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# PLACER COUNTY GENERAL PLAN UPDATE



## GENERAL PLAN BACKGROUND REPORT

## TECHNICAL APPENDICES

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**Appendix A**  
**Large Water Systems**

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## APPENDIX A

### LARGE WATER SYSTEMS

This appendix includes detailed summary information for each of the 40 large water systems reviewed for Chapter 6 of the *Placer County General Plan Draft Background Report*. The following information is summarized for each system:

- District Overview
- Source Information
- Primary Transmission and Distribution
- Storage
- Treatment
- 1990 System Production
- Deficiencies and Limitations
- Existing Planned Improvements (where applicable)
- System Appraisal

Following each of these detailed summaries is an "executive summary" sheet that includes a location map and a summary description of the individual system. Finally, for each individual system described, there is a service boundary map.

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## AGATE BAY WATER COMPANY

**District Overview:** The initial water supply permit for Agate Bay Water Company was issued in 1955 to Mountain Springs Water Company, predecessor of Agate Bay Water Company. The system currently operates under a permit issued in 1973. As the number of services increased and facilities were updated, it became necessary for jurisdiction to change from the Placer County Department of Environmental Health to the State Department of Health Services in 1972.

Agate Bay Water Company serves a residential subdivision area at the north end of Lake Tahoe near Camelian Bay. Many residences are occupied on a seasonal basis.

**Source Information:** The system is supplied by two sources, Lake Tahoe, and a spring. The spring provides most of the water for the system. Lake Tahoe water is transmitted to the system via a 1,700-foot pipeline and supplies about 100 residences too high for the spring source. Two intake pumps are capable of supplying about 170 gpm each. The Lake source is also used to supplement supply during peak demand.

**Primary Transmission and Distribution:** The system is composed of two parts, the lake system and the spring system. While the two are operated independently, they are connected by pipes with closed valves that enable supplemental supply in emergencies.

The spring source flows from a spring box by gravity to a 48,000-gallon steel storage tank. Water taken for the lake system supplies 100 houses located above the spring source. The lake system is equipped with two 25 H.P. pumps connected to a float switch in the tank.

Most of the system consists of 6-inch asphalt dipped and wrapped unlined steel pipe. About one third of the system mains are less than 4 inches in diameter. Distribution system mains are in good condition.

**Storage:** Storage facilities consist of two tanks: a spring tank and lake tank. The spring tank, which has a capacity of 48,000 gallons, is 16 feet above ground, cylindrical, and constructed of bolted steel. The lake tank is 24 ft. above ground, cylindrical, and constructed of bolted steel, with capacity of 210,000 gallons.

**Treatment:** The only treatment provided is disinfection of the lake water by chlorination.

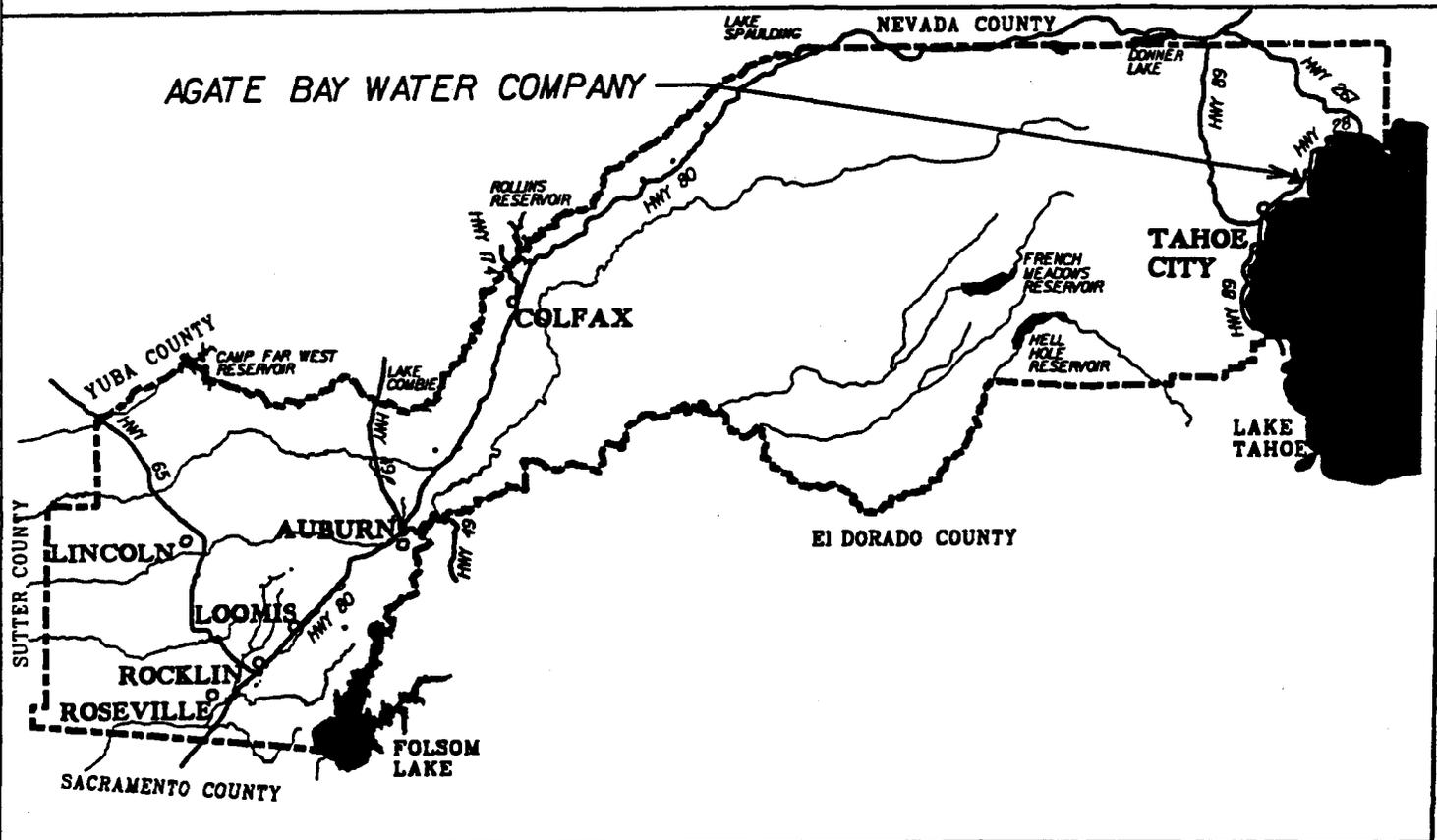
**1990 System Production:** Currently, 540 service connections serve the system, none of which are metered. The system served an approximate total of 38.1 million gallons during the 1990 year. Maximum monthly production occurred during August and was approximately 8.190 million gallons while maximum daily production reached 264,193 gallons.

**Deficiencies and Limitations:** The biggest problem facing the Agate Bay Water Company is compliance with Surface Water Treatment Regulations. Additional sources and/or storage facilities will be necessary to meet peak demands unless a water treatment facility is constructed for the lake water.

**System Appraisal:** The Agate Bay subdivision is mostly built-out. Future demands to the system will be increased minimally over the next decade. A spring source supplying the system is able to provide adequate water supply during normal usage. Peak seasonal use, however, needs supplemental supply. The distribution system is in good shape; maintenance costs thus remain relatively low.



# PLACER COUNTY WATER SYSTEMS



System Name: AGATE BAY WATER COMPANY

Address: P.O. BOX 331, CARNELIAN BAY, CA 95711

Contact Name: AL SCHWARTZ Phone: (916)-546-3270

Service Area Size: \_\_\_\_\_ No. Connections: 540 Population Served: @ 2000

Services Provided: PRIMARILY RESIDENTIAL - LARGELY VACATION HOMES

## Summary System Description

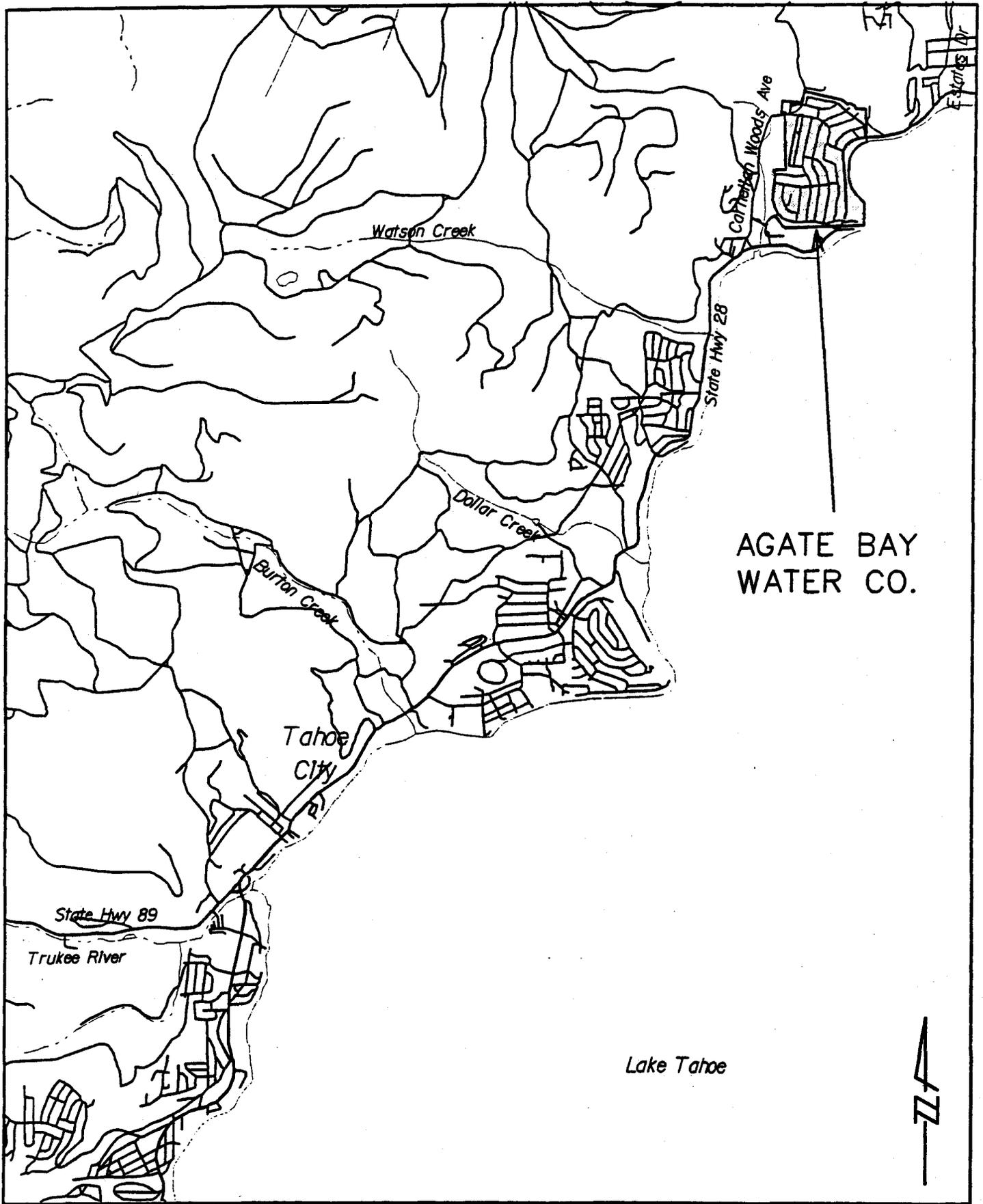
Source: HAS A LAKE TAHOE INTAKE EQUIPPED WITH (2) 25 H.P. PUMPS.  
AND SERVED BY A SPRING SOURCE.

Transmission: LAKE INTAKE REACHES APPROXIMATELY 100 CONNECTIONS VIA A 1700 FT.  
6 INCH PIPELINE WHICH ARE TOO HIGH FOR THE SPRING SOURCE.

Treatment: TREATMENT PROVIDED IS CHLORINATION OF LAKE WATER. NO  
TREATMENT IS PROVIDED TO THE SPRING SOURCE.

Storage: STORAGE FACILITIES CONSISTS OF TWO TANKS, 1) A SPRING TANK WHICH IS  
ELEVATED 16 FT. ABOVE THE GROUND SURFACE, STEEL BOLTED, AND HAS A 48,000  
GALLON CAPACITY 2) A 210,000 GALLON ELEVATED (24 FT.) STEEL BOLTED.

Capacity Limitations: ABILITY TO COMPLY WITH SURFACE WATER TREATMENT  
REGULATIONS.



AGATE BAY WATER COMPANY

**ALPINE SPRINGS COUNTY WATER DISTRICT**

**District Overview:** The Alpine Springs County Water District provides water to four pressure zones within Alpine Meadows. The District was formed in 1963. Since its formation it has undergone several water permit amendments thus reaching its current supply status. Additionally, the District also is responsible for fire, sewer, greenbelt and recreation.

Three of the four pressure zones are interconnected, allowing supply to any zone from another in case of an emergency. For the most part the system is gravity fed, having pressure reduction valves between zones. Four horizontal and three vertical well sources supply the water system.

Water service connection fees and rate schedule for 1991 shown below.

Connection fee = \$525 - two-bedroom house  
Rates:

| Meter Size | Yearly Service Charge |
|------------|-----------------------|
| 3/4"       | \$175.00              |
| 1"         | \$186.00              |
| 1.5"       | \$263.00              |
| 2"         | \$475.00              |
| 3"         | \$946.00              |

Up to 50,000 gallons/year is included in above rates. Service charges for excessive water use is shown below:

|                                 |                      |
|---------------------------------|----------------------|
| 50,001 to 100,000 gallons/year  | \$0.50/1,000 gallons |
| 100,001 to 150,000 gallons/year | \$0.40/1,000 gallons |
| 150,001 and up                  | \$0.30/1,000 gallons |

**Source Information:** Water supply source for the Alpine Springs County Water District consists of four horizontal springs and three vertical wells. Well source No. 1 is located at the midpoint in the valley. The minimal dependable supply capacity of this source is estimated at about 75 gpm, with maximum obtainable reaching 100 gpm.

Wells No. 2 and No. 4 are located near the ski lodge at the western end of the valley. The wells and related distribution piping were constructed by the ski area for snow making. An agreement between the Alpine Meadows ski area and Alpine Springs County Water District allows usage of the wells between October 15 and April 15 without cost to the ski area. Usage is permitted in emergency situations to the ASCWD. Capacity characteristics are similar to Well No. 1, each having a reliable supply capacity of 50 gpm, and able to supply up to 140 gpm combined.

Well No. 3 is connected to zone 3. Its minimum capacity is observed at 25 gpm, with expected maximum capacity of 35 gpm.

Vertical wells 1 and 2 are located approximately 100 feet apart from each other. Well No. 1 is capable of providing a minimum capacity of 40 gpm and maximum of 60 gpm. Well No. 2 provides a minimum of 10 and a maximum of 20 gpm. These wells are used primarily as standby supplementing the horizontal wells during busy periods.

The ACW well is located at the entrance to Alpine Meadows, in the east end of the valley. This well has a reliable capacity of 40 gpm with a 50 gpm maximum limit.

Based on the foregoing discussion, the District's present water supply capacity is 290 gpm. This is well over the required amount to service the area. The following table further summarizes source information.

**SOURCE SUPPLY INFORMATION**  
**Alpine Springs County Water District**

| Source     | Minimum<br>Reliable<br>Capacity | Maximum<br>Reliable<br>Capacity |
|------------|---------------------------------|---------------------------------|
| Well 1     | 75 gpm                          | 100 gpm                         |
| Well 2     | 100 gpm                         | 140 gpm                         |
| Well 3     | 25 gpm                          | 35 gpm                          |
| AMEW No. 1 | 40 gpm                          | 60 gpm                          |
| AMEW No. 2 | 10 gpm                          | 20 gpm                          |
| ACW No. 3  | 40 gpm                          | 50 gpm                          |

**Primary Transmission and Distribution:** The physical condition of all distribution facilities in Alpine Meadows is very good. Flexibility of supply to specific zones during emergencies is adequate. Almost all areas can be supplied from two directions by separate sources or storage tanks. Most distribution piping is composed of asbestos cement pipe ranging from 6" to 10" in diameter.

**Storage:** Total storage capacity available is 1.1 million gallons. However, not all storage capacity is available to all locations. Storage is available between (5) 100,000 gallon tanks and (1) 500,000 gallon tank. The tanks are all reportedly in good condition both structurally and sanitarly.

