide fire financing to AFPD, while CSA 3 is a bond financing mechanism.

PLANNING CONTEXT

Regional water planning has become increasingly critical to increase drought preparedness, regional self-sufficiency, sustainable resource management, and to improve coordination among land use and water planners. The Legislature promoted the concept by authorizing local public agencies to form regional water management groups and adopt regional plans to address qualified programs or projects (SB 1672). The legislation requires the State Department of Water Resources (DWR) to

[82] AWA, *Asset Transfer Agreement*, September 17, 2003, p. 1.

[83] AWA, *Staff Report – County Service Area Asset Transfer Agreement*, September 25, 2003, p. 2.

prioritize funding for projects identified in integrated regional water management plans (IRWMPs). Integrated resource planning is a comprehensive systems approach to resource management and planning that explores the cause-and-effect relationships affecting water resources. The plans are recommended to not only analyze the watershed and espouse principles, but also to effect change by including a finance plan with prioritized objectives, an implementation plan, and plans for ongoing performance measurement to evaluate progress.

The Mokelumne, Amador and Calaveras IRWMP was adopted in 2007[84]. Participating water purveyors in Amador County were AWA, EBMUD, Amador County, RPPUD, and the cities of Jackson, Sutter Creek and Plymouth. Water purveyors that did not participate directly in the IRWMP were JVID, Drytown CWD, Fiddletown CSD, Pine Grove CSD, and Rabb Park CSD. Two producers of recycled water, the City of Ione and Mule Creek State Prison, also did not participate in the IRWMP. The regional goals established by the IRWMP are improved water supply reliability, water quality protection, environmental preservation, flood protection strategies, and development of a forum for regional communication. The IRWMP identified and prioritized 46 capital projects involving water, wastewater or drainage improvements. Top-ranked projects were associated with expanding potable and recycled water supplies.

DWR conducts groundwater monitoring and planning. Legislation requires the State Water Resources Control Board (SWRCB) to establish a comprehensive statewide groundwater quality monitoring program; the first comprehensive groundwater evaluation is to be completed by 2010. None of the local agencies has prepared a groundwater management plan; as a result, there is limited information on groundwater pumping and well levels in Amador County.

Proposed development projects with more than 500 dwelling units or commercial space for more than 1,000 employees are required to be assessed for adequate water supplies (SB 610). Such assessments have been prepared for the proposed Gold Rush, Wicklow Way and Jackson Hills developments discussed in Chapter 2. By contrast, proposed casino projects are not subject to this requirement, and have not specified water sources or substantively analyzed supplies. Water Code §10912 identifies one of seven conditions which trigger the requirement for a water supply assessment. Given indications of declining groundwater yields in the Jackson Valley and Plymouth areas, it would be prudent to develop a regional groundwater plan to ensure that proposed development is informed about growth constraints and impacts.

Urban water suppliers are required by the Urban Water Management Planning (UWMP) Act to prepare a water shortage contingency plan every five years. The plan describes and evaluates sources of water supply, efficient uses of water, demand management measures, implementation strategy and schedule, and other relevant information and programs. Providers serving at least 3,000 connections or 3,000 af are subject to the UWMP requirement. Only AWA was subject to the requirement in 2005. AWA completed a UWMP in 2005. None of the other water purveyors is subject to the requirement, and none prepared UWMPs in 2005.

[84] RMC Water and Environment, *Mokelumne, Amador and Calaveras Integrated Regional Water Management Plan*, October 2006.

SERVICE DEMAND

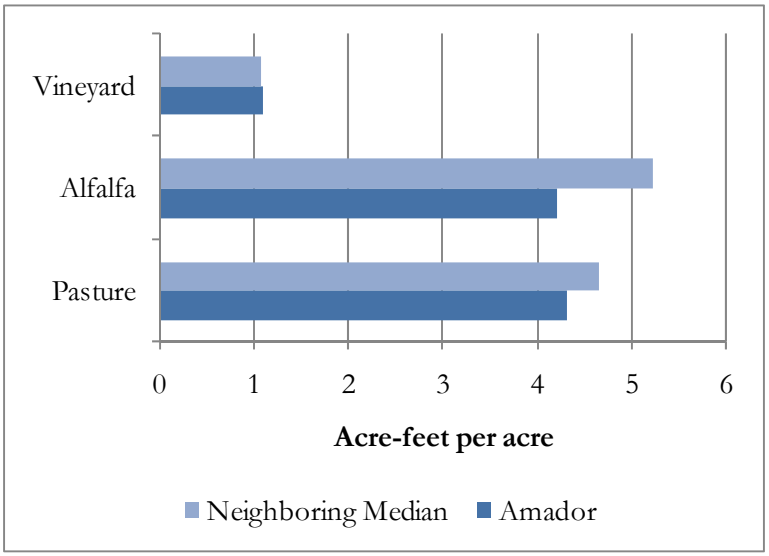
This section provides an overview of water uses, a general discussion of factors affecting water demand, analysis of water demand indicators and conservation efforts, and projections of future needs for water.

Within Amador County, water demand is predominantly agricultural. Irrigation accounted for 51 percent of water produced within the MSR area by public water systems in 2006.[85] Residential, commercial and institutional water sales composed 28 percent. Unaccounted water, such as losses associated with leaky canals, composed 21 percent of water produced. These figures relate only to public water systems, and do not reflect private well use and water rights, for which there is little information available. Based on analysis of households, the public water systems serve 59 percent of all households in the County, and the remainder is presumably relying on private water wells.

Urban uses are expected to increase in future years, and irrigation demand to decrease as a result of urbanization and development. Future growth is addressed later in this section. Chapter 2 provides the residential population and job base, proposed development and population projections, and a description of growth strategies and areas.

IRRIGATION WATER

Figure 4-4: Agricultural Water Use per Acre



Within the MSR area, surface water use averaged 2.0 af per acre served in the JVID service area.[86] Agricultural activity within the District includes alfalfa, walnuts, vineyards, and pasture.

Water usage countywide varies by crop, with an average of 1.1 af per acre for vineyards, 4.2 for alfalfa, and 4.3 for pasture in Amador County.[87] Applied water for each of these crops in Amador compares favorably to neighboring counties, indicating that growers are at least as water-efficient in Amador as in

[85] The total excludes KMPUD because it is primarily located outside Amador County, and EBMUD because there was no information available on the share of the demand at the recreation areas associated with residential uses (e.g., mobile home parks), institutional uses (e.g., recreation), etc.

[86] Water use per acre among irrigation accounts served by the AWA system were not available, because the acreage of the properties was not available.

[87] DWR Annual Land & Water Use Data, Crop Water Use, Applied Water by County, 2003.

neighboring areas.[88]

Agricultural water use is generally determined by the extent of irrigated acreage, the relative proportions of types of crops grown, climatic conditions, and irrigation efficiency.

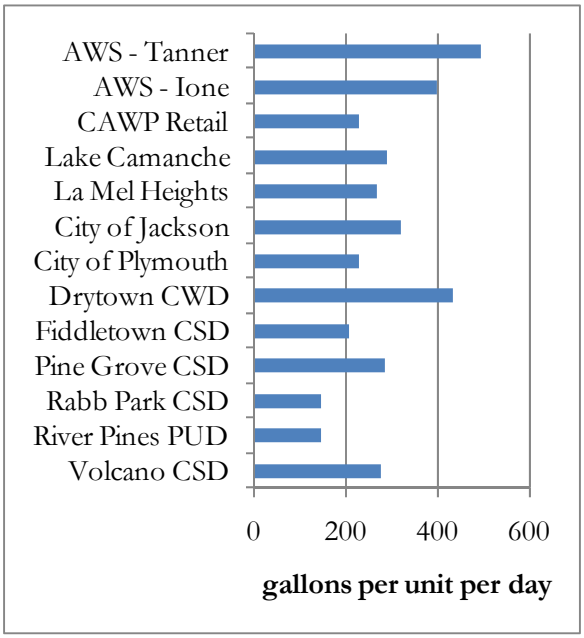
The amount of water needed and used has generally declined over time as growers and water suppliers implement design, delivery, and management practices to increase production efficiency and conserve water. An indicator of agricultural water use efficiency improvement is that statewide agricultural production per unit of applied water increased by 38 percent from 1980 to 2000.

Some water suppliers are lining canals, developing spill recovery and tail water return systems, employing flow regulating reservoirs, improving pump efficiency, and managing surface water conjunctively with groundwater. The use of concrete-lined ditches for irrigation is a best management practice that helps reduce the amount of water lost to leaks and evaporation.

At the on-farm level, pressurized, drip and micro-irrigation help conserve water compared with gravity (furrow, flood) irrigation techniques. Most California orchards and vineyards are irrigated using pressurized irrigation systems. Almost all trees and vines established since 1990 are irrigated using micro-irrigation. Since 1990, the crop area under micro-irrigation in California more than doubled.[89] Growers continue to make significant investments in on-farm irrigation system improvements, such as lining head ditches and using micro-irrigation systems.

DOMESTIC WATER

Figure 4-5: Residential Water Use per Home, 2006



In Amador County, the average residence used 323 gallons of water per day in 2006. That equates to 143 gallons per capita per day (gpcd), and represents water consumed not water produced.

Water usage varies significantly across providers and service areas, as shown in Figure 4-5. Generally, upcountry and foothill areas used less water than in the cities and downcountry areas.

Residential water usage per home was greatest in the AWS Tanner retail service area (i.e., Amador, Sutter Creek, Martell), Drytown CWD and AWS Ione service areas.

Water usage was lowest in the Rabb Park CSD, River Pines and Fiddletown CSD service areas.

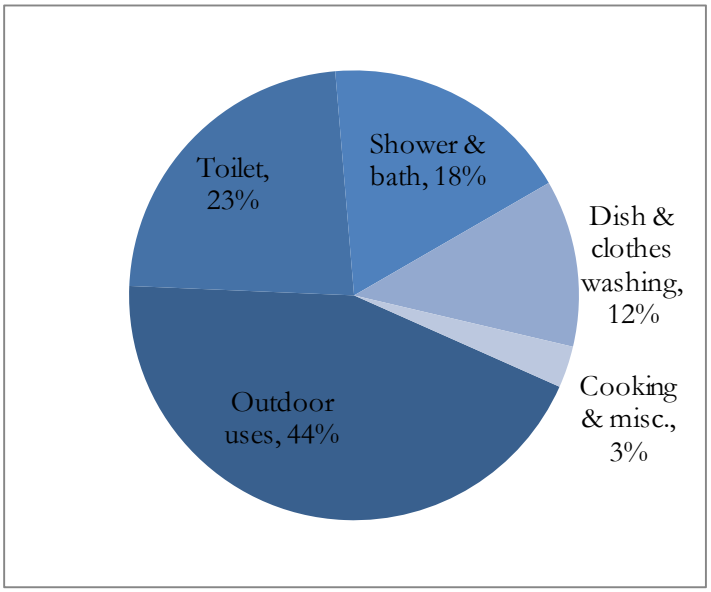
[88] Applied water use per acre was compared with Calaveras, El Dorado, Nevada, Placer, and San Joaquin.

[89] California DWR, *California Water Plan*, 2005, p. 4-314.

The residential water demand differences relate in part to differences in outdoor water use between communities. Lot size is a significant factor affecting differences in per unit demand. Structure age is another factor expected to affect demand differences, as newer buildings tend to have modern, water-efficient plumbing fixtures.

Urban water demand is primarily affected by population and economic growth and by water use efficiency. Clearly, population and economic growth lead to greater groundwater use. As the number of residents and jobs grows, the more showers are taken, toilets flushed and dishes washed. Not only does demographic and economic growth affect water demand, so too does the efficiency of water use.

Figure 4-6: Residential Water Use by Purpose



Domestic residential water is used for outdoor, toilet, shower, cleaning, and kitchen uses. Outdoor uses, such as landscaping, swimming pools and washing cars, are the most significant portion, consuming 44 percent of domestic water statewide.[90] Water demand varies over the course of the year, with typically greater use during the summer months. The differences between peak and average water demand largely reflect outdoor water use for landscaping, irrigation and swimming pools. Toilet flushing is the second most important use of water—constituting about 23 percent of use. Showering and bathing consume about 18 percent of domestic water. Dishwashers and clothes washing machines consume 12 percent of domestic water. The remainder of California water consumption relates to cooking and other kitchen uses.

Over time, water use levels change in response to changes in water prices, improvements in the efficiency of plumbing fixtures and conservation programs aimed at encouraging consumers to upgrade to efficient plumbing fixtures. These effects are interrelated. For example, water price increases can encourage consumers to reduce their water use directly (e.g., fewer showers) or prompt them to upgrade fixtures (e.g., water-efficient toilets).

Urban water suppliers have been required to install water meters on new municipal and industrial services connections since 1992, and must install meters on all municipal connections by 2025 under AB 2572. Nearly all of the service providers have installed meters on all connections, most recently Rabb Park CSD installed meters in 2003. Exceptions are JVID and the AWS Tanner systems. JVID has not metered any connections, although it is not required to meter agricultural connections. In the AWS Tanner system, there are 95 single-family homes and 21 agricultural accounts that are not metered. Fiddletown CSD has metered its accounts, but only reads the meters

[90] U.S. EPA, 1995. Figures reflect average share of domestic consumption in California.

during the summer. Water providers must begin by 2010 to charge metered customers based on volume of water. When jurisdictions implement rates charged based on water used, consumption per meter typically declines by 20-35 percent. Most of the Amador providers charge based on water volume. AWA has implemented such charges on its metered accounts. Fiddletown CSD does so in the summers, but not the rest of the year. JVID does not do so, as accounts are not metered.

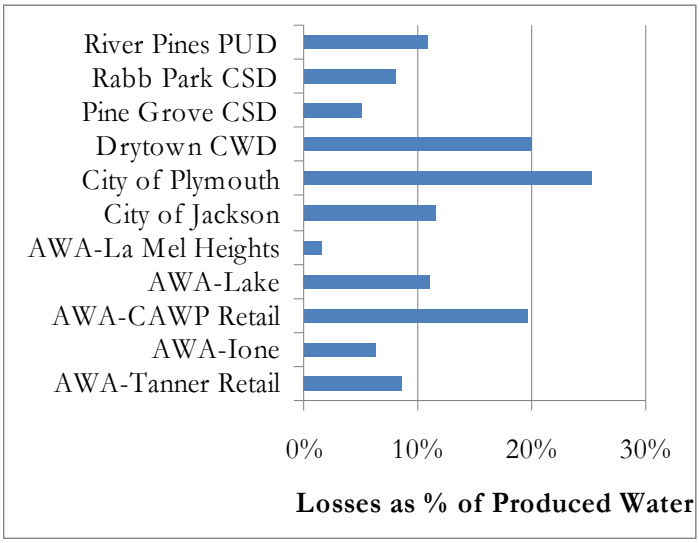
New state and federal requirements for the efficiency of plumbing fixtures have been implemented in the last two decades. Particularly in the early 1990s, new state and federal regulations required high-efficiency showerheads, ultra low-flow toilets and efficient kitchen faucets in new construction. For example, state toilet standards in the 1980s required toilets to consume no more than 3.5 gallons per flush; in 1992, new standards reduced toilet water use to 1.6 gallons per flush. For buildings constructed since 1992, toilet-related water use is less than half the level in buildings built during the 1980s. In buildings constructed prior to 1992, toilets tend to use 4.5-5 gallons per flush. Over time, more efficient plumbing fixtures are becoming prevalent, reducing per capita water use. Although there are no requirements in place for clothes washers, traditional clothes washers use approximately 41 gallons per load while high-efficiency machines use only 23.

Conservation programs help expedite consumers' rate of conversion to more efficient plumbing fixtures. Conservation efforts may affect outdoor water use efficiency by providing recycled water for large landscape accounts, auditing these accounts and conducting public information campaigns to encourage the use of water-efficient plants and gardening practices.

Over 200 California water providers are signatories to the California Urban Water Conservation Council (CUWCC) agreement, through which service providers pledge to develop and implement 14 conservation "best management practices." Within Amador County, EBMUD is the only signatory among the domestic water providers.

WATER LOSSES

Figure 4-7: Water Loss Rate by System



Inevitably, a portion of water produced does not get delivered to customers as a result of fire flows, lack of integrity in the distribution system and conveyance losses. The median Amador water system loses 11 percent of water. By comparison, the industry average is 10 percent.

Losses are greatest in the City of Plymouth system, and are relatively high in the Drytown CWD and AWA CAWP systems. Losses in the Fiddletown CSD and JVID systems are unknown due to lack of meters and meter-reading. Volcano CSD lacked accurate water production data needed to calculate loss rates.

PROJECTED DEMAND

As urbanization and growth occur, potable water needs are projected to increase.

Potable water demand is projected to reach 17,277 af by 2030 in the AWA water systems. The AWS system is projected to exhaust available supplies and water rights by 2030. The CAWP system water supplies are already allocated; additional sources of supply for this system include a pending AWA application for 1,050 af of JVID water supplies. La Mel Heights is not projected to grow significantly; its existing groundwater supplies are projected to be adequate.

Among the independent water systems, only River Pines PUD provided projections. River Pines PUD is projected to have adequate water supplies to accommodate anticipated infill growth within the community. Fiddletown CSD and EBMUD recreation areas are not projected to experience significant growth in water demand; however, neither agency had prepared such projections for these service areas. Volcano CSD has projected demand growth and needs through 2010, and is expected to prepare long-term demand projections once it has completed analysis of safe annual yield of its existing water sources.

Table 4-8: Potable Water Projections, 2010-2025

Water System	2010	2015	2020	2025	2030
AWA Supplied Water Systems	9,571	12,219	13,936	15,139	17,277
AWA - Amador Water System[1]	8,259	10,709	12,198	13,138	14,972
AWA - CAWP System[2]	1,286	1,484	1,712	1,975	2,278
AWA - La Mel Heights[2]	25	26	26	26	26
Independent Water Systems	112	114	115	117	118
EBMUD recreation areas[3]	28	28	28	28	28
Fiddletown CSD[3]	18	18	18	18	18
River Pines PUD[4]	37	39	40	41	43
Volcano CSD[3]	29	29	29	29	29

Notes:

(1) Projected demand includes the City of Plymouth and Lake Camanche Village for consistency with capital plans. Projection source is the Gold Rush Ranch Water Supply Assessment, Jan. 2008.

(2) Projection source is the IRWMP, Nov. 2006.

(3) Demand is assumed to remain constant.

(4) RPPUD demand projections assume annual growth of 0.75 percent.

Urban development tends to reduce overall water needs when it takes place on formerly irrigated lands. Urban residential uses average 2.2 af per acre in water demand,[91] and urban commercial developments require less than 2 af per acre.[92] By contrast, irrigation pasture land uses more than 4 af per acre, as discussed under Irrigation Demand. However, urbanization will tend to use surface water sources, whereas, there is substantial reliance on groundwater on irrigated lands. Hence, urbanization will tend to increase surface water use and decrease groundwater use.

[91] Northern California Water Association, *Sacramento Valley Integrated Regional Water Management Plan*, 2006.

[92] Tully and Young, *Land Use/Water Supply Analysis Guidebook: Report to the Northern California Water Association*, June 2007, p. 8.

Existing agricultural uses in much of the Ione Valley and in the vineyards in the Plymouth vicinity rely on groundwater; whereas future urban development is expected to rely on surface water in the growing water service areas. Due to a lack of information on groundwater usage and future irrigation demand in Amador County, it is not possible at this time to provide comprehensive analysis of future demand. Such analysis should be conducted once groundwater management planning in the County has been initiated. LAFCO may wish to consider encouraging JVID to project its long-term water needs before the next MSR cycle to support water planning needs and objectives.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

In the context of water service, infrastructure needs signify water supply, treatment, conveyance and distribution infrastructure that do not provide adequate capacity to accommodate current or projected demand for service for the region as a whole or for sub-regions.

WATER SOURCES

The primary water sources are the Mokelumne River, Jackson Creek and groundwater. Other sources include Cosumnes River surface water and recycled water.

Mokelumne River

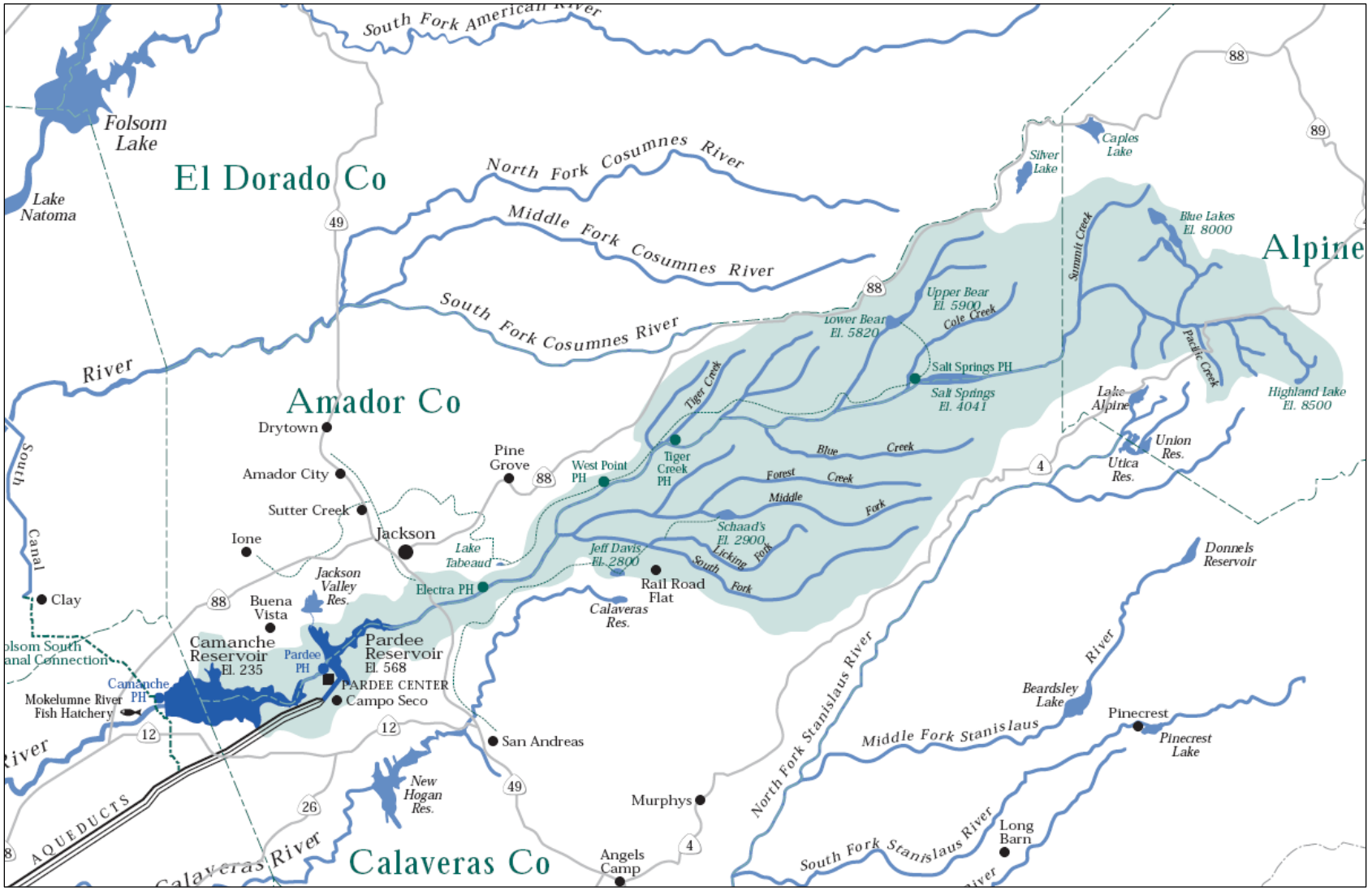
The Mokelumne River supplied 57 percent of local purveyors' water in 2006, and typically supplies 90-95 percent of EBMUD's needs in its East Bay service area.

The Mokelumne River water originates in Amador, Alpine and Calaveras counties. With a watershed encompassing approximately 660 square miles, the annual average flows of the Mokelumne River at Pardee Reservoir is 753,000 af, with most flow from Sierra snowmelt.

AWA and JVID hold 20,000 af in water rights on the river. AWA holds 15,000 af in pre-1914 water rights acquired when its purchased the AWS system from PG&E, and another 1,150 af in post-1914 appropriative water rights from three tributaries to the Mokelumne River. The pre-1914 rights for the AWS system are expected to accommodate growth in water demand through 2030. The 1,150 af serves the CAWP system, which does not have adequate water supplies, having used 1,120 af in water in 2006.

JVID has rights to divert up to 3,850 af of Mokelumne River flows; however, JVID does not hold rights to store this water. JVID's diversion rights are appropriative, based on a 1927 application, and are subject to reversion to upstream needs. Due to its need for water to serve its CAWP system, AWA applied to the State Water Resources Control Board (SWRCB) for reversion of 2,200 af; if transferred, the rights would be used by AWA to permit storage at Lower Bear Reservoir. Any reversion of more than 2,200 af must be accompanied by a substitute water source. AWA is considering substitution of recycled water for a portion of JVID's Mokelumne River water right. JVID is evaluating its water rights through a study funded by the County.

Figure 4-9: Mokelumne River Watershed Map



Source: EBMUD

EBMUD's position in the hierarchy of Mokelumne water users is determined by a variety of agreements between Mokelumne water rights holders. On average, 98.7 mgd of the supply is distributed to three Sierra foothill counties—Amador, Calaveras and San Joaquin—with senior water rights to the District; this amounts to 107,000 af in average and wet years. The AWA-JVID rights are senior to EBMUD's 364,325 af in water rights. Also senior to EBMUD water rights are 27,000 af in senior water rights in Calaveras County and 60,000 af in senior water rights in San Joaquin County. EBMUD expects its Mokelumne River supply source to decrease in the future, as consumption by senior water rights increases and increased downstream releases are required. EBMUD's Mokelumne River water supply is not sufficient to meet its long-term customer demands during a drought.

The Mokelumne River water is diverted through PG&E facilities into AWA and EBMUD facilities. CAWP flows are diverted from PG&E's Tiger Creek Afterbay and channeled to AWA's Buckhorn water treatment plant. PG&E pumps the AWS water from Lake Tabeaud into AWA's Amador Canal. To conserve about 4,700 af in water lost in the unlined canal, AWA recently constructed a pipeline to replace the canal. EBMUD relies in part on PG&E facilities to channel flows to its facilities. EBMUD's Mokelumne River supply facilities include Pardee Dam and Reservoir, located near Valley Springs. From Pardee Reservoir, stored water flows into the Pardee Tunnel, Mokelumne Aqueducts, and on to its primary users in the East Bay. Mokelumne River water flows by gravity from EBMUD's Pardee Reservoir to JVID's Lake Amador, subject to availability.

Jackson Creek

Jackson Creek supplied 37 percent of the local purveyor's water in 2006. JVID is the only local purveyor using the water from this source. Jackson Creek is JVID's primary water source.

The Jackson Creek watershed encompasses 60 square miles in Amador County. The North, Middle and South Forks drain southwesterly into the main channel in the City of Jackson. Jackson Creek water quality has declined somewhat in recent years, with a greater portion of the source composed of treated wastewater effluent. Upstream flows in Jackson Creek have declined in recent years as a result of AWA piping the Amador Canal, which had leaked significant water into Jackson Creek and its tributaries. AWA Downstream of the City of Jackson, a portion of the flows through Jackson Creek are composed of wastewater effluent from the City of Jackson, which is treated to tertiary levels.

JVID has rights to store up to 36,000 af of Jackson Creek flows.[93] It may divert flows to Lake Amador between November and May at a maximum rate of 110 cfs. Due to reservoir capacity constraints, the District typically uses about 10,000 af of this right, and the safe yield is 8,500 af. JVID water demand varied between 9,000 af and 11,500 af between 1995 and 2005. As discussed above, its Mokelumne River water rights are subject to reversion and substitution with recycled water sources. Hence, the District's water supply appears to be vulnerable.

State regulatory agencies have conflicting priorities and objectives relating to the City of Jackson's discharge to Jackson Creek, which would impact JVID. California Department of Public

[93] Water Rights Permits 11224 and 11589.