**Treatment:** The only treatment provided to the system is disinfection by chlorination once per year or as necessary.

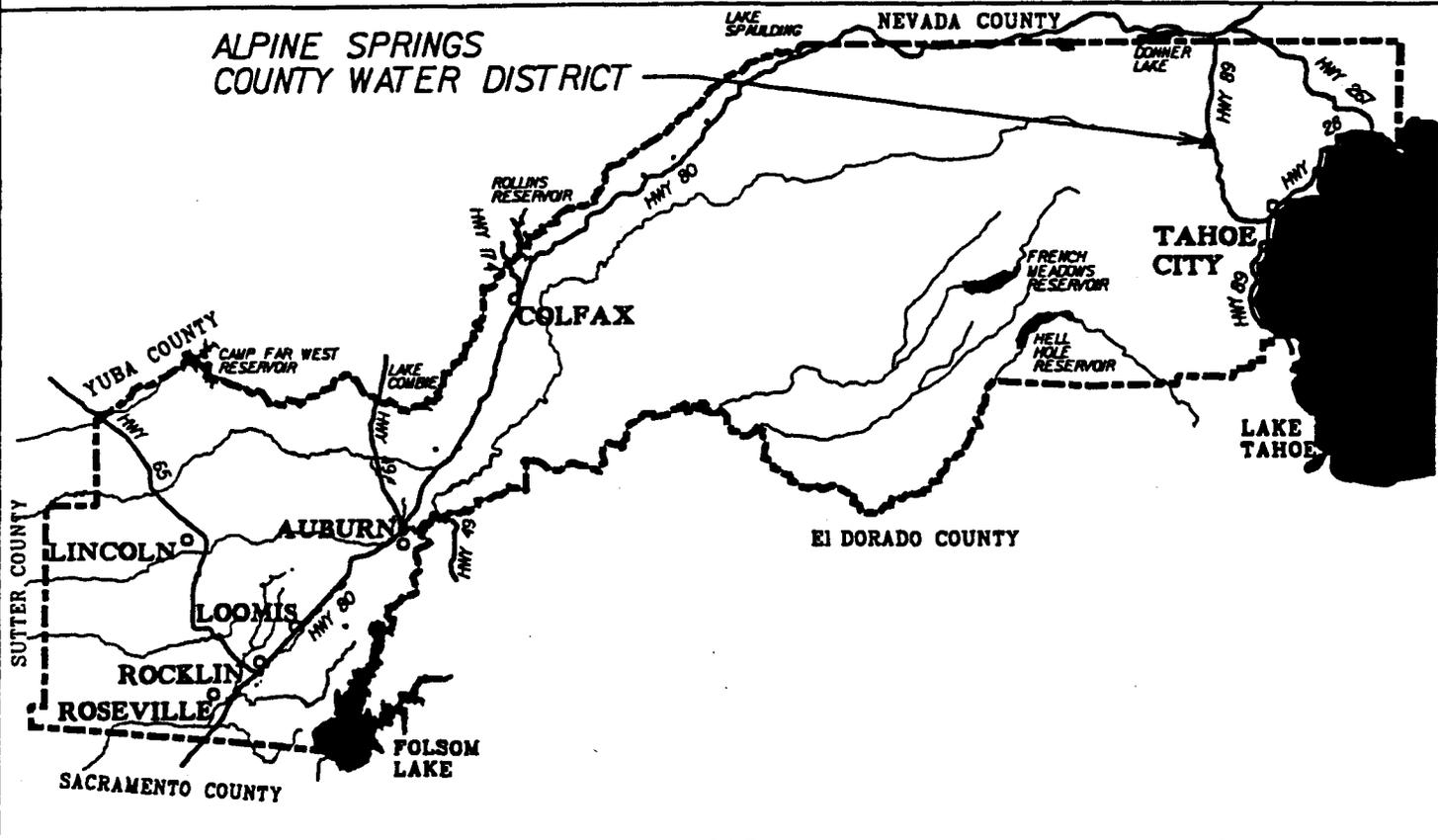
**1990 System Production:** Currently seven ground water sources serve a total of 532 general and residential and 3 commercial connections. The permanent population served is approximately 250 people. Maximum seasonal is substantially higher at 8,000, a significant seasonal influx.

**Existing Planned Improvements:** The District is currently in its third year of a five year long capital improvement program. All proposed projects outlined for completion to date are completed, and expects to meet all priority items by 1993.

**Deficiencies and Limitations:** Directly resulting from the ability of the District to recognize and obtain funding for continued maintenance and project retrofits, no significant deficiencies or limitations exist in the system.

**System Appraisal:** The Alpine Springs County Water District currently experiences few difficulties with operation and maintenance to its water system. Adequate water supply and interconnections throughout the system could allow for additional services within the district boundaries.

# PLACER COUNTY WATER SYSTEMS



System Name: ALPINE SPRINGS COUNTY WATER DISTRICT

Address: DRAWER "E"; TAHOE CITY, CA 95730

Contact Name: THOMAS G. SKJELSTAD Phone: (916)-583-2342

Service Area Size: 4.5 sq mi No. Connect.: 535 Population Served:       

Services Provided: PRIMARILY RESIDENTIAL AND CONDOMINIUMS W/3 COMMERCIAL CONN.

## Summary System Description

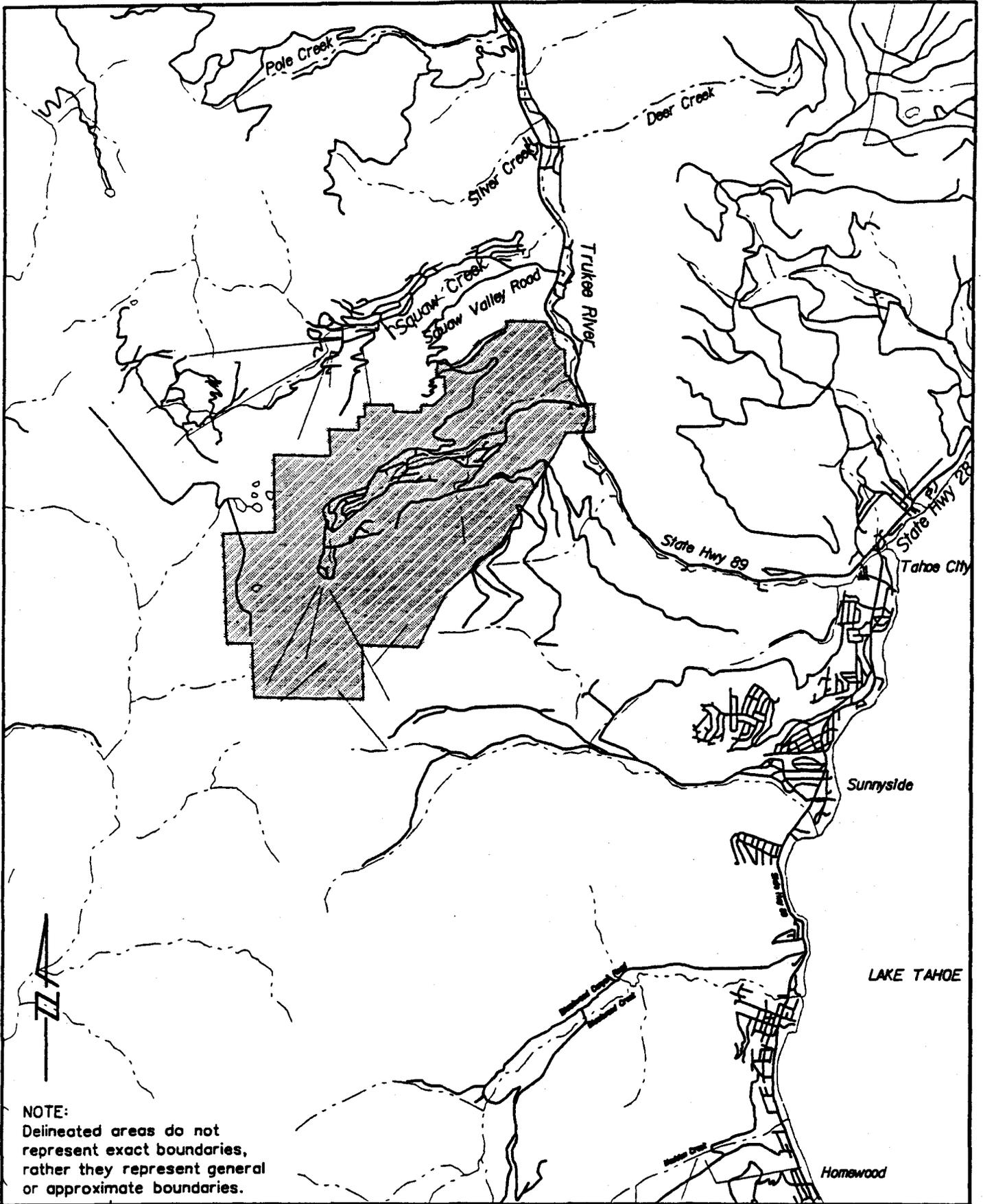
Source: 4 HORIZONTAL WELLS AND THREE VERTICAL WELLS ARE CAPABLE OF PROVIDING A MINIMUM SOURCE CAPACITY OF 290 GPM TO THE SYSTEM.

Transmission: ALL TRANSMISSION AND DISTRIBUTION LINES WITHIN THE SYSTEM ARE CONSTRUCTED FROM ASBESTOS CEMENT PIPE RANGING IN SIZE FROM 4 In. TO 10 In.

Treatment: DISINFECTION BY CHLORINATION IS PROVIDED TO THE SYSTEM ONCE A YEAR AND WHEN NECESSARY.

Storage: THERE EXISTS 11 MILLION GALLONS OF STORAGE AVAILABLE TO THE SYSTEM BETWEEN (5) 100 K TANKS AND (1) 500 K TANK.

Capacity Limitations: DUE TO AN AGGRESSIVE 5 YEAR CAPITAL MAINTENANCE PROGRAM, THERE ARE NO SIGNIFICANT DEFICIENCIES TO THE SYSTEM.



**ALPINE SPRINGS COUNTY WATER DISTRICT**  
**Water Service Area**

## CASTLE CITY MOBILE HOME PARK PUBLIC WATER SYSTEM

**District Overview:** Castle City Mobile Home Park is located near Newcastle. The park was inducted in 1966 and contains 200 mobile homes. The water treatment plant serving Castle City MHP was designed and constructed by Mr. Ronald Coleman, a Grade II operator and owner of the facility. The State Department of Health Services (DOHS) recommends connection to Placer County Water Agency (PCWA) by June 1993 in order to meet the new standards.

**Source Information:** The domestic water supply for the Castle City MHP is derived from PCWA's Rock Newcastle Canal. The Newcastle Canal is delegated as a backup source.

**Primary Transmission and Distribution:** The Castle City MHP distribution system, consisting of a 1,000 gallon elevated pressure tank and PVC pipe, does not meet California Water Works standards.

**Storage:** A 60,000 gallon ground level clearwell provides storage for treated water at Castle City MHP.

**Treatment:** Water treatment at Castle City MHP consists of coagulation, sedimentation, chlorination, and filtration. A flocculation tank, sand filters, and clearwell operate in series and produce a maximum of 50,000 gpd. Two pumps transmit treated water to storage.

**1990 System Production:** Castle City MHP serves an estimated population of 344 through 200 service connections.

Maximum daily water supply observed was 53,000 gallons, a maximum monthly supply of 1.6 million gallons, and an annual total of 16 million gallons in 1990.

**Deficiencies and Limitations:** Implementation of the Surface Water Treatment Regulations (SWTR's) will require that the Castle City MHP modify their existing treatment plant. Addition of flocculation processes in the sedimentation tank, extended chlorine contact time in the clearwell, installation of blowoff hydrants at dead ends, implementation of alarm devices, and purchase of standby replacement equipment are recommended modifications.

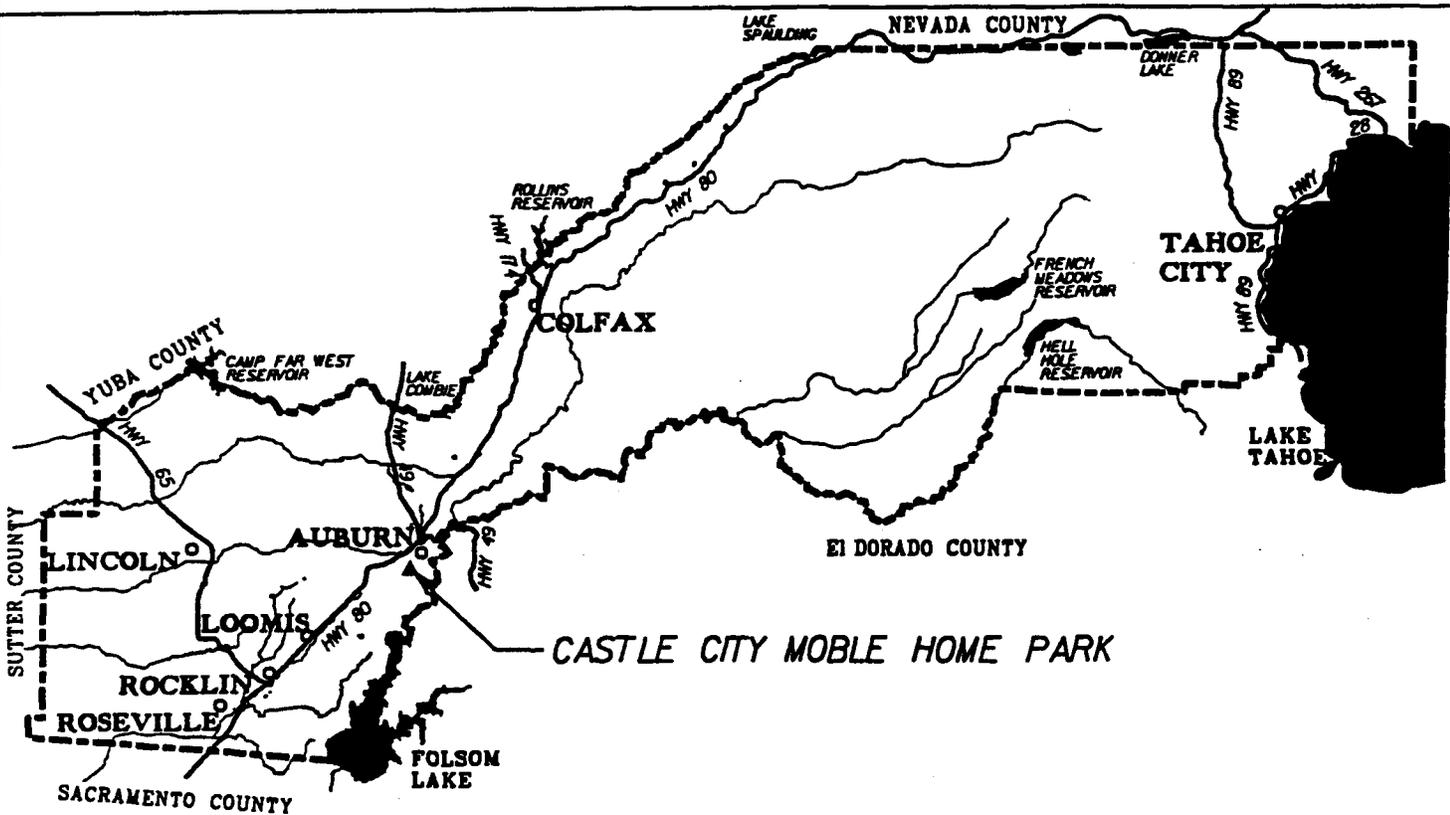
Several operation and maintenance refinements are also needed at the Castle City MHP. These include monitoring and recording of turbidity levels in the combined filter effluent and chlorine levels in the clearwell effluent and periodic testing of individual filter performance. Initiation of a testing program determining bacteriological, chemical, and radiological water quality aspects is also required. The park needs to establish an effective cross-connection control program, draft an updated emergency notification plan, and prepare maps of the distribution system.

**Existing Planned Improvements:** Although development of the Castle City MHP property is not saturated and additional access to public utilities is attainable, there are no current plans for expansion.

**System Appraisal:** The water treatment system serving the Castle City MHP must make punctual improvements to comply with the SWTR's. Noted shortcomings include deficient flocculation processes, disinfection, alarm signals, and standby equipment and inadequate water quality monitoring itinerary, cross-connection control program, emergency notification plan, and distribution system maps. These improvements may warrant connection with PCWA, an alternative endorsed by the DOHS; however, a poor distribution system may delay this arrangement.



# PLACER COUNTY WATER SYSTEMS



System Name: CASTLE CITY MOBLE HOME PARK  
 Address: 1588 USA DRIVE, NEWCASTLE, CA 95658  
 Contact Name: RONALD COLEMAN Phone: (916)-663-3544  
 Service Area Size:      No. Connections: 200 Population Served: 344  
 Services Provided: GENERAL AND RESIDENTIAL

## Summary System Description

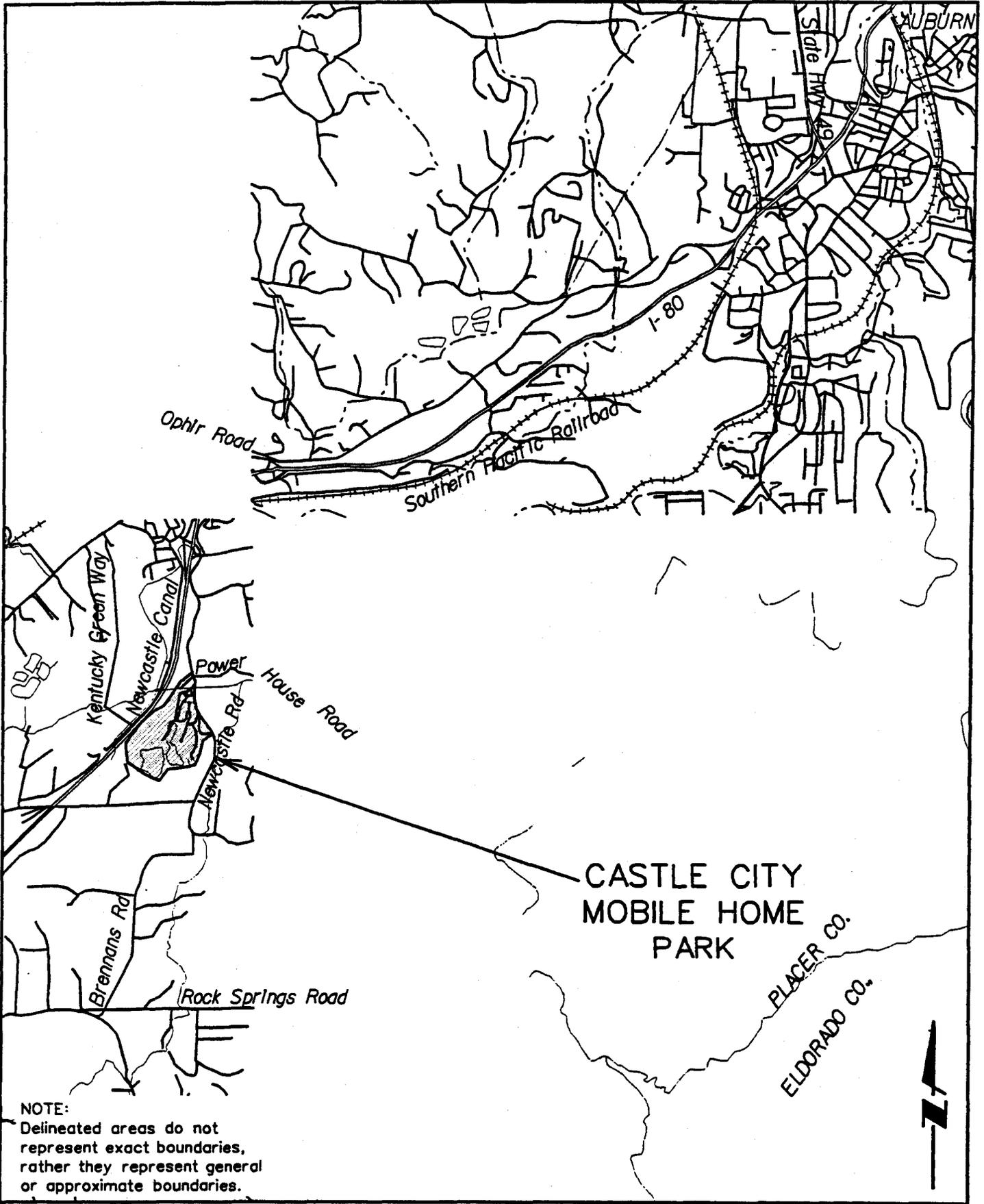
Source: WATER IS PURCHASED FROM PCWA OUT OF THE ROCK SPRINGS CANAL  
DURING EMERGENCY WATER IS DRAWN FROM THE NEWCASTLE CANAL

Transmission: WATER IS TRANSMITTED FROM THE ROCK SPRINGS CANAL TO THE  
TREATMENT PLANT VIA 4000 ft. OF 3 in. PVC PIPE. THE SYSTEM IS IN GOOD CONDITION.

Treatment: WATER RECEIVES TREATMENT AT THE TREATMENT PLANT. THE  
TREATMENT PLANT COULD BE CONSIDERED A CONVENTIONAL FILTRATION PLANT,  
AND DOES CONTAIN A FLOCCULATOR.

Storage: HAVE A TOTAL OF 120,000 GALLONS OF STORAGE BETWEEN TWO 60,000  
GALLONS CONC. TANKS

Capacity Limitations: THE TREATMENT PLANT IS OLD AND LACKS MANY WARNING DEVICES,  
AND MONITORING DEVICES REQUIRED BY THE SURFACE WATER TREATMENT REGULATIONS.  
MONITORING DEVICES ARE NOT REQUIRED BECAUSE WE ARE SERVING FEWER THAN 500 PERSONS.



**CASTLE CITY MOBILE HOME PARK**  
**Water Service Area**

## **CHRISTIAN VALLEY PARK COMMUNITY SERVICES DISTRICT**

**District Overview:** Christian Valley Park Community Services is located northeast of Auburn just off Highway 80. The District was formed originally in 1964 under jurisdiction of Placer County Health Department. With an increasing number of connections the District now operates under a water supply permit issued in 1978 under jurisdiction of State Department of Health Services.

The District purchases ditch water from PCWA out of the Bowman Canal providing treatment, storage and distribution. The service area is composed primarily of residential low density (1 - 5 ac lots).

**Source Information:** The sole source of supply to Christian Valley Park CSD is PCWA's Bowman Canal. This canal carries water originating in the Sierra Nevada Mountain Range and then makes its way through various reservoirs, streams and canals. The water shed is mostly undeveloped, but open to the public for recreation. Due to a few sparse residences having septic systems opportunity exists for contamination from sewage.

**Primary Transmission and Distribution:** Primary transmission and distribution is through the Bowman Canal. Primary transmission for the system is an 8 inch AC line which carries water from the treatment plant to the storage reservoir.

Asbestos Cement Pipe (4" - 8" diameter) is the primary means of distribution. Approximately 4000 ft. of 10 inch RCP and 4000 ft of 12 inch steel pipe are included within the distribution system.

The system contains a lower and upper pressure zone. The lower zone includes approximately 93% of the services. It receives water by gravity flow through a 10 inch steel main from the storage reservoir. Pressures for this zone range from 75 - 130 psig, thus requiring pressure reducing valves at most connections to system in the lower zone.

The upper zone experiences pressures ranging form 50 - 80 psig. The upper pressure zone is responsible for serving about 35 residences. A booster station having (2) 10 Hp. pumps supplies water to the upper zone. The present booster station has the capacity of 300 gpm.

**Storage:** The treatment plant's clearwell acts as the sole distribution storage reservoir for the system. This storage facility is an earthen reservoir with a capacity of approximately 1 million gallons and is covered with a Hypalon membrane.

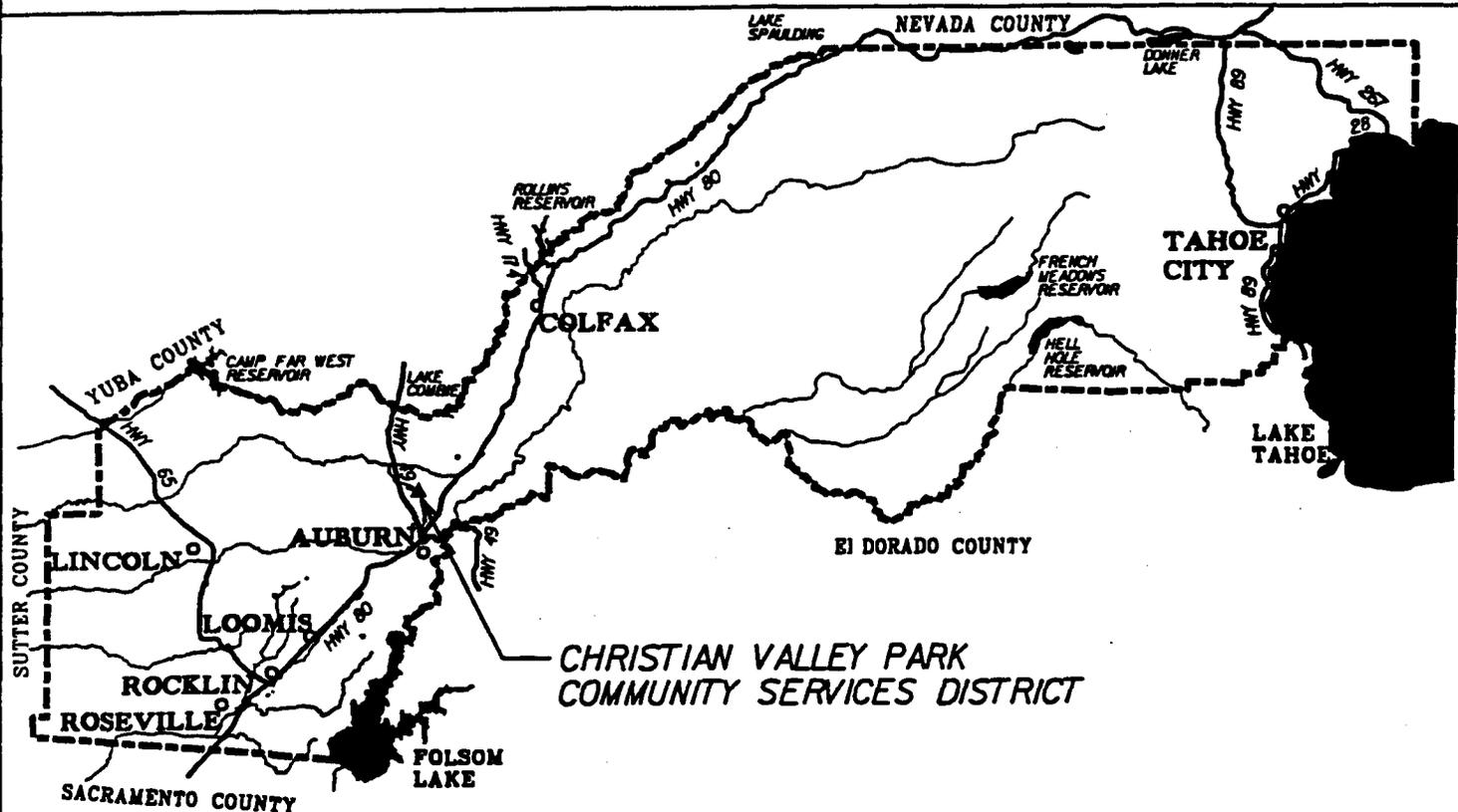
**Treatment:** Treatment provided by Christian Valley CSD is considered to be complete or conventional surface water treatment. Processes include chemical addition (alum and lime), rapid mix, flocculation, sedimentation, filtration, and disinfection. The design max flow rate through the plant is 700 gpm or 1 MGD.

**1990 System Production:** The system is comprised of one distribution system. This system is sole responsibility for serving 492 general and residential connections providing 128 million gallons of water during the 1990 calendar year.

**Deficiencies and Limitations:** Facilities are old and somewhat outdated. Problems will be encountered when the SWTR are imposed. There is no cross connection control program and the emergency notification plan is over 14 years old thus information is grossly outdated.

**System Appraisal:** Christian Valley's treatment process is conventional filtration with use of dual media pressure filters. Its facilities are old and lack most of the reliability features built into newer plants, and also required by Surface Water Treatment Regulations. The treatment plant is operated at rates allowing for acceptable performance and meets standards in terms of effluent turbidity levels. The District also lacks a watershed survey and certified operators.

# PLACER COUNTY WATER SYSTEMS



**CHRISTIAN VALLEY PARK  
COMMUNITY SERVICES DISTRICT**

System Name: CHRISTIAN VALLEY PARK COMMUNITY SERVICES DISTRICT  
 Address: 3333 CHRISTIAN VALLEY RD., AUBURN, CA 95603  
 Contact Name: ED BAILEY Phone: \_\_\_\_\_  
 Service Area Size: \_\_\_\_\_ No. Connections: 492 Population Served: 1968  
 Services Provided: METERED RESIDENTIAL

**Summary System Description**

Source: WATER IS PURCHASED FROM P.C.W.A.'S BOWMAN CANAL

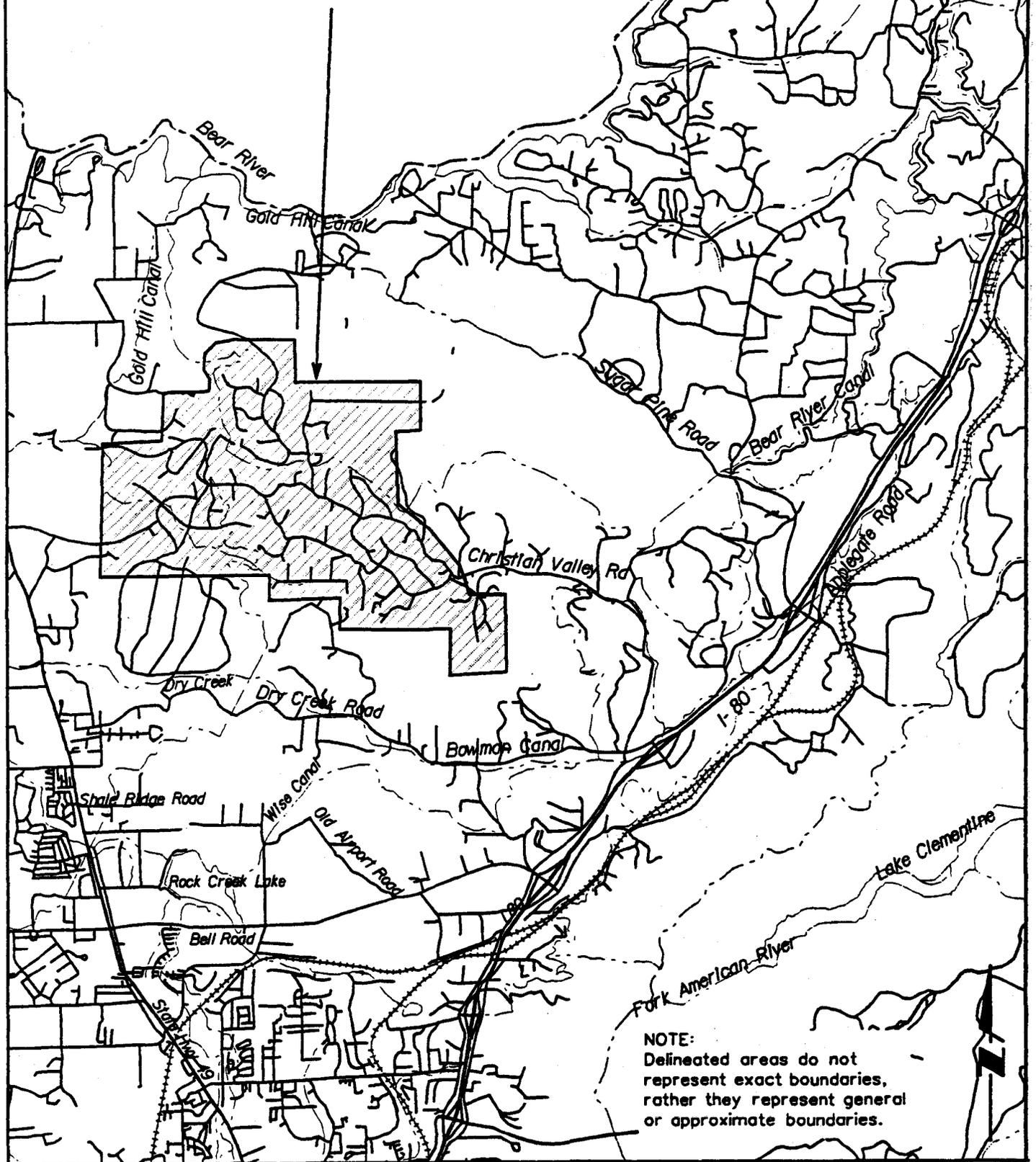
Transmission: PRIMARY TRANSMISSION TO CHRISTIAN VALLEY CSD IS THROUGH THE BOWMAN CANAL. WATER IS DRAWN FROM THE CANAL AND TRANSMITTED VIA AN 8 INCH AC. LINE TO THE TREATMENT PLANT.

Treatment: THE 700 GPM TREATMENT PLANT USES DUAL MEDIA FILTERS, PROVIDING FLOCCULATION, SEDIMENTATION, FILTRATION, AND DISINFECTION. ALUM AND LIME ARE ALSO ADDED DURING FLUCCULATION.

Storage: THE TREATMENT PLANT HAS A 1MG HYPALON COVERED CLEAR WELL FOR STORAGE.

Capacity Limitations: THE FACILITIES ARE OLD AND SOMEWHAT OUTDATED. THERE EXISTS NO CROSS CONNECTION CONTROL PROGRAM, AND WILL EXPERIENCE DIFFICULTY IN MEETING THE SURFACE WATER TREATMENT REGULATIONS.