Health (DPH) has expressed concerns about discharge to Jackson Creek, as the creek and Lake Amador are used for domestic drinking water purposes, creek flows are relatively low during summer months and these waters are more than five percent wastewater effluent about 30 percent of the time. California Department of Fish and Game (DFG) is concerned about the City reducing the amount of discharge to Jackson Creek as recreational users and aquatic life are dependent on the water level, and other water sources (i.e., the formerly unlined Amador Canal) have been reduced in recent years. The City must complete a study by 2009 that identifies the minimum discharge to Jackson Creek needed to meet existing downstream water rights and that evaluates the water characteristics needed downstream for agricultural and aquatic purposes.

Groundwater

Groundwater resources compose a significant portion of private water use in Amador County, but composed only about three percent of the local purveyor's water in 2006. Groundwater sources are the Cosumnes Groundwater Subbasin and unclassified groundwater aquifers, which include some wells classified as groundwater under the influence of surface water, as shown in Table 4-10.

Table 4-10: Water Purveyors' Groundwater Resources

Purveyor	Source	Produced 2006	Average supply	Maximum supply	Safe annual
AWA - Lake Camanche	Cosumnes sub-basin	232	241	1,347	NP
AWA - La Mel Heights	Not classified	18	23	123	NP
City of Plymouth	Not classified	275	274	726	319
EBMUD recreation areas	Cosumnes sub-basin	28	NP	NP	NP
Fiddletown CSD	Not classified	18	18	194	48
Kirkwood PUD	Not classified	73	73	355	NP
River Pines PUD	Under influence SW[1]	37	NP	161	NP
Volcano CSD	Under influence SW[2]	20	23	70	NP
Volcano CSD	Not classified	0	NP	10	NP

Notes:
(1) The primary well is classified as groundwater under the influence of surface water.
(2) The Cleveland Tunnel source, an inactive mine tunnel, is classified as groundwater under the influence of surface water.

AWA's Lake Camanche wells pump groundwater from the Cosumnes subbasin. The water quality of the subbasin is generally of excellent quality for irrigation and domestic use. The Agency has closed two wells as a result of water quality concerns, specifically iron and manganese at one well and bacteria at another. Based on Department of Water Resources groundwater recharge and outflow analysis, the subbasin is losing on average approximately 4,300 af annually.[94] During times of extreme drought, the water levels in the wells have dropped and then recovered in subsequent years. However, due to concerns of growth, basin overdraft and water quality, the Agency is planning to phase out the use of groundwater and change to surface water by 2015.

Groundwater in La Mel Heights is from an unclassified groundwater aquifer. Due to constraints on the build-out size of the community, AWA did not indicate concerns regarding the capacity of the future groundwater supply. Safe annual yield is unknown.

[94] Department of Water Resources, *California's Groundwater Bulletin 118*, 2006, p. 3.

Groundwater levels have posed a challenge to the City of Plymouth. One well was removed from service during seasonal demand peaks (summer) as the groundwater levels drop below the pump intake level. Another well has high turbidity levels, which is attributed to decreasing groundwater levels. Private wells neighboring the City experience reduced flow and poor water quality during the City's peak water demand period in the summer. Safe yield of the remaining wells, which is 25 percent of the tested capacity in foothill areas, is less than peak day demand. Hence, the City lacks adequate water supplies.

Fiddletown CSD relies on a single groundwater well which was recently installed. Safe yield of the well, which is 25 percent of the tested capacity in foothill areas, is greater than peak day demand. Hence, supplies appear adequate. However, there are no inter-ties or back-up supply sources.

River Pines PUD relies on two wells, in addition to the surface water source. The groundwater source is a shallow, fractured rock aquifer. The primary well is classified as groundwater under the direct influence of surface water, and is subject to microbiological contamination associated with coliform. Once treated, water met all primary drinking water standards, but not secondary standards for iron and aluminum. Safe annual yield is unknown.

Volcano CSD relies on two groundwater sources. The primary source is Cleveland Tunnel, an inactive mine tunnel, where water is collected behind a dam and the source is classified as groundwater under the influence of surface water. The water is treated for bacteria. A 2006 study cautioned that yield has declined from historical flows, and the District should monitor precipitation and yield monthly.[95] Safe annual yield is unknown, but is presently being evaluated by the District; in the meantime, the District is not approving new connections. The emergency back-up source is two groundwater wells with low yields. The wells have a combined yield of 6 gpm presently; by comparison, peak demand has reached 29 gpm.

Drytown CWD does not rely on groundwater, rather it purchases treated water from AWA. The District reported that eight non-contiguous parcels, on the western side of SR 49, along Varia Ranch Road, have indicated interest in annexation, because their private wells are drying up. Also, JVID reported receiving annexation requests that are often related to wells that have dried out.

Due to concerns about groundwater impacts in the shallow Ione aquifer, ARSA is eliminating its wastewater flows to the secondary treatment ponds in the City of Ione, and has prepared a plan to stop discharging to Ione's tertiary facility. Some private wells in the Mule Creek vicinity have developed high nitrate levels, possibly caused by inadequately treated sewage from the prison. Mule Creek State Prison is now mitigating these impacts by financing delivery of clean water to affected property owners. Upgrading wastewater facilities in the Ione Valley to tertiary levels bears serious consideration in light of groundwater contamination concerns. A regional groundwater plan would be beneficial for many of the local agencies by developing background information, analysis and methods for evaluating groundwater supply adequacy and for reducing contamination risks.

Cosumnes River

The Cosumnes River makes up about six percent of the water rights and maximum supply available to local water purveyors, but contributed inconsequential flows in 2006. River Pines PUD

[95] Shaw, J., *Final Water Supply Study—Volcano Water System*, November 8, 2006.

and the City of Plymouth hold water rights on the Cosumnes River and its tributaries. Willow Springs Water District formerly relied on this source, although it does not hold water rights.

River Pines PUD holds 145 af in rights on the South Fork Cosumnes River and Slate Creek, a tributary. The District does not presently have rights to store diverted Cosumnes River water, but could apply for such rights in the future to enhance water reliability. The river flowed year-round in the past, albeit at a much lower rate during summer months, as measured by a USGS gauge that operated until 1980. Since then, the flow has declined, and the river is typically dry at the surface from July to November. During wet weather, RPPUD typically uses its groundwater supplies due to turbidity and associated treatment complexities. In 2007, RPPUD relied on its surface water source only in June and early July. In prior years, however, the District has relied on the South Fork Cosumnes River for most of its water.

The City of Plymouth holds 2,200 af in pre-1914 rights on Big Indian Creek, a tributary of the Cosumnes River. The City acquired Arroyo Ditch in the 1980s to convey surface water to the City. The Arroyo Ditch was originally built in 1851 to bring water to gold miners and landowners. Peak flows in the ditch generally occur during the winter and spring months, while there is generally no water available during the peak demand times in the summer and fall months. Maintenance has posed a challenge for the City due to the inaccessibility of the ditch and the prohibitive maintenance costs.[96] Due to these difficulties, the City has relied on groundwater since 2001. The City and AWA are investing in a pipeline that will supply the City with treated surface water.

Willow Springs Water District (WSWD) previously provided irrigation water to customers, but discontinued the service over 20 years ago because water no longer flows down the Arroyo Ditch during the summer.[97] WSWD does not appear to hold water rights on the Cosumnes River or its tributaries.[98] Landowners rely on private wells for irrigation purposes. WSWD has been inactive for decades. The District expressed interest in re-activating if an alternative water source, including recycled water, should become available.

It is possible, although unlikely, that additional Cosumnes River water might become available in the future to serve the Plymouth area, Willow Springs and the Ione Valley areas. Off-stream storage facilities on the Cosumnes River would cost $30-40 million and require new water rights.[99]

Recycled Water

Recycled water use is presently limited in Amador County, but is expected to increase in the future. Recycled water is wastewater effluent treated to high standards and regulated by the State Department of Health.

The City of Jackson discharges tertiary treated wastewater effluent to Jackson Creek, composing a portion of JVID's water supply. The City of Ione distributes wastewater effluent treated to tertiary

[96] DPH, *Plymouth Annual Inspection Report*, 2005, p. 3.

[97] Interview with Elden Waite, Willow Springs Water District, Board Member, July 9, 2008.

[98] State Water Resources Control Board, Water Rights Information Management System.

[99] RMC Water and Environment, *Mokelumne/Amador/Calaveras Integrated Regional Water Management Plan*, Nov. 2006, p. 5-42.

standards to Castle Oaks Golf Course, which uses an annual average of 557 af. The Amador Regional Sanitation Authority (ARSA) distributes secondary wastewater effluent to two ranches located along its pipeline, and plans to increase distribution of recycled water in the future to additional ranches and a golf course.

The City of Ione and ARSA are both actively developing additional recycled water sites as they plan for major wastewater plant investments. AWA is considering distribution of recycled water to the JVID service area in the future upon completion of a Martell wastewater treatment plant. Please refer to Chapter 5 for discussion of wastewater services.

FACILITY NEEDS

Each of the providers identified infrastructure needs and deficiencies related to water facilities. In addition, the Department of Public Health also reports needs and deficiencies in its annual inspection report. These needs are outlined in Table 4-11. For further information and background on an agency's respective needs refer to the provider's profile in Volume II.

Table 4-11: Water Provider Facility Needs

Agency	Infrastructure Needs
City of Jackson	1) Additional storage for emergency situations.
City of Plymouth	1) Connection to a dependable water source. 2) Replacement of the iron pipelines in poor condition. 3) Identify and resolve the cause of the significant distribution loss experienced by the system.
AWA	1) Replacement of aged and undersized water distribution system in the CAWP system. 2) Additional treatment capacity for anticipated growth in the Ione and Tanner treatment plants. 3) Additional water sources for the Lake Camanche due to concerns of basin overdraft. 4) Rehabilitation of the deteriorating Lake Camanche system 5) Provide recycled water to JVID to extend future surface water supplies.
Drytown CWD	1) Replacement of old pipes in poor condition to reduce lead levels and distribution losses. 2) Evaluate entire distribution system to prioritize replacement.
EBMUD	1) Phasing out the use of groundwater due to concerns of water quality and groundwater overdraft to be addressed by a joint surface water treatment plant project between EBMUD, AWA, and CCWD.
Fiddletown CSD	1) Installation of an additional back-up generator at the well. 2) Additional storage capacity for emergency purposes. 3) Overall assessment of the distribution system to identify needs and prioritize repairs.
Jackson Valley ID	1) Replacement of a non-functional meter on the District's main line. 2) Installation of a planned pipeline from Pardee Reservoir to the Lake Amador Recreation Area (LARA) and Oaks Mobile Home Park for domestic use. 3) Upgrading of the LARA water treatment system and additional water storage
Kirkwood Meadows PUD	1) Destroy Well 1 per California well standards. 2) Improved security at Wells 4 and 5.
Pine Grove CSD	1) Improved water pressure for fire flow. 2) Replacement of undersized four and six-inch mains.
Rabb Park CSD	1) Replacement of the two-inch pipes to increase delivery pressure and fire flow. 2) Replacement of the AWA storage tank to add additional storage capacity. 3) Installation of electrical and treatment capabilities on wells, to use for back up purposes.
River Pines PUD	1) Replacement of older distribution lines that are in poor condition, and corroded iron mains. 2) Improved fire flow. 3) Replacement or rehabilitation of the storage facilities. 4) Installation of a SCADA system, implementation of a system for handling wastewater from the waste tank and improvements to access roads at Well 6R 5) Construction of a shed and incorporation into the SCADA system at Well 2. 6) Installation of well monitoring devices. 7) Improvements to the electrical system at treatment facilities. 8) Installation of a flow meter downstream from the diversion point to comply with the water rights permit. 9) Replacement of the chlorine analyzer
Volcano CSD	1) Completion of a water study to determine safe water yield of the water source. 2) Replacement of several shut-off valves and installation of additional valves. 3) Potential need to upgrade the Rosedale system.

SERVICE ADEQUACY

This section reviews indicators of service adequacy, primarily among providers of domestic water.

SYSTEM INSPECTIONS

The California Department of Public Health (DPH) is responsible for the enforcement of the federal and California Safe Drinking Water Acts and the operational permitting and regulatory oversight of public water systems. The Amador County Environmental Health Department (EHD) is responsible for regulatory oversight of small water systems. The domestic water providers are subject to inspections by these agencies. Each of the domestic water providers is inspected by the respective regulatory agency periodically. Most systems are inspected by the State DPH. Smaller systems—Drytown CWD, Fiddletown CSD and Volcano CSD—are inspected by EHD. Inspection standards and reporting differ, with the DPH reports more comprehensive and more regular than EHD inspection reports.

DPH performs separate inspections for each of the AWA systems. The inspections of the Tanner and Ione treatment plants and La Mel Heights systems found that the systems were generally "well maintained and operated with no major deficiencies or problems." The Tanner plant was also reported as being equipped with state-of-the-art monitoring equipment. The report notes a concern of contamination from local runoff, including animals, other water courses, and septic systems, into the Amador Canal, which is still serving some raw water customers along its route. The Ione plant was found to have marginal capacity to meet the existing peak demands during maximum day usage. The Buckhorn facilities were found to be operated by a "conscientious and professional staff" with adequate capacity to meet demand for the immediate future. The 2008 inspection report of the Lake Camanche system found that the system was in "disarray" and has inadequate source capacity. The inspection reported several significant deficiencies, including deteriorated and leaking storage tanks, inadequate booster stations that are in bad condition, outdated and unreliable well operations and control system, and collapsing surface piping on Well 6.[100]

Overall, DPH found Jackson's distribution system to be reasonably well-operated and maintained. The report recommended that the City establish a formal valve exercising program and complete a cross connection survey.[101] The City reported that a valve exercising program has been implemented and the cross connection survey was 90 percent complete, as of June 2008.[102]

The City of Plymouth water treatment and distribution facilities were last inspected by DPH in 2008. During that inspection DPH found that the operation of the system was satisfactory. The City lacked the required D2 certified distribution operator, and had not yet employed an operator that met this requirement as of the drafting of this report. Other operational deficiencies included a

[100] Department of Public Health, *2008 Annual Inspection Summary*, p. 1.

[101] Department of Public Health, *2006 Annual Inspection Report*, p. 26.

[102] Interview with Max Godde, City of Jackson, Water Superintendent, June 4, 2008.

lack of proper treatment of the well water, alarm testing procedures not conducted on a monthly basis and several out-of-date plans.[103]

EHD did not provide a comprehensive evaluation of the Drytown CWD water system. The most recent inspection was performed in 2003. The only recommendation given by EHD at that time was to clean and remove ponded water from the top of the floating cover on the storage tank. Since then, a new storage tank has been installed. EHD reported that challenges currently facing Drytown CWD are aging infrastructure, increasing drinking water regulations, high costs associated with distribution system monitoring compliance, and staffing problems.[104]

EHD last inspected the Fiddletown CSD system in 2003. Required corrective actions reported by EHD included sealing the roof to the water storage tank, submitting lead and copper water monitoring results, providing the Consumer Confidence Report, obtaining a certified distribution system operator, and adjustments to the wellhead vent. Although the District continues to have monitoring and compliance issues, the concerns identified in the inspection report have been rectified according to EHD. Most recently, in 2007, the District received several notices of violation of monitoring requirements, and did not provide proof of compliance with the notices. Subsequently, a citation for non-compliance was issued by EHD, regarding sampling of radioactivity, lead and copper, manganese and iron, and disinfection byproducts.[105] Failure to comply with the citation resulted in another notice of violation August 2007, and another citation for non-compliance in January 2008 for failure to sample manganese, iron and radioactivity. The District was given until March 2008 to comply with sampling and reporting requirements, but had not submitted the required iron and manganese reports as of May 2008.[106]

The Kirkwood Meadows PUD system was identified as generally well-maintained and operated. Recommendations for improvement included abandonment of Well 1 according to State standards and improved site security for Wells 4 and 5. According to correspondence between the District and DPH, each of the deficiencies identified in the report have been addressed or will be addressed by the end of 2008.

An inspection of the Pine Grove CSD system was last completed in 2004. The inspection found all of the District's water facilities to be in good condition. There were no infrastructure needs or deficiencies identified. However, DPH began requiring annual lead monitoring in 2002 after the District exceeded the lead mcl. Annual lead monitoring will be required until it can be determined that compliance is consistent.

The most recent inspection of the Rabb Park CSD distribution system was generally positive and found no major needs or deficiencies. DPH noted that RPCSD is required to file for a permit amendment, if the District intends to use its two inactive wells for emergency purposes.

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[103] DPH, *Plymouth Annual Inspection Report*, 2008, p. 1-3.

[104] Correspondence with Lance Salisbury, Environmental Scientist, Amador Environmental Health Department, February 15, 2008.

[105] Environmental Health Department, *Citation No. 2007-03*, 2007.

[106] Interview with Scott Meyer, Environmental Health Department, May 14, 2008.

The 2005 DPH inspection found that the overall operation and condition of the River Pines PUD system was generally good with some areas in need of improvement, such as testing of alarms, calibration of turbidity meters, well deficiencies, and updates to several emergency plans. More recently DPH issued a notice of violation to the District in 2007 for having served old, stagnant water that had been left in a well contact tank for more than six months, and indicated that RPPUD "ran poor operations during this time and needs a good operations plan for preventing this and other situations in the future."[107] RPPUD reported that it had subsequently prepared a plan.

EHD most recently performed an evaluation of the Volcano CSD water system in 2003. At that time, EHD found that the District was not meeting requirements for giardia inactivation and chlorine contact time. The inspection also reported a concern that there was a potential for cross connection of an unfiltered water pipe with the domestic water system. Since that time, the District has made several changes to its system and has been issued a new domestic water supply permit by the EHD. EHD reported that challenges facing Volcano CSD include an aging infrastructure, increasing drinking water regulations, high costs associated with monitoring compliance, and limited source capacity.[108]

WATER PRESSURE

Urban water systems must maintain adequate pressure in order to provide adequate fire flow. The County Fire Marshall uses State fire flow requirements included in Appendix III-A of the 2000 Uniform Fire Code, which identifies fire flow requirements based on building area, construction type and occupancy. There are no other requirements for water pressure, although customers expect adequate pressure for typical uses.

All domestic water providers reported that water pressure is generally adequate within their service areas; however some needed improvements were identified. The Ione Fire Department noted concerns of low pressure in certain pockets around the City, which is operated by AWA. These low pressure areas should be resolved through several planned infrastructure projects targeting water reserves. Specifically, there are plans to install an additional two-million gallon above-ground storage tank, to replace all four-inch water mains, to replace wharf hydrants with steamer hydrants, and to finish cross connections of water mains.

AWA identified the CAWP distribution system as requiring improvements to increase pressure. The Agency plans to address this issue in 2011. River Pines PUD has found that its pressure declines significantly when fire hydrants are opened, and reported that it needs to evaluate fire flow adequacy.

Approximately 25 percent of the Rabb Park CSD system, concentrated in the southern portion of the District, is comprised of two-inch mains that provide inadequate delivery pressure and pressure at the District's hydrants. The District would like to replace all of the two inch mains with four or six-inch mains. The District currently lacks financing to replace all of the two-inch mains, and consequently replaces the pipes as needed and when financing permits.

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[107] California Department of Public Health, *Notice of Violation No. 03-10-07NOV-003*, 2007, p. 5.

[108] Correspondence with Lance Salisbury, Environmental Scientist, Amador Environmental Health Department, February 15, 2008.

DRINKING WATER QUALITY

Drinking Water Standards

There are a number of threats to drinking water: Improperly disposed chemicals, animal wastes, pesticides, human wastes, wastes injected deep underground, and naturally occurring substances can all contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or which travels through an improperly maintained distribution system, may also pose a health risk.

The Safe Drinking Water Act (SDWA) is the main federal law that ensures the quality of Americans' drinking water. The law requires many actions to protect drinking water and its sources—rivers, lakes, reservoirs, springs and groundwater wells—and applies to public water systems serving 25 or more people. EPA drinking water standards are developed as a Maximum Contaminant Level (MCL) for each chemical or microbe. The MCL is the concentration that is not anticipated to produce adverse health effects after a lifetime of exposure, based upon toxicity data and risk assessment principles. National Primary Drinking Water Regulations (NPDWRs or primary standards) are legally enforceable standards that limit the levels of contaminants in drinking water supplied by public water systems. Secondary standards are non-enforceable guidelines regulating 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.

The California DPH implements the SDWA in California. DPH requires public water systems to perform routine monitoring for regulated contaminants. To meet water quality standards and comply with regulations, a water system with a contaminant exceeding an MCL must notify the public and remove the source from service or initiate a process and schedule to install treatment for removing the contaminant. Health violations occur when the contaminant amount exceeds the safety standard (MCL) or when water is not treated properly. In California, compliance is usually determined at the wellhead or the surface water intake. Monitoring violations involve failure to conduct or to report in a timely fashion the results of required monitoring.

Federal and state regulations on maximum contaminant levels in drinking water have evolved and expanded since 1977. Relatively new requirements faced by California water providers include limits on disinfection byproducts and a gasoline additive (MTBE), and tighter standards for arsenic, cyanide, uranium, and various organic contaminants.

Drinking Water Adequacy

There are a number of threats to drinking water: Improperly disposed chemicals, animal wastes, pesticides, human wastes, wastes injected deep underground, and naturally occurring substances can all contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or which travels through an improperly maintained distribution system, may also pose a health risk.

Health and monitoring violations since 1993 for drinking water providers in the area are listed in Table 4-12.

Table 4-12: Drinking Water Violations, 1993-2007

Drinking Water System	Health Violations #	Health Violations Type	Monitoring Violations #	Monitoring Violations Type
AWA-Buckhorn Plant	1	Haloacetic Acid mcl exceeded 2005	1	Lead and copper sampling 2000; Coliform monitoring 2005
AWA-Tanner Plant	1	Surface Water Treatment 2003	1	Coliform monitoring 2000
AWA-La Mel	1	Lead and copper installation/ demonstration 2006	0	No violations
AWA - Camanche	0	No violations	6	Coliform monitoring 2000; Benzene monitoring 1998; Nitrate monitoring 1998, Gross alpha monitoring 1998; Arsenic monitoring 1997; Lead and copper sampling 2000
Jackson	0	No violations	2	Haloacetic acid and total trihalomethane monitoring 2004
Plymouth	0	No violations	17	Haloacetic acid and total trihalomethane monitoring 2005; Fialure to report consumer confidence report 2001; Nitrate and nitrite monitoring 1997, 1998, 1999, 2000, 2001; Gross alpha monitoring 1997; Lead and copper sampling 1993
Drytown County Water District	0	No violations	2	Lead and copper sampling 2000
EBMUD-Camanche North Shore	0	No violations	0	No violations
Fiddletown CSD	0	No violations	5	Coliform monitoring 2005, 2003, 2001, 1998; Lead and copper sampling 2000
JVID Concessionaire-Lake Amador Recreation	9	Surface Water Treatment 2003 (8), 2004	1	Coliform monitoring 2004
Kirkwood Meadows PUD	0	No violations	1	Lead and copper sampling 1993
Pine Grove CSD	1	Haloacetic Acid mcl exceeded 2005	3	Haloacetic Acid and total trihalomethanes monitoring 2004; Lead and copper sampling 2000
Preston Youth Correctional Facility	1	Surface Water Treatment 2005	4	Coliform monitoring 1997, 1998, 1999; Lead and Copper Sampling 2000
Rabb Park CSD	0	No violations	1	Lead and copper sampling 2000
River Pines PUD	0	No violations	2	Haloacetic Acid and total trihalomethanes monitoring 2005
Volcano CSD	1	Coliform mcl exceeded 1998	2	Coliform monitoring 2001; Lead and copper sampling 2000

Source: US Environmental Protection Agency, Safe Drinking Water Information System

AWA has had surface water treatment violations since 2003. None of the other providers had recent treatment technique violations. By comparison, the annual average nationally is that 1.3 percent of systems reported a treatment technique violation. AWA and Pine Grove CSD were the only providers with recent health violations. AWA exceeded the haloacetic acid mcl in 2005 in its CAWP system and lead and copper installation requirements in its La Mel system in 2006. Pine Grove CSD exceeded the haloacetic acid mcl in 2005. On average, 5.3 percent of water systems report an mcl violation each year. Monitoring violations are more common; 18 percent of water systems report a monitoring violation each year. Seven of the providers have had coliform monitoring violations since 2000. Notably, Plymouth has had 17 separate monitoring violations since 1993—significantly more than the other providers.

Potential vulnerabilities in drinking water sources are evaluated by California DPH. Critical vulnerability scores (15 or higher) for the drinking water providers are shown in Table 4-13.

Table 4-13: Source Water Vulnerabilities

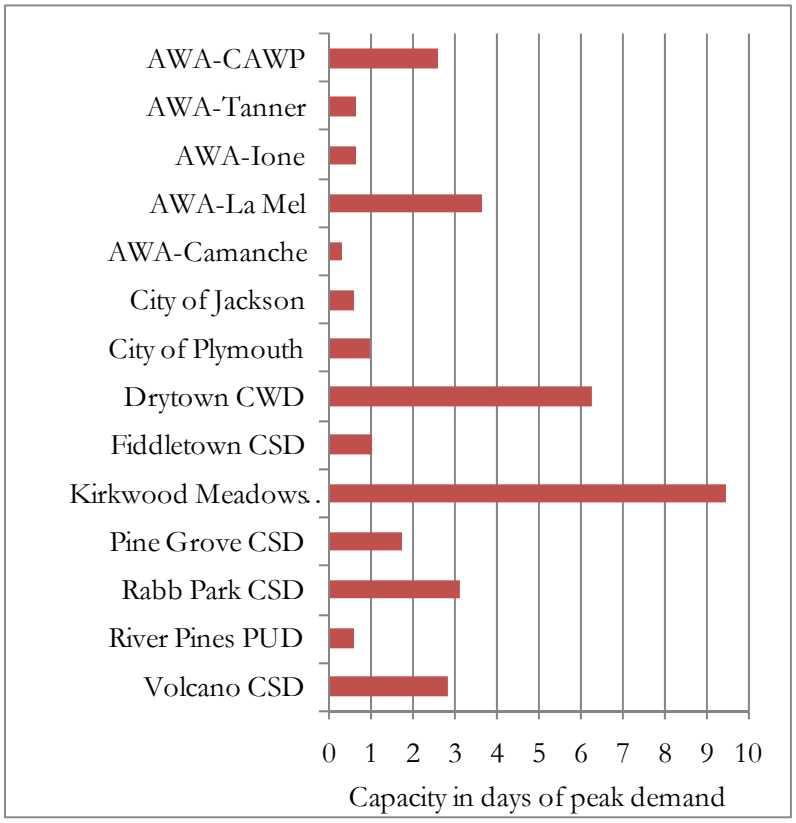
Water System	Wells	Source	Vulnerabilities
AWA-Buckhorn[1]	0	Surface Water	Utility stations, managed forests, machine shops, septic systems, parks, recreational areas, storage yards, storm drainage points
AWA-Ione[1]	0	Surface Water	Recreational areas, pesticides/fertilizers, grazing
AWA-Tanner[1]	0	Surface Water	Recreational areas, pesticide/fertilizer/petroleum storage, grazing
AWA-Camanche	3	Groundwater	Gas stations, wastewater treatment plant discharges, animal operations
AWA-La Mel	2	Groundwater	Septic systems, agricultural drainage
City of Plymouth	2	Groundwater	Mining, agriculture drainage, septic systems, irrigation
Fiddletown CSD	1	Groundwater	*No vulnerability assessment is available*
EBMUD-Camanche North Shore	3	Groundwater	Gas stations, sewer collection, RV and recreational facilities
JVID Concessionaire-Lake Amador Recreation System	0	Surface Water	Airports, gas stations, chemical processing and storage, dry cleaners, landfills, contaminent plumes, metal manufacturing, mining, septic systems, leaking storage tanks, wastewater plant discharge
Kirkwood Meadows PUD	4	Groundwater	Wastewater treatment plant, sewer collection system, chemical processing/storage
Preston Youth Correctional Facility[1]	0	Surface Water	Recreational areas, pesticides/fertilizers, grazing
River Pines PUD	2	Groundwater	Gas stations, septic systems - high density
Volcano CSD	2	Groundwater/ surface influence	Mining operations, septic systems - low density, wells - agricultural/irrigation

Source: California Department of Health Services, Drinking Water Source Assessment and Protection Program
Notes:
(1) Assessment does not indicate vulnerabilities less than a cumulative score of 17.