CHRISTIAN VALLEY PARK  
COMMUNITY SERVICE DISTRICT



NOTE:  
Delineated areas do not  
represent exact boundaries,  
rather they represent general  
or approximate boundaries.

CHRISTIAN VALLEY PARK  
COMMUNITY SERVICE DISTRICT

## **CITIZENS UTILITY COMPANY OF CALIFORNIA - SABRE CITY**

**District Overview:** The Sabre City area is located near Baseline Road along the northern border of Sacramento County and eastern border of Sutter County. The entire area is served by ground water supplied by Citizens Utilities wells. The District still operates under a permit granted in 1965. The permit is not indicative to the changes made to the distribution system since 1965. Under the permit Well #1 (Vandenburg) was to be replaced by a new well.

**Primary Transmission and Distribution:** The distribution system has one pressure zone. Pressures vary within the system from 50 - 70 psi. Main lines consist solely of Asbestos Cement piping ranging from 6" to 8" diameter. There are no low head lines within the system. Condition of piping, according to Citizens representatives, is excellent.

**Source Information:** The Sabre City system currently consists of two well sources, the Vandenburg well (300 gpm) and the PFE well (426 gpm). Production required by California Code of Regulations for this system is 550 gpm, resulting in a 151 gpm surplus.

The Sabre City area is interconnected with the Antelope Oaks system via two 8" water mains. Extensive expansion within the Placer County Citizens Utilities franchise areas is possible as a result of the interconnection as well as increased system reliability and fire flows.

**Storage:** Storage is not required for this system because existing source capacity exceed minimum flow requirements. It is worth noting that each well is equipped with a hydropneumatic tank; Vandenburg having a 3000 gallon and PFE having a 5000 gallon tank. The tanks primary use is to provide pressure regulation for the system.

**Treatment:** Both wells are equipped with chlorinators. The Vandenburg hydropneumatic tanks serves a dual purpose as a sand separator. No other treatment is provided to the system.

**1990 System Production:** According to the 1990 annual report, Sabre City wells delivered 124,434 million gallons of water to 223 flat rate paying customers. Customers are primarily general and residential (223 connections) and industrial (3 connections).

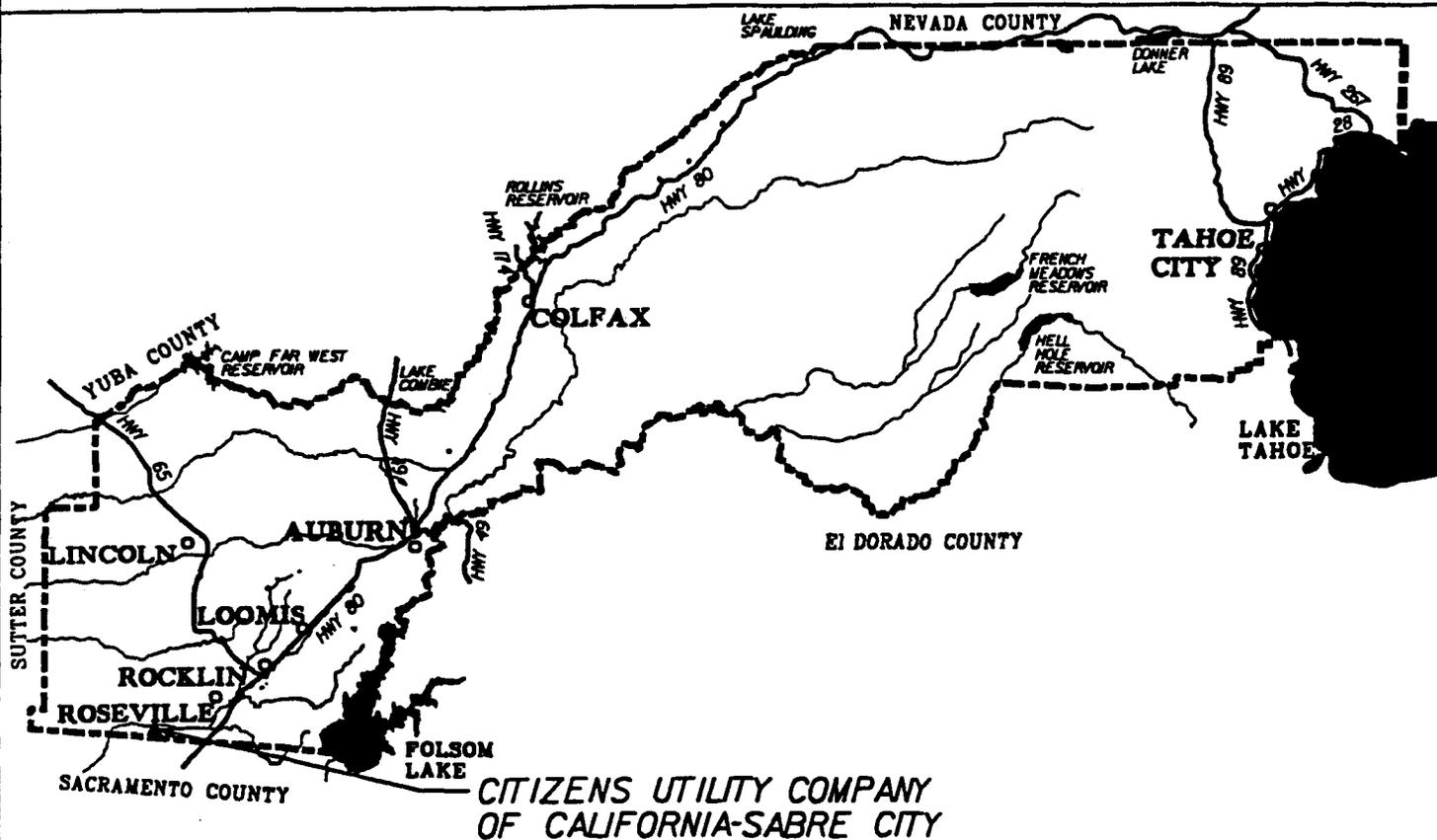
**Expansion Possibilities:** Limited only by lack of request.

**Deficiencies and Limitations:** There exists no apparent deficiencies or limitations to the Sabre City system.

**System Appraisal:** Citizens Utilities Company, California, Lincoln Oaks Service Area, serving Sabre City appears to have both adequate delivery and capacity to serve its customers. The quality of water is good, and all facilities seem to be updated and modernized.



# PLACER COUNTY WATER SYSTEMS



System Name: CITIZENS UTILITY COMPANY OF CALIFORNIA-(LINCOLN OAKS) SABRE CITY

Address: 3335 LONGVIEW DR., NORTH HIGHLANDS, CA 95660

Contact Name: LARRY LUMSARGIS Phone: (916)-481-7350

Service Area Size: 8,576 ac No. Connect.: 223 Population Served: N/A

Services Provided: SERVE PRIMARILY FLAT RATE RESIDENTIAL W/3 INDUSTRIAL CONN.

## Summary System Description

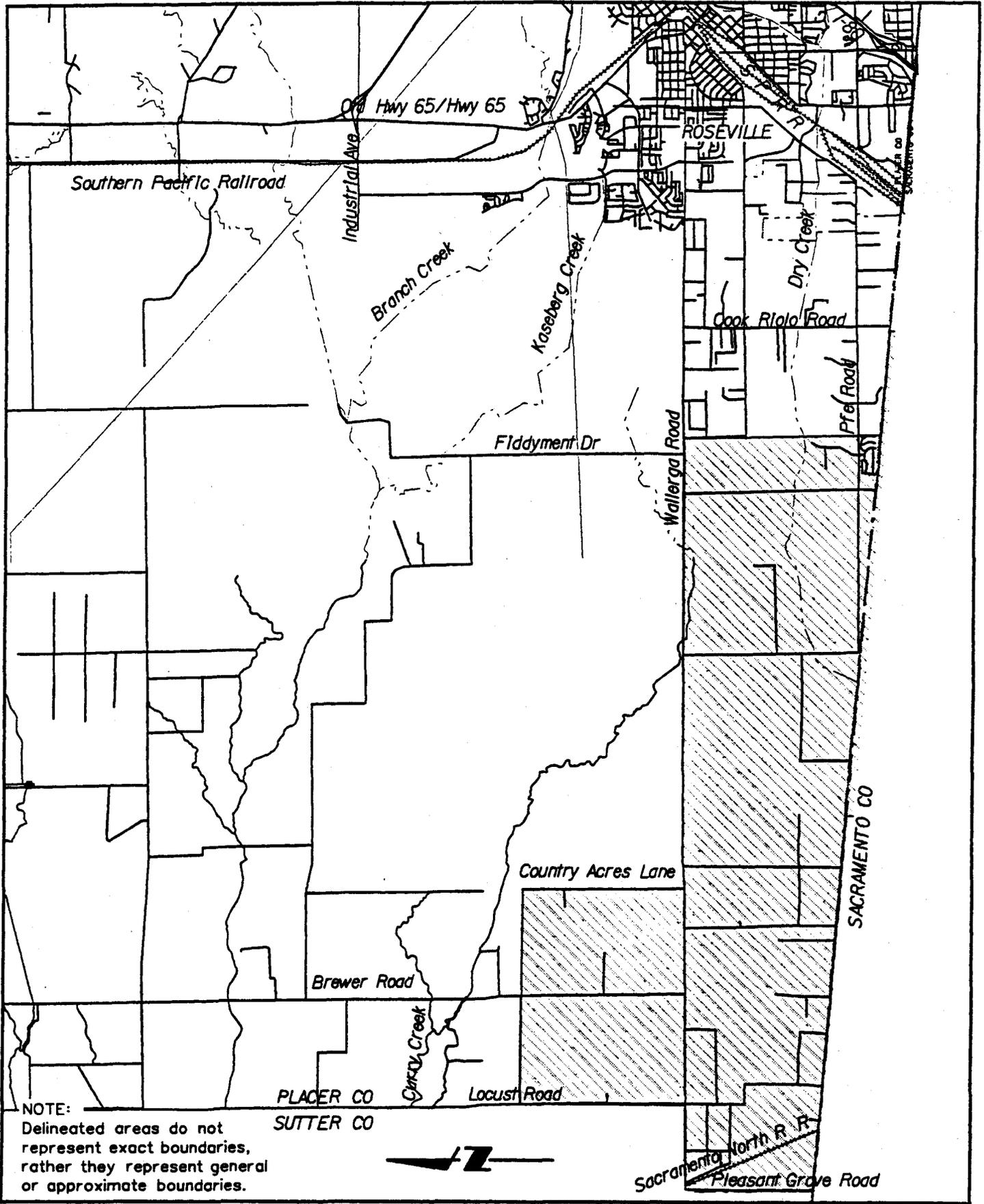
Source: CONSISTS OF TWO VERTICLE WELL SOURCES, THE VANDENBERG WELL (300 GPM) AND THE PFE WELL (426 GPM), TWO 8 in. INTERTIES TO A NETWORKED SUPPLY SYSTEM.

Transmission: ALL PIPING THROUGHOUT THE SYSTEM CONSISTS OF ASBESTOS CEMENT PIPE RANGING FROM 6-8 INCHES IN DIAMETER.

Treatment: TREATMENT CONSISTS ONLY OF DISINFECTION BY CHLORINATION. CHLORINATORS ARE LOCATED AT EACH WELL PUMP STATION.

Storage: STORAGE IS NOT REQUIRED BECAUSE SOURCE CAPACITY EXCEEDS MINIMUM FLOW REQUIREMENTS.

Capacity Limitations: SYSTEM DOES NOT APPEAR TO HAVE ANY SIGNIFICANT DEFECTS OR LIMITATIONS.



**CITIZENS UTILITY CO. OF CALIFORNIA**  
**Saber City Service Area**

**CITY OF LINCOLN - ZONE A AND ZONE B**

**District Overview:** A water supply permit was granted by the state of California to the City of Lincoln and surrounding area in 1965. At this time the City of Lincoln purchased water from Pacific Gas & Electric Company from the Caperton Canal, and had a separate well and distribution system serving the airport. The system was also equipped with two reservoirs, an 8 million gallon used for storage and a 1 million gallon used for storage and Coagulation-sedimentation. Both reservoirs were open air and had no lining. Water supply came mostly from the Middle and South Forks of the Yuba River.

In 1978 under the Clean Water Act the open air reservoirs became a health hazard. Federal funding was provided to connect the city's distribution system to the PCWA Sunset Water Treatment Plant. The small water treatment plant was removed from operation. Utilizing State Water Bond Law monies, system changes included deactivation of the old water storage treatment facilities, installation of a 1.5 million gallon steel water storage tank, replacement of undersized mains in the distribution system, and purchasing treated water from PCWA.

A permit amendment for development of a new well to supplement water supply was issued in 1984.

Fees for residential connections to existing facilities within the City of Lincoln are \$2,755.25 plus a PCWA charge determined at the time a building permit is issued. Water service rates are as follows:

- \$10.00/1000 gal. up to 10,000 gal.
- \$1.10/1000 gal. from 10,001 -> 20,000 gal.
- \$1.00/1000 gal from 20,001 -> 60,000 gal.
- \$0.95/1000 gal from 60,001 -> 350,000 gal.
- \$0.75/1000 gal 350,001 gal and up.

**Source Information:** The City of Lincoln has four supply sources (outlined below), from which to obtain water, one of which is not usable for domestic consumption, and is divided into two separate pressure zones, Zone A and Zone B.

Water drawn from the Caperton Canal is currently stored in a lake near the canal. The water is currently not utilized; however, discussions of how and where to utilize it are currently taking place among city staff. One such possibility would be landscape irrigation.

Zone A is provided with treated, settled and filtered water from the Sunset Water Treatment Plant. Water is purchased under contract from PCWA. Current entitlement is 3 MGD from the treatment plant, which has a maximum capacity of 6 MGD total. Interconnections between the Sunset plant and Foothill system in two locations, can provide water to the City of Lincoln in the event of Sunset plant failure.

Zone B is service by two wells each having approximately 750 gpm capacity.

The table below outlines the sources and capacities.

| Source Type/Name                           | Capacity/Entitlement              |
|--|-----------------------------------|
| 14" transmission line from PCWA Sunset WTP | 3.0 MGD                           |
| Well # 2                                   | Approx. 750 gpm                   |
| Well # 4                                   | Approx. 750 gpm                   |
| Caperton Canal (Raw Water)                 | 2 miners inches (approx 0.05 CFS) |

**Primary Transmission and Distribution:** Primary transmission of water to the City of Lincoln's Tank #1 is through 900 ft. of 14 inch main from PCWA's Sunset Treatment Plant. The water then travels through 10,200 ft. of 20 inch diameter and 900 ft. of 14 inch diameter to the city's distribution system.

The distribution system contains two pressure zones, Zone A and Zone B. Operating pressures within Zone A range around 95 psig. Pressures within Zone B range from 80 psi to 105 psi.

Types of pipe material encountered throughout the distribution system are cast iron, asbestos cement, ductile iron and PVC C900, sizes ranging from 4 - 16 inches in diameter. All new construction generally uses PVC C900 piping. Corrosion has created leak problems with some of the old galvanized service connections. There are also problems with brittleness on some of the 10 to 15 year old plastic services. Once identified these services are replaced by the City.

The City has some low pressure problems within the distribution system. This issue is being addressed in the new Public Facilities Element of the City Master Plan.

**Storage:** The City has 3.0 million gallons of storage available with two 1.5 million gallon storage tanks. The storage tank in the City corporation yard is used only for emergencies. The main 1.5 million gallon storage tank is located off Oak Tree Lane. Both tanks are in good condition.

**Treatment:** Treated surface water is provided to the City of Lincoln from the Sunset Water Treatment Plant. For further description of treatment see Foothill/Sunset section of this report.

**1990 System Production:** According to the 1991 annual reports combining both zones A and B, the max day produced by the system reached 3,228,000 million gallons during the month of July, serving a total population of approximately 7,575. Connection types and quantities are outlined below:

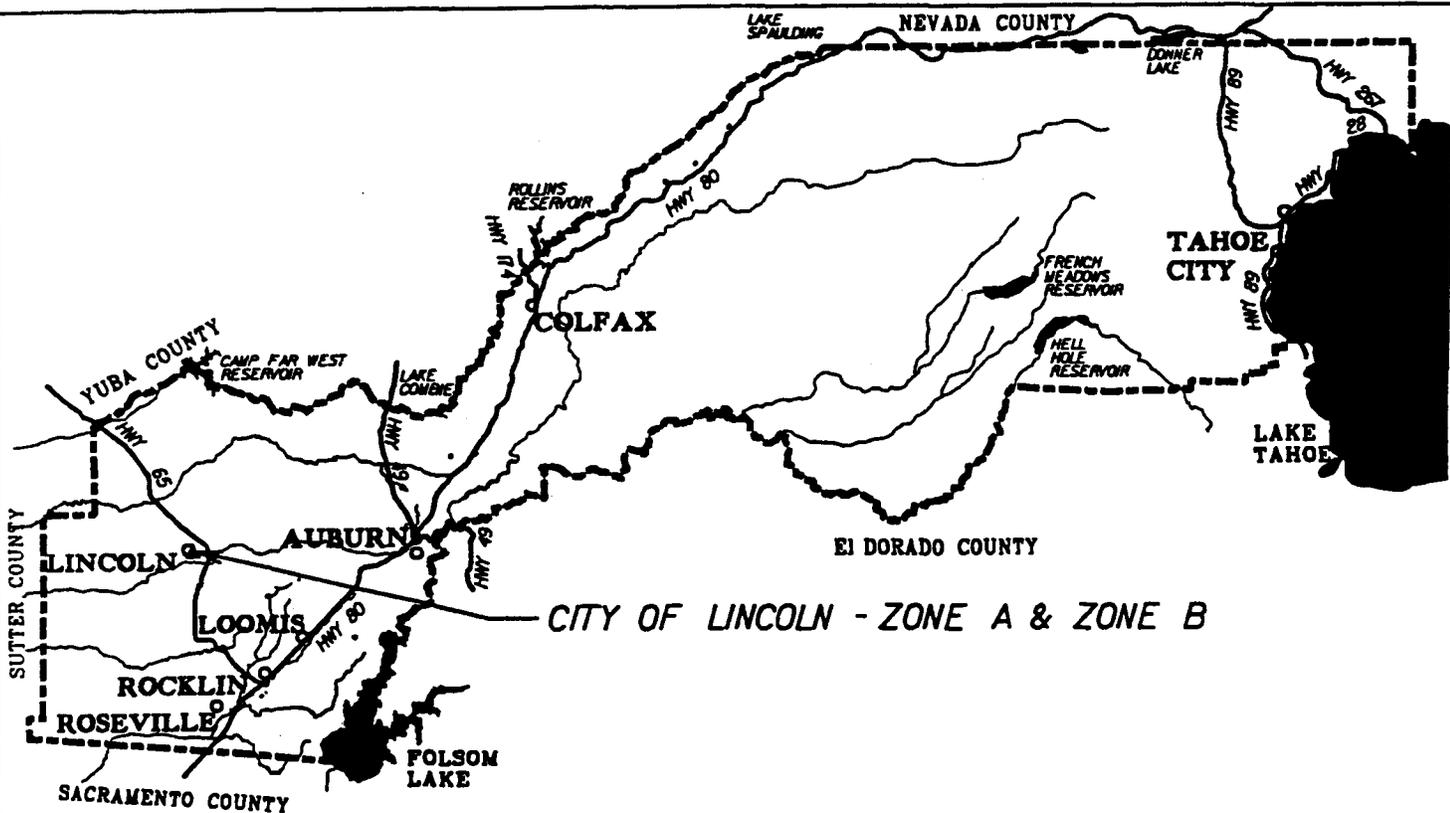
| Type of Connection      | Metered     | Flat Rate | Total       |
|-------------------------|-------------|-----------|-------------|
| General and Residential | 2111        | 15        | 2126        |
| Commercial              | 84          | 55        | 139         |
| Industrial              | 19          | 10        | 29          |
| <b>Total</b>            | <b>2214</b> | <b>80</b> | <b>2294</b> |

**Deficiencies and Limitations:** The last 900 feet of the transmission main to the distribution system necks down from 20 inch diameter to 14 inch diameter. The 14 inch restricts flow into the distribution system. Under the master plan in progress this issue is addressed.

The Sunset Treatment Plant is the only other major deficiency to the City of Lincoln distribution system. The plant is very old and due to the newly adopted surface water treatment regulations, much improvement is required to make the plant meet requirements. A master plan is underway concerning the Sunset area which should be referenced for future service to the City of Lincoln.

**System Appraisal:** The City of Lincoln provides adequate quantities and quality of water to its present customers. Recognizing the amount of possible future growth has allowed the City to prepare facilities required to serve future needs.

# PLACER COUNTY WATER SYSTEMS



System Name: CITY OF LINCOLN - ZONE A (MAIN SYSTEM) & ZONE B

Address: 511 5TH ST., LINCOLN, CA 95648

Contact Name: SEAN D. CAREY Phone: (916)-645-8576

Service Area Size: \_\_\_\_\_ No. Connections: 1874 Population Served: 5300 :

Services Provided: PRIMARILY RESIDENTIAL AND COMMERCIAL AND 9 INDUSTRIAL CONN.

## Summary System Description

Source: FOUR SOURCES OBTAINING WATER, - ONE NOT FOR DOMESTIC CONSUMPTION.

1) 14" TRANSMISSION LINE FROM P.C.W.A. SUNSET WATER TREATMENT PLANT. 2 & 3)

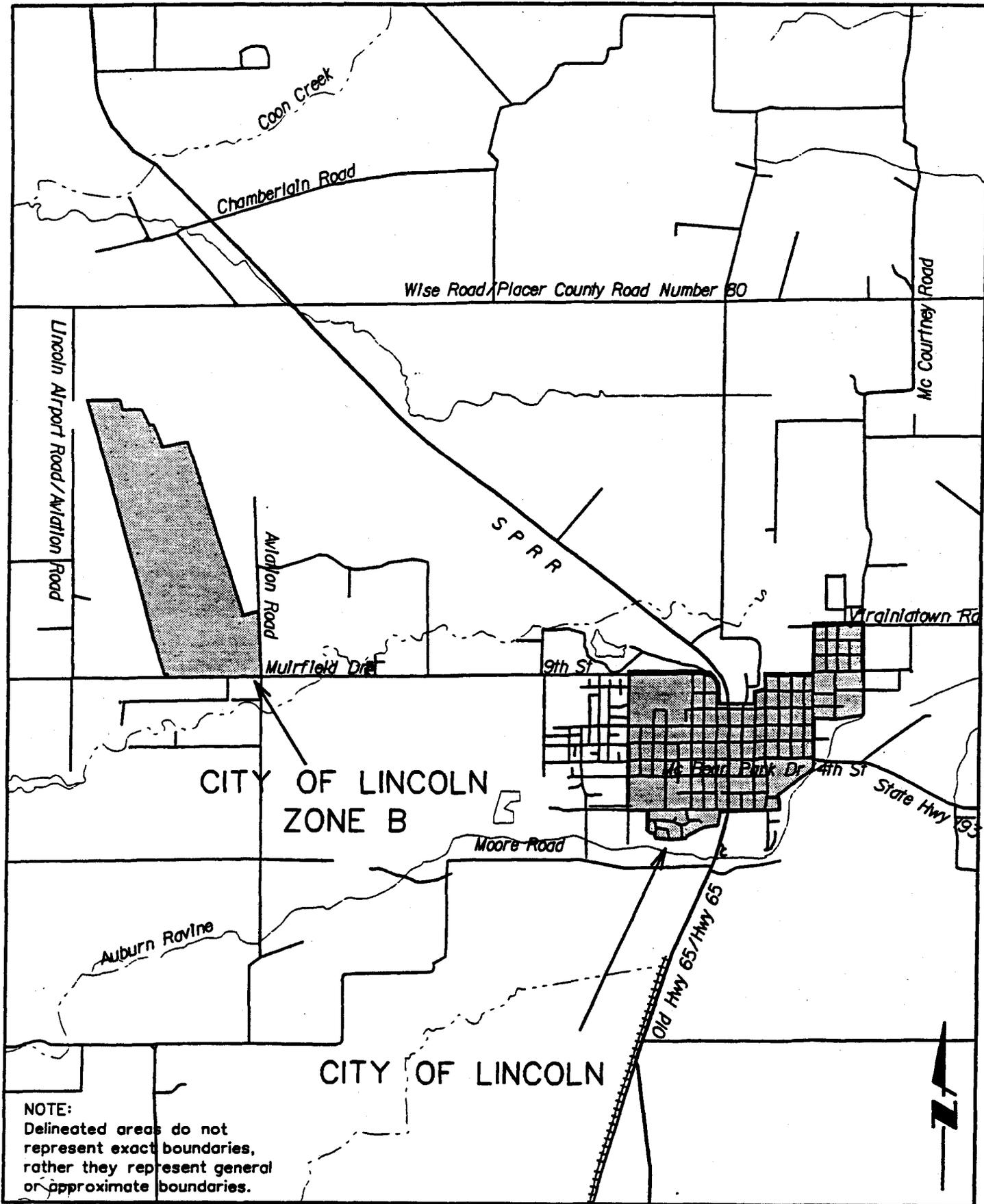
TWO GROUNDWATER WELLS 4) CAPERTON CANAL. ZONE B HAS 1 WELL PRODUCING 1500 GPM.

Transmission: PRIMARY SOURCE TRANSMISSION VIA A 14 INCH MAIN EXTENDING FROM P.C.W.A. SUNSET WATER TREATMENT PLANT. ZONE B - WELL PUMPS DIRECTLY INTO DISTRICT SYSTEM.

Treatment: ZONE A - TREATED WATER IS PROVIDED BY P.C.W.A.'S SUNSET WATER TREATMENT PLANT. THE WELLS ARE CHLORINATED. ZONE B - NO TREATMENT IS PROVIDED TO THE WELL.

Storage: 3.0 MILLION GALLONS OF STORAGE IS AVAILABLE BETWEEN TWO 15 MILLION GALLON TANKS. ZONE A & B ARE INTERCONNECTED, THEREFORE STORAGE IS AVAILABLE TO BOTH ZONES.

Capacity Limitations: THE 14 INCH TRANSMISSION MAIN IS VIEWED AS RESTRICTING FLOW FROM THE TREATMENT PLANT. THE SUNSET TREATMENT PLANT NEEDS RENOVATION IN ORDER TO MEET SURFACE WATER TREATMENT REQUIREMENTS.



NOTE:  
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 represent exact boundaries,  
 rather they represent general  
 or approximate boundaries.

**CITY OF LINCOLN**  
**Water Service Areas**

**CITY OF ROSEVILLE**

**District Overview:** The current water supply permit for the City of Roseville was issued January 1971. Main water supply was and still is Folsom Lake. The permit was issued in response to major changes in the system, most prominently chlorination, coagulation, sedimentation, chemical addition and construction of rapid gravity sand filtration facilities. These processes constituted the first phase of construction of the City's water treatment plant. The treatment plant is located near the Barton Road and Roseville Parkway intersection in the City of Roseville.

The next addition to the treatment plant was completed in 1990. The expansion included addition of three filters, a 160 ft. diameter clarifier and installation of a new telemetry system.

With the recent expansion of the water treatment plant distribution system upgrades are currently underway. This includes main line replacement as well as extension of service area.

The recent drought has directly affected the City's main source, Folsom Lake. Quantity of water within the lake is obviously an issue, but perhaps more critical is the impact by treated sewage discharges from the City of Placerville. Normally a high degree of dilution is provided by the lake, however, since flow in the lake has dropped more than fifty percent, dilution is becoming a critical concern.

Currently the City is adding to the plant the ability to use reclaimed water. Such water would be used for irrigation of golf courses and other agricultural type uses.

From a water supply, treatment and distribution, reference point of view the City of Roseville is ready for buildout during future booms.

The City of Roseville have several different charges pending individual situations for water service by the city. Connection fees are charged based on a unit called DUE (1 DUE = \$1693). Connection fees and rate schedules are outlined for the 1991 year below:

**Connection Fees-**

|                      |                       |
|----------------------|-----------------------|
| 5/8" meter =(0.7)DUE | 3.0" meter =(11.7)DUE |
| 3/4" meter =(1.0)DUE | 4.0" meter =(20) DUE  |
| 1.0" meter =(1.7)DUE | 6.0" meter =(41.7)DUE |
| 1.5" meter =(3.3)DUE | 8.0" meter =(60.0)DUE |
| 2.0" meter =(5.3)DUE | 10.0"meter =(96.7)DUE |

**Rate Schedules-**

|        | <u>Metered</u>     | <u>Flat Rate</u>    |                              |
|--------|--------------------|---------------------|------------------------------|
|        | <u>Inside City</u> | <u>Outside City</u> |                              |
| 5/8" - | \$7.25             | \$11.50             | Mobile Homes=\$6.75/unit     |
| 3/4" - | \$7.25             | \$11.50             | Home<4900 s.f.=\$7.25        |
| 1" -   | \$9.50             | \$15.50             | Home 4901>8900 s.f.=\$9.50   |
| 1.5" - | \$16.00            | \$26.00             | Home 8901>12,000s.f.=\$11.75 |

**Source Information:** As previously stated Roseville's main source supply is Lake Folsom. In addition to Lake Folsom there are five deep water wells connected to the system to supplement supplies when necessary.

The City of Roseville contracts with the Federal Bureau of Reclamation for 32,000 ac-ft (28.5 million gallons) of water per year. The City is currently under contract with Placer County Water Agency for an additional 10,000 ac-ft of water per year, with an option for 10,000 ac-ft more. The Warren Act of 1911 resulted in no allocation of the Placer County Water Agency water in past years. The act states specific uses of agricultural water and prohibits classified agricultural water from entering a federal system. The act in effect makes no mention about the use of PCWA water being used for domestic use. Recently House Bill 355 amended the Warren Act enabling the City to use its allocation from Placer County Water Agency. (Jackson, Jerry 9/16/91, City of Roseville Public Works Dept., pers. comm.)

Two of the five wells have been disconnected from the distribution system as a result of Trichloroethylene contamination. Folsom lake is a one million ac-ft multipurpose reservoir that collects and stores water from the North and South Forks of the American River. The characteristics of Folsom Lake and the watersheds that feed it expose it to significant recreation, sewage, and runoff hazards.

The City obtains its water from a common 84 inch outlet structure at the base of Folsom Dam, shared also by San Joaquin Water District and the City of Folsom. The structure can supply up to 200 cfs using a combination of a 25 h.p., (2) 50 h.p. and a 75 h.p. pump. Ownership and maintenance of the structure is by the Bureau of Reclamation. 22,000 ac-ft of water per year is available to the City of Roseville via this structure with increased development and associated increase in water demand. The following table illustrates the above described water sources.

| Available Source  | Available Capacity | Comment   |
|-------------------|--------------------|---|
| Folsom Lake       | 22,000 ac-ft       | existing demand required                                |
| Folsom Lake       | 10,000 ac-ft       | available with increased development                    |
| PCWA              | 10,000 ac-ft       | via pipeline  |
| PCWA              | 10,000 ac-ft       | executable option                                       |
| groundwater wells | 5                  | two of the five are not in use due to TCE contamination |

Reliability to the City of Roseville is excellent. Folsom Lake is somewhat susceptible to drought and contamination yet the groundwater wells are available to compliment the decrease in supply should it become necessary, additionally with the allocation from Placer County Water Agency.

**Primary Transmission and Distribution:** A 42 inch transmission line between the plant and the city provides for primary distribution to the city. Several other veins of 36 inch and smaller distribute water throughout the various sections of town. The condition of the transmission mains is reportedly in excellent condition.

The distribution system is divided into several pressure zones, resulting from the various elevation differences. Sizes of distribution mains range from 4 to 33 inches. Types of mains include cast iron, ductile iron, wrapped steel, asbestos cement and PVC C-900 pipe.

**Storage:** Storage takes place within locations. The first is a 200,000 gallon clear well under the treatment plant building. There is also a 2 MG steel tank located at the plant site. Additionally since the entire system works on gravity, the 7,000 feet of 42 " transmission line could be viewed as 500,000 gallons of storage capacity. The groundwater used by the wells is also considered a substantial source of storage.

There is a fifth location coming on line in the near future. It is a 4 MG reservoir.

**Treatment:** Water diverted from Folsom Lake receives complete surface water treatment and should have no problems meeting the newly implemented Surface Water Treatment Regulations. A 24 mgd expansion of the treatment plant was just completed thus making the capacity of the plant 48 mgd. Treatment at the plant includes coagulation, flocculation, conventional filtration, corrosion or pH control, and multi-point disinfection (chlorination).

The existing facilities have the provision for adding parallel raw water supply line and the inlet structure was designed to ultimately split the flow. The appendices at the plant such as clarifiers and filters have the provision to double the capacity of the new expansion from 48 mgd to 96 mgd, when necessary.

The three wells used as standbys are all chlorinated. According to City staff, when necessary to use the wells many complaints are filed concerning the quality of the water, therefore use of the wells is limited to emergencies only.

**1990 System Production:** According to the 1991 annual report the City served a total of 4,641.05 million gallons of water for the 1990 year. Max day flow was recorded to be 22.65 million gallons. Total population served was approximately 41,000 residents. The table below outlines the types, and quantities of connections served in 1990, not counting fire hydrants:

| Type of Connection      | Metered      | Flat Rate     | Total         |
|-------------------------|--------------|---------------|---------------|
| General and Residential | 188          | 15,254        | 15,442        |
| Commercial              | 1,358        | 742           | 2,100         |
| <b>Total</b>            | <b>1,546</b> | <b>15,996</b> | <b>17,542</b> |

**Deficiencies and Limitations:** Research yielded no major sanitary defects within the system. The only problem being the reduction of flow within the American River not providing adequate dilution to the treated sewage from the City of Placerville.