WATER RESERVES

Urban water suppliers are expected to address catastrophic disruptions of water supplies with plans reviewing the vulnerability of source and delivery and distribution systems to events such as regional power outages and system failures.

Figure 4-14: Water Storage Capacity



A majority of the systems have one intertie with the AWA distribution system. Those systems with no interties with outside systems include the City of Plymouth, Fiddletown CSD, Kirkwood Meadows PUD, River Pines PUD, and Volcano CSD. Plymouth plans to join the AWA system upon completion of the Plymouth Pipeline.

In the event of an emergency that limited or stopped a providers supply of water, the system would rely on stored water in the short term. Figure 4-14 shows the number of days of water storage that each provider maintains given peak day flows.

The water providers in Amador County had a median of 1.4 days of stored water for emergency purposes. Those providers with less than one day of water storage include AWA's Tanner, Ione and Camanche systems, the City of Jackson and River Pines PUD. Kirkwood Meadows PUD has significantly more water storage than other providers, most likely due to the remote and isolated location of the District.

Jackson reported a need for additional storage capacity for emergency water failures. The City would like to replace the 1.3-mg Martell reservoir with a larger above-ground welded steel tank of approximately 2.5 mg by 2018. Based on informal cost estimates, the City reported that such a tank would cost about $1.2 million.[109] Plymouth has identified a need for additional storage in its capital improvement plan, but due to significant funds needed for the Plymouth Pipeline, the City has postponed construction of the additional storage. Fiddletown and Rabb Park CSDs also identified a need for additional storage, but had no formal plans for capital outlays in the near future. It would be prudent for FCSD to have additional storage capacity as it has no interties with other systems.

[109] Interview with Max Godde, City of Jackson, Water Superintendent, June 4, 2008.

MANAGEMENT

While public sector management standards do vary depending on the size and scope of the organization, there are minimum standards. Well-managed organizations evaluate employees annually, prepare a budget before the beginning of the fiscal year, conduct periodic financial audits to safeguard the public trust, maintain relatively current financial records, periodically evaluate rates and fees, plan and budget for capital needs, conduct advance planning for future growth, and make best efforts to comply with regulatory requirements.

Table 4-15: Water Agency Management Practices

	AWA	Jackson	Plymouth	Drytown CWD	East Bay MUD	Fiddletown CSD	Jackson Valley ID	KMPUD	Pine Grove CSD	Rabb Park CSD	River Pines PUD	Volcano CSD
Evaluate employees annually	A	A	A	N	A	N	A	A	A	N	A	I
Prepare timely budget	A	A	A	A	A	N	A	I	A	A	A	A
Periodic financial audits	A	A	I	I	A	N	A	A	A	A	I	A
Current financial records	A	A	A	A	A	A	A	A	A	A	A	A
Evaluate rates	A	A	A	A	A	A	I	I	A	A	A	A
Capital planning	A	A	A	I	A	N	I	I	I	I	I	I
Advance growth planning	A	A	A	N	A	N	N	N	A	I	N	I
Compliance Efforts	I	A	I	A	A	A	A	A	I	A	I	A

Note:
A = Practiced adequately, I= Practiced but improvement needed, N= Not practiced, - = Not Applicable

An evaluation of the adequacy of management practices is shown in Table 4-15. The first four indicators are self-explanatory. Adequate evaluation of rates and fees means updating water rates since 2003. Adequate capital planning would involve a multi-year capital improvement plan (or comparable planning effort) for capital replacement and, if relevant, expansion. Advance growth planning is adequate when it discloses existing capacity and anticipated needs throughout the existing service area and SOI. Efforts to comply with regulatory requirements are measured by the occurrence of any health violations since 2005 as reported by the EPA.

Of the 12 providers, AWA, Jackson, Plymouth, East Bay MUD, Jackson Valley ID, and KMPUD are professionally staffed and managed by full-time personnel. The professionally staffed agencies generally demonstrate best management practices. The other districts rely on part-time employees, board members, and contract services to perform their functions; consequently, many of the management practices are less exercised.

A majority of the providers evaluate employee performance at least annually. Volcano CSD does not evaluate the general manager through formal annual review, but instead reported informal monthly evaluations at the regular board meetings. Drytown CWD, Fiddletown CSD and Rabb Park CSD do not practice employee evaluations, formal or otherwise.

With respect to financial management, a majority of the providers reported completing annual budgets, with the exception of Fiddletown CSD. KMPUD had no yet adopted a budget after the beginning of its fiscal year. Of the providers, all perform periodic or occasional financial audits, with the exception of Fiddletown CSD. Drytown CWD and River Pines PUD perform occasional

audits on an irregular basis. River Pines plans to begin annual financial audits as of FY 07-08. Plymouth reported that it performs annual audits; however, the most recent audit was completed in FY 03-04. All of the providers were able to provide up-to-date financial records.

A majority of the providers have updated their rates within the last five years, with the exception of Jackson Valley ID and Kirkwood Meadows PUD, which last updated their water rates in 1991 and 1984 respectively.

Only AWA, Jackson, Plymouth, and East Bay MUD have adopted formal capital improvement plans. Pine Grove CSD capital needs are addressed in its public facilities plan; although a funding timeline is not adopted. All other providers reported planning for capital improvement needs on an annual basis in the budgets, with the exception of Fiddletown CSD, which does not produce an annual budget.

Five of the providers, including AWA, Jackson, Plymouth, East Bay MUD and Pine Grove CSD have completed comprehensive advanced growth planning to date. Rabb Park and Volcano CSDs have performed informal growth planning, but have not begun the process of producing comprehensive planning documents. All other providers have not completed any planning for future growth, as many of the rural providers are in areas with minimal growth and little opportunity for future expansion.

Of the domestic water providers, only AWA and Pine Grove CSD have had health violations since 2005. While Plymouth has not had any health violations in recent years, it has had 17 monitoring and sampling violations since 1993, which is significantly more than any other provider.

LOCAL ACCOUNTABILITY AND GOVERNANCE

Table 4-16: Water Agency Accountability and Governance Measures

	AWA	Jackson	Plymouth	Drytown CWD	East Bay MUD	Fiddletown CSD	Jackson Valley ID	KMPUD	Pine Grove CSD	Rabb Park CSD	River Pines PUD	Volcano CSD
Contested election since 1994	✓	✓	✓	×	✓	×	✓	✓	×	×	✓	✓
Constituent outreach activities	✓	✓	✓	×	✓	✓	✓	✓	✓	×	×	✓
MSR Disclosure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note:
✓ = Occurred or adequately practiced, O = needs improvement, × = Did not occur or not practiced

Accountability of a governing body is signified by a combination of several indicators. The indicators chosen here are limited to: 1) constituent interest in the agency's activities as indicated by the rate of contested elections, 2) agency efforts to engage and educate constituents through outreach activities in addition to legally required activities such as agenda posting and public meetings, and 3) transparency of the agency as indicated by cooperation with the MSR process and information disclosure. These measures are shown in Table 4-16.

Eight of the 12 agencies have had contested elections in the last 15 years, demonstrating a general public interest in the agencies' activities and services. Drytown CWD, Fiddletown CSD, Pine Grove CSD, and Rabb Park CSD had little interest in participation on the agency's governing

body and lacked constituent interest; consequently there have been no contested elections at least since 1994 and the governing body members have been appointed by the Board of Supervisors.

All agencies prepare and post meeting agendas and make minutes available as required. Additional outreach efforts include websites, newsletters, updates enclosed with bills, articles in community newspapers, distribution of educational materials, and televising of meetings. AWA, Jackson, Plymouth, East Bay MUD, Kirkwood Meadows PUD, and Volcano CSD maintain websites where public documents can be posted. Pine Grove CSD also maintains a page on the Pine Grove community website; however, documents are not available from the site. Plymouth, AWA, Kirkwood Meadows PUD, Pine Grove CSD, distribute regular newsletters. Jackson Valley ID and Volcano CSD mail constituents on issues at hand and include information with water bills. Jackson and KMPUD distribute information to local media outlets or contribute to the community newspapers. KMPUD also televises regular board meetings on a community channel. AWA distributes educational materials regarding conservation. Drytown CWD, Rabb Park CSD and River Pines PUD do not perform additional constituent outreach activities.

Each of the agencies demonstrated accountability in its disclosure of information and cooperation with LAFCO. All providers disclosed a majority of the information that was requested by LAFCO relating to water service.

SHARED FACILITIES

FACILITY SHARING STATUS

AWA practices extensive facility sharing with other water providers. The Agency shares its treatment plants and transmission pipelines by providing wholesale water to independent water purveyors, including Jackson, DCWD, Mace Meadows Water Association, PGCSD, and RPCSD. The Agency also provides maintenance services of varying degrees to Plymouth, Drytown CWD, Pine Grove CSD, River Pines PUD, and Volcano CSD, as previously discussed. In addition, the Agency reported that it has on occasion shared equipment and materials with other purveyors.

JVID cooperated with DPH in evaluating alternative water sources for domestic water users in the service area. JVID also relies on EBMUD for releases of Mokelumne River water to its service area.

Both KMPUD and PGCSD open their administration facilities for use by other community organizations and agencies. In addition, PGCSD rents out space on the top of one of its storage tanks for a cellular tower.

FCSD reported no facility sharing practices.

OPPORTUNITIES

The following opportunities for future facility sharing were identified:

- In order to meet current and future capacity needs of the Tanner and Ione treatment plants, AWA is planning to expand the Tanner plant for use in both areas and eliminate the Ione plant.

- To substitute surface water for groundwater in the Lake Camanche area, AWA is collaborating on a shared regional water treatment plant with EBMUD and Calaveras County Water District.

- Plymouth is in the process of planning for the Plymouth Pipeline in conjunction with AWA. Once completed, the City will receive treated water from the AWA Tanner Treatment Plant. The pipeline will be used by AWA to serve other developments and communities. There is a possibility for extension of the pipeline to DCWD.

- AWA has proposed an intertie with the EBMUD system in the Lake Camanche area for emergency backup.

- AWA is considering substitution of recycled water for a portion of JVID's Mokelumne River water right, which involves sharing of JVID facilities with AWA for wastewater disposal purposes.

- There may be opportunities for RPPUD to share equipment with service providers in El Dorado County.

REGIONAL COLLABORATION

In 2006, several water purveyors in Amador and Calaveras counties participated in the Integrated Regional Water Management Plan (IRWMP). In conjunction with the IRWMP process, a memorandum of understanding forming the Mokelumne/Amador/Calaveras IRWM region was signed by AWA, Amador County, ARSA, Calaveras CWD, EBMUD, and the cities of Jackson, Plymouth and Sutter Creek.

More recently, AWA, in conjunction with EBMUD and PG&E, jointly financed the replacement of the Amador Canal with a pipeline that is anticipated to eliminate 3,000-6,000 afa in seepage losses from the prior earthen ditch canal. Until AWA needs its full 15,000 af of entitlement, which is currently estimated to be approximately 2030, the conserved water will be available to PG&E and EBMUD for additional hydropower generation and as additional inflow to Pardee Reservoir.[110] The water conserved by this project will be available to EBMUD in most years for diversion into the Mokelumne Aqueduct or through the Pardee and Camanche power plants.

[110] EBMUD, *Summary Financial Information Statement*, FY 2007, p. 14.

FINANCING

The financial ability of agencies to provide services is affected by available financing sources. This section identifies the revenue sources currently available to the service providers, provides a comparison of water rates, and assesses the financial ability of agencies to provide services.

FINANCING CONSTRAINTS

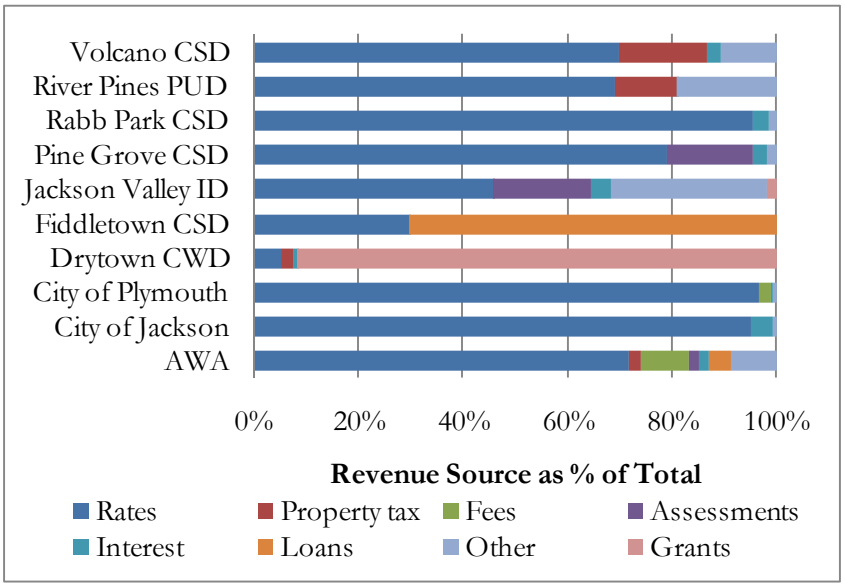
The boards of each of the public sector water providers are responsible for establishing service charges. Service charges are restricted to the amount needed to recover the costs of providing water service. The water rates and rate structures are not subject to regulation by other agencies. The agencies can and often do increase rates annually. Generally, there is no voter approval requirement for rate increases or for the issuance of water revenue bonds.

Similarly, connection fees for the public sector water providers are established by the respective boards to recover the costs of extending infrastructure and capacity to new development. The fees must be reasonable and may not be used to subsidize operating costs.

Water providers must maintain an enterprise fund for the water utility separate from other funds, and may not use water utility revenues to finance unrelated governmental activities. Local agencies providing water services are required to maintain separate enterprise funds to ensure that water-related finances are not commingled with the finances of other enterprises.

Financing Sources

Figure 4-17: Water Financing Sources, FY 06-07

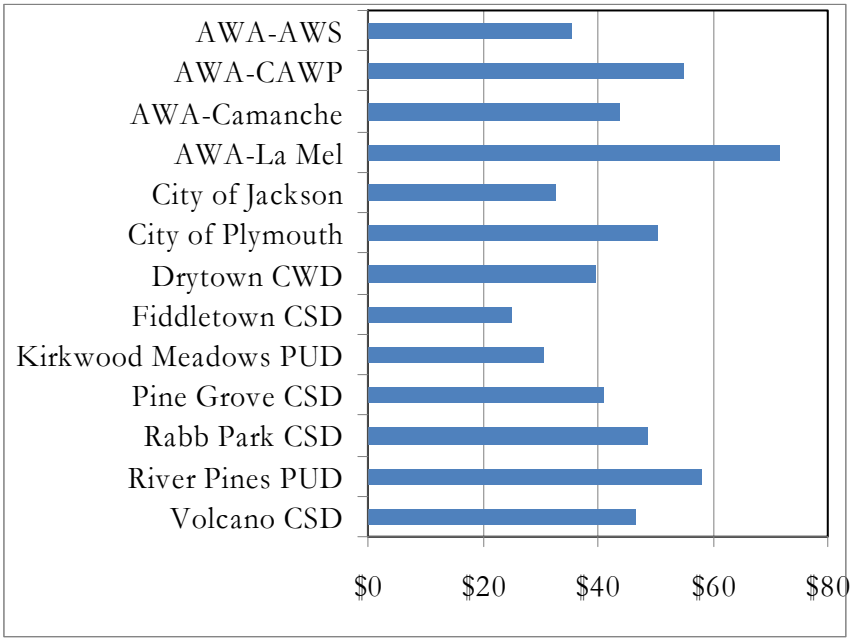


The primary financing source for water providers in Amador County is water rates paid by water users, comprising a median of 71 percent of revenues for all providers. Other financing sources include interest revenue and property taxes. Capital financing sources include connection fees, grants, loans and bonds.

Five of the providers—AWA, Drytown CWD, Jackson Valley ID, River Pines PUD and Volcano CSD—received property tax revenues that support their water operations. Property taxes made up between two and 17 percent of these agencies' revenues in FY 06-07.

Water Rates

Figure 4-18: Domestic Monthly Water Rates, FY 07-08



Domestic water rates have been standardized as monthly charges for residential consumption of 250 gallons per day or 7,500 gallons per month in Figure 4-18. Of the 10 domestic providers shown in the figure, the median domestic water rate in Amador County is $44 per month for a single family dwelling unit. Domestic water rates are lowest in Fiddletown CSD at an average of $25 per month. AWA in the La Mel system charges significantly higher rates than the countywide median at $72, most likely due to the remote nature and small size of the system.

All of the domestic providers meter deliveries to some degree and charge rates based on metered consumption. AWA, Jackson, Fiddletown CSD, Pine Grove CSD, and Volcano CSD have structured their water rates to encourage conservation by charging progressively higher rates for higher usage levels. AWA is in the process of metering all connections; connections that currently have meters are charged based on usage. Fiddletown CSD monitors meters and charges conservation rates during the peak demand period from June to October. During non-peak periods, FCSD charges a flat fee and does not track the flow to each meter.

JVID irrigation rates are based on the type of crop being cultivated and its average water usage. Rates range from $32.90 per acre for vineyards to $65.90 per acre for alfalfa. Customers pay lower rates if they pump directly from the creek, and pay higher rates for water pumped to a distribution pond through a pipeline. Customers outside the boundaries pay higher water rates, but do not pay assessments.

A majority of the providers update rates periodically every few years, while the City of Plymouth, Drytown CWD reported annually reviewing and updating rates when needed. JVID and KMPUD have not updated their rates in the last 15 years.

Connection Fees

Table 4-19: Water Connection Fees, FY 07-08

Agency	Connection Fee
AWA-AWS	$10,250
AWA-CAWP	8,750
AWA-Camanche	11,310
AWA-La Mel	4,190
City of Jackson[1]	9,080
City of Plymouth[2]	4,125
Drytown CWD	13,400
Fiddletown CSD	3,000
Jackson Valley ID	Cost[3]
Kirkwood Meadows PUD	3,033
Pine Grove CSD	10,240
Rabb Park CSD	5,540
River Pines PUD	7,500
Volcano CSD	5,100

Notes:
(1) Jackson collects $2,060 for City infrastructure and $7,020 for AWA infrastructure.
(2) Plymouth collects a connection fee of $125 and a development impact fee of $4,000 for development of the Arroyo Ditch.
(3) JVID charges the cost of parts and installation of connection.

Domestic connection fees are in the range of $500 to $13,400 in Amador County for service in FY 07-08. The median connection fee countywide is $7,500. The lowest fee of $4,125 per dwelling unit is charged by the City of Plymouth. Drytown CWD charges the highest connection fee among the providers. For irrigation connections, JVID charges the cost of parts and time for installation of the connection.

Only AWA and Plymouth received revenue from connection fees in FY 06-07. Revenues from connection fees are anticipated to increase in the near future as planned and proposed developments throughout the County are approved and begin construction. In lieu of connection fees, three of the providers—AWA, Drytown CWD and Fiddletown CSD—relied on grants and loans for infrastructure needs during that FY.

Financial Ability to Provide Services

Financing is generally adequate to deliver existing water service levels for AWA, Jackson, KMPUD, JVID, PGCSD, RPCSD, and VCSD.

While current services levels are adequately financed, future service levels may suffer from a lack of capital financing. Water rates for RPCSD and VCSD do not cover capital replacement costs, as they were set only to fund operating costs. Additional capital financing will be required to serve additional connections in the future for RPCSD and VCSD. Potential capital revenue sources are grants, loans, bonds and connection fees. Connection fees should be assessed and updated to ensure adequate service to additional connections in the future.

The City of Jackson faces public opposition in increasing its water rates. The City's rates have not been updated in four years. To maintain adequate service levels in the future, the City should evaluate and increase rates on a regular basis. Although Plymouth and FCSD reported sufficient financing to provide water services, analysis of service adequacy (discussed previously) indicates that an assessment and update of rates, fees and efficiency may be necessary to improve service levels for these agencies.

Financing is not adequate to provide services for RPPUD and DCWD. RPPUD faces challenges in regulatory compliance. Financial reserves were inadequate, as indicated by the District's emergency cash flow and related borrowing needs in FY 07-08. RPPUD rates have not been increased in several years, and need to be periodically evaluated and updated with inflation triggered rate increases to improve financial ability to provide services. Although DCWD recently

adopted an aggressive rate increase to cover AWA rate changes, it operates on a minimal budget that does not include financing for current or future capital costs.

GOVERNANCE ALTERNATIVES

This section discusses issues and problems with respect to the current organization of water service in Amador County and, in light of anticipated growth, with its future organization. It identifies alternatives to the current government structure of service providers.

ANNEXATION OF SERVICE AREAS OUTSIDE BOUNDS

Annexation of extraterritorial service areas is an option that would promote logical boundaries. Since 1991, service providers have been required by law to obtain LAFCO approval to serve territory outside their boundaries.[111]

There are several water purveyors presently serving territory outside their boundaries:

- Jackson: As a result of a condemnation ruling, which transferred water facilities to the City, Jackson provides water service outside of its bounds to 144 connections in Martell south of the railroad tracks. At the time the water facilities were transferred to the City, the service area was defined as an expansive area extending beyond the City's boundaries in all directions. However, water mains have not been extended beyond the city limits in the east and south and the City is not providing water service to those areas.

- Plymouth: The City serves three connections outside of the City limits, two located on SR 49 and one on Old Sacramento Road.

- Fiddletown CSD: The District provides water services to seven connections outside of the District's bounds, concentrated in the western portion of the District.

- Jackson Valley ID: JVID also serves areas outside its bounds, including 259 agricultural acres, the 209-home Oaks Mobile Home Park and a cement factory located nearby on Jackson Valley Road. The District detached the mobile home park in 1992 and is not interested in annexing it again.

- River Pines PUD: The District's service area extends beyond its boundary area; there are 19 connections served across the Cosumnes River in El Dorado County. In addition, there are five standby accounts outside bounds.

- Volcano CSD: VCSD serves four active connections located on Main Street north of District bounds. Two of these properties were connected in the 1960s, and two were connected in the late 1990s. There are also three inactive connections outside bounds.

[111] Government Code §56133. The requirement does not apply to contracts for raw water transfers or sale of surplus water for agricultural purposes.

CONSOLIDATION OF RABB PARK CSD WITH AWA

Rabb Park CSD has faced challenges in the past in providing adequate services. The District is considering consolidation with AWA in order to increase service levels. AWA reported that it is amenable to consolidation as well. The two agencies have begun discussions regarding the possible reorganization. The benefit of consolidation to the community of Rabb Park would be enhanced service levels, as a result of economies of scale. Drawbacks to consolidation may be reduced access to the provider for community input and increased water rates.

DISSOLUTION OF INACTIVE AGENCIES

Dissolution of inactive water providers is a government structure option. Due to a lack of water sources Willow Springs Water District discontinued sales over 20 years ago. While the district would like to continue services, there are no plans for new water sources to enable the District reinitiate retail services in the near future.

CSA 1 previously provided water services, but has only been acting as a financing mechanism for Amador Fire Protection District (AFPD). Dissolution of CSA 1 is an option, upon permanent allocation of the CSA's property tax revenues to AFPD.

CSA 2 is inactive and has not provided services since 2003. There are no plans for the CSA to begin operations. A logical governance structure option would be to dissolve this CSA.

LEGAL AUTHORIZATION FOR THE CSA TRANSFERS

The 2003 transfer of County Service Areas from the County to AWA does not appear to have been approved by LAFCO, as required. A governance option is to formalize the transfer.

CLARIFICATION OF THE JACKSON AND AWA SERVICE AREAS

There are overlapping water service areas in the Martell community. AWA and the City of Jackson provide water retail services within the Martell area. The AWA water service area overlaps the City of Jackson's water service area, which had transferred to the City from a private company. Although AWA's water service area does not overlap the City of Jackson's existing SOI, there is a lack of clarity on water service areas.

AWA is authorized by its principal act to distribute water anywhere in the County, except that its principal act prevents it from restricting or superseding rights or powers of cities and special districts. LAFCO's authority to clarify AWA service areas is constrained by the countywide nature of its bounds. A governance structure option is to adopt a "limited service SOI" for AWA which excludes established water retail service areas of other agencies. Accountability for community service needs could be enhanced by clarification through the legislature or the courts.

ANNEXATION OF PLANNED AND PROPOSED DEVELOPMENTS

DCWD and PGCSD have expressed interest in annexing planned and proposed developments outside of their boundaries.

The Thomas Estate is partially within DCWD bounds and has indicated interest in annexing the remaining portion to the District. The District reported that it expects to have enough capacity to serve the development. The District reported that it may be interested in expanding its service area by annexing interested areas; however, it indicated that expansion may not be feasible due to prohibitively expensive costs to extend infrastructure. Government structure options include annexation of a portion of the proposed Thomas Estate subdivision located outside District bounds.

There are at least three planned or proposed residential developments located outside of but adjacent to PGCSD bounds in the southeast that the District has identified. A government structure option is the annexation of the three developments where the District hopes to provide water service.

In response to this option, AWA suggested that the service provider for future annexations be determined based on which agency's facilities are best suited to serve the proposed development.

ANNEXATION TO DCWD

Eight non-contiguous parcels outside of the DCWD bounds, on the western side of SR 49, along Varia Ranch Road, have indicated interest in annexation to DCWD, because their private wells are drying up.

A government structure option is annexation of adjacent parcels with declining well yields; however, it may be cost-effective for the affected parcels to connect to the District's system and the District may lack the capacity to serve this area.

RECYCLED WATER DISTRICT FORMATION

In order to promote use of recycled water, an option is to create a special district to coordinate recycled water production and use in the County and five cities.

This option was identified by AWA. AWA views recycled water as a resource which can significantly extend water supplies to accommodate planned growth in the County beyond 2030. This can be accomplished by providing recycled wastewater to JVID and substituting raw water with reclaimed water. These transferred rights would be utilized to permit storage at Lower Bear Reservoir. In order to provide sufficient supplies to JVID, AWA recognizes the need for all wastewater treatment providers to work together and regionalize wastewater recycling to achieve this goal.

5. WASTEWATER

This chapter reviews wastewater services in Amador County, including how these services are provided by cities, special districts and other providers not under LAFCO jurisdiction. The chapter addresses questions relating to growth and population projections, current and future service needs, infrastructure needs, service adequacy, and financing. Government structure options are identified for local agencies under LAFCO jurisdiction.

The chapter focuses on those agencies collecting, treating and disposing wastewater. Wastewater is the water that drains from sinks, showers, washers, and toilets. Wastewater includes water used for outdoor purposes, such as draining chlorinated pool water, commercial car washes and industrial processes. Underground sanitary sewer pipelines carry sewage to a wastewater treatment plant, where it is treated, sanitized and discharged. Private septic systems are not the focus.

OVERVIEW

This section provides an overview of wastewater providers, service areas and unserved areas where septic systems are used.

Fourteen providers service Amador County, as shown in Table 5-1.

Certain systems are inter-connected. The City of Sutter Creek provides wastewater treatment to Amador City and Amador Water Agency's Martell service areas; their wastewater effluent is discharged by Amador Regional Sanitation Authority (ARSA). Both ARSA and Mule Creek State Prison rely on City of Ione treatment and disposal facilities. The remainder of the systems are independent and are not inter-connected.

For a map of providers and wastewater facilities, see Figure 5-2.