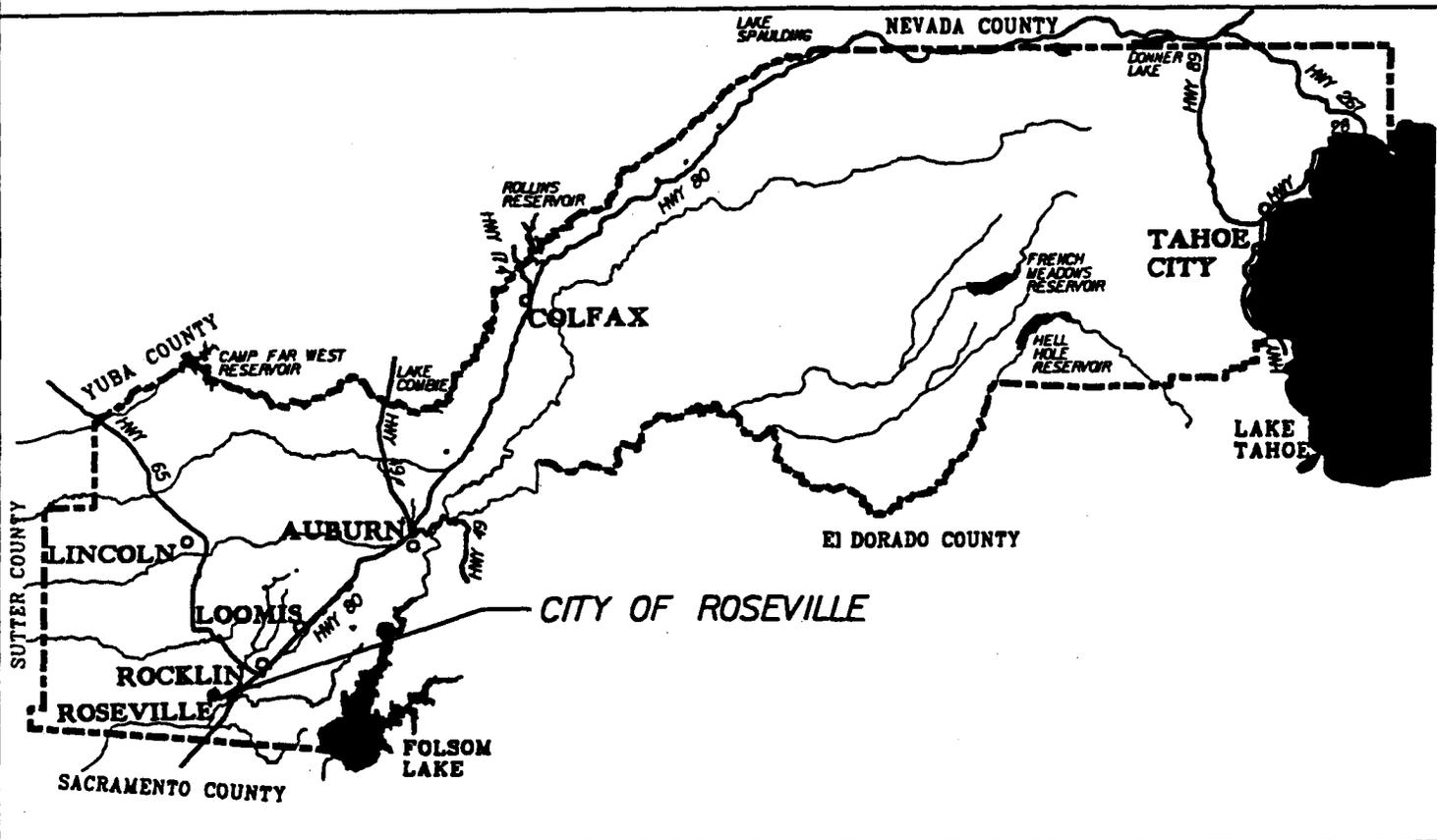
**Existing Planned Improvements:** As stated in the District overview, the most recent planned improvement to the system is the promotion of a regional reclamation water system. This secondary water could be used for many agricultural purposes such as irrigation of golf courses and cemeteries. Additions to the plant are underway to make this improvement and should be completed by 1993.

The plant has provision for again doubling its capacity from 48 mgd to 96 mgd. Also it is planned to begin using the PCWA allotment when AB 355 is amended. The city is also considering additional groundwater wells.

**System Appraisal:** The City of Roseville provides an excellent quality of water to its customers. City Staff recognized the amount of growth coming to Roseville long ago and have prepared excellently to serve an increased population. Surface Water Treatment Regulations will have little to no effect on the treatment process as the new upgrade prepared for in advance. The only problem facing the City would be a continued drought. A continued drought may cause significant problems with water quality of Lake Folsom. However, even still with the recent AB 355 amendment about to take place, the city still remains in good shape for serving its existing customers.



# PLACER COUNTY WATER SYSTEMS



System Name: CITY OF ROSEVILLE

Address: 316 VERNON ST., ROSEVILLE, CA 95678

Contact Name: JERRY JACKSON Phone: (916)-781-0276

Service Area Size: \_\_\_\_\_ No. Connections: \_\_\_\_\_ Population Served: \_\_\_\_\_

Services Provided: RESIDENTIAL AND COMMERCIAL

## Summary System Description

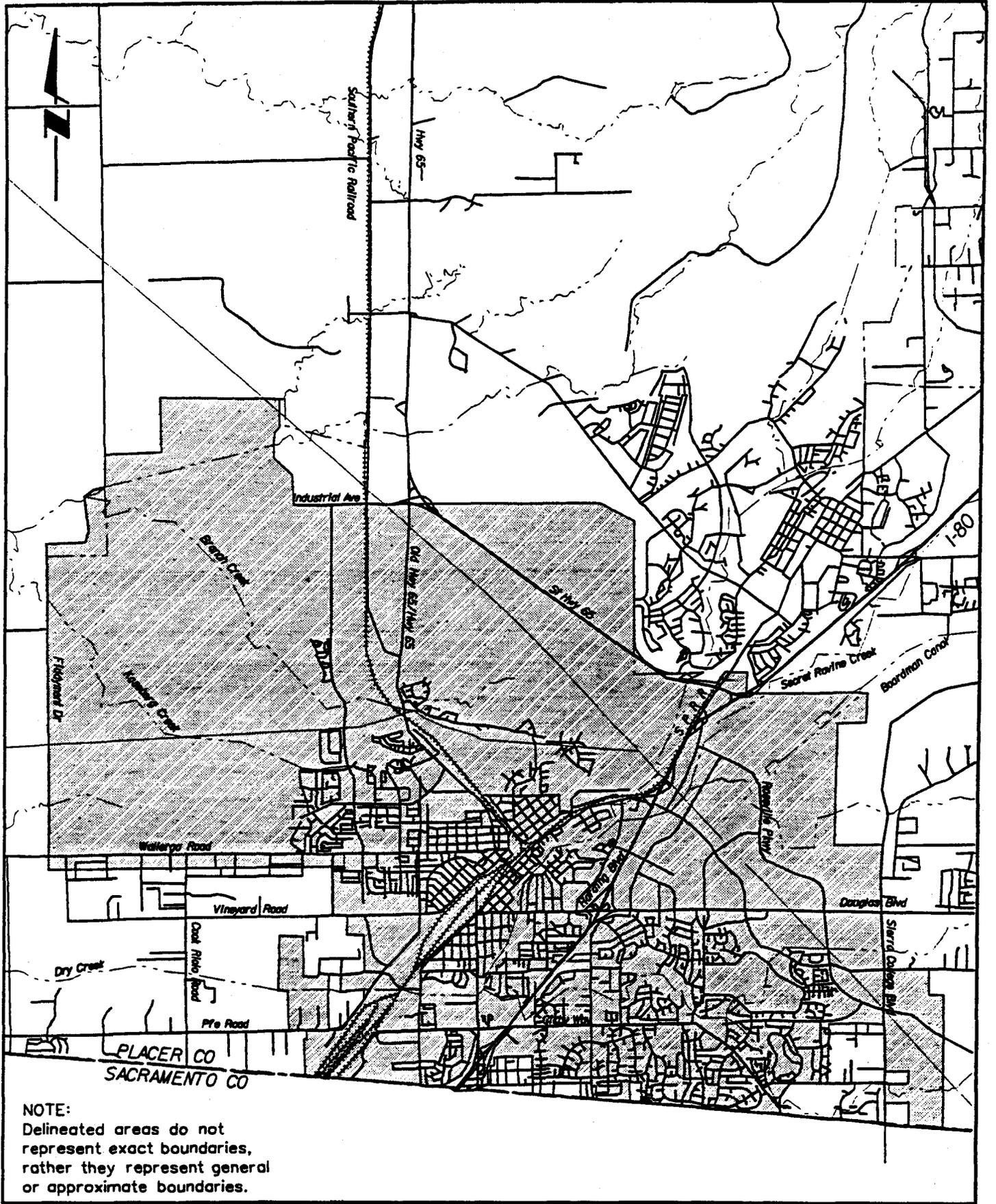
Source: THE MAIN SOURCE SUPPLY IS LAKE FOLSOM. IN ADDITION TO THE LAKE THERE ARE FIVE DEEP WELLS TO SUPPLEMENT SUPPLIES WHEN NECESSARY.

Transmission: A 42 INCH LINE BETWEEN THE TREATMENT PLANT AND CITY PROVIDES WATER. SEVERAL OTHER VIENS OF 36" DIA. AND SMALLER DISTRIBUTE WATER THROUGHOUT THE CITY.

Treatment: WATER FROM FOLSOM LAKE IS FULLY TREATED AT THE NEWLY EXPANDED 48 MGD TREATMENT FACILITY.

Storage: 2.7 MILLION GALLONS OF STORAGE EXISTS TO THE SYSTEM. ANOTHER 4 MG RESERVOIR WILL BE AVAILABLE IN THE NEAR FUTURE.

Capacity Limitations: BIGGEST PROBLEM IS FLOW REDUCTION WITHIN THE AMERICAN RIVER. REDUCED FLOW IS NOT ABLE TO PROVIDE ADEQUATE DILUTION TO TREATED SEWAGE FROM THE CITY OF PLACERVILLE.



# CITY OF ROSEVILLE Water Service Area

**FORESTHILL PUBLIC UTILITY DISTRICT**

**District Overview:** Foresthill Public Utility District was formed in 1950 and received its original water supply permit in May 1955. Primary sources of water during this time period were from springs, and mine tunnels. Resulting from the drought years in the mid 70's Foresthill found it necessary to separate from the Auburn Dam project in 1976. Negotiations with the United States Bureau of Reclamation (USBR) led to the construction of a large storage reservoir. Contracts were signed in 1978 and funds were allocated to construct Sugar Pine Reservoir, and all appendices necessary to deliver water. Under the contracts no re-purchase of the reservoir nor facilities were required. Foresthill PUD simply buys water from USBR at \$85/ac-ft and is required to maintain all facilities for a period of 40 years.

Connection fees within the Forest Hill Public Utility District are \$2075/lot plus a \$500 meter installation fee and \$50 deposit. Water service is charged bi-monthly. A flat rate of \$24.00/bi-monthly is assessed. This flat rate includes up to 16,000 gallons of water usage. Water usage above 16,000 gallons is charged an additional \$1.00/1000 gallons.

**Source Information:** Two surface water sources are available to serve the District, Sugar Pine Reservoir and Mill Creek and two wells available as stand-by supply within the Todd Valley Estates subdivision. Sugar Pine Reservoir is located approximately 8.5 miles north of the District. Mill Creek intake is located approximately 4 miles north of the District.

Sugar Pine Reservoir is considered the primary source. The reservoir has 7000 ac-ft of capacity. Foresthill PUD is entitled to use 2800 ac-ft per year. Mill Creek also is capable of supplying an additional 150 ac-ft per year.

It is also worth noting that the District is also equipped with two groundwater well sources. These wells are used strictly as stand-by to the system, no disinfection is provided.

**Primary Transmission and Distribution:** The distribution system has one pressure zone which is split into two service areas; the Foresthill area and the Todd Valley Estates area. The Todd Valley Estates area was annexed into the Foresthill District in 1980. Prior to that it was serviced by and labeled Placer County Service Area #8. Before connection to the Foresthill system Todd Valley Estates had its own wells, which became a stand-by after the annexation.

Transmission from Sugar Pine Reservoir to the Water Treatment Plant located in the northeast corner of the District is through 8.5 miles of Ductile Iron Pipe ranging from 27 inch to 24 inch diameter. Some sections of the 8.5 mile stretch contain concrete and steel pipe. Leaving the water treatment plant a main trunk line of Asbestos Concrete Pipe Transit ranging from 21 inch to 10 inch diameter runs along Forest Hill Road from across the District from northeast to southwest. Resulting from an elevation at the Water Treatment Plant of 3420 ft. and elevation along the end of the trunk line of 2235 ft. there are 5 pressure reducing stations along the main trunk line.

The distribution system is comprised of pipes ranging from 12 inch to 2 inch diameter. Because of the large elevation differences within the District boundaries there are an additional 73-75 pressure reduction stations throughout the District.

The transmission and distribution system are reported to be in excellent shape. The primary distribution line is about 8 years old. All services within the District are metered. Unaccountable losses within the entire water system are shown to be about 3 % annually.

All newly installed pipe is required by the District to be PVC C900 CI 200. All pipe joints within the distribution system are required to be mechanically restrained.

**Storage:** Currently the District has three 450,000 gallon storage tanks. The tank is constructed of bolted steel and is 20 years old. With the construction of the Water Treatment Plant in 1983, the tank was relocated to the filter plant lot. Along with the relocation the tank was also re-coated and reconstructed. It is reportedly in excellent condition.

The District does not have any problems meeting the peak demands with current storage available. The District has, however, purchased two additional 450,000 gallon storage tanks to install to the system in the near future. These storage tanks are primarily to enhance firefighting capabilities.

**Treatment:** Quality of raw water coming from the reservoir and creek is excellent. Exposure to sewage and recreational hazards is limited to a few camp grounds surrounding the reservoir.

Foresthill is equipped with a 3 MGD gravity water treatment plant. The treatment processes provided include, grit removal, direct filtration, disinfection, and corrosion control. Other features of treatment include polymer injection.

The system is fed entirely by gravity with exception to one booster pump and hydropneumatic tank located at the treatment plant. This booster station serves a few services above the treatment plant.

**1990 System Production:** According to the 1991 annual report max day demand produced by the system reached 1.762 million gallons. The system reportedly produced 295.3 million gallons for the 1990 year. The system serves a total population of 5004. All connections are metered having a total number of active connections of 1403. The connections are dispersed as follows:

| Type                    | Number |
|-------------------------|--------|
| General and Residential | 1331   |
| Commercial              | 70     |
| Industrial              | 2      |
| Agricultural            | 4      |

**Deficiencies and Limitations:** No major deficiencies were noted within the entire system with the exception of various 2 in diameter distribution lines throughout the system. Currently all 2 in. distribution lines are being replaced. Since this is a fairly new system, well maintained and operated coupled with the excellent quality of raw water available, the Surface Water Treatment Regulations should have little effect of the system.

**Existing Planned Improvements:** Two important plans are currently being developed for the Foresthill area: the Foresthill Master Utility Plan and the Forest Hill Divide Plan. These plans are aimed at preparing the District for future development expected in the near future within the District boundaries.

Additionally the Sugar Pine Dam has a provision enabling the dam to be raised 18 ft. additional elevation to increase capacity. The water treatment plant can also be easily doubled in size to 6 MGD.

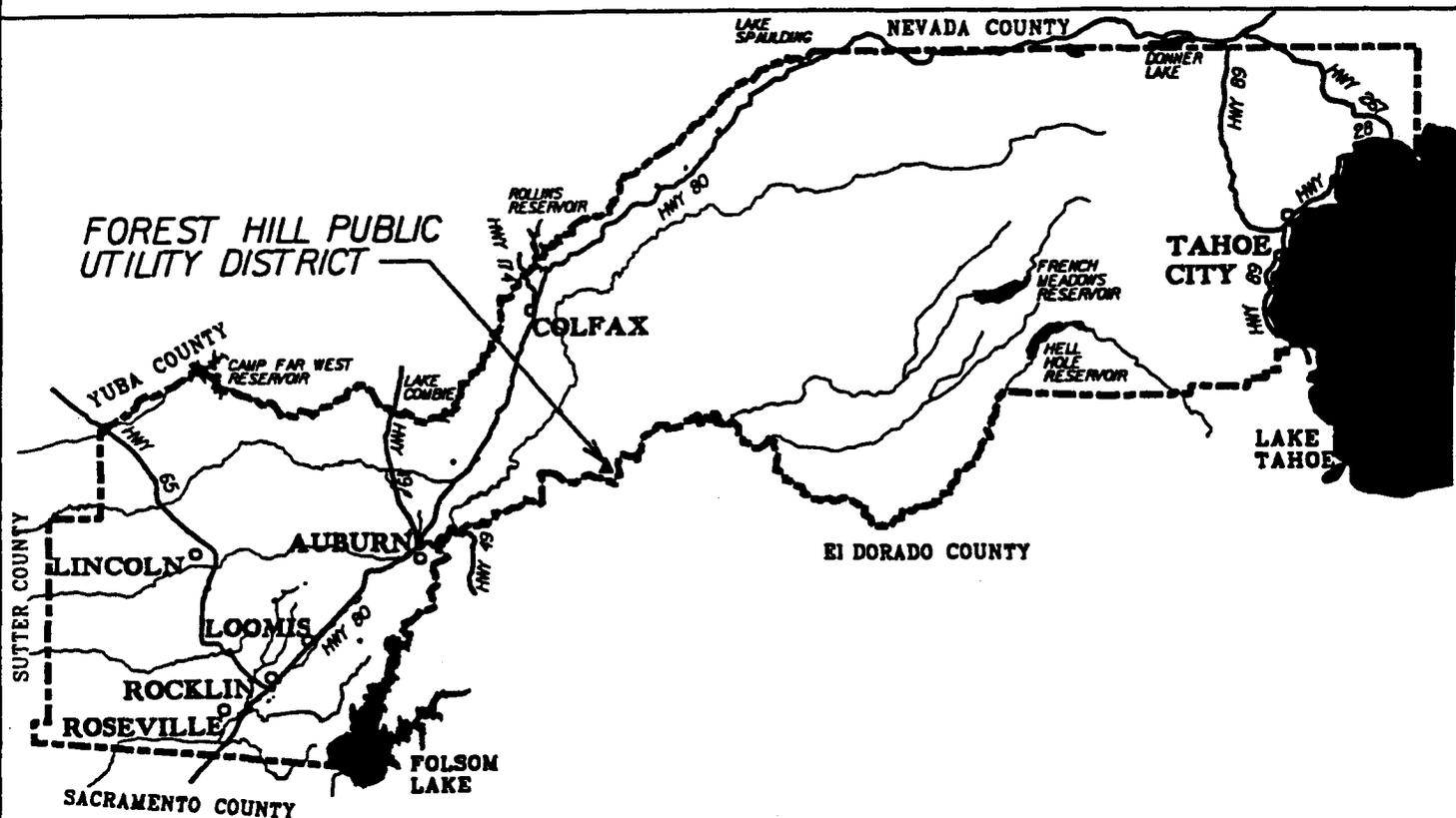
**System Appraisal:** Since the construction of Sugar Pine Reservoir and the various other improvements, the Foresthill area has been in excellent shape to serve all customers. Even the recent drought in the late 80's and early 90's has had no effect on available supply to the area. In fact, since construction of the dam, it has spilled over every year since completion.

All connections in the District are metered. The District enforces a strict conservation program called Conservation by Price Indexing keeping water waste to a minimum.

Facilities within the District are in excellent shape and the District realizes the necessity of planning for the future, and has made provisions for capacity of both storage and treatment. Additionally the District has an active role in helping facility planned growth within the community.



# PLACER COUNTY WATER SYSTEMS



System Name: FOREST HILL PUBLIC UTILITY DISTRICT

Address: P.O. BOX 266, FOREST HILL, CA 95631

Contact Name: KURT REED Phone: (916)-367-2511

Service Area Size: 13000 Ac. No. Connect.: 1403 Population Served: 5004

Services Provided: RESIDENTIAL, COMMERCIAL, INDUSTRIAL AND AGRICULTURAL

## Summary System Description

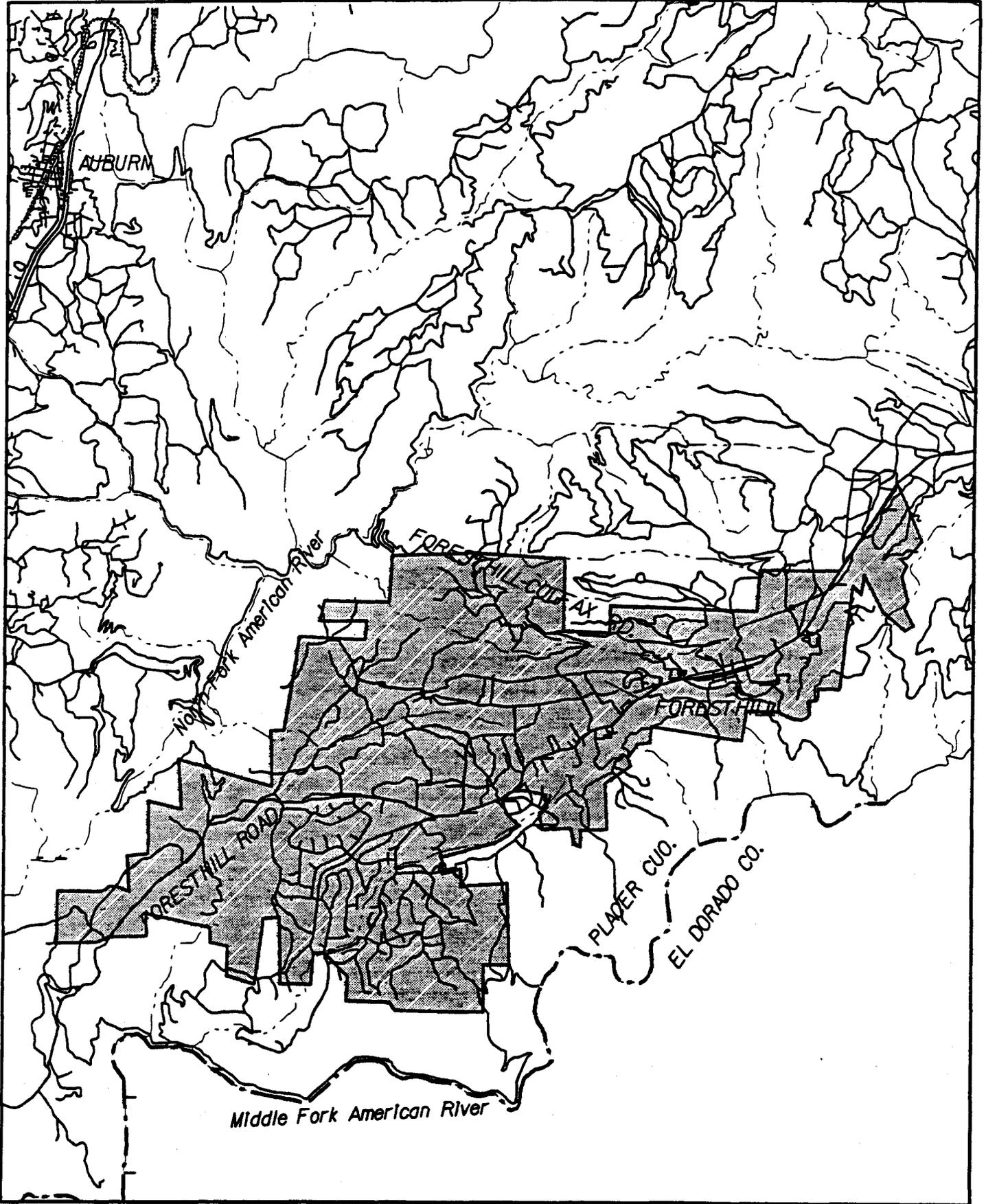
Source: TWO SURFACE WATER SOURCES ARE AVAILABLE; SUGAR PINE RESERVOIR AND MILL CREEK. TWO WELLS ARE ALSO AVAILABLE AS STAND-BY SUPPLY.

Transmission: TRANSMISSION FROM SUGAR PINE RESERVOIR TO THE WATER TREATMENT PLANT IS THROUGH 8.5 MILES OF 24 & 27 INCH DUCTILE IRON PIPE, AND THROUGHOUT DISTRICT RANGES FROM 21-10 INCH.

Treatment: A 3.0 MGD GRAVITY DIRECT FILTRATION WATER TREATMENT PLANT.

Storage: THE DISTRICT HAS THREE 450,000 GALLON STEEL BOLTED STORAGE TANKS.

Capacity Limitations: THE SYSTEM IS FAIRLY NEW. MOST PROBLEMS OCCUR AT LOCATIONS CONTAINING OLD 2 INCH DISTRIBUTION LINES.



**FORESTHILL PUBLIC UTILITY DISTRICT**

## FULTON WATER COMPANY - MAIN AND LINKS SYSTEMS

**District Overview:** The water system began in 1928 under jurisdiction of Placer County Department of Health. Increased growth resulted in placement of the water system under jurisdiction of State Department of Health Services in 1973.

The main system is composed of three smaller systems which are now interconnected, Lake Forest, Cedar Flat, and Ridgewood water systems. The Main and Links water systems are operated under a common domestic water supply permit, issued in 1976.

Both systems are located on the north shore of Lake Tahoe just east of Tahoe City. Each system serves primarily residential services and are interconnected.

There are no connection fees to existing facilities within the Fulton Water Company service area. Water service is billed at a flat rate of \$174/yr.

**Source Information:** Source to the Main system is Lake Tahoe. Three lake intakes provide a total of 800 gallons per minute to the Main System. A single intake supplies the Links System. Two lake intakes are equipped with 25 h.p. turbine pumps and the third has a 40 h.p. submersible pump for the Main system. The Links system is equipped with a 1 h.p. submersible pump providing 20 gallons per minute. The lake intakes were originally separated to serve their respective satellite areas however with consolidation they were interconnected, making up the Fulton Water Company's Main and Links water systems.

**Primary Transmission and Distribution--Main:** Significant elevation variations result in three pressure zones for the Main system. The zones are labeled lower, middle and upper, with the majority of the systems services lying within the lower zone.

The lower zone receives water from the systems three lake intakes utilizing the Dinah, Cedar Flat, and Piney Wood Tanks for storage. Pressures in the lower zone range from 40 - 100 psi. The middle zone receives water from booster pumps at the Dinah and Piney Wood tanks. The booster stations pump up to the 20,000 gallon Fulton Crescent Storage Tank, which serves as storage for the middle zone. Pressures in the middle zone range from 40 - 100 psi. The upper zone is fed by the Fulton Crescent storage tank and booster station. The two 40 gpm booster pumps transport water to a 5,000 gallon hydropneumatic tank which regulates pressures ranging from 40 -80 psi.

**Primary Transmission and Distribution--Links System:** The Links system is comprised of an upper and lower pressure zone. The lower zone receives water from the Links intake (20 gpm) and utilizes the Links tank having 20,000 gallons of storage. The upper zone receives water pumped from the Links tank by a 3/4 h.p. jet pump at 10 gpm. Pressures in both zones range from 40 - 60 psi.

**Water Main in Both Systems:** Water main in both systems is constructed of various materials and sizes ranging from 1 inch to 6 inches in diameter. The following table outlines distribution mains, materials, sizes, and condition as of 1989.

### Fulton Distribution System Mains for Main and Links Systems

| Material         | Size (inches) | Amount (L.F.) | Condition |
|------------------|---------------|---------------|-----------|
| Std. Screw Steel | 1             | 12,000        | poor      |
| Std. Screw Steel | 1.5-2.0       | 30,010        | poor      |
| Welded Steel     | 4             | 12,500        | fair      |
| Welded Steel     | 6             | 7,536         | fair      |
| Asbestos-Cement  | 4             | 980           | good      |
| Asbestos-Cement  | 6             | 3,710         | good      |
| C-900 PVC        | 6             | 1,500         | good      |

The company maintains one primary transmission main line in the system, constructed of 6 inch PVC, recently replacing the old 4 inch steel main. The line carries water from the Lake Forest Intake to the Dinah Booster Station.

**Storage--Main:** The Main system utilizes four storage/booster stations located at Dinah, Cedar Flat, Piney Wood, and Fulton Crescent. Six storage tanks provide a total of 105,000 gallons of storage capacity to the system. The following chart outlines the storage facilities.

| Tank Identification | Capacity          | Material | Condition         |
|---------------------|-------------------|----------|-------------------|
| Dinah Station       | 1,500 gal.        | Steel    | poor              |
| Cedar Flat (2)      | 20,000 gal        | Steel    | fair              |
| Piney Wood (2)      | 10,000/20,000 gal |          | redwood/fair      |
| Fulton Crescent     | 20,000/5,000 gal  |          | redwood/steelfair |

**Storage--Links System:** Links system storage is provided by one 20,000 gallon steel tank. The tank receives water directly from the lake intake providing a pumping reservoir for the Links Booster. The tank is in fair condition.

**Treatment:** Chlorination is the only treatment provided for both the Main and Links systems. Chlorination takes place at each lake intake.

**1990 System Production:** According to the 1990 annual report, both systems combined serve an approximate permanent population of 2000, reaching up to 6000 during peak periods. The system delivered a total of 96 million gallons of potable water through 774 connections in 1990.

**Deficiencies and Limitations:** Age of the system is probably the greatest liability to the Fulton Water System. Much of the system is over 30 years old and under sized to withstand substantial growth experienced during the 70's and 80's.

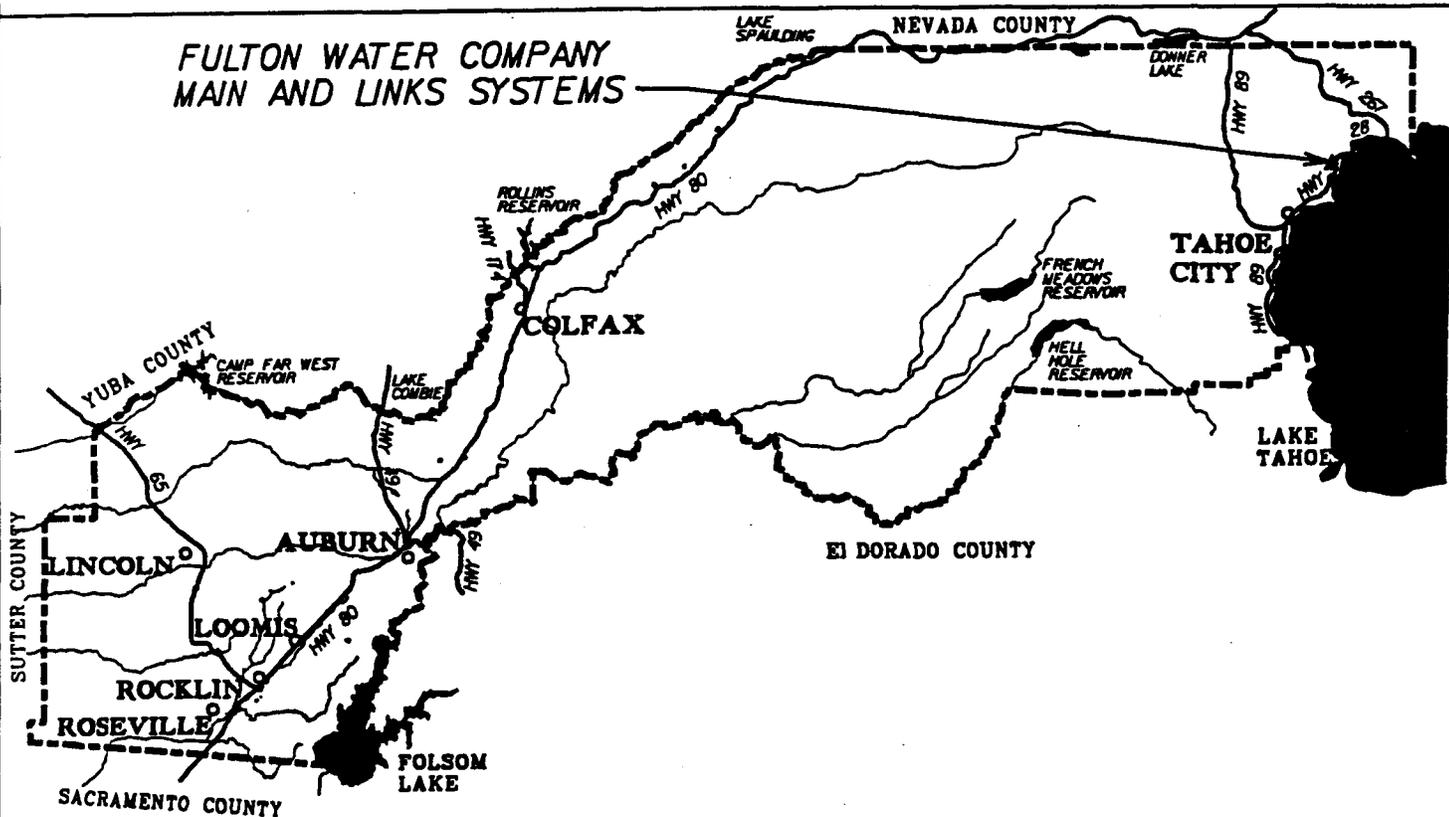
Current treatment facilities are not expected to comply with the upcoming implementation of the Surface Water Treatment Regulations. The storage tanks also require additional maintenance and upgrades such as sealing the tops and minor improvements to telemetry monitoring.