Table 5-1: Wastewater Service Providers, 2007

Agency	Connections	Collection	Treatment	Disposal	Maintenance
Amador Regional Sanitation Authority				✓	✓
Amador City	115	✓			✓
City of Sutter Creek	1,090	✓	✓		✓
AWA - Martell	173	✓			✓
City of Ione	1,434	✓	✓	✓	✓
City of Jackson	1,721	✓	✓	✓	✓
City of Plymouth	454	✓	✓	✓	✓
Amador County	50	✓	✓	✓	
AWA Satellite Systems	298	✓	✓	✓	✓
AWA Lake Camanche	374	✓	✓	✓	✓
East Bay MUD	NP	✓	✓	✓	✓
Fiddletown CSD	50				
Jackson Rancheria	1	✓	✓	✓	✓
Kirkwood Meadows PUD	204	✓	✓	✓	✓
Mule Creek State Prison	1	✓	✓	✓	✓
River Pines PUD	184	✓	✓	✓	✓

East Bay MUD

River Pines PUD

City Sphere

City Limits

AWA Wastewater Service Area

Major Water Bodies

Streams

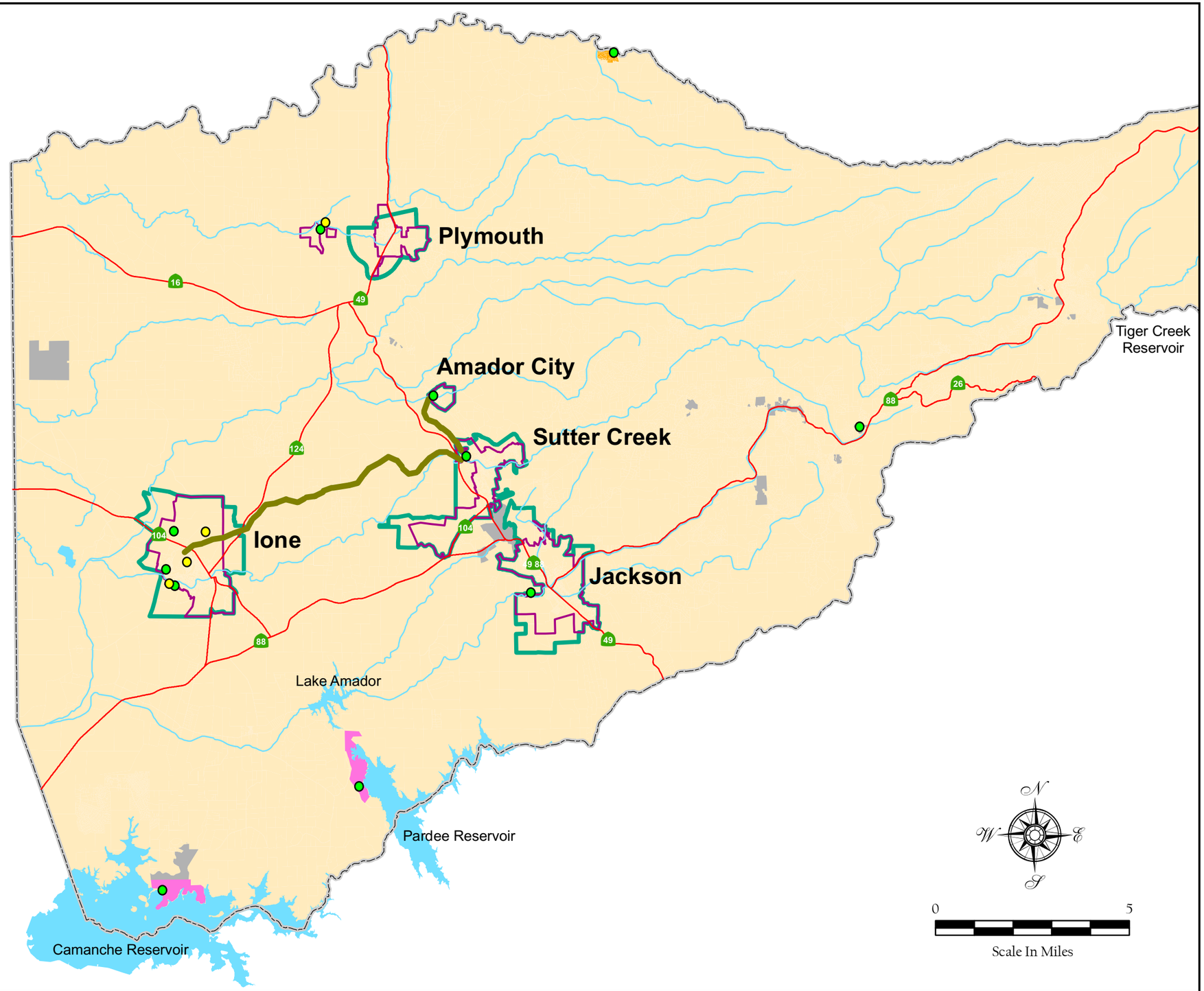
County Boundary

State Highway

WWTP

Ponds/Sprayfields

ARSA Regional Outfall



Map created by: Amador County GIS Division
810 Court Street, Jackson CA 95642 (209) 223-6591
Date: July 23, 2008

Amador County
Wastewater Service Map

SERVICE PROVIDERS

Amador City

Amador City provides wastewater collection services to 115 connections in its boundary area, and provides partial treatment before pumping the wastewater to the City of Sutter Creek for treatment. Sutter Creek provides secondary wastewater treatment and conveys the treated wastewater effluent to land disposal systems operated by the Amador Regional Sanitation Authority. The City inspects its treatment plant daily during the business week, but the automated plant is left unattended for the majority of the day and on weekends. Service is not provided outside of city limits.

Amador County

The County owns and inspects a community leach field system in the community of Fiddletown where there are 50 connections. The County formerly operated a wastewater system in River Pines; however, responsibility for that wastewater system transferred from the County to River Pines PUD in June 2008. The County is in the process of transferring ownership of the Fiddletown system to Fiddletown Community Services District for operation and maintenance.

Amador Regional Sanitation Authority

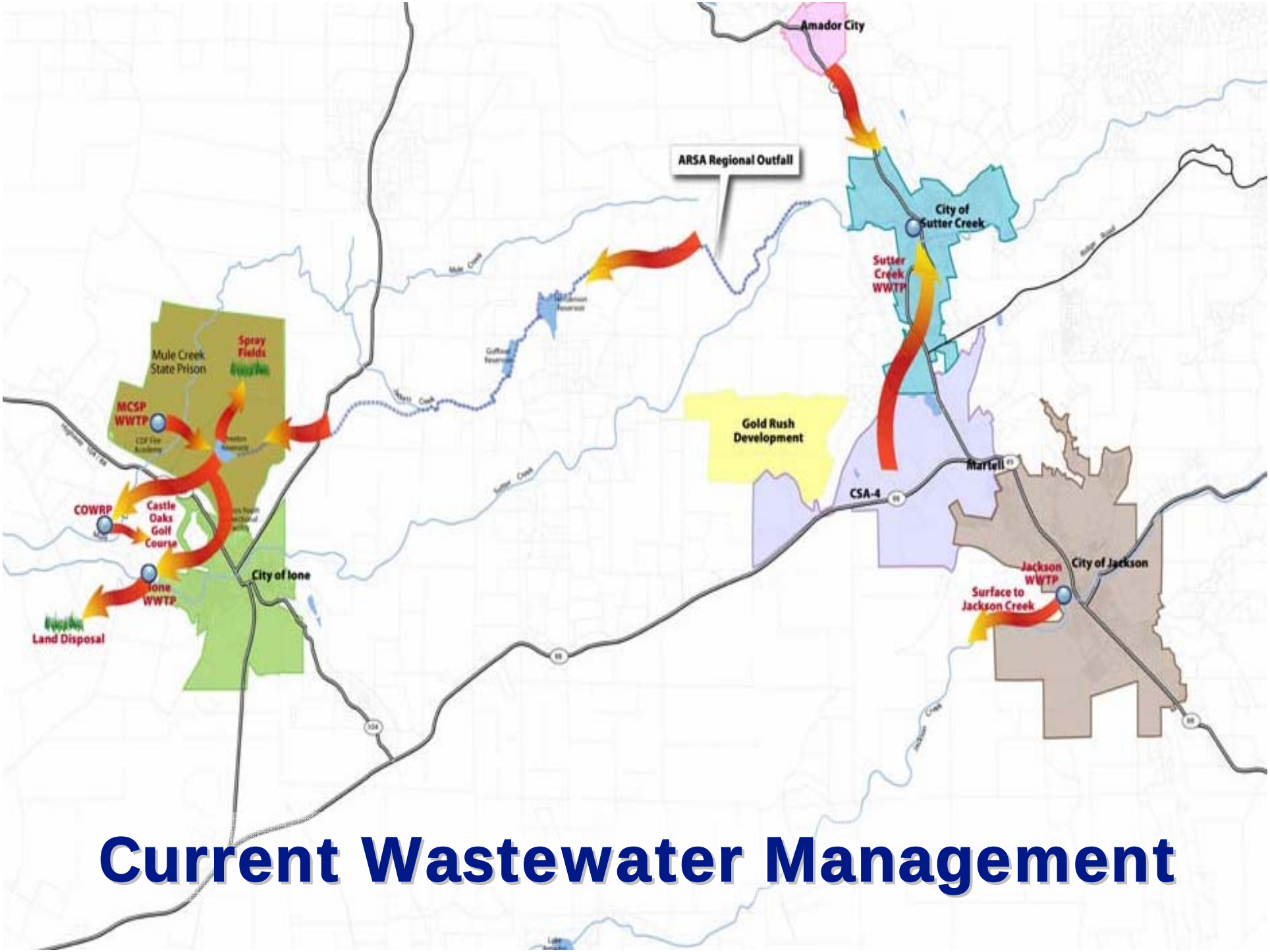
Table 5-3: ARSA Member Agencies

ARSA Member	Connections	Average Flow (mgd)
Amador City	115	0.024
City of Sutter Creek	1,090	0.300
Amador County - Martell	173	0.076

The Amador Regional Sanitation Authority (ARSA) is a joint powers agency (JPA) providing wastewater conveyance and disposal services to its member agencies: the City of Sutter Creek, the City of Amador and Amador County. All three member agencies contribute toward ARSA costs. Amador Water Agency is not an ARSA member, although it provides wastewater collection services to the Martell service area. The City of Sutter Creek is the largest member agency based on wastewater flow, and city staff also staffs ARSA. ARSA's powers are to design, construct and operate a regional outfall, and to finance, acquire, construct, manage, operate and maintain the outfall and other wastewater collection, treatment and transportation facilities. ARSA leases facilities and water rights from the California Department of Corrections and Rehabilitation.

The ARSA outfall originates at the Sutter Creek WWTP. Secondary treated wastewater effluent originating in Martell (operated by Amador Water Agency), Amador City and Sutter Creek is disposed through the outfall to the City of Ione for tertiary treatment and disposal. A portion of the effluent is used by ranchers along the pipeline for irrigation. ARSA agreed with the City of Ione and Mule Creek State Prison in 2007 to reduce its flows. ARSA plans to develop enough disposal capacity along the pipeline so it may cease discharging to Ione as early as 2013. ARSA, the City of Ione and Mule Creek State Prison are considering formation of another JPA related to wastewater disposal in the Ione area.

For a map of the respective wastewater flows of each of the ARSA members, the cities of Ione and Jackson, and Mule Creek State Prison, refer to Figure 5-4.



Current Wastewater Management

Amador Water Agency

Table 5-5: Communities with AWA Wastewater Service

	Connections Active	Standby	Collection	Treatment	Disposal	Maintenance
Lake Camanche	374	374	✓	✓	✓	✓
Martell	173	110	✓			✓
AWA Satellite Systems	298	108				
Eagle's Nest	9	5	✓	✓	✓	✓
Gayla Manor	57	0	✓	✓	✓	✓
Fairway Pines	62	52	✓	✓	✓	✓
Jackson Pines	74	5	✓	✓	✓	✓
Pine Grove	46	38	✓	✓	✓	✓
Surrey Junction	8	0	✓	✓	✓	✓
Tiger Creek Estates	4	4	✓	✓	✓	✓
Viewpoint Estates	4	1	✓	✓	✓	✓
Wildwood Estates	34	3	✓	✓	✓	✓

Amador Water Agency (AWA) provides wastewater collection, treatment and disposal services to 10 unincorporated communities shown in Table 5-5. AWA operates treatment plants in Lake Camanche Village and Gayla Manor, and operates leachfields for septic systems in the remainder of the AWA satellite systems.

The 173 connections in the unincorporated Martell community also receive wastewater collection services from AWA. The City of Sutter Creek provides wastewater treatment and ARSA provides wastewater disposal services to the Martell area.

By contract, AWA provides wastewater operations, maintenance and emergency services to other wastewater service providers, presently the City of Plymouth and River Pines PUD. AWA has provided contract services in the past to Kirkwood PUD, Amador County and the Oaks Mobile Home Park.

City of Ione

The City of Ione provides wastewater collection, treatment and disposal services to 1,475 connections, and recycled water to a local golf course. The City provides treatment and disposal services to Mule Creek State Prison and flows originating at the Preston Youth Correctional Facility and the CALFIRE Academy within City bounds.[112]

The City operates two treatment plants: a secondary plant discharges to ponds and a tertiary plant discharges via sprinklers as golf course irrigation. The tertiary plant's discharge site was formerly an ARSA discharge site at the Preston Youth Correctional Facility. ARSA and the prisons treat and dispose a portion of their flows, and discharge the remainder to Ione's facilities. Wastewater services are provided through a combination of City staff and private contractors.

[112] Service by the City of Ione is provided through an agreement between the City, ARSA and the California Department of Corrections and Rehabilitation. Mule Creek State Prison operates its own treatment plant and disposal spray fields. The prison discharges to the ARSA system, which in turn discharges to the City of Ione system.

City of Jackson

The City of Jackson provides wastewater collection, treatment and disposal services to 1,650 connections, of which 20 are located outside City bounds. The City owns and operates a wastewater treatment plant (WWTP), and inspects, cleans and repairs sewer collection infrastructure in its service area, such as pipes, manholes and lift stations. The City discharges tertiary treated effluent into Jackson Creek, which is used downstream by Jackson Valley Irrigation District (JVID). The City also conducts related billing, collection and accounting activities. The City contracts with a private company for CCTV inspection of the sewer system.

City of Plymouth

The City of Plymouth provides wastewater collection, treatment and disposal services to 454 connections, of which four connections, including a 24-unit mobile home park, are outside its bounds. The City contracts with AWA for operation of wastewater collection, treatment and disposal facilities. The City's wastewater facility provides primary treatment of its wastewater flows prior to discharging the treated effluent through land disposal methods.

City of Sutter Creek

The City of Sutter Creek provides wastewater collection and treatment services to 1,090 connections.[113] In these areas, the City inspects, cleans and repairs sewer collection infrastructure, such as pipes, manholes and lift stations, and conducts related billing, collection and accounting activities. Amador City and AWA's Martell service area are served by the City's treatment plant, and share the ARSA outfall and disposal facilities.

Sutter Creek conveys treated wastewater effluent to land disposal systems operated by ARSA. As a member agency of ARSA, the City shares wastewater disposal facilities with Amador City, AWA's Martell service area, Mule Creek State Prison, and the City of Ione.

East Bay Municipal Utility District

East Bay Municipal Utility District (EBMUD) operates wastewater collection, treatment and disposal services at its Camanche and Pardee recreation areas. Two wastewater treatment plants in the Mokelumne watershed serve recreation area visitors and residents. EBMUD serves approximately 200 mobile homes and 300 campsites in the recreation areas. An annual average of 26 million gallons (mg) of wastewater is generated in the watershed, 98 percent of this is used in the recreational areas.[114] The Camanche North Shore plant is a three-pond treatment system with two overflow backup ponds, and a sixth storage pond. Treated effluent is then sprayed during irrigation season in a five-acre land disposal area. Alameda LAFCO has jurisdiction over EBMUD.

[113] Although the City provides wastewater treatment services to the City of Amador and CSA 4, the City does not maintain the wastewater collection systems in these communities; hence, the City is not a wastewater collection service provider to the City of Amador and CSA 4.

[114] EBMUD, *Mokelumne Watershed and Facilities Assessment Report*, November 2007, p. 5-15.

Fiddletown Community Services District

The community of Fiddletown relies on individual septic systems for wastewater disposal. Certain parcels along Dry Creek and parcels too small for a contained onsite septic system drain through a collection system into a community leach field. There are 50 properties served, of which four are located outside Fiddletown Community Services District's (FCSD) bounds. Property owners are responsible for the maintenance of the onsite septic systems which provide a majority of the treatment process. The septic systems then connect to the community collection system. The County owns and inspects the community leach field system located within FCSD bounds. FCSD collects all wastewater rates related to the system; although the District only provides billing and administration for the system. FCSD was approved to provide wastewater services in 2006 by LAFCO.[115] LAFCO has twice approved the annexation of parcels outside the District, but the approvals are void due to failure by the District and LAFCO staff to complete the proceedings. The County hopes to transfer ownership of the leach field to the District, as FCSD is collecting system revenues and can fund the necessary improvements.[116] The District indicated that is amenable to taking over the system after the County has made any needed improvements.[117] The District also intends to again submit a proposal and complete annexation of the parcels currently receiving service outside of bounds.

Jackson Rancheria

The Jackson Rancheria Band of Miwuk Indians operates a wastewater reclamation plant to process waste generated at its casino and hotel located northeast of the City of Jackson. Treated effluent is disposed in leach fields and sprayfields, and sludge is disposed in a landfill. This service provider is not subject to Amador LAFCO jurisdiction.

Kirkwood Meadows Public Utility District

Kirkwood Meadows Public Utility District (KMPUD) collects, treats and disposes of wastes generated from 679 residential and commercial connections, including the Kirkwood Ski Resort. Approximately 30 percent of the connections are in Amador County, and the remainder are in Alpine County. The WWTP provides tertiary treatment and disinfection.[118] Treated effluent is disposed in subsurface leach fields and sludge is disposed in a landfill. Alpine LAFCO has jurisdiction over KMPUD.

River Pines Public Utility District

River Pines Public Utility District (RPPUD) provides wastewater collection, treatment and disposal services to 184 connections. The District primarily provides services directly with its own staff. The District personnel lack certification in maintenance of collection systems, and rely on AWA for contract services related to collection maintenance. Due to failing septic systems, in 1987,

[115] LAFCO Resolution 2006-03.

[116] Interview with Mike Israel, Environmental Health Department, Amador County, May 14, 2008.

[117] Interview with Jane O'Riordan, FCSD, January 29, 2008.

[118] WDR Order R5-2007-0125 Information Sheet.

the County planned, acquired easements, developed and owned a new wastewater system for the community. The system was transferred to RPPUD in 2008. RPPUD now owns the collection system and bears responsibility for all aspects of the wastewater system.

Inactive Agencies

There are three County Service Areas (CSA) that previously provided wastewater services but are now either inactive or provide minimal services, functioning primarily as a financing mechanism. CSAs 1,3 and 4 provided wastewater services to the communities of Silver Lake Pines, Tiger Creek Estates, Sierra Highlands, Camanche Village and Martell. In 2001, AWA began providing operations, maintenance, administration and accounting and billing for these CSA's wastewater systems.[119] AWA formed wastewater improvement districts in compliance with Proposition 218 requirements to collect wastewater rates from the former CSA areas,[120] and the County transferred ownership of all wastewater related assets to AWA for operation and maintenance including all property, equipment and specified account balances related to wastewater services. These CSAs have not provided wastewater related services since this transfer of assets, according to County financial records. CSA 1 continues to provide fire financing to AFPD, while CSA 3 is a bond financing mechanism. CSA 4 has not provided any services since 2003; although, it maintains a balance for drainage maintenance services.

Septic systems

Areas that do not lie within the service areas of these providers do not receive central wastewater treatment services, but rather rely on septic systems. There are approximately 9,700 residential septic systems throughout the County.[121] Septic systems are located on individual properties, provide treatment of wastewater, collect sludge, and discharge effluent into a leach field. Property owners are responsible for septic system maintenance and sludge disposal. Septic systems are allowed in most areas of the County only if there is no nearby public sewer system. Generally, a public sewer system is considered available if a sewer system or a building connection to a sewer system is within 200 feet of the building, in accordance with Section 713.4 of the Uniform Plumbing Code of the International Association of Plumbing and Mechanical Officials.

Septic systems do not remove pollutants to the extent wastewater treatment plants do. If septic systems are not properly designed, sewage may surface creating odors and health risks. Public health concerns include seepage into groundwater and surface water. Septic system maintenance and failure carry relatively high and potentially unexpected costs which may be unaffordable to some low-income residents.[122]

[119] AWA, *Asset Transfer Agreement*, September 17, 2003, p. 1.

[120] AWA, *Staff Report – County Service Area Asset Transfer Agreement*, September 25, 2003, p. 2.

[121] Authors' estimate based on estimated households in the County less the number of wastewater connections.

[122] EDAW, 2005.

SWRCB is in the process of developing new septic system regulations, which may greatly impact the cost of maintaining a private septic system. These new regulations are discussed further in the Service Adequacy section.

SERVICE DEMAND

This section provides various indicators of service demand, such as wastewater demand, the number of service connections, and projected demand. Please refer to Chapter 3 for population, growth projections and growth strategies.

DEMAND DRIVERS

Wastewater demand is affected primarily by growth in residential population and commercial development, and secondarily by factors such as water usage and conservation efforts. Many of the water demand drivers discussed in Chapter 4 are also wastewater demand drivers during dry periods. During dry weather, wastewater flows are less than potable water consumed. Water used for outdoor purposes, such as landscape, irrigation, firefighting, street cleaning, and residential car washing, does not flow into the wastewater system.[123]

The increased use of water-efficient plumbing fixtures reduces wastewater flows. Ultra-low flush toilets (ULFTs) use one-quarter as much water as older models. Washing machine replacement is effective in reducing wastewater flows. Conventional washers discharge about 42 gallons of water per load compared with 26 gallons for efficient new, frontloading washers.

Wastewater flow includes not only discharges from residences, businesses, institutions, and industrial establishments, but also infiltration and inflow. Infiltration refers to groundwater that seeps into sewer pipes through cracks, pipe joints and other system leaks. Inflow refers to rainwater that enters the sewer system from sources such as yard and patio drains, roof gutter downspouts, uncapped cleanouts, pond or pool overflow drains, footing drains, cross-connections with storm drains, and even holes in manhole covers.[124] Infiltration and inflow tend to affect older sewer systems to a greater degree. Infiltration and inflow rates are highest during or right after heavy rain. They are the primary factors driving peak flows through the wastewater system and a major consideration in capacity planning and costs.

Organic loading levels affect the wastewater treatment process. Organic loading originates from toilets and kitchen sink disposals and is the amount of organic matter in the wastewater. In addition to organic pollutants, wastewater entering a treatment plant may contain metals, nutrients, sediment, bacteria, and viruses. Toxic substances used in the home—motor oil, paint, household cleaners, and pesticides—or substances released by industries also make their way into sanitary sewers. Industries and commercial enterprises may produce high-strength wastewater or wastewater containing pollutants that could upset treatment processes.

[123] Although some drains in outdoor stairwells and yards connect to the wastewater system, most water used for outdoor purposes flows into the stormwater system.

[124] A sewer cleanout is a pipe rising from the underground sewer line to the ground surface with a removable cap; it is used to access the sewer line to clear blockages.

SERVICE CONNECTIONS

There are a total of 6,100 separate sewer connections in the County, as shown in Table 5-6. Of these, 87 percent were residential; commercial, industrial and institutional users accounted for 13 percent of sewer connections.

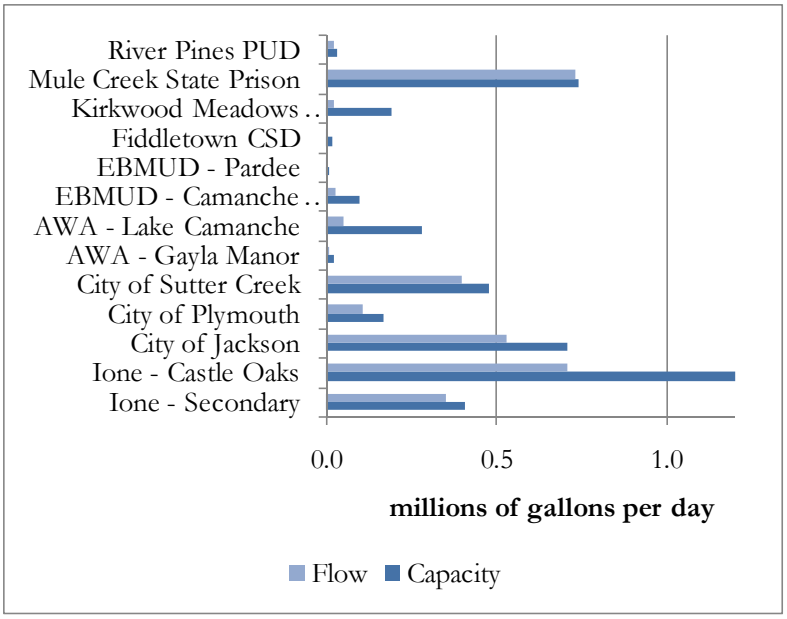
Table 5-6: Wastewater Connections, 2007

Service Area	Residential	Commercial	Industrial	Institutional	Total
Amador City	103	12	0	0	115
City of Ione	1,352	82	1	0	1,435
City of Jackson	1,460	255	6	0	1,721
City of Plymouth	393	41	0	20	454
City of Sutter Creek	972	118	0	0	1,090
AWA - Martell	83	90	0	0	173
AWA - Satellite Systems	269	29	0	0	298
AWA - Lake Camanche	374	0	0	0	374
East Bay MUD	NP	0	0	0	NP
Fiddletown CSD	50	0	0	0	50
Jackson Rancheria	0	1	0	0	1
Kirkwood Meadows PUD[1]	190	14	0	0	204
Mule Creek State Prison	0	0	0	1	1
River Pines PUD	179	3	0	2	184
Total	5,425	645	7	23	6,100

Note: (1) KMPUD connections exclude those located in Alpine County.

The City of Jackson and the City of Ione serve the most connections. Commercial, industrial and institutional users are concentrated in Jackson, Martell and Sutter Creek. The number of connections excludes those served by East Bay MUD in its recreation areas.

Figure 5-7: Wastewater Flow and Plant Capacity (mgd), 2007



WASTEWATER FLOWS

Dry Weather Flows

Each wastewater treatment plant has permitted capacity as determined by the RWQCB. Permitted capacity is typically defined as average dry weather flow (ADWF). At both the Ione and Sutter Creek secondary treatment plants, capacity at this time is less than permitted capacity.

As shown in Figure 5-7, dry weather flows of nearly all of the

wastewater providers are within the capacity of their treatment plants. Exceptions are the City of Ione's secondary treatment plant and the Mule Creek State Prison plant where existing flows are equivalent to capacity. At the Ione treatment plant, existing dry weather flows are within permitted capacity; however, due to elevated pollutant loads, flows absorb all of the actual plant capacity at this time. The City of Sutter Creek plans to replace the WWTP with a new plant on an adjacent site with capacity to accommodate growth; the expanded and upgraded WWTP is expected to be online by fall 2010. The City of Ione secondary WWTP needs major improvements to provide adequate capacity and comply with regulatory requirements; the City is considering its options, among which a preferred solution is to replace the secondary treatment facility with a new, larger facility to meet growth needs and treatment requirements.

Dry weather wastewater flows at the remainder of the treatment facilities are within the capacity of those systems. Flows at the City of Jackson and River Pines PUD treatment facilities are gradually approaching capacity constraints.

Table 5-8: Available Dry Weather Treatment Capacity, 2008

Treatment Plant	Remaining Treatment Capacity	Average Flow per Connection	Capacity in Connections
Ione - Secondary	60,000	244	246
Ione - Castle Oaks	490,000	NA	NA
City of Jackson	180,000	308	584
City of Plymouth	61,000	240	254
City of Sutter Creek	81,875	289	283
AWA - Gayla Manor	13,939	141	99
AWA - Lake Camanche	229,319	138	1,660
EBMUD - Camanche N.	70,000	NA	NA
EBMUD - Pardee	4,740	NA	NA
Fiddletown CSD	16,389	72	227
Kirkwood Meadows PUD	168,700	31	5,378
Mule Creek State Prison	10,000	NA	NA
River Pines PUD	11,000	130	84

The City of Jackson dry weather flows absorb 75 percent of its treatment capacity. There were 180,000 gpd in remaining dry weather capacity; the City has dry weather treatment capacity for approximately 584 future connections.[125] Growth would require the City to expand its treatment facility to accommodate increased flows. With an expansion capacity of up to 1.0 mgd, the WWTP site would not accommodate projected build-out wastewater flows of 2.4 mgd in the existing City bounds, and an additional WWTP facility would be needed.

The River Pines PUD flows absorb 69 percent of treatment capacity. The District has dry weather treatment capacity for approximately 84 future connections.[126] By comparison, there are 93 standby accounts for water service, indicating dry weather treatment capacity would accommodate nearly all of the potential growth in this community through build-out.

The City of Plymouth has remaining treatment capacity to accommodate 254 connections. By contrast, development proposals would add 901 residential units, not including any capacity needs at

[125] Capacity for future connections was calculated based on the existing average flow per connection (308 gpd) and the remaining dry weather treatment capacity.

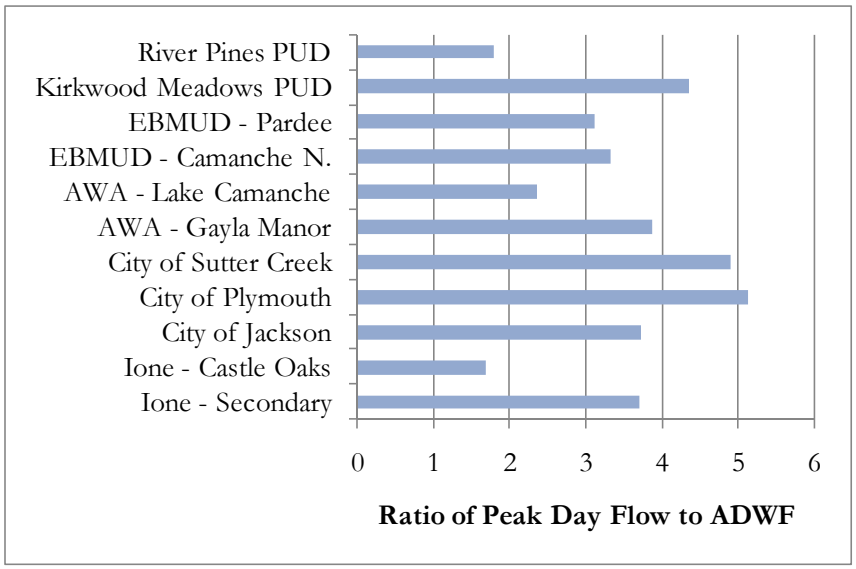
[126] Capacity for future connections was calculated based on the existing average flow per connection (130 gpd) and the remaining dry weather treatment capacity.

a proposed casino site or at sites outside the existing sphere. However, the WWTP lacks sufficient peak flow capacity to store and treat existing flows. The City needs to upgrade the facility to meet existing needs, and would need to replace the facility to meet long-term growth needs.

Peak Flows

Wastewater flows depend not only on discharges from wastewater users, but also on the condition of the wastewater collection system and weather conditions due to infiltration and inflow (discussed at the beginning of this section). Peak wet weather flow in excess of the ADWF permitted capacity does not indicate that the agency is exceeding permitted conditions. Peak effluent flows may be stored and treated as the flow diminishes.

Figure 5-9: Wastewater Peaking Factors, 2007



The peaking factor is the ratio of peak day wet weather flows to average dry weather flows. The median system had a peaking factor of 3.3 in 2007. The River Pines PUD collection systems appear to be in the best condition, with a peaking factor of less than two. Similarly, Lake Camanche Village has a relatively low peaking factor. Moderate levels of peak flows are experienced in the cities of Ione and Jackson, Gayla Manor, and the EBMUD recreation area wastewater systems where peaking factors are between 3.0 and 4.0. The systems operated by the City of Sutter Creek, City of Plymouth and Kirkwood Meadows PUD experience the highest peaking factors. Sutter Creek's peaking factor is as high as 4.25 (peak day) and 5.81 (peak hour) due to infiltration and inflow. Plymouth has structural defects within pipelines and manholes, and inflow/infiltration problems. Kirkwood Meadows PUD peak flows can be as high as 30 percent of flows when snow is melting. EBMUD has planned a $9 million project to rehabilitate its recreation area collection systems.

Peak flows in AWA's Lake Camanche Village and Gayla Manor systems exceed capacity. Both the City of Sutter Creek and the City of Plymouth wastewater systems experience peak flows that exceed storage capacity, and have related infrastructure needs. The City of Sutter Creek installed a pond in mid-2008 to accommodate peak flows. The City of Jackson's WWTP has capacity for 2.0 mgd in peak flows, and reported existing peak flows are 1.9 mgd, indicating needs to reduce peak flows or increase peak flow storage capacity. Mule Creek State Prison did not report peak flows or peak flow capacity.

PROJECTED DEMAND

Wastewater flow will increase over time with population and economic growth, as shown in Table 5-10. Projected dry weather flows were not available for Mule Creek State Prison and the EBMUD recreation areas where future flows are not expected to grow significantly.

Table 5-10: Projected ADWF, 2010 through Buildout

Service Area	2005	2007	2010	2015	2020	2025	Buildout
Amador City[1]	0.021	0.022	0.024	0.027	0.031	0.034	0.040
City of Ione[2]	0.250	0.353		0.820		1.350	3.600
City of Jackson[3]	0.550	0.530		0.589		0.672	2.420
City of Plymouth[4]	0.110	0.110	0.140	0.170		0.230	0.770
City of Sutter Creek[1]	0.230	0.298	0.470	0.640	0.760	0.800	1.050
Unincorporated Areas							
River Pines[5]	0.020	0.020		0.021		0.023	NP
Martell - AWA[6]		0.050	0.150	0.300	0.500	0.900	3.000
Martell - Sutter Creek[1]		0.050	0.440	0.720	0.930	0.970	1.190
AWA Lake Camanche[7]	0.083						0.098
AWA Satellite Systems[7]	0.070						0.107

Notes:

(1) Source: HDR Engineering, *Sutter Creek Wastewater Master Plan* , 2007, pp. 3-3 to 3-4.

(2) Sources: City of Ione, Wastewater Treatment Plant Master Plan, 2004, p. 4-5; ECO:LOGIC Engineering, *Amador County Regional Wastewater Management Plan* , 2005, p. 3-8.

(3) Source: City of Jackson, response to LAFCO Request for Information, 2008.

(4) Source: ECO:LOGIC Engineering, *Amador County Regional Wastewater Management Plan* , 2005, Tables 3-15, 3-18.

(5) Source: River Pines PUD, response to LAFCO Request for Information, 2008.

(6) Source: AWA projection as reported in HDR Engineering, *Sutter Creek Wastewater Master Plan* , 2007, p. 3-4.

(7) Source: ECO:LOGIC Engineering, *Amador County Regional Wastewater Management Plan* , 2005, Tables 3-3 and 3-18.

DEMAND MANAGEMENT STRATEGIES

Demand management strategies include sewer infiltration and inflow control, industrial pretreatment and recycling, and water conservation.

Service providers can reduce infiltration and inflow with capital improvements, such as pipeline rehabilitation, manhole cover replacement, and root eradication. They can also address sources on private property, such as broken service lines, uncapped cleanouts and exterior drains, through public education, incentives and regulatory strategies.

Communities use various techniques to prohibit discharge of unwanted pollutants or to reduce the quantity and strength of wastewater discharged to sewers. These techniques include 1) permit limitations on the strength and contaminant levels of industrial and commercial wastewater; 2) increased rates or surcharges on high-strength wastes; and 3) incentives or requirements for water recycling and reuse within the industrial or commercial operation.

Water conservation measures are effective for reducing average wastewater flows, but have less impact on peak flows, which are usually strongly influenced by infiltration and inflow contributions. Water conservation has little or no impact on organic loading to the treatment plant.

INFRASTRUCTURE NEEDS OR DEFICIENCIES

This section outlines infrastructure needs and deficiencies of the individual agencies. Each of the wastewater providers' treatment, conveyance and storage facilities is listed in Table 5-11, along with capacity, facility condition and the year the facility was constructed.

Table 5-11: Wastewater Facilities, 2008

Provider	Facility	Capacity	Condition	Year Built
Amador City	Amador City Wastewater Treatment pond	335,000 gal	Good	1976
Amador City	Effluent pump station/force main	125,000 gpd	Good	1976
ARSA	Henderson Reservoir	380 af	Fair to Poor	1888/1929
ARSA	Preston Forebay Reservoir	12 af	Poor	1923
ARSA	Preston Reservoir	235 af	NP	NP
ARSA	Regional Outfall (WWTP to Henderson)	4.3 miles	Fair	1979
ARSA	Regional Outfall (Henderson to Forebay)	3.7 miles	Unknown	late 1920s
ARSA	Regional Outfall (Forebay to Preston)	1.0 mile	Unknown	NP
AWA	Lake Camanche Village WWTP	0.281 mgd	Fair	late 1970s
AWA	Gayla Manor WWTP	0.022 mgd	Fair	early 1990s
CA Corrections	Mule Creek State Prison WWTP	0.74 mgd	Fair to Poor	1987
City of Ione	Ione Secondary WWTP	0.41 mgd	Fair to Poor	1955
City of Ione	Castle Oaks Water Reclamation Plant	1.2 mgd	Fair	1994
City of Jackson	Jackson WWTP	.71 mgd	Good	1985
City of Plymouth	Plymouth WWTP	.17 mgd	NP	1968
City of Plymouth	Storage reservoir	60 mg	NP	1985
City of Sutter Creek	Sutter Creek WWTP	0.48 mgd	Fair	early 1950s
EBMUD	Camanche N. Shore WWTP	.1 mgd	NP	1983
EBMUD	Pardee Recreation Area WWTP	.012 mgd	NP	NP
Fiddletown CSD	Fiddletown Leach field	0.02 mgd	Fair	1999
KMPUD	KMPUD WWTP	0.24 mgd	Excellent	2005
River Pines PUD	River Pines WWTP	0.035 mgd	Good	1985
River Pines PUD	Equalization basin (storage reservoir)	4 mg	Fair	1985

Source: Local agency responses to LAFCO requests for information

Note: (1) Facility condition definitions: Excellent—relatively new (less than 10 years old) and requires minimal maintenance. Good—provides reliable operation in accordance with design parameters and requires only routine maintenance. Fair—operating at or near design levels; however, non-routine renovation, upgrading and repairs are needed to ensure continued reliable operation. Poor—cannot be operated within design parameters; major renovations are required to restore the facility and ensure reliable operation.

AMADOR CITY

Key wastewater infrastructure owned and maintained by the City includes a treatment plant, equalization basin, effluent pump station, effluent export system, and collection system.

The equalization basin accommodates seven days of wet weather flow, and two weeks of dry weather flows. The equalization basin is located on a small bluff adjacent to Amador Creek, and would drain to the creek if a spill or leak occurred. The plant is not equipped with emergency generators or remote communication systems.

Amador City's wastewater is exported to the City of Sutter Creek's wastewater treatment plant through an effluent pump station and force main, and is generally transferred during the evening and other low-flow periods to Sutter Creek. The collection system, the pump station and/or the force main may need to be modified or improved in the future to accommodate anticipated increases in flows, according to the RWQCB. The three creek crossings need to be monitored closely to prevent discharges to the creeks. There is adequate capacity in the City's portion of the system to accommodate growth; however, the Sutter Creek and ARSA systems need to be expanded to accommodate anticipated growth within the service area.

AMADOR COUNTY

The unincorporated community of Fiddletown relies on individual septic systems for wastewater disposal. Select parcels along Dry Creek and parcels too small for a contained onsite septic system are served through a collection system into a community leach field. The County owns, inspects and maintains the community leach field system located within Fiddletown CSD's bounds. The leach field system includes wastewater collection and disposal services. The collection and disposal system was installed in 1999. The system is locked; as a result, the County reported that it has not been able to access the system for regular inspections since 2006. At that time, the County identified infrastructure needs as replacement of the missing down-slope monitoring well, repair or replacement of three flow monitoring devices, placement of posts to facilitate locating inspection pipes, and repair of a broken valve box at Quartz Mountain and Fiddletown Roads. Fiddletown CSD indicated that it is willing to accept the system once the County makes needed improvements.

ARSA

After being discharged from the City of Sutter Creek WWTP, secondary treated effluent flows through the ARSA regional outfall to the City of Ione for tertiary treatment and disposal. A portion of the effluent is used by ranchers along the pipeline for irrigation. The City of Ione is required to accept up to 650 af (0.6 mgd) in ARSA flows during a wet year. ARSA has agreed to eliminate flows to Ione's secondary wastewater ponds by 2011; in other words, ARSA must store wastewater flows or divert them elsewhere between October and March. Under its contract with the City of Ione, ARSA discharge to the Ione tertiary plant could be ended with five years notice. In preparation, ARSA plans to develop storage and disposal capacity upstream of Preston Reservoir.[127] ARSA plans to raise Goffinet Dam by seven feet to provide capacity (297 af) to support ADWF of 0.8 mgd.[128]

The outfall is composed of nine miles of pipeline segments and a series of three reservoirs used for effluent storage. The reservoirs are Henderson Reservoir (unincorporated), Preston Forebay Reservoir and Preston Reservoir (at Preston Youth Correctional Facility in the City of Ione). ARSA is evaluating the need to reinforce dams at Henderson and Preston Forebay Reservoirs. ARSA needs to replace the outfall segment between Sutter-Ione Road and Henderson Reservoir, to construct a parallel pipeline between the WWTP and Sutter-Ione Road to improve reliability, to slip-

[127] HDR Engineering, *Amador Regional Sanitation Authority Master Plan*, June 2008.

[128] HDR Engineering, *Amador Regional Sanitation Authority Master Plan*, June 2008.

line the outfall below Henderson Reservoir to allow for pressurization, and to install flow measurement below Henderson Reservoir.[129]

The upper ARSA system has 0.6 mgd in storage and disposal capacity in addition to ARSA capacity in the lower system. If the five-year cancellation clause is activated, ARSA would have the capacity available in its upper system. Additional capacity would be funded by development fees.

AWA

Key infrastructure includes two treatment plants, leach fields, sewer pipes and 15 lift stations.

Martell

Wastewater originating in the Martell area is treated at the City of Sutter Creek WWTP and disposed by ARSA where there are capacity needs discussed in the respective sections. ARSA and the City of Sutter Creek have developed plans to accommodate growth in the Martell area.

AWA plans to continue to rely on the City of Sutter Creek for wastewater treatment and ARSA for disposal in the short-term. To accommodate build-out demand, which has been estimated at 1.2 mgd and 3.0 mgd by the City of Sutter Creek and AWA respectively, AWA plans to construct a new WWTP in the Martell area in the long-term and would then no longer rely on Sutter Creek or ARSA. AWA plans to begin design and environmental review in 2008. AWA has conducted outreach aimed at attracting the cities of Amador, Jackson and Sutter Creek to rely on a future regional WWTP in Martell; however, the cities reported they are pursuing their own solutions to infrastructure needs. A regional facility would cost approximately $42 million; a facility designed to meet only the needs of Martell would cost about $20 million. Assuming the AWA board decides to move forward on the project, it would take approximately three years to complete.

Lake Camanche Village

The Lake Camanche Village WWTP provides secondary treatment with disinfection and spray irrigation. The WWTP is in fair condition The WWTP lacks capacity to handle peak flows during rain events. The regulatory agency imposed a cease and desist order in 2003 requiring long-term improvements to the WWTP. The Lake Camanche Village area needs additional storage and disposal capacity; approximately 68,200 gpd capacity is needed in the short-term, and 166,200 gpd capacity is expected to be needed for future developments.

AWA and EBMUD are considering a joint project to build a regional wastewater system to accommodate their respective infrastructure needs in the area. The planned first phase is expansion of storage and spray field disposal system to avoid spills and serve approved development in the area. The second phase would upgrade the WWTP to membrane bio-reactor WWTP with disposal to land during dry months and surface water during wet months. AWA contemplates disposal of recycled water to the JVID service area, for which conveyance facilities would be needed to transport recycled water the 3-mile distance at a projected cost of $23 million.

[129] HDR Engineering, *Amador Regional Sanitation Authority Master Plan*, June 2008, p. ES-3.

Gayla Manor

Septic tank effluent from 57 homes flows through gravity or force main sewers to two 10,000-gallon recirculation tanks adjacent to the treatment and disposal site. The Gayla Manor WWTP is in fair condition, and provides secondary treatment with disinfection and spray disposal. The treatment facility is designed to handle up to 22,000 gpd. The spray fields become saturated during peak rain events, and have only 2,800 gpd capacity; average flow is 8,000 gpd with peak flows of 31,000 gpd. The WWTP has a storage reservoir for peak flows, but lacks capacity to accommodate peak flows. AWA plans to construct a 20-acre leachfield to remove wastewater pathogens through biological processes. AWA has financed $0.3 million of the expected $1.1 million cost of capital projects at the WWTP.

AWA Satellite Systems

There are small developments along SR 88 between Fairway Pines and Jackson Pines that rely on community leach fields and recirculating gravel filters with spray fields for wastewater, but the AWA systems are strained due to increased loads. Two residential developments have been proposed for the area. AWA hopes to construct a sewer trunk line to collect wastewater from the proposed developments and convey it either to the expanded Sutter Creek WWTP or to the planned AWA WWTP located in Martell. The estimated cost is $8 million, and a funding source has not yet been identified.

CITY OF IONE

Key infrastructure includes the tertiary Castle Oaks Water Reclamation Plant (COWRP), the Ione secondary WWTP, 25 miles of sewer pipes and four City-owned lift stations.

COWRP was constructed by the original Castle Oaks developer to treat ARSA effluent previously disposed on the Preston Youth Correctional Facility farmlands.[130] The plant treats ARSA effluent, which includes flows from the Mule Creek Prison system, but does not currently treat flows originating in the City of Ione wastewater system. The plant has a design ADWF capacity of 1.2 mgd. Operated during irrigation season (typically April to November) by the City of Ione, the COWRP processes an average flow of 0.7 mgd when tertiary effluent is pumped to Castle Oaks Golf Course. Additional treatment and disposal capacity is needed to accommodate anticipated wastewater flows. The site has capacity expansion potential. Reclaimed water users need to be identified to implement expansion. The golf course has agreed to use effluent through 2013.

The 2008 Ione secondary WWTP capacity is 0.41-0.55 mgd (ADWF), which is less than permitted capacity.[131] The WWTP was built in 1958, and has been modified since.[132] Existing

[130] Preston's permit was rescinded in 2002 due to regulatory non-compliance issues, including failure to meet tertiary treatment standards, failure to meet requirements for a dual-plumbed water system, discharging outside the designated area, and lack of signage alerting the public.

[131] Average dry weather capacity is permitted at 1.2 mgd, but the City's 2004 master plan cited a maximum capacity of 0.41 mgd at that time. To achieve capacity of 0.55 mgd, the City needs to make improvements, according to a 2007 wastewater technical memo. To increase capacity, the City removed approximately 462 dry tons of sludge from Pond 1 and improved the headworks in FY 07-08.

[132] The plant was expanded in 1977. Ponds were added in 1996 and 2001, and a pond was rebuilt in 2006.

storage and disposal capacity is insufficient to handle peak flows in a wet year, to meet the City's maximum obligation to ARSA (650 af presently), or to accommodate anticipated growth. In the near-term, the plant needs removal of accumulated sludge to maximize percolation. It needs extensive modifications to pumping, treatment, storage and disposal facilities to expand capacity and achieve regulatory compliance; the estimated cost is $7-9 million. The City's preferred solution is to replace the secondary WWTP with a new, larger tertiary WWTP to meet growth needs and treatment requirements.[133] The total cost of improvements may be $12-18 million.[134]

Approximately 35-40 percent of the 24-mile gravity sewer collection system was constructed in 1955, and 20 percent was constructed between 1960 and 1990; these sewers were described by the City as in fair condition. The collection system is inadequate, subject to infiltration and inflow, and prone to overflows during heavy rain events. The City reported that it has implemented an operation and maintenance program, and plans to conduct a system evaluation by May 2010.

CITY OF JACKSON

Key infrastructure includes a tertiary WWTP, 31 miles of sewer pipes and two lift stations.

The City's tertiary WWTP is in good condition. The City may need to develop alternative disposal facilities in the future in response to evolving regulatory requirements. State regulatory agencies have conflicting priorities and objectives relating to the City's discharge to Jackson Creek. The California Department of Public Health has expressed concerns about discharge to Jackson Creek, as the creek and Lake Amador are used for domestic drinking water purposes, creek flows are relatively low during summer months and these waters are more than five percent WWTP effluent about 30 percent of the time. The California Department of Fish and Game is concerned about the City reducing the amount of discharge to Jackson Creek as recreational users and aquatic life are dependent on the water level, and other sources (e.g., the formerly unlined Amador Canal) have been reduced in recent years. The City must complete a study for RWQCB by 2009 that identifies the minimum discharge to Jackson Creek needed to meet existing downstream water rights and that evaluates the water characteristics needed downstream for agricultural and aquatic purposes. Growth would require the City to expand its treatment facility to accommodate increased flows. With an expansion capacity of up to 1.0 mgd, the WWTP site would not accommodate projected build-out flows of 2.4 mgd in the existing City bounds; another WWTP would be needed.

About 35 percent of the 21-mile sewer collection system is over 30 years old and in fair to poor condition. An ongoing capital replacement program addresses older portions of the collection system needing replacement. The City plans to inspect 34 percent of the system in 2008 and 2009, and is implementing a sanitary sewer management plan to prevent overflows.

CITY OF PLYMOUTH

Key wastewater infrastructure owned and maintained by the City includes a treatment plant with three evaporation reservoirs, spray fields, and a collection system.

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[133] Correspondence from City of Ione wastewater engineer, Lee & Ro, July 1, 2008.

[134] Correspondence from City of Ione wastewater engineer, Lee & Ro, August 11, 2008.

The City's primary WWTP consists of two aerated facultative ponds, a non-aerated facultative pond, chlorination facilities, and an outlet structure. After treatment, the effluent is transported to an unlined storage reservoir, which has the capacity to store the equivalent of 10 months of the City's existing peak month flow. The ponds need additional aeration and electrical improvements to accommodate current wastewater flows ($0.2-0.4 million). The storage reservoir lacks capacity for compliance with regulatory requirements. In order to accommodate proposed growth within the existing SOI, the City needs to upgrade to an aerated lagoon treatment system, with pond deepening, reservoir expansion, disinfection capability, spray field expansion, transfer pumping expansion and piping modifications ($1.0-1.5 million). To provide capacity to future growth within the SOI proposed by the City, the City would need to upgrade to a secondary treatment process (e.g., activated sludge plant), and expand spray fields and reservoirs ($10-15 million).

The City owns and maintains a six-mile sewer collection system in fair condition. There are structural defects within pipelines and manholes, and significant inflow/infiltration problems. Portions of the collection system lack adequate capacity for peak wet weather flows.

CITY OF SUTTER CREEK

Key City-owned infrastructure includes the wastewater treatment plant (WWTP), 22 miles of sewer pipes and two lift stations.

The Sutter Creek WWTP treatment capacity is 0.48 mgd, and the City plans improvements in 2008 to increase capacity to 0.6 mgd. Interim improvements—converting an emergency storage basin into aerated lagoon, adding flow control system in the influent channel, and installing screw press dewatering facility—are expected to be complete in 2008.

The WWTP is fairly old. Until recently, it lacked sufficient capacity in the winter to store raw sewage. Wet weather flows conveyed to the plant exceeded its capacity to store and treat sewage without overflows to Sutter Creek. However, the City reported that the storage pond was expanded in May 2008 to alleviate the peak flow storage inadequacies. The WWTP lacks sufficient capacity to accommodate anticipated growth in the next 5-15 years. The City plans to replace the WWTP with a new tertiary plant with capacity to accommodate growth and peak flows. The City has analyzed various alternatives, including a regional WWTP proposal, and concluded that it would be less expensive to rely on a plant located in Sutter Creek than a plant located in the Martell area.[135] The City plans to arrange for the new WWTP to be expandable to handle growth and regional flows in the future, and flexible to allow for conveyance of treated effluent to the Martell area. The new WWTP is planned for a site adjacent to the existing plant.

The wastewater collection system consists of approximately 22 miles of gravity sewer lines and 0.2 miles of pressure sewer. The system is subject to infiltration and inflow, with a peaking factor as high as 4.25 (peak day) and 5.81 (peak hour). The City's capital improvement program anticipates collection system improvement expenses of $100,000 annually to address deficiencies.

[135] HDR Engineering, *Sutter Creek Wastewater Master Plan*, 2007, p. 8-5.

EBMUD

EBMUD has two wastewater treatment plants in the Mokelumne watershed that serve recreation area visitors and residents. The Camanche North Shore plant is a three-pond treatment system with two overflow backup ponds, and a sixth storage pond. The treatment system likely requires upgrading to meet regulatory requirements.[136] At the Pardee recreation area, there is a small wastewater treatment facility with storage ponds and a one-acre land-discharge site; this plant was recently improved.

Existing sewage collection and transmission systems at the recreation areas are old, were not constructed to current engineering standards, are generally inaccessible, and have high infiltration and inflow rates. Major portions of the existing sewage collection and transmission systems will be replaced by EBMUD at a cost of $9 million.

KIRKWOOD MEADOWS PUD

Key wastewater infrastructure includes a tertiary WWTP, leachfields and nine miles of collection lines. KMPUD upgraded its WWTP in the fall of 2005 to a membrane bioreactor treatment process. The treatment plant has a monthly average design capacity of 0.19 mgd, with a peak flow design capacity of 0.27 gpd. Monthly average influent flows in 2006 ranged from 0.02 gpd to 0.09 gpd. Treatment and disposal capacity is adequate. The collection system, which was built 35 years ago, suffers from infiltration during spring snowmelt. The District plans to begin a replacement program in 2008 and to test and clean five percent of the system annually.

MULE CREEK STATE PRISON

Key wastewater infrastructure at Mule Creek State Prison includes a secondary WWTP, 296 acres of sprayfields, seven miles of sewer pipe and two lift stations. The secondary WWTP permitted capacity is 0.74 mgd (ADWF), lower than its 2007 flow of 0.848 mgd. Existing storage and disposal capacity is insufficient to handle peak flows, and may be insufficient to accommodate future flows depending on whether the prison population increases or decreases. MCSP, the City of Ione and ARSA have agreed to attempt to form a JPA to develop an Ione Valley wastewater master plan aimed to develop a permanent source of recycled water, and to improve treatment and disposal capacity at MCSP and Ione facilities.

RIVER PINES PUD

Key wastewater infrastructure includes a secondary WWTP, sewer pipes and lift stations. Relatively minor treatment improvements, such as cleaning the motor control and vegetation abatement at treatment ponds, are needed. Improvements to allow for emergency notification of failures is needed at lift stations and grinder stations. Wastewater collection maintenance equipment and employee training is needed so the District can comply with new regulatory requirements.

[136] EBMUD, *Mokelumne Watershed and Facilities Assessment Report*, November 2007, p. 5-20.

SERVICE ADEQUACY

This section reviews indicators of service adequacy, including regulatory compliance, treatment effectiveness, sewer overflows and collection system integrity.

REGULATORY OVERVIEW

In 1972, the U.S. Congress passed the Federal Water Control Pollution Act. Referred to as the Clean Water Act, the law established water quality standards to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The law included the mandate for a permit system known as the National Pollutant Discharge Elimination System (NPDES) to regulate the discharge of pollutants into surface waters. The Clean Water Act authorized the EPA to set water quality standards for all contaminants in surface waters, which specify maximum contaminant levels (MCLs) for treated wastewater prior to discharge.

That same year, the Legislature amended the Porter-Cologne Water Quality Control Act of 1969 to allow the State Water Resources Control Board (SWRCB) to assume the responsibilities prescribed in the Clean Water Act. SWRCB and its nine regional control boards regulate federal and state water quality standards, as well as operate the federal permit process for discharging pollutants into open waters. NPDES permits establish specific discharge limits, and monitoring and reporting requirements, and may also require facilities to undertake special measures to protect the environment from harmful pollutants.

The Clean Water Act requires that all point source wastewater dischargers obtain and comply with an NPDES permit. NPDES permits regulate discharges from publicly-owned wastewater treatment facilities, other wastewater treatment facilities, industrial facilities, concentrated animal feeding operations, aquiculture, and other "point source" dischargers.

Legislation (A.B. 885) passed in 2000 requires SWRCB to adopt regulations for the permitting and operation of septic systems. Each regional water quality control board must incorporate SWRCB regulations or standards into its regional water quality control plans. SWRCB released draft septic regulations in March 2007. The implementation of these regulations in 2008 would require all septic systems statewide to meet permitting and operation standards. The regulations include required system inspections, restrictions on septic systems near impaired water bodies, performance standards and enforcement actions.

The State Water Resources Control Board adopted new policies in 2004 requiring wastewater collection providers to report sanitary sewer overflows and to prepare and implement Sewer System Management Plans (SSMPs).[137] SSMP requirements are modeled on proposed federal capacity, management, operations, and maintenance plans. Dischargers must provide adequate sewer collection system capacity, prevent overflows, prioritize system deficiencies, and develop a plan for disposal of grease, among other requirements. SSMP implementation deadlines depend on service area size. The Cities of Ione, Jackson and Sutter Creek must implement their plans by May 2010. Amador City, Amador County, Plymouth, AWA, Fiddletown CSD, MCSP, and River Pines PUD

[137] SWRCB, Resolution Number 2004-0080.

have until August 2010 to complete implementation. Also, providers must now report sanitary sewer overflows greater than 100 gallons to the RWQCB, keep internal records of smaller overflows, and produce an annual report on overflows.

REGULATORY COMPLIANCE STATUS

RWQCB enforces the Clean Water Act, NPDES permit conditions and other requirements of wastewater providers. The Board may levy fines or order the provider to take specific actions to comply with water quality regulations.

RWQCB has taken enforcement actions against each of the wastewater service providers over the period 2000 through mid-2008.[138] Each of the providers operates under an NPDES permit or waste discharge requirements (WDR), except Amador County (for the Fiddletown system). Active cease and desist orders have been issued for the City of Ione (2003), City of Plymouth (2005), Mule Creek State Prison (2006), and Preston Youth Correctional Facility (2002).

Table 5-12: Wastewater Enforcement Actions, 2000-8

Provider	Formal	Informal
Amador City	0	3
AWA	3	14
City of Ione	2	8
City of Plymouth	2	10
City of Jackson	1	1
City of Sutter Creek	3	10
East Bay MUD	0	5
JVID - Lake Amador	1	1
Kirkwood Meadows	0	1
Mule Creek SP	2	8
Preston Youth	1	3
River Pines PUD	0	4

Source: SWRCB

Amador City

RWQCB issued notices of violation to the City in 2000, 2004 and 2007. The 2000 notice related to a sanitary sewer overflow. The 2004 and 2007 notices were for deficient report violations.

Amador Water Agency

The 17 enforcement actions were taken primarily with respect to AWA's Lake Camanche Village facility, where 11 notices of violation, 2 staff enforcement letters and an administrative civil liability have been taken related to violation of permit conditions, effluent violations, deficient reports, and a sanitary sewer overflow. The most recent action was a 2006 administrative civil liability for violation of permit conditions. The WWTP lacks capacity to handle peak flows during rain events. RWQCB imposed a cease and desist order in 2003 requiring long-term improvements to the WWTP. There were three documented spills between 2003 and 2006, one of which is believed to have discharged into Camanche Lake. In addition, there is a moratorium on wastewater service in the area, and property owners desiring wastewater service are on a waiting list pending additional capacity.

The Gayla Manor WWTP lacks capacity to accommodate peak flows. RWQCB issued a cease and desist order in 2004 because the storage level in the ponds encroached on freeboard and there had been spills. To address the RWQCB cease and desist order, AWA plans to construct a 20-acre leachfield to remove wastewater pathogens through biological processes.

[138] The source is California Integrated Water Quality System,

A 2002 enforcement action related to AWA's Mace Meadows facility and a 2003 enforcement action related to AWA's Wildwood facility were for deficient reports. There were no enforcement actions taken with respect to the remainder of AWA facilities.

City of Ione

RWQCB issued three enforcement actions for violations of permit conditions at the City of Ione secondary treatment plant, and another for a deficient report. There have been six enforcement actions relating to the Castle Oaks WRP, four of which were for deficient reports, one for an effluent violation, and another for a violation of a permit condition.

Regulatory concerns in the Ione area relate to seepage of effluent into Sutter Creek, the impact of expanded land disposal facilities on groundwater quality, and historic non-compliance. RWQCB inspectors had observed seepage of water into Sutter Creek adjacent to the WWTP ponds in 2001. The City needs to establish a 200-foot buffer between the percolation ponds (i.e., ponds 4-6) and Sutter Creek to address this concern by providing greater distance between the ponds and the creek. Increased salinity and manganese concentrations in the groundwater below Ione's secondary WWTP have raised concern over expanding disposal capacity in the area.[139] The City installed groundwater monitoring wells in the area in 2002, and is required to conduct quarterly sampling.

According to past RWQCB reports in 2001 and 2002, the City had constructed and used a new percolation pond without regulatory approval, had dumped wastewater sludge into unregulated pits accessible to the public, and had constructed sludge facility improvements at its tertiary treatment plant without regulatory approval. The City defended its action and countered 1) that it had constructed the pond as an emergency measure because its ponds were full that year, 2) that the regulatory agency had not issued any warning prior to pond construction, and 3) that the sludge dumped in the pits was tertiary (i.e., less biologically potent) rather than secondary sludge.

City of Jackson

RWQCB issued an administrative civil liability in 2008 for 84 effluent violations, and a notice of violation in 2005 for 13 effluent violations and three violations of permit conditions. The City spent $234,000 on a compliance project to correct the violations for ammonia, BOD, chlorine residual, nitrate, total coliform, total suspended solids, and turbidity.

State regulatory agencies have conflicting priorities and objectives relating to the City's discharge to Jackson Creek. RWQCB required the City to complete a study by 2009 that identifies the minimum discharge to Jackson Creek needed to meet existing downstream water rights and that evaluates the water characteristics needed downstream for agricultural and aquatic purposes.

City of Plymouth

Plymouth has faced 12 enforcement actions since 2000, including a cease and desist order and an administrative civil liability imposed in 2005. Violations leading up to these formal enforcement actions involved discharges to the spray fields during the winter season, discharges to spray field areas too close to adjacent surface drainage courses, failure to address sludge disposal, and failure to conduct monitoring of influent flows, pond freeboard, effluent, and the collection system.

[139] Manganese may cause a metallic taste to water and staining of plumbing fixtures, but does not pose significant health risks.

City of Sutter Creek

RWQCB has taken 13 enforcement actions against the City of Sutter Creek for violations of effluent and permit conditions, sanitary sewer overflows, deficient reports. The RWQCB imposed a cleanup and abatement order in 2001 due to wastewater collection system deficiencies, and the City completed the required improvements by 2005.

The primary regulatory concern relating to the Sutter Creek WWTP relates to discharges to Sutter Creek during flood events. The WWTP is located in a floodplain; in 1997 the plant was flooded causing equipment to be shut down for several days and untreated sewage to be discharged into the creek. The City installed a flood wall in mid-2008 to protect the facility from flooding.

East Bay MUD

RWQCB has taken four enforcement actions relating to the EBMUD Camanche North Shore WWTP and one relating to the Pardee Recreation Area WWTP. Most recently, a 2008 notice of violation was issued for 10 effluent violations, a permit condition violation, 12 groundwater violations, 4 monitoring deficiencies, and 21 deficient reports.

Jackson Valley Irrigation District

A JVID concessionaire operates wastewater facilities at Lake Amador Resort. RWQCB has taken two enforcement actions against JVID and its concessionaire since 2000: a 2003 letter due to deficient reports and effluent violations, and a 2007 notice of violation due to 22 violations of permit conditions, 22 deficient reports and 3 late reports.

Kirkwood Meadows PUD

KMPUD had one enforcement action between 2000 and 2008: a 2001 notice of violation for an unauthorized discharge.

Mule Creek State Prison

The regulatory agency took 10 enforcement actions against MCSP WWTP between 2000 and 2007. Regulatory concerns in recent years included inadequate capacity to handle wastewater flows, failure to comply with effluent limitations, wastewater spills, understaffed operations, and alleged negative impacts on groundwater used by adjacent properties, according to RWQCB staff reports and orders.

The regulatory authority required MCSP to reduce its flows 15 percent by April 2007 and by another 10 percent by January 2008, to develop a flow reduction evaluation, a long-term wastewater facilities upgrade plan, a spill contingency plan, a sprayfield study, and a staffing analysis, among other requirements.[140] As a result of additional sewer spills, RWQCB imposed an administrative civil liability several months later. The prison met deadlines in these orders through the end of 2007 by taking action to reduce flows by closing its dry cleaning operation, installing devices limiting the number of toilet flushes, and imposing limits on inmate showers; however, it was not able to meet the flow reduction target set for January 2008. The prison doubled its wastewater operation staffing (now there are four full-time employees) in 2007, and reported that it now effectively manages its

[140] Central Valley RWQCB, *Cease and Desist Order No. R5-2006-0130*, 2006.

wastewater operations and that sewage spills have been dramatically reduced. At the time this report was drafted, MCSP flows had been reduced to be within its WWTP capacity.

River Pines PUD

The regulatory agency took four enforcement actions against RPPUD between 2000 and 2008. Three of these actions involved deficient reports (2000-1) and one involved violation of a permit condition (2002).

TREATMENT EFFECTIVENESS

Wastewater treatment providers are required to comply with effluent quality standards under the waste discharge requirements determined by RWQCB. The providers were asked how many days in 2007 they were out of compliance with effluent quality requirements.

The American Water Works Association (AWWA) conducts an annual benchmarking study, called QualServe, of water and wastewater performance indicators on behalf of subscribers. This measure is included in the benchmarking study. QualServe 2003 subscribers had a median treatment effectiveness rate of 99.5 percent, meaning that treatment did not meet requirements on two of 365 days.

Table 5-13: Treatment Effectiveness Rate, 2007

Provider	Rate
AWA	95%
Amador City	96%
City of Ione	100%
City of Jackson	100%
City of Plymouth	97%
City of Sutter Creek	37%
Mule Creek SP	96%
River Pines PUD	100%

Two agencies, the City of Ione and River Pines PUD, reported 100 percent treatment effectiveness in 2007. The City of Jackson had only one day when treatment did not meet requirements, above the median rate reported by AWWA.

AWA, Amador City, the City of Plymouth and Mule Creek State Prison reported treatment effectiveness rates of 95-97 percent. The City of Sutter Creek reported that it failed to meet a treatment standard 33 of 52 weeks in 2007, but did not have data available on the number of days in violation.

SEWER OVERFLOWS

Sewer overflows are discharges from sewer pipes, pumps and manholes. Reduction, if not prevention, of the size and number of sewer overflows is the key objective of new SWRCB policy.

Table 5-14: Sewer System Overflows, 2007

Provider	Overflows 2007	Overflow Rate 2007
AWA	0	0
Amador City	0	0
City of Ione	1	4
City of Jackson	10	45
City of Plymouth	1	17
City of Sutter Creek	2	9
Mule Creek SP	3	43
River Pines PUD	0	0

The agencies were asked to report the number of overflows in 2007 related to limitations or problems with the collection system under the control of the agency, and to exclude overflows caused by limitations/problems with customer-controlled piping/facilities. Thus defined, overflows reflect the capacity and condition of collection system piping and the effectiveness of routine maintenance. The sewer overflow rate is calculated

as the number of overflows per 100 miles of collection piping.

The City of Jackson and Mule Creek State Prison had the highest rates of sewer system overflows among the providers. Jackson had an overflow rate of 45, with 10 overflows on its system in 2007, and Mule Creek had an overflow rate of 43, with 3 overflows on its system. The cities of Ione and Plymouth each experienced one overflow in 2007. There were two overflows in the City of Sutter Creek.

COLLECTION SYSTEM INTEGRITY

There are several measures of the integrity of the wastewater collection system, including peaking factors, efforts to address infiltration and inflow (I/I), and inspection practices.

Infiltration and Inflow

As previously discussed in the service demand section, a peaking factor indicates of the extent of I/I in a collection system.

Moderate levels of peak flows are experienced in the cities of Ione and Jackson, Gayla Manor, and the EBMUD recreation area wastewater systems where peaking factors are between 3.0 and 4.0. The systems operated by the City of Sutter Creek, City of Plymouth and Kirkwood Meadows PUD experience the highest peaking factors. The cities of Sutter Creek and Plymouth wastewater systems experience peak flows that exceed storage capacity, and have related infrastructure needs. Plymouth has structural defects within pipelines and manholes, and inflow/infiltration problems. Kirkwood Meadows PUD peak flows can be as high as 30 percent of flows when snow is melting.

Inspection Practices

The EPA recommends closed circuit television (CCTV) inspection of sewer lines as the most cost-efficient and effective inspection approach.[141] Nationwide, the average wastewater provider conducts CCTV inspection of seven percent of its system annually and cleans 30 percent of the system annually, according to a study by the American Society of Civil Engineers. Collection system problems tend to be concentrated in older areas; it is most important to inspect lines more than 20 years old. Wastewater providers' inspection practices are shown in Table 5-15:

[141] U.S. EPA, 1999, p. 5.

Table 5-15: Collection System Inspection Practices

Provider	Collection System Inspection Practices
AWA	New developments are required to videotape all sewer pipelines prior to AWA acceptance. AWA reports that it inspects systems with CCTV equipment on an as-needed basis. AWA plans to implement a preventative maintenance program in August 2009.
Amador City	Conduct smoke tests as needed to identify leaks. Objective is to smoke-test one-third of system annually subject to financing availability.
City of Ione	The City conducted CCTV inspection of 80-90 percent of the sewer system in 2006, and less than 2 percent in 2007. The City conducts visual inspection, and flushes identified trouble spots on a quarterly basis.
City of Jackson	The City conducted a smoke testing program around 2002. Two percent of the system was inspected with CCTV in 2007. The City plans to have 34 percent of the system inspected by CCTV in 2008 and 2009.
City of Plymouth	A number of major deficiencies, including high I/I and structural defects, were identified during field studies in 1985 and 1997. Those deficiencies were prioritized, but have not yet been corrected. Monitoring, including CCTV and visual inspections, is planned.
City of Sutter Creek	The City inspected its entire system in 2001 using CCTV and smoke testing methods. In 2007, the City inspected 5-10 percent of its collection system. The City's goal is to inspect 20 percent of its system annually using CCTV.
EBMUD	EBMUD has planned a $9 million capital project to replace major portions of the sewage collection and transmission systems.
Fiddletown CSD	The system has never been inspected by the District, and due to lack of access has not been inspected by the County since 2006.
Mule Creek State Prison	MCSP conducts visual and CCTV inspections of the collection systems under a preventive maintenance program mandated by CDCR.
River Pines PUD	The only portion of the collection system that is regularly inspected are the grinder stations and lift stations. Collection system piping is not inspected.

SERVICE CHALLENGES

Several of the wastewater providers reported service challenges.

AWA: increasingly stringent regulatory requirements, lack of reclamation capacity at Lake Camanche WWTP, environmental issues associated with expansion of Lake Camanche WWTP, and lack of storage and leachfield capacity at Gayla Manor WWTP.

Amador City: The City struggles to keep up to date on State mandates and to set adequate but manageable rates.

City of Jackson: Evolving regulatory requirements present potential challenges, particularly concerns over whether and how much of the treated effluent should be discharged to Jackson Creek. The new regulatory program addressing sanitary sewer overflows has required the City to conduct collection line repairs and identify illegal connections to the wastewater system.

City of Sutter Creek: Sewer revenues fall short of annual operating expenditures. The City needs an analysis of infrastructure replacement needs, and needs to adjust rates to include funding those needs. The City plans to update rates at the beginning of 2009.

Fiddletown CSD: The District reported challenges related to occasional maintenance of the system with an entirely volunteer staff. The County reported challenges providing maintenance due to a lack of access to the system and a lack of revenue for repairs.

Mule Creek State Prison: MCSP staffing levels fluctuate based on changes in the prison population or State fiscal circumstances.

River Pines PUD: District personnel do not have collection systems maintenance certification, and rely on AWA contract personnel for this function. The District lacks collection system maintenance equipment, and cannot operate the only piece of maintenance equipment (a Camel-Jett) as District vehicles are not large enough to tow it.

MANAGEMENT

While public sector management standards do vary depending on the size and scope of the organization, there are minimum standards. Well-managed organizations evaluate employees annually, prepare a budget before the beginning of the fiscal year, conduct periodic financial audits to safeguard the public trust, maintain relatively current financial records, periodically evaluate rates and fees, plan and budget for capital replacement needs, conduct advance planning for future growth, and make best efforts to meet regulatory requirements.

Table 5-16: Wastewater Provider Management Practices

	Amador City	Amador Cnty	AWA	Ione	Jackson	Plymouth	Sutter Creek	EBMUD	FCSD	KMPUD	RPPUD
Evaluate employees annually	N	A	A	A	A	A	A	A	N	A	A
Prepare timely budget	A	A	A	A	A	A	A	A	N	I	A
Periodic financial audits	I	A	A	I	A	I	A	A	N	A	I
Current financial records	I	A	A	A	A	A	I	A	A	A	A
Evaluate rates	I	-	A	I	I	A	A	A	I	I	A
Capital planning	N	I	A	I	A	A	A	A	N	I	I
Advance growth planning	I	A	A	A	A	A	A	A	N	N	N
Compliance Efforts	I	I	I	I	I	I	I	I	I	A	A

Note: A = Practiced adequately, I= Practiced but improvement needed, N= Not practiced, - = Not Applicable

An evaluation of the adequacy of management practices is shown in Table 5-16. The first four indicators are self-explanatory. Adequate evaluation of rates and fees means updating wastewater rates and development impact fees with reasonable frequency. Adequate capital planning would involve a multi-year capital improvement plan (or comparable planning effort) for capital replacement and, if relevant, expansion. Advance growth planning is adequate when it discloses existing capacity and anticipated needs throughout the existing service area and SOI. Agencies are assumed to have made best efforts to meet regulatory requirements if no enforcement actions were taken between 2005 and 2008, and if not operating under a Cease and Desist Order or Cleanup and Abatement order.

Of the agencies under LAFCO jurisdiction, seven are professionally staffed and managed by full-time personnel: Amador County, AWA, the City of Ione, the City of Jackson, the City of Sutter Creek, EBMUD, and KMPUD. The professionally staffed agencies generally demonstrate best

management practices. Amador City, the City of Plymouth and RPPUD rely on part-time managers. Fiddletown CSD relies on volunteer efforts to perform sewer maintenance.

All providers except Amador City and Fiddletown CSD evaluate employees annually. All providers except Fiddletown CSD and KMPUD prepare timely budgets. KMPUD had no yet adopted a budget after the beginning of its fiscal year. Of the providers, all perform periodic or occasional financial audits, with the exception of Fiddletown CSD. The City of Ione, City of Plymouth and RPPUD perform occasional audits on an irregular basis. The City of Ione and RPPUD plan to begin annual financial audits as of FY 07-08. Plymouth reported that it performs annual audits; however, the most recent audit was completed in FY 03-04. All of the providers except Amador City were able to provide up-to-date wastewater financial records. Sutter Creek could improve timeliness of financial reporting; the City was late in providing unaudited financials to the State Controllers Office.

A majority of the providers have updated their rates within the last three years. Amador City last updated its sewer rates in 2003, and reported rate-setting as a service challenge. The cities of Ione and Jackson last updated sewer rates in 2004; Jackson reported that it is updating the rates in 2008. Fiddletown CSD last updated sewer rates in 1999.

AWA, Jackson, Plymouth, Sutter Creek and East Bay MUD have adopted formal capital improvement plans covering multi-year planning horizons. All other providers reported planning for capital improvement needs on an annual basis in the budgets, with the exception of Fiddletown CSD, which does not produce an annual budget. The City of Ione had also prepared a long-term master plan for its wastewater system.

Most of the providers completed comprehensive advanced growth planning through their own efforts and/or participation in the regional wastewater management plan. FCSD, RPPUD and KMPUD did not participate in the regional wastewater management plan, and had no plans regarding future growth. Amador City's growth planning efforts through its general plan were less than comprehensive.

By way of compliance, KMPUD and RPPUD had no enforcement actions taken between 2005 and 2008, and were not operating under a Cease and Desist Order or Cleanup and Abatement order. The remainder of the providers had recent enforcement actions or active regulatory orders. No regulatory permit was identified for the Fiddletown wastewater system owned by the County and operated by the District.

For specifics on the management practices of each agency, refer to the agency's respective chapter in Volume II.

LOCAL ACCOUNTABILITY AND GOVERNANCE

Accountability of a governing body is signified by a combination of several indicators. The indicators chosen here are limited to: 1) constituent interest in the agency's activities as indicated by the rate of contested elections, 2) agency efforts to engage and educate constituents through outreach activities in addition to legally required activities such as agenda posting and public meetings, and 3) transparency of the agency as indicated by cooperation with the MSR process and information disclosure. These measures are shown in Table 5-17.

Table 5-17: Wastewater Provider Accountability and Governance Measures

	Amador City	Amador Cnty	AWA	Ione	Jackson	Plymouth	Sutter Creek	EBMUD	FCSD	KMPUD	RPPUD
Contested elections	✓	✓	✓	✓	✓	✓	✓	✓	×	✓	✓
Constituent outreach activities	O	✓	✓	✓	✓	✓	✓	✓	✓	✓	O
MSR Disclosure	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Note:
✓ = Occurred or adequately practiced, O = needs improvement, × = Did not occur or not practiced

Each of the providers held contested elections, with the exception of FCSD. FCSD has had a lack of constituent interest, and board members are appointed by the Board of Supervisors, as the positions are generally uncontested. No seats were contested in 2004 or 2006. One seat was vacant as of the drafting of this report.

All agencies prepare and post meeting agendas and make minutes available as required. Additional outreach efforts include websites, newsletters, updates enclosed with bills, articles in community newspapers, distribution of educational materials, and televising of meetings. AWA, Ione, Jackson, Plymouth, Sutter Creek, East Bay MUD, Kirkwood Meadows PUD maintain websites where public documents are available. Ione, Plymouth, AWA, Fiddletown CSD, and Kirkwood Meadows PUD distribute regular newsletters. Jackson and KMPUD distribute information to local media outlets or contribute to the community newspapers. KMPUD also televises regular board meetings on a community channel. Amador City and River Pines PUD do not perform additional constituent outreach activities.

Each of the agencies demonstrated accountability in its disclosure of information and cooperation with LAFCO. All providers disclosed a majority of the information that was requested by LAFCO relating to wastewater service.

For specifics on the governing body, constituent outreach efforts and public involvement, refer to the respective chapter in Volume II.

SHARED FACILITIES

PRACTICES

As a member agency of ARSA, Sutter Creek provides treatment and disposal services to Amador City and the Martell area (CSA 4), and discharges to facilities in the Ione area. ARSA shares Preston Reservoir capacity with Mule Creek State Prison. The City of Ione provides wastewater treatment and disposal services to portions of ARSA and MCSP flows.

MCSP provides treatment services to Preston and the CALFIRE Academy, and shares CCTV equipment with Preston. MCSP shares use of Preston Reservoir with ARSA.

The City of Jackson is conducting a study of downstream water rights and water quality needs (i.e., in the JVID service area and along Jackson Creek) in consultation with various regulatory agencies (DFG, DPH, SWRCB and RWQCB).

AWA and EBMUD are collaborating on joint solutions to wastewater capacity needs in the Lake Camanche area. Plymouth collaborates with AWA by retaining a contract operator. RPPUD contracts with AWA for wastewater collection system maintenance services.

AWA and the cities of Ione, Jackson and Sutter Creek jointly funded and participated in a regional wastewater management plan in 2005.

The County owns the Fiddletown leach field system, which FCSD occasionally maintains with volunteers. Collaboration efforts could be improved so that the County can access the system for regular inspections.

OPPORTUNITIES

The City of Sutter Creek plans to develop a new WWTP that would be expandable and could potentially accommodate flows from the AWA Martell service area. The City plans to size conveyance and treatment such that treated flows could be conveyed to the Martell area in the future. AWA favors a regional WWTP in Martell that would serve Sutter Creek as well. ARSA will consider additional storage sites, including a reservoir in the Martell area, once flows approach 0.8 mgd.

AWA plans to construct a tertiary wastewater treatment facility in Martell with disposal of recycled water in Jackson Valley. To reap economies of scale and enhance recycled water supplies, AWA has conducted outreach aimed at attracting Jackson and Sutter Creek to relying on its planned Martell facility. The City of Sutter Creek and ARSA plan to construct a new wastewater treatment facility in Sutter Creek with disposal of effluent for irrigation purposes, and have conducted outreach aimed at attracting AWA to rely on its planned facilities. The improvement project plans to provide treated tertiary wastewater to AWA for use in the JVID recycling plan.

The City of Ione and MCSP are considering a jointly-funded project that would double the COWRP capacity. The City, MCSP and ARSA are considering a new JPA for wastewater planning in the Ione Valley. The intent is to develop a permanent source of recycled water, improve treatment and disposal capacity at MCSP and Ione facilities.

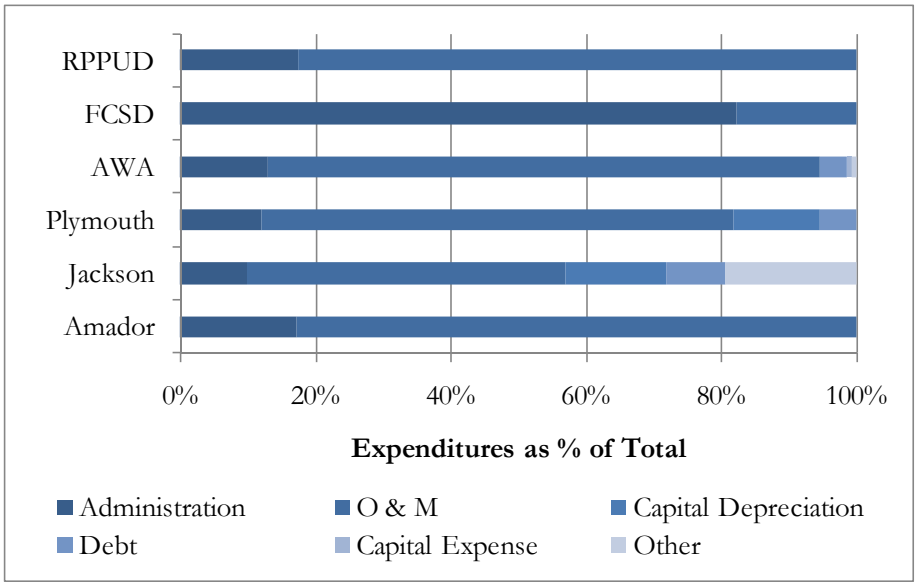
A potential equipment and personnel sharing opportunity may be the sharing of CCTV and trained personnel between the various providers. CCTV equipment is a significant investment. By sharing the equipment, agencies could reduce costs.

FINANCING

Service-related financing constraints and opportunities are discussed in this section. The scope includes revenue sources, financing constraints, rates and connection fees. The section identifies financing and rate restructuring opportunities. Finally, it assesses the financial ability of agencies to provide services.

Service Costs

Figure 5-18: Wastewater Costs by Type, FY 05-06



Wastewater service costs vary between providers due to differences in services provided, treatment methods, service areas, infrastructure age, maintenance efforts and capital financing approaches.

Generally, sewer enterprise expenditures have been categorized as administrative, operations and maintenance, capital expenditure, capital depreciation, debt and other. Costs were not available by category for the cities of Ione and Sutter Creek.

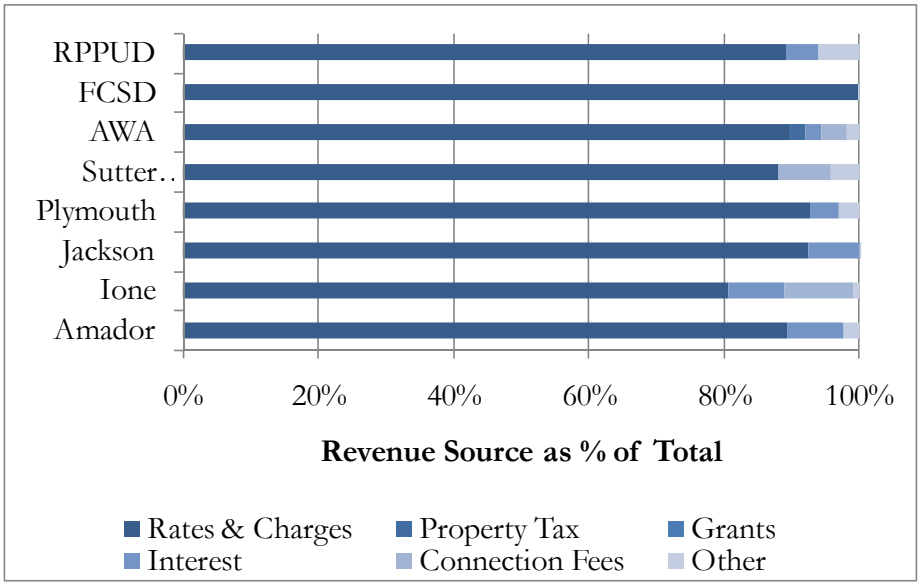
As shown in Figure 5-18, operations and maintenance (O&M) expenditure is the most significant of these cost categories.

For Fiddletown CSD, the primary expense is administration. The County is responsible for wastewater maintenance, although FCSD collects and retains wastewater rates. FCSD conducts volunteer maintenance activities. The County has been unable to access the facilities due to locked gates since 2006.

Capital depreciation is the expense associated with the wearing out, breaking down, or technological obsolescence of physical capital, such as sewer pipes, treatment plants and pumping stations. In Jackson and Plymouth, significant costs include depreciation expense and debt. AWA had minor debt expenses and capital expenses. The remainder of the providers had no significant capital expenditures.

FINANCING SOURCES

Figure 5-19: Wastewater Financing Sources, FY 06-07



Sewer charges, connection fees and interest are the primary financing sources for wastewater enterprises in the MSR area, as shown in Figure 5-19.

Sewer service charges constituted 88 percent of wastewater enterprise revenues throughout the County in FY 06-07.[142] Service charges include standby charges. RPPUD and AWA receive revenues from standby charges.

The City of Ione, City of Sutter Creek and AWA received 10, 8 and 4 percent, respectively, of all revenues from connection fees.[143] None of the other providers received connection fees in FY 06-07.

Other revenue sources were property taxes for AWA, refunds in Fiddletown CSD and miscellaneous revenue sources.

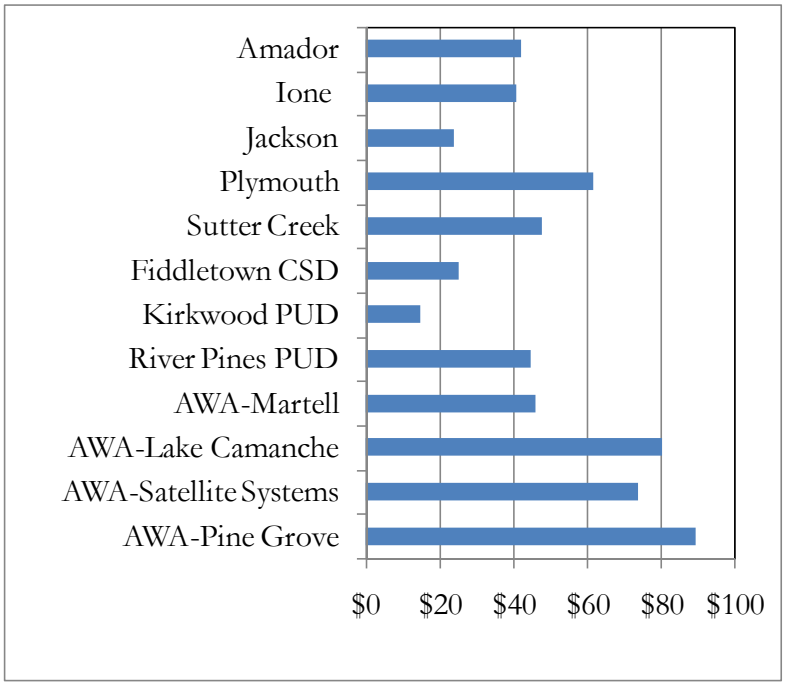
[142] Amador City data represents FY 05-06, as data for FY 06-07 were not yet available when this report was drafted.

[143] AWA connection fee revenue is classified with other fee revenue, and includes contract service charges paid by Amador City and RPPUD.

Rate Comparison

Compared with other municipal services, there are relatively few financing constraints for wastewater enterprises. Generally, agencies may establish service charges on a cost-of-service basis and are not required to obtain voter approval for rate increases or restructuring. The boards of each of the public sector sewer providers are responsible for establishing service charges. Service charges are restricted to the amount needed to recover the costs of providing sewer service. The sewer rates and rate structures are not subject to regulation by other agencies. Service providers can and often do increase rates annually.

Figure 5-20: Wastewater Residential Rates, 2008



Each provider charges a fixed monthly flat rate according to the type of connection, except Amador City charges based on water use as well as a flat charge.

The median provider charges $45 monthly for residences in 2008. By comparison, the statewide median is $25. Residential wastewater rates are lowest in Kirkwood Meadows PUD. Rates are relatively low in Jackson and Fiddletown CSD, where rates have not been updated since 1999 and 2004 respectively.

Residential rates tend to be highest in smaller, outlying communities. AWA charges $74 monthly in most of its satellite systems, $80 in Lake Camanche Village, and $89 in Pine Grove. Plymouth charges higher rates than the other cities. Two outlying areas—served by River Pines PUD and Fiddletown CSD—have lower rates of $44.50 and $25, respectively.

Plymouth and Sutter Creek updated rates in 2008. AWA last updated rates in its systems in 2006 and 2007. River Pines PUD did so in 2005, and plans a rate study in 2008. The cities of Ione and Jackson last updated sewer rates in 2004; Jackson reported that it is updating rates in 2008. Amador City last updated its sewer rates in 2003, and reported rate-setting as a service challenge. Fiddletown CSD last updated sewer rates in 1999.

Rate restructuring opportunities include prospects promoting conservation and increasing service charges. All providers could promote water conservation by charging tiered sewer rates on the basis of sewer flow (as measured by incoming water flow) for both residential and non-residential customers. Nearly all providers charge flat rates, regardless of flow.

Connection Fees

There is no voter approval requirement for setting connection fees or for issuing sewer revenue bonds. Connection fees for government sewer providers are established by each of the respective boards to recover the costs of extending infrastructure and capacity to new development. The fees must be justifiable, reasonable related to costs of new service and may not be used to subsidize operating costs.

Table 5-21: Wastewater Connection Fees, FY 07-08

Provider	Fee
Amador	$5,345
Ione	$7,640
Jackson	$1,950
Plymouth	$6,715
Sutter Creek	$5,300
Fiddletown CSD	$15,000
River Pines PUD	$7,748
AWA-Martell	$8,650
AWA-Lake Camanche	$16,950

In Amador County, providers charge a wide range of connection fees. The median connection fee of $7,640 for a new residential connection is charged by the City of Ione.

Connection fees in Jackson are the lowest among Amador County service providers. Sutter Creek, Amador City and Plymouth connection fees are lower than the median. Connection fees in River Pines PUD and AWA's Martell service area are higher than the median. Charges are highest in outlying, small systems in Fiddletown and Lake Camanche Village.

FINANCIAL ABILITY

All providers' financial ability to provide services is constrained by available revenues and legal limitations on revenue increases.

Amador City reported that its current financing level is adequate to deliver services, but that wastewater regulatory mandates and fees present a challenge. The City's sewer rates are lower than those charged by the City of Sutter Creek and AWA (Martell), with which Amador City shares treatment and disposal facilities. The City last updated its sewer rates in 2003. Considerable funding is needed to finance major capital needs.

The City of Ione reported that its current financing level is adequate to deliver services, but is not ample enough to provide the wastewater service levels the City desires. Specifically, the City reported a presently unfunded need for additional sewer system employees. The City's sewer rates are at the median for Amador County, and were last updated in 2004. Considerable funding is needed to finance major capital needs.

The City of Jackson has financed a significant treatment plant upgrade, needs to improve aging collection systems, and has relatively low rates compared with other providers. The City reported a financing challenge was public opposition to water and wastewater rate increases needed to comply with regulatory requirements. Its rates were last updated in 2004. The City should ensure that rates recoup costs for a prudent rehabilitation/replacement schedule for aged collection systems.

The City of Plymouth reported that current financing is insufficient to deliver adequate services, and that economic development and growth are needed to improve service levels. The City's wastewater connection fees appear to be relatively low compared with the infrastructure upgrades and replacement needed to accommodate projected growth. The City's recently updated rates are higher than the median, but lower than charged in the AWA satellite systems. Considerable funding is needed to finance major capital needs.

The City of Sutter Creek reported that financing is not adequate to deliver services. The key fiscal challenge is a significant decrease in sales tax revenue since 2006. Specifically, the City identified a need for more economic development. Other financial strategies include timely processing of proposed annexations, review of sewer rates, connection fees and development impact fees to ensure cost recovery is being achieved, and consideration of forming a redevelopment area. Considerable funding is needed to finance major capital needs.

AWA reported that financing is adequate to deliver services to the Martell wastewater system, but that funding was inadequate in the other wastewater systems. Wastewater-related financial reserves were negative in the most recent fiscal year and rates have not been increased since 2006.

Fiddletown CSD reported that existing financing sources are sufficient to deliver adequate services, but indicated that additional financing would be needed to finance capital improvements needs. The District's rates are significantly lower than the median charged, and were last updated in 1999. The District is conducting maintenance with volunteers, and the legally responsible agency, the County, reported that it last accessed the facilities in 2006. Analysis of service adequacy indicates that an assessment and update of rates, fees and efficiency may be necessary to improve service levels for the District and ensure ongoing maintenance and rehabilitation of the wastewater system.

River Pines PUD reports that current financing is sufficient to deliver services, and that all capital costs are incorporated into the rate structure. However, the District has significant unmet capital needs, some of which have not been evaluated, indicating likely underfunding of capital replacement. Services do not appear to be adequate. The District reported that it lacks basic equipment, such as a backhoe, and does not conduct wastewater collection system inspections. The District's rates are at the median among Amador County providers, even though rates tend to be higher in small, outlying communities. Rates were last updated in 2005; a rate study is being conducted in 2008.

GOVERNANCE ALTERNATIVES

This section discusses issues and problems with respect to the current organization of wastewater service in Amador County and, in light of anticipated growth, with its future organization. It identifies alternatives to the current government structure of service providers.

ANNEXATION OF SERVICE AREAS OUTSIDE BOUNDS

Annexation of extraterritorial service areas is an option that would promote logical boundaries. Since 2001, service providers have been required by law to obtain LAFCO approval to serve territory outside their boundaries.[144]

There are several wastewater purveyors presently serving territory outside their boundaries:

- Jackson: The City serves 20 connections outside its bounds.

[144] Government Code §56133. The requirement does not apply to contracts for raw water transfers or sale of surplus water for agricultural purposes.

- Plymouth: The City serves four connections outside its bounds, including a 24-unit mobile home park.

- Fiddletown: The County/CSD system serves four connections outside the bounds of the CSD.

- River Pines PUD: The District serves one connection outside its bounds.

REGIONALIZATION

There are divergent visions on regionalization of wastewater facilities.

The City of Sutter Creek proposes to replace its aging WWTP with a new tertiary plant with capacity to accommodate growth and peak flows in its service area, including Martell. ARSA needs and is developing additional effluent storage and land disposal capacity to accommodate growth in its service area as well as the City of Ione.

AWA favors a regional WWTP in Martell that would serve Sutter Creek as well. AWA envisions a regional plant as potentially serving the City of Jackson and upcountry AWA satellite systems and adjacent growth areas. However, both the cities of Jackson and Sutter Creek view the costs of pumping effluent to Martell as a major constraint to partnering in AWA's proposed regional facility in Martell.

AWA is not a member of ARSA in spite of its responsibility for the wastewater collection system in rapidly growing Martell; instead the County is an ARSA member agency although it no longer carries Martell responsibility. ARSA inclusion of AWA may present an opportunity for AWA and ARSA to collaborate on planning shared facilities.

Formation of a sanitation district to operate and serve ARSA and Martell area facilities is a government structure option. This option was not proposed by Sutter Creek or AWA.

FIDDLETOWN

Fiddletown CSD was approved by LAFCO in 2006 to begin wastewater services. The District receives wastewater rate revenues, and provides occasional wastewater system maintenance with volunteer efforts. The County owns the system and is responsible, but has lacked access due to locks since 2006 and does not receive rate revenues to compensate it for services. The County has proposed to transfer ownership of the sewer system to Fiddletown CSD. The District is open to the transfer once the County conducts improvements.

The District lacks certified personnel to operate the wastewater system. Its rates do not appear to be adequate to provide an adequate service level. AWA could potentially provide more effective services to the Fiddletown community than FCSD or the County. This could be accomplished with transfer of the Fiddletown system to AWA or with FCSD contracting with AWA for maintenance. AWA service levels would involve higher rates, as are charged in other small, outlying AWA service areas. Due to its small size, the community lacks the resources to finance major capital improvements or replacements in the future, in the event the existing facilities should fail.

A governance structure option is to complete the transfer of ownership of the sewer system from the County to the District to ensure regular monitoring and maintenance by the agency with the related revenue stream. An alternative is to transfer the system to AWA. Another alternative is to form a County Service Area funded by service charges to operate the Fiddletown wastewater system.

ALIGNMENT OF BOUNDARIES IN UNDESIGNATED AREAS

There are several planned and proposed developments located outside the SOIs of the cities of Ione, Jackson, Plymouth and Sutter Creek where there is no wastewater provider or infrastructure at this time. AWA is presently authorized to provide wastewater service anywhere in the County.

LAFCO may wish to retain authority over future annexation areas to cities and selection of the appropriate wastewater provider. A mechanism for doing so would be to establish a limited service sphere of influence for AWA wastewater services. A governance option to address this instability and planning quagmire is to form an independent special district for wastewater services covering the ARSA service area.

Each of the cities has suggested SOI expansions that would include new growth and development in adjacent areas. SOI expansions and/or annexations of such areas are governance options.

RECYCLED WATER DISTRICT FORMATION

In order to promote use of recycled water, an option is to create a special district to coordinate recycled water production and use in the County and five cities.

This option was identified by AWA. AWA views recycled water as a resource which can significantly extend water supplies to accommodate planned growth in the County beyond 2030. This can be accomplished by providing recycled wastewater to JVID and substituting raw water with reclaimed water. These transferred rights would be utilized to permit storage at Lower Bear Reservoir. In order to provide sufficient supplies to JVID, AWA recognizes the need for all wastewater treatment providers to work together and regionalize wastewater recycling to achieve this goal.

6. MSR DETERMINATIONS

This chapter sets forth recommended findings with respect to the service-related evaluation categories based upon this review of municipal services for Amador County. Agency-specific determinations are located in Volume II. For a listing of all determinations, see the *MSR Findings Report*.

LAFCO is required to identify governance options; however, LAFCO is not required to initiate changes and, in many cases, is not empowered to initiate these options. LAFCO is required by the State to act on SOI updates. The Commission may choose to recommend governmental reorganizations to particular agencies in the county, using the spheres of influence as the basis for those recommendations (Government Code §56425 (g)).

GENERAL

ADEQUACY OF PUBLIC SERVICES

- While public sector management standards do vary depending on the size and scope of an organization, there are minimum standards. Well-managed organizations evaluate employees annually, prepare a budget before the beginning of the fiscal year, conduct periodic financial audits to safeguard the public trust, maintain current financial records, periodically evaluate rates and fees, plan and budget for capital replacement needs, conduct advance planning for future growth, and make best efforts to meet regulatory requirements.

- Most of the professionally managed and staffed agencies implement many of these best management practices. Many of the smaller special districts serving the area are staffed by board members or volunteers, and do not implement such practices.

- LAFCO encourages all local agencies to conduct timely financial record-keeping and make financial information available to the public.

GROWTH AND POPULATION PROJECTIONS

- Since the 2000 Census, the countywide population has grown by eight percent, from 35,100 to 37,943 at the beginning of 2008.

- Sutter Creek exhibited the most growth from 2000 to 2008, at 26 percent overall. Over the same period, the City of Jackson grew by eight percent, the City of Amador grew by six percent, the City of Plymouth grew by five percent, and the City of Ione grew by four percent. The population of unincorporated Amador County grew by eight percent from 2000 to 2008.

- All cities in Amador County exhibited no growth—or negative growth—from 2007 to 2008.

- More residential building permits have been issued in unincorporated Amador County since 2000 than in all five cities combined.

- The County is primarily agricultural, with 198,764 acres of farmland in 2006. There were 93,702 acres of farmland protected by the Williamson Act in 2005, including 5,311 acres of prime Williamson Act farmland. Since 2000, the acreage of non-prime Williamson Act farmland has decreased by nearly three percent, but the acreage of prime Williamson Act farmland has decreased by only one-fifth of one percent.

- Job growth in Amador County from 1998 to 2008 has generally been healthier than statewide job growth.

- The jobs-housing balance in Amador County is 0.7, which is slightly higher than other neighboring counties.

- The level of taxable sales per capita in the City of Jackson exceeds that of unincorporated Amador County and the other four cities.

- The taxable sales growth rate has decreased dramatically in the Cities of Jackson and Sutter Creek from 2004 to 2007, compared to unincorporated Amador County.

- There are 53 proposed and planned residential developments in Amador County. The developments propose a total of 8,994 dwelling units and over 500 acres of non-residential development. The population would grow to 58,635 if all currently proposed and planned developments in the County materialize.

- The California Department of Finance projects a countywide population of 47,593 by 2020 and 54,788 by 2030.

FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

- Municipal service providers are constrained in their capacity to finance services by the inability to increase property taxes, requirements for voter approval for new or increased taxes, and requirements of voter approval for parcel taxes and assessments used to finance services. Municipalities must obtain majority voter approval to increase or impose new general taxes and two-thirds voter approval for special taxes.

- Limitations on property tax rates and increases in taxable property values are financing constraints. Property tax revenues are subject to a formulaic allocation and are vulnerable to State budget needs. Agencies formed since the adoption of Proposition 13 in 1978 often lack adequate property tax financing.

- Financing opportunities that require voter approval include special taxes such as parcel taxes, increases in general taxes such as utility taxes, sales and use taxes, business license taxes, and transient occupancy taxes. Communities may elect to form business improvement districts to finance supplemental services, or Mello-Roos districts to finance development-related infrastructure extension. Agencies may finance facilities with voter-approved (general obligation) bonded indebtedness.

- Financing opportunities that do not require voter approval include imposition of or increases in fees to more fully recover the costs of providing services, including user fees and development

impact fees to recover the actual cost of services provided and infrastructure. Development impact fees and user fees must be based on reasonable costs, and may be imposed and increased without voter approval. Development impact fees may not be used to subsidize operating costs. Agencies may also finance many types of facility improvements through bond instruments that do not require voter approval.

- Water and wastewater rates and rate structures are not subject to regulation by other agencies. Utility providers may increase rates annually, and often do so. Generally, there is no voter approval requirement for rate increases, although notification of utility users is required. Water and wastewater providers must maintain an enterprise fund for the respective utility separate from other funds, and may not use revenues to finance unrelated governmental activities.

ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS

- Accountability is best ensured when contested elections are held for governing body seats of local agencies. With contested elections, local voters have the opportunity to ensure accountability among their elected officials.

- The County, the cities of Ione and Jackson, and EBMUD demonstrated a high degree of public participation in elections as well as other forms of citizen participation.

- Interest in governing body membership is relatively low among many of the special districts serving the MSR area, and uncontested elections are common. Cemetery and most irrigation district board members are appointed, which limits accountability. Accountability is constrained by limited interest among citizens in serving on the governing bodies.

- CSA accountability is limited, as there is no formal mechanism for local control or input. The CSAs lack a communication vehicle for constituents to inform the County on issues pertaining to services in the community. Any CSA property owner may contact the County CSA coordinator for service requests.

- Local agencies that conduct constituent outreach promote accountability and ensure that constituents are informed and not disenfranchised. The County, the cities and the larger special districts make information about their activities available to the public through a variety of sources, including Internet websites, distribution of agenda and related documents, public access to city council and board meetings, mailing information to constituents, and similar methods. Among the smaller districts, public outreach efforts were typically informal, if conducted at all.

- Public agency operations and management should be transparent to the public. Government Code §56378 requires that local and State agencies provide information requested by LAFCOs. LAFCO was unable to obtain needed information from some agencies.

GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES

- Elimination of unnecessary local governments or inadequate service providers should be pursued with sensitivity to retaining local accountability.

- Local agencies must obtain LAFCO approval to alter boundaries, to serve territory outside their boundaries and to provide new services.

FIRE & EMS SERVICE

PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND INFRASTRUCTURE NEEDS

Capacity of facilities and infrastructure needs for each agency are reported in determinations for each provider in *Volume II: Agency Profiles*.

- Regional infrastructure needs include an equipment upgrade to reduce interference from Sutter County on the countywide secondary radio frequency. According to federal requirements, Amador County fire providers must upgrade to narrow bandwidth radios by 2013, which is anticipated to rectify the issue.

- Amador County Sheriff Dispatch needs to upgrade its equipment to identify a caller's location when phoning from a cell phone. While CALFIRE dispatches all fire providers, the Sheriff's Office transmits essential location information to CALFIRE. Such an upgrade would enhance speed and efficiency of dispatch and response.

- Overall, the agencies have the capacity to provide service to the current level of demand with existing facilities. Needed increased capacity is being addressed by four new stations, which are planned in Ione, AFPD and SCFPD.

- Agencies anticipate that any additional needs for fire facilities to address increased demand as a result of development and growth will be addressed on a case-by-case basis with the developers. A majority of the special districts (with the exception of KMPUD) have not developed fire master plans to adopt an overall plan which mitigates projected growth.

ADEQUACY OF PUBLIC SERVICES

- All fire providers under LAFCO jurisdiction rely primarily on call firefighters. Each of the providers is striving to transition to paid firefighter service (i.e., staffed stations); however, financing constraints have severely limited the ability of the agencies to hire staff.

- Ione FD, Sutter Creek FPD and Jackson FD provide service to substantial AFPD territory outside their bounds. Each provider serves a six mile radius beyond the bounds of the respective city. As a result, response times to the outside areas are longer than inside the cities, and there is a lack of backup for incidents within the cities when the agencies are called to provide automatic aid.

- Additional paid staffing is necessary to improve response times, reduce ISO ratings and begin providing urban fire service levels in high-density areas, such as Jackson, Sutter Creek Martell, Plymouth and Ione.

- All fire providers in Amador County did not meet NFPA and CPSE fire response guidelines.

- Due to the expansive size of the districts, rough terrain in some areas, and reliance on call firefighters, JVFPD and LFPD reported the longest response times.

- American Legion Ambulance did not meet response time standards for areas in and around Ione and along SR 88 in the upcountry.

- Providers should focus on firefighter retention strategies to reduce separation rates and minimize training time of new hires.

- 34 percent of call firefighters countywide meet State certification requirements of Firefighter I. A potential improvement could be made in the various agencies' training schedules to promote certification in a shorter time period. Providers could also increase compensation or impose stricter attendance policies to ensure turnout at training sessions.

- All fire agencies practice adequate financial planning by performing regular audits, adopting annual budgets and keeping up-to-date financial records.

GROWTH AND POPULATION PROJECTIONS

- Service calls for fire and emergency medical providers have been increasing and are expected to continue growing as a result of population growth.

- Temporary population increases in parts of the County, due to tourism and recreational visitors, creates a peak demand for fire and emergency services seasonally and on weekends.

- Growth in demand will be affected by the availability of alternative services like primary care and telephone based service, and demand management practices, such as better fire prevention training, fire code improvements, and building rehabilitation.

- The wildland interface areas—where structures and development meet or intermingle with undeveloped wildland or vegetative fuel—are expanding as more people are building homes in such areas, which will increase demand for effective fire service.

FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

- The financial ability of each of the agencies to provide services is constrained by available revenues and legal limitations on revenue increases.

- Each of the agencies (Ione, Jackson, AFPD, JVFPD, KMPUD, LFPD, and SCFPD) reported an unfunded need for for full or part-time paid staffing.

- Providers have been proactive in finding new revenue sources such as CFDs, a proposed ½ cent sales tax measure, and the transfer of Proposition 172 funds from the County. With these funds, the agencies hope to fund full-time staffing at a few stations throughout the County.

- Providers should evaluate and update assessments and development impact fees on a regular basis to ensure that they are achieving cost recovery. Assessments will require fewer updates if adjusted annually for inflation.

- Rural districts, such as JVFPD and LFPD, have relatively low densities that do not yield adequate revenues to transition from unstaffed to staffed stations. Even with the anticipated additional revenues, these agencies will only be able to fund part-time paid staffing at best, unless they can collaborate with other providers to pool resources.

STATUS OF, AND OPPORTUNITIES FOR, SHARED FACILITIES

- Fire and EMS providers in Amador County rely extensively on each other for mutual and automatic aid assistance and CALFIRE through the Amador Plan to optimize response times.

- Jurisdictions throughout the County achieve communication efficiencies by relying on CALFIRE for dispatching.

- The fire and EMS providers in Amador County practice extensive facility sharing, including jointly operated stations, law enforcement and ambulance substations in the fire stations, sharing of training facilities and specialized equipment, and sharing of space with other organizations for meetings.

- Ione, Jackson, AFPD, LFPD, JVFPD, SCFPD and CALFIRE benefit from enhanced collaboration and planning activities through the Amador Fire Protection Authority.

- Future opportunities for facility sharing proposed by the providers include consolidation of fire service providers, further access to station space for outside organizations, countywide training facilities, and access to CALFIRE training at the CALFIRE Academy in Ione.

ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS

- Ione, Jackson, AFPD, and KMPUD demonstrated accountability based on the measures of contested elections, constituent outreach efforts and disclosure practices.

- Each of the providers fully cooperated with the MSR process and responded to all requests for information. Notably, KMPUD was unable to provide its 90th percentile response times, and JVFPD did not provide its development impact fees or update schedule.

- JVFPD and LFPD have not had sufficient governing body and constituent interest to hold a contested election at least since 1995.

- All of the providers, with the exception of SCFPD, attempt to inform constituents through outreach activities.

GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES

Governmental structure options for fire service include the potential for several variations of consolidation.

- Providers in Amador County may benefit from consolidation by improving efficiency and minimizing duplication of resources and efforts. Specific examples of cost saving opportunities are the closing of redundant station, the elimination of surplus staff, the selling of surplus vehicles, and the elimination of extra training facilities and equipment.

- Although consolidation would be expected to generate economies of scale, it is not expected to substitute for financing of target service levels.

- Legal options for consolidation include a newly formed fire district with an independently elected board, consolidation of providers into AFPD, and formation of a joint powers authority for provision of fire service.

- Geographic approaches to consolidation include consolidation of urban, rural or all county providers.

WATER

PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND INFRASTRUCTURE NEEDS

Capacity of facilities and infrastructure needs for each agency are reported in determinations for each provider in *Volume II: Agency Profiles*.

- A majority of the providers presently have capacity to serve existing connections. AWA's Lake Camanche system, Plymouth, and EBMUD suffer from groundwater basin overdraft and are in the process of transferring to surface water for a dependable water source. JVID does not have water supplies or a distribution system to serve its entire area. VCSD is currently analyzing its water source capacity for current and future connections.

- AWA's CAWP and Lake Camanche systems lack adequate water supplies to serve future growth, and need additional water supplies and interties to the AWS system. AWA has applied for a portion of JVID's water rights to meet CAWP needs.

- The AWS system lacks adequate water supplies to serve projected growth by 2030. An option AWA is considering for increasing water supply is to acquire additional water rights from JVID, and provide recycled water to JVID.

- JVID does not have adequate water supplies to serve its entire boundary area. Future water supply is uncertain. JVID lacks storage rights to Mokelumne River water, and AWA has applied

for reversion of a portion of those rights. Its Jackson Creek supply declined after the Amador Canal was piped and tertiary effluent supplied by the City of Jackson is vulnerable.

- Groundwater overdraft has occurred in the Lake Camanche and Plymouth areas. Declining groundwater yields have been reported in Volcano CSD, the Drytown CWD vicinity and the JVID vicinity. Groundwater contamination and risks have been identified in the Ione area, associated with concerns about wastewater disposal capacity. Evaluation of groundwater resources is needed.

- EBMUD does not use all of its Mokelumne River water rights, but projects that its supply will decrease in the future due to senior water rights and increased instream flow requirements, and that supply will not meet its customers' needs during droughts.

- Potential sources of future water supply include recycled water, and water rights and associated storage facilities on the Mokelumne or Cosumnes rivers.

- AWA's Tanner, Ione and Camanche systems, the cities of Jackson and Plymouth, FCSD, and River Pines PUD need additional water storage to ensure adequate water supplies during periods of shortage.

- The AWA CAWP system, the City of Ione, PGCSD, RPCSD, and RPPUD have pressure or fire flow deficiencies.

- Several providers reported a need to replace aged or undersized pipelines. Many providers would benefit from an overall assessment of their distribution system to identify and prioritize replacement needs.

ADEQUACY OF PUBLIC SERVICES

- The water facilities of the AWA Tanner, Ione, Buckhorn and La Mel systems, Jackson, KMPUD, PGCSD, and RPCSD were found to be well operated and maintained. The AWA Lake Camanche system, Plymouth, FCSD, and RPPUD have significant operational or infrastructure deficiencies. DCWD, FCSD and VCSD have not had recent site inspections by the County and would benefit from an updated overall assessment.

- The providers generally complied with water contaminant limits and monitoring and reporting requirements. Plymouth, Fiddletown CSD, and River Pines PUD should make efforts to ensure better compliance records.

- There is substantial reliance on groundwater in the County, but a lack of information on groundwater usage and future irrigation needs. A regional groundwater management plan would be beneficial.

- Fiddletown CSD relies on a single water well. Volcano CSD's primary source has been unstable in the past, and its backup source does not produce enough water to serve the community. Neither community is connected to other water systems through interties. Water reliability is enhanced when there is an adequate backup water supply.

- Most agencies practice adequate financial planning by performing regular audits, adopting annual budgets and keeping up-to-date financial records. FCSD should consider adopting annual budgets and beginning periodic financial audits to improve operational efficiencies.

- Professionally staffed agencies generally implemented best management practices with regard to capital improvement planning and advanced growth planning. DCWD, FCSD, JVID, KMPUD, RPCSD, RPPUD and VCSD would benefit from formal capital improvement planning and, if applicable, facility and capacity planning for projected growth.

GROWTH AND POPULATION PROJECTIONS

- The City of Plymouth, Lake Camanche Village area and Volcano CSD lack adequate water supplies for short-term growth.

- Growth is projected to outpace existing water supplies in the AWS system by 2030, and additional water supplies will be needed to accommodate further growth.

- Water loss rates are significant in the City of Plymouth, Drytown CWD and AWA CAWP systems. Losses in the Fiddletown CSD and JVID systems are unknown. Improvements to distribution systems would help reduce the need for scarce surface water resources.

- Comprehensive analysis of demand is a recommended practice. Comparison of projected demand growth to both regional and local demographic and economic forecasts also helps ensure responsible planning of adequate water for future growth.

- Agencies are encouraged to implement conservation best management practices to promote water use efficiency. Metering water connections can reduce demand by around 30 percent. AWA could reduce water use by completing installation of meters. Increased use of recycled water for landscaping purposes would reduce the amount of potable water used. Requirements that installed landscaping be climate-appropriate and drought-tolerant would reduce water needs.

FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

- For the most part, the water providers demonstrated financial ability to provide adequate services. RPCSD and VCSD would benefit from additional revenue sources to finance future capital replacement costs that are not covered by the current rates.

- Given the need to improve service adequacy and a lack of funds for existing capital financing needs, current financing levels are inadequate for Plymouth, DCWD, FCSD, and RPPUD. These providers may benefit from an evaluation and update of their rates and fees and improved efficiency.

- KMPUD and JVID have not updated their rates in at least 15 years. These agencies may want to consider updating their rates to ensure adequate financing levels.

- The FCSD, KMPUD and RPCSD connection fees are well below the countywide median. These agencies may wish to review their connections fees to ensure adequate capital financing for future growth.

STATUS OF, AND OPPORTUNITIES FOR, SHARED FACILITIES

- A majority of the water purveyors practice extensive facility sharing by purchasing wholesale water from the AWA treatment and conveyance facilities and contracting with AWA for maintenance services. In addition, EBMUD distributes water to JVID via its Pardee Reservoir facilities.

- There are several opportunities for future facility sharing of water facilities, including a joint water treatment plant between AWA, EBMUD and Calaveras County Water District, the AWA and Plymouth pipeline, an intertie between the AWA and EBMUD system in the Lake Camanche area, and the proposed substitution of recycled water for a portion of JVID's water rights by AWA.

ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS

- AWA, Jackson, Plymouth, EBMUD, JVID, KMPUD, and VCSD demonstrated accountability based on the measures of contested elections, constituent outreach efforts and disclosure practices.

- Each of the providers fully cooperated with the MSR process and responded to all requests for information.

- Accountability is more limited in DCWD, FCSD, PGCSD, and RPCSD where governing body members are appointed and contested elections do not occur. DCWD, RPCSD, and RPPUD could improve public interest in district activities by promoting constituent outreach activities.

GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES

- Annexation of extraterritorial service areas is an option that would promote logical boundaries. Providers that are providing service outside of their boundaries include Jackson, Plymouth, FCSD, JVID, RPPUD, and VCSD.

- Rabb Park CSD is considering consolidation with AWA.

- Willow Springs Water District and CSA 2 are inactive agencies. Dissolution of these inactive agencies is the logical government structure option. The Cortese-Knox-Hertzberg Act provides for streamlined dissolution of agencies for failure to exercise corporate powers.

- An option is to formalize the transfer of the County Service Areas from the County to AWA through LAFCO.

- Jackson and AWA have overlapping service areas in the Martell community. Accountability for service needs could be enhanced by clarification of the service areas through LAFCO.

- DCWD and PGCSD have expressed interest in annexing planned and proposed developments outside of their boundaries.

- DCWD has been approached by areas adjacent to the District with declining well yields. If the District determines that service to the area is not cost prohibitive, then annexation of these parcels is an option.

- In order to promote utilization of recycled water, an option is to create a special district to coordinate recycled water production and use in the County and five cities.

WASTEWATER

PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND INFRASTRUCTURE NEEDS

- The City of Jackson, KMPUD and River Pines PUD wastewater flows are presently within the capacity of their wastewater treatment and disposal systems.

- Wastewater treatment or disposal capacity is absorbed in the cities of Ione and Plymouth, the communities of Lake Camanche Village and Gayla Manor, and at Mule Creek State Prison. In the cities of Amador and Sutter Creek and the community of Martell, remaining capacity is limited. The respective providers need to expand or replace wastewater facilities to accommodate anticipated growth.

- The cities of Ione and Sutter Creek need additional treatment capacity to serve proposed and planned developments within their spheres.

ADEQUACY OF PUBLIC SERVICES

- The cities of Ione and Sutter Creek plan to upgrade to tertiary treatment to comply with current or anticipated regulatory requirements. The City of Plymouth plans to upgrade to secondary treatment to comply with current or anticipated regulatory requirements.

- The City of Ione tertiary plant, Kirkwood Meadows PUD, River Pines PUD, and Preston Youth Correctional Facility appear to make best efforts to achieve regulatory compliance, having had no enforcement actions taken between 2005 and 2008.

- The cities of Ione and Plymouth, Mule Creek State Prison, and Preston Youth Correctional Facility are operating under cease and desist orders. Enforcement actions were taken between 2005 and 2008 against the cities of Amador, Ione, Jackson, Plymouth, and Sutter Creek, AWA, and recreation areas served by EBMUD and JVID's Lake Amador concessionaire.

- The cities of Ione and Jackson complied with effluent quality standards 100 percent of the time in 2007. Amador City, AWA, the City of Plymouth and Mule Creek State Prison complied 95 percent of the time. The City of Sutter Creek faced significant challenges in complying with standards, and plans to construct a new WWTP to achieve compliance.

- The wastewater collection system at Mule Creek State Prison is generally in good condition. The Sutter Creek, Plymouth, EBMUD recreation areas, KMPUD and Preston Youth Facility collection systems suffer from significant infiltration and inflow problems, and major sections need to be rehabilitated. Aging sewers in Ione and Jackson need improvements.

- The City of Plymouth and River Pines PUD lack certified wastewater operators, and contract with AWA for services. River Pines PUD staff does not have the staff ability or contract with AWA to conduct collection system inspections. Fiddletown CSD relies on uncertified volunteers for occasional maintenance.

- Only Ione and Sutter Creek have comprehensively inspected their systems; providers are encouraged to inspect a portion of their systems annually.

- The City of Jackson and Mule Creek State Prison had the highest rate of sewer overflows per 100 miles of collection system in 2007 compared to the other providers. The City and the prison need to improve performance to meet new regulatory standards.

GROWTH AND POPULATION PROJECTIONS

- Demand for wastewater services is affected directly by population and economic growth, water conservation efforts, and groundwater infiltration and inflow.

- Proposed dwelling units in the planned and proposed developments outside of designated wastewater providers' SOIs will increase future flows.

FINANCIAL ABILITY OF AGENCIES TO PROVIDE SERVICES

- The City of Jackson and Fiddletown CSD need rate increases to finance existing capital needs. The City of Jackson connection fee does not appear adequate to finance future growth-related facility needs.

- The cities of Ione and Plymouth, Fiddletown CSD and River Pines PUD need rate increases to fund appropriate service levels.

- In small, outlying wastewater service areas, existing rates are relatively high, and AWA reports rates are inadequate. The Agency's wastewater-related financial reserves were negative in FY 06-07 for areas other than Martell.

- The cities of Ione, Plymouth, and Sutter Creek, ARSA and AWA need considerable funding to finance WWTP plants or major upgrades. Growth rates and timing will determine the availability of connection fee revenue to finance these capital needs without debt financing. The providers may access bond markets to borrow the needed capital on the security of future revenue.

- The County lacks the financial ability to serve the Fiddletown CSD system, as it receives none of the sewer rate revenue collected by the CSD.

STATUS OF, AND OPPORTUNITIES FOR, SHARED FACILITIES

- The City of Sutter Creek, on the one hand, and AWA, on the other hand, both aim to develop wastewater treatment facilities intended to serve each other. Both seek to operate the new facility. AWA aims to produce and distribute recycled water to JVID from a new Martell plant to enhance long-term water supplies. Both Sutter Creek and Jackson have declined to participate in AWA's new plant due to concern about future pumping costs. Facility-sharing policy solutions would need to address both fiscal issues and long-term water supply needs.

- The City of Ione aims to upgrade and expand its tertiary treatment plant, and to share costs with Mule Creek State Prison.

- AWA and EBMUD are considering a joint treatment facility for the Lake Camanche area.

- A potential equipment and personnel sharing opportunity may be the sharing of closed circuit television (CCTV) and trained personnel between the various providers. CCTV equipment is a significant investment. By sharing the equipment, agencies could reduce costs.

ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS

- The cities of Ione, Jackson, Plymouth, and Sutter Creek, and AWA, EBMUD and KMPUD demonstrated accountability based on the measures of contested elections, constituent outreach efforts and disclosure practices.

- Fiddletown CSD has had little governing body and constituent interest as demonstrated by a lack of contested elections.

- Amador City and RPPUD could improve constituent outreach activities.

GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES

In addition to the previously discussed governance and facility-sharing options, the following governmental structure options were identified for wastewater services.

- Annexation of extraterritorial service areas is an option that would promote logical boundaries. Providers that are providing service outside of their boundaries include Jackson, Plymouth, FCSD, and RPPUD.

- The City of Sutter Creek and AWA have different visions for future treatment facilities. AWA relies on City treatment facilities and ARSA disposal facilities, but is not a member of ARSA. Governance options include AWA inclusion in ARSA, and formation of an independent special district to succeed ARSA.

- Neither Amador County nor FCSD is effectively serving the Fiddletown area. Transfer of the Fiddletown sewer system to the CSD, to AWA, and to a newly formed CSA are potential governance options to ensure adequate service levels in the community.

- The AWA boundary area and potential wastewater service area overlaps with unserved growth areas in and near the SOIs of the cities of Ione, Jackson, Plymouth and Sutter Creek. A governance option is to establish a limited service SOI for AWA wastewater services so that city SOIs may be incrementally expanded without conflicting with AWA.

- Each of the cities has suggested SOI expansions that would include new growth and development in adjacent areas. SOI expansions and annexation of such areas are governance options.

REFERENCES

BOOKS, ARTICLES AND REPORTS

Amador County, GIS Division. "Sphere of Influence Map for Ione," 2007.

Amador County. *Amador County Multi Hazard Mitigation Plan*. 2006.

Amador County. *Amador County Traffic Mitigation Fee Nexus Plan, 2000-2025*. March 2005.

Amador County. *2004 General Election Results*, URL accessed 2/1/2008 http://www.co.amador.ca.us/depts/elections/Results/election_results04.htm

Amador County. *2006 General Election Results*, URL accessed 2/1/2008 http://www.co.amador.ca.us/depts/elections/index.cfm?id=2

Amador Water Agency. *Urban Water Management Plan*. 2005

Budrick, J. "Fire officials consider unifying," *Amador Ledger-Dispatch*, February 1, 2008.

California Department of General Services, Telecommunications Division. Wireless E9-1-1 Implementation Status: Northern Region Cutovers. July 2007. URL accessed 8/2/2007, http://www.documents.dgs.ca.gov/td/911/northernRegion.pdf

California Department of Water Resources. *Bulletin 118: California's Groundwater*. Sacramento: DWR, 2003.

California Department of Water Resources. *Bulletin 160-05: California Water Plan Update 2005: A Framework for Action*. Sacramento: DWR, 2005.

California Department of Water Resources. *Bulletin 160-98: California Water Plan Update 1998: A Framework for Action*. Sacramento: DWR, 1998.

California Department of Water Resources. *Flood Warnings: Responding to California's Flood Crisis*. Sacramento: DWR, 2005.

California Legislative Analyst's Office. *The Vehicle License Fee and The 2002-03 Budget*. 2002.

California Legislative Analyst's Office. *Analysis of the 2006-07 Budget Bill: Transportation*. February 2006.

California State Controller. *Streets and Roads Annual Report, Fiscal Year 2004-05*.

California Tombstone Transcription Project. URL accessed on 3/20/08, http://ftp.rootsweb.com/pub/usgenweb/ca/amador/cemeteries/jacksoncity-dates.txt

California Water Association. *2007 Land Use and Water Supply Guidebook*. 2007.

Caltrans, Department of Transportation System Information. *2005 California Public Road Data.* 2006.

Central Valley Regional Water Quality Control Board. *Proposed 2006 CWA Section 303(D) List of Water Quality Limited Segments.* October 2006.

City of Amador Website. URL accessed on 3/12/08, http://www.amador-city.com/government.html

City of Ione. *A Study in Economic Development Strategies for the City of Ione, California.* 2003.

City of Ione. *Development Impact Fees 2005 Update*, April 2005.

City of Jackson. *Home Depot Draft Environmental Impact Review, Volume 1*. 2007

City of Sutter Creek. *Capital Facilities Fee Nexus Study*. Jan. 22, 2008.

Commission of Fire Accreditation International. *Fire and Emergency Service Self-Assessment Manual, sixth edition.* Fairfax, Virginia: Commission on Fire Accreditation International, 2000.

Commission on Local Governance for the 21st Century. *Growth Within Bounds: Planning California Governance for the 21st Century*. 2000.

Criminal Justice Statistics Center. *Crimes*. 2004. URL accessed on 9/25/07, http://caag.state.ca.us/cjsc/publications/candd/cd04/Crimes.pdf

East Bay Municipal Utility District. *Mokelumne Watershed Master Plan*. 2008.

East Bay Municipal Utility District. *Mokelumne Watershed Master Plan Program Environmental Impact Report*. April 2008.

East Bay Municipal Utility District. *Mokelumne Watershed and Facilities Assessment Report*. November 2007.

ECO:LOGIC Engineering. *Amador County Regional Wastewater Management Plan*, 2005.

EDAW. *Initial Study for the State Water Resources Control Board's On-site Wastewater Treatment System Regulations*. June 2005.

Elmendorf, William F, Fern K. Willits, Vinod Sasidharan, and Geoffrey Godbey. "Urban Park and Forest Participation and Landscape Preferences." *Journal of Agriculture*, Nov 2005.

Gee, Jenifer. "Sutter Creek to pan through 'Gold Rush'," *The Amador Dispatch*, July 18, 2007.

Gold Rush Ranch and Gold Resorts. URL accessed 3/9/08 http://www.goldrushranch.com/

HDR Engineering. *Sutter Creek Wastewater Master Plan*. 2007.

HDR Engineering. *Amador Regional Sanitation Authority Master Plan*. June 2008..

Harnick, Peter and Amy Kimball. The Trust for Public Land. *If They Don't Count, You Don't Count: Estimating the Number of City Park Users is Important -- Really.* October 2004.

Helperin, Alex N., David S. Beckman and Dvora Inwood. *California's Contaminated Groundwater: Is the State Minding the Store?* Los Angeles: Natural Resources Defense Council, 2001.

Ho, Chiang-Hua, Laura Payne, Elizabeth Orsega-Smith, and Geoffrey Godbey. "Parks, Recreation and Public Health: The Benefits are Endless." *Parks and Recreation*, April 2003.

Jensen, Alec and Jack W. Snook. *Consolidations A La Carte. Fire Chief.* 2000. URL accessed on 9/26/07, http://firechief.com/mag/firefighting_consolidations_la_carte/

Jones and Stokes. *Final Tribal Environmental Impact Report for the Buena Vista Rancheria of Me-Wuk Indians of California Gaming and Entertainment Facility*. May 2007

Kennedy/Jenks Consultants. *Water Services: Removing Fe and Mn from Drinking Water.* URL accessed on 4/12/07, http://www.kennedyjenks.com/Services/Water/pdBealeAFB.asp

League of California Cities. *Municipal Revenue Sources Handbook, 2001 edition*. Sacramento: League of California Cities, 2001.

Lee & Ro, Inc. *City of Ione Technical Memorandum: Wastewater Treatment and Disposal.* Oct. 4, 2007.

Lee & Ro, Inc. *Technical Memorandum: Wastewater Disposal and Treatment Capacity: City of Ione WWTP.* May 4, 2007.

Little Hoover Commission. *Special Districts: Special Districts: Relics of the Past or Resources for the Future?* 2000.

MWH. *City of Jackson Wastewater Treatment Plant Facilities Plan*. 2001

Mayer, Peter W., William B. DeOreo, Eva M. Opitz, et al. *Residential End Uses of Water.* Denver: American Water Works Association, 2001.

Mertes, James D. and James R. Hall. *Park, Recreation, Open Space and Greenway Guidelines.* 1996. National Parks and Recreation Association: Alexandria, VA.

National Association of Home Builders. *New Home Size Reaches All-Time High in 2005*. June 26, 2006. URL accessed on 8/9/07, http://www.nbnnews.com/NBN/issues/2006-06-26/Front+Page/index.html

National Fire Protection Association. *NFPA 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* 2004.

Nolte and Associates, Inc. *Conceptual Plan for Wastewater Treatment and Disposal*, 2007.

Northern California Water Association. *Sacramento Valley Integrated Regional Water Management Plan.* December 2006.

Puentes, Robert and Ryan Prince. The Brookings Institution. *Fueling Transportation Finance: A Primer on the Gas Tax.* 2003. Available at http://www.brookings.edu/es/urban/publications/gastax.pdf

RMC Water and Environment. *Mokelumne, Amador and Calaveras Integrated Regional Water Management Plan*. October 2006

Reece, J. "Special Election: Plymouth City Council recall election statements." *Amador Ledger-Dispatch*. April 30, 2004.

State Water Resources Control Board. *Wastewater User Charge Survey Report: FY 2005-06*. May 2006.

Trust for Public Land. *Excellent City Park System*. 2006. URL accessed on 8/15/2007, http://www.tpl.org/tier3_cd.cfm?content_item_id=11428&folder_id=175

Tully and Young. *Land Use/Water Supply Analysis Guidebook: Report to the Northern California Water Association*. June 2007.

U.S. Department of the Interior, Bureau of Indian Affairs. *Draft Environmental Impact Statement: Ione Band of Miwok Indians, 222.04-Acre Fee-to-Trust Land Transfer and Casino Project, Amador County, CA*. November 2007.

U.S. Environmental Protection Agency. *Cleaner Water Through Conservation*. Publication EPA 841-B-95-002. April 1995.

U.S. Environmental Protection Agency. *Collection Systems O&M Fact Sheet: Sewer Cleaning and Inspection*. Washington, D.C., August 2004.

U.S. Forest Service Website. URL accessed 2/12/08: http://www.fs.fed.us/aboutus/.

Walker, Samuel and Charles M. Katz. *The Police in America: An Introduction with PowerWeb*. McGraw-Hill, 2002.

DATA SOURCES

Agency-specific data: responses to LAFCO Requests for Information, budgets, Comprehensive Annual Financial Reports, Capital Improvement Plans, General Plans, official statements, and miscellaneous plans

Agricultural data: Agricultural Census; California Department of Conservation

Bond ratings: Moody's; Standard and Poor's

Business and employment data: Dun and Bradstreet; County Business Patterns; Quarterly Census of Employment and Wages; California State Board of Equalization.

Crime statistics and clearance rates: California Department of Justice

Demographic data: U.S. Bureau of the Census; Department of Finance

Jobs and population projections: Sacramento Area Council of Governments; Department of Finance, U.S. Bureau of Labor Statistics, Regional Wastewater Management Plan, local agencies

Library statistics: California State Librarian

Long-Term Debt: California State Controller; MuniStatements; Moody's; Standard and Poor's; Comprehensive Annual Financial Reports

Revenue: California State Controller; Amador County Auditor/Controller; Comprehensive Annual Financial Reports

Solid Waste data: California Integrated Waste Management Board

Wastewater data: California Regional Water Quality Control Board; U.S. Environmental Protection Agency; Governor's Office of Emergency Services

Water data: U.S. Environmental Protection Agency; California Department of Public Health; Department of Water Resources, State Water Resources Control Board, Amador Water Agency

INTERVIEWS AND CORRESPONDENCE

Agency	Name and Title
Amador County	Joe Lowe, Auditor-Controller
Amador County	Larry Peterson, Director of Public Works
Amador County	Susan Grijalva, Planning Director
Amador County	Debbie Smith, Elections
Amador County	Terri Daly, County Administrative Officer
Amador County Department of Environmental Health	Scott Meyer
Amador County Department of Environmental Health	Lance Salisbury, Environmental Scientist
Amador County Department of Environmental Health	Mike Israel, Director
Amador County Department of Environmental Health	Elaine Williams, Administrative Technician
Amador County General Services Administration	Jon Hopkins, Director
Amador County General Services Administration	Leanne McIntyre
Amador County Office of Emergency Services	Lynne Olson
Amador County Recreation Agency	Tracey TownerYep, Executive Director
Amador County Sheriff	Captain Glen Humphries
Amador County Transportation Commission	Charles Field
Amador County Transportation Commission	Sean Rabé, Assistant Planner
Amador Fire Protection District	Jim McCart, Chief
Amador Regional Sanitation Authority	Rob Duke, General Manager
Amador Resource Conservation District	Steve Cannon, Board Member
Amador Unified School District	George Lambert, Consultant
Amador Water Agency	Gene Mancebo, Manager of Engineering and Planning
Amador Water Agency	Jim Abercrombie, General Manager
Amador Water Agency	John Griffin, Supervising Engineer - New Business
CALFIRE	Jody Gossner
CALFIRE	Lee Winton, Deputy Chief
CALFIRE	Mike Kirkley, Division Chief
California Department of Public Health	Joe Spano
Central Valley RWQCB	Scott Kranhold
City of Amador	Joyce Davidson, City Clerk
City of Amador	Richard Lynch, Mayor
City of Amador	Roark Weber, City Engineer
City of Ione	Bob Godwin, Wastewater Consultant
City of Ione	Ken Mackey, Fire Chief
City of Ione	Mike Johnson, Police Chief
City of Ione	Kim Kerr, City Manager
City of Ione	Roark Weber, City Engineer
City of Jackson	Mark Morton, Fire Chief
City of Jackson	Scott Morrison, Police Chief
City of Jackson	Max Godde, Water Superintendent
City of Jackson	Mike Daly, City Manager
City of Jackson	Roark Weber, City Engineer
City of Jackson	Susan Peters, Planning Director
City of Plymouth	Gene Albaugh, City Manager (former)
City of Plymouth	Jeff Gardner, Finance Director
City of Plymouth	Paula Daneluk, Planning Director
City of Plymouth	Roark Weber, City Engineer
City of Sutter Creek	Jeff Gardner, Finance Director
City of Sutter Creek	Natalie Doyle, Office Manager
City of Sutter Creek	Roark Weber, City Engineer
City of Sutter Creek	Rob Duke, City Manager
City of Sutter Creek	Sean Rabe, Assistant City Manager

Agency	Name and Title
Drytown County Water District	Linda Lacey, Board Secretary
Drytown County Water District	Nancy Gibbs
East Bay Municipal Utility District	Joseph Callahan, Customer Services Manager
Fiddletown Community Services District	Jane O'Riordan
Ione Memorial District	Darrelld Lariggan
Ione Memorial District	Dick Brown
Jackson Valley Fire Protection District	Thom Reed, Fire Chief
Jackson Valley Irrigation District	Jane Wabs, Office Manager
Kirkwood Meadows Public Utility District	Michael Sharp
Lockwood Fire Protection District	Andrea Jones, President
Mule Creek State Prison	Chris Weathersbee, Public Information Officer
Mule Creek State Prison	Daniel Wissner, Fire Chief
Mule Creek State Prison	Dawn Lorey, Associate Warden, Business Services
Mule Creek State Prison	Mike Martel, Acting Warden
Mule Creek State Prison	Ray Eisert, Plant Manager
Mule Creek State Prison	Steve Melendes, Chief Engineer
Pine Acres Community Services District	Earl Silliman, Chair
Pine Acres Community Services District	Jim Green
Pine Grove Community Services District	Paul Johnston
Pine Grove Community Services District	Roy Ragan, Board Member
Preston Youth Correctional Facility	Randy Kayl
Rabb Park Community Services District	Frank Denney, Board Member
Ranch House Estates Community Services District	Anita Durflinger, Treasurer
Ridgewood Acres Community Services District	Tim Sammons, Chair
River Pines Public Utility District	Heinz Hamann, General Manager
River Pines Public Utility District	Mary Beth Van Voorhis, Board Member
Sunset Heights Community Services District	Betty Brandson
Sunset Heights Community Services District	Chuck Lowrie, Board Member
Sutter Creek Fire Protection District	Butch Martin, Chief
Sutter Creek Fire Protection District	Dominic Moreno, Administrator
Township No. 2 Public Cemetery District	Colin Frost, General Manager
Township No. 2 Public Cemetery District	Marilyn Brettner, Board Member
U.S. Forest Service	Doug Barber, District Ranger
U.S. Forest Service	Roger Ross, Resource Officer
Volcano Cemetery Association	Nancy Bailey
Volcano Community Services District	Nancy Bailey
Volcano Community Services District	Meg Gottstein, Board Member
Volcano Community Services District	Sharon Owens, General Manager
Willow Springs Water District	Elden Waite, Board Member
Willow Springs Water District	John Applegate, Board Member