**Existing Planned Improvements:** Fulton Water Company, aware of its deficiencies and limitations, created a five year planning schedule ending in 1993. Among improvements are transmission line and distribution system replacement and an additional inter-tie to the Carnelian Heights water system.

**System Appraisal:** Fulton Water Company, both Main and Links systems, are in good condition. The biggest problem facing the future is compliance with Surface Water Treatment Regulations in 1993. Two options are currently being evaluated: 1) look at an alternative source supply such as groundwater, or 2) install facilities to treat the water at the lake intakes. The other existing problems generally require additional maintenance or updated testing programs.



# PLACER COUNTY WATER SYSTEMS



System Name: FULTON WATER COMPANY - MAIN AND LINKS SYSTEMS

Address: P.O. BOX W, 515 NIGHTINGALE, TAHOE CITY, CA 96145

Contact Name: JOHN A. FULTON Phone: (916)-583-3644

Service Area Size: \_\_\_\_\_ No. Connect.: 774 Population Served: 2000-6000

Services Provided: ALL RESIDENTIAL

## Summary System Description

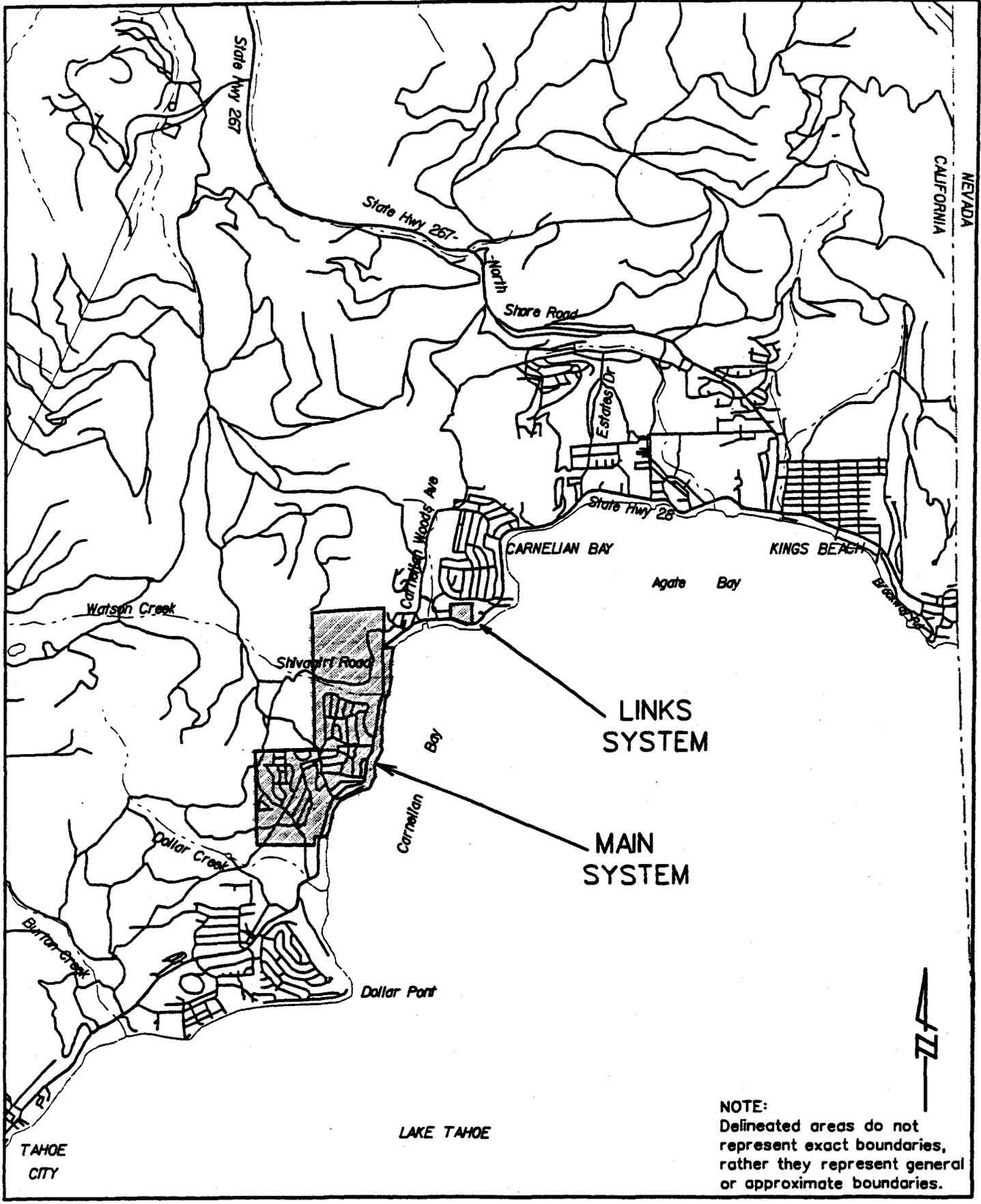
Source: SOURCE TO THE MAIN SYSTEM IS THREE LAKE TAHOE INTAKES PROVIDING A TOTAL OF 800 GPM. ONE LAKE TAHOE INTAKE SUPPLIES THE LINKS SYSTEM. PROVIDING 20 GPM.

Transmission: TRANSMISSION AND DISTRIBUTION MAINS RANGE IN SIZE FROM 1 INCH TO 6 INCHES, WITH THE SMALLER DIA (1-2 INCH) IN POOR CONDITION.

Treatment: CHLORINATION IS THE ONLY TREATMENT PROVIDED TO BOTH SYSTEMS.

Storage: SIX STORAGE TANKS PROVIDE A TOTAL OF 105,000 GALLONS OF STORAGE TO THE MAIN AND ONE 20,000 GALLON TANK PROVIDES STORAGE TO THE LINKS SYSTEM.

Capacity Limitations: AGE OF THE SYSTEM IS THE GREATEST LIABILITY TO THE FULTON SYSTEM, MUCH OF WHICH IS OVER 30 YEARS OLD. COMPLIANCE WITH SURFACE WATER TREATMENT REGULATIONS WILL ALSO POSE SIGNIFICANT CHANGES.



LINKS SYSTEM

MAIN SYSTEM

NOTE:  
Delineated areas do not represent exact boundaries, rather they represent general or approximate boundaries.

**FULTON WATER COMPANY**  
**Water Service Areas**

## HIDDEN VALLEY COMMUNITY ASSOCIATION PUBLIC WATER SYSTEM

**District Overview:** The Hidden Valley CA System is located in Loomis a few miles north of Folsom Lake.

Raw water was previously transported by the Placer County Water Agency's Stallman Canal to a conventional water treatment plant. The Hidden Valley CA water treatment plant, which began operation in 1961, has a 200 gpm capacity and adequately served Hidden Valley CA, Lakeview Hills CA, and the Walden Woods subdivision. Until April 1991, the plant was jointly owned by Hidden Valley CA and Lakeview Hills CA.

Presently the water treatment plant is delegated for backup purposes and Hidden Valley CA receives treated water from PCWA's Foothill Water Treatment Plant via the Rock Crest pipeline. Should employment of the standby plant become necessary, PCWA will assume operational duties under a lease from Hidden Valley CA.

Hidden Valley CA is now categorized as a small water system. A transfer of regulatory jurisdiction from the State Department of Health Services to the Placer County Health Department was initiated when the system began purchasing treated water.

**Source Information:** Hidden Valley CA receives treated water from PCWA's Foothill water treatment plant via the Rock Crest pipeline.

**Primary Transmission and Distribution:** One water meter is used for the entire subdivision. The distribution system consists exclusively of PVC pipe and one pressure zone, where pressures typically range from 45 to 60 psi. A separate, parallel system is used for irrigation water.

**Storage:** Water storage facilities at Hidden Valley CA consist of a 115,000 gallon clearwell, a component of the standby treatment plant.

**Treatment:** Hidden Valley CA homeowner dues produce funding for purchase of treated water from PCWA. The average water demand of the Hidden Valley CA is 110 gpm.

**1990 System Production:** The Hidden Valley CA System serves an estimated population of 1,184 through 296 residential connections.

Hidden Valley CA produced a maximum daily water supply of 186,676 gallons, a maximum monthly supply of 5.6 million gallons, and an annual total of 50.169 million gallons in 1990.

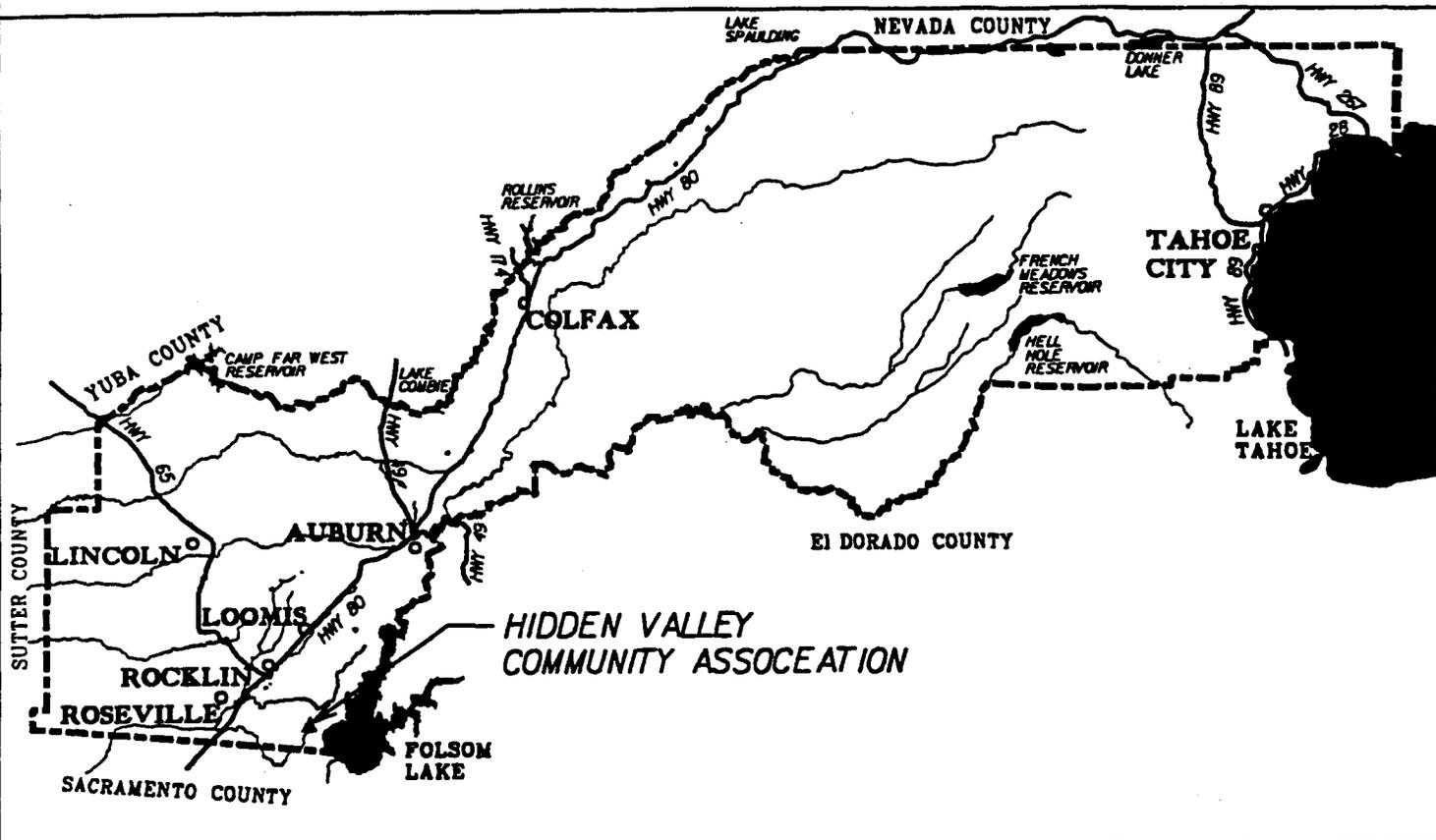
**Deficiencies and Limitations:** Hidden Valley CA has not established an active cross-connection control program and the emergency notification plan is outdated.

Upgrades to the Hidden Valley CA plant are necessary to comply with the Surface Water Treatment Regulations to attain standby status permitting.

**System Appraisal:** The Hidden Valley CA System purchases treated water from PCWA's Rock Crest pipeline. The existing Hidden Valley CA conventional water treatment plant, although currently decommissioned, is expected to function as a standby source.



# PLACER COUNTY WATER SYSTEMS



System Name: HIDDEN VALLEY COMMUNITY ASSOCIATION

Address: 7077 PINE GATE WAY, LOOMIS, CA 95650

Contact Name: LEROY LYON/BOB BAUMER Phone: (916)-739-4051

Service Area Size: \_\_\_\_\_ No. Connect.: 296 Population Served: 1184

Services Provided: FLAT RATE RESIDENTIAL

## Summary System Description

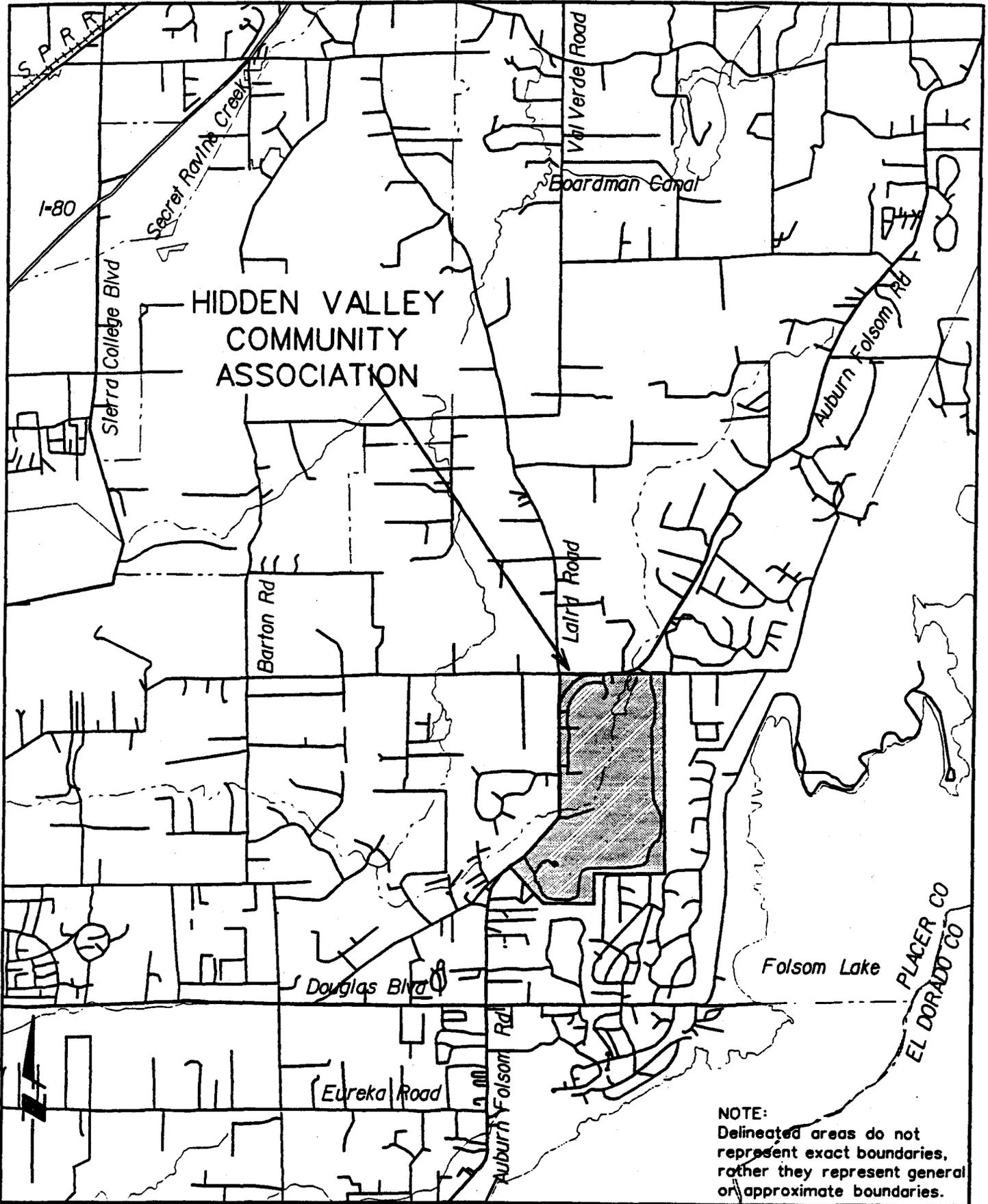
Source: PURCHASES WATER FROM P.C.W.A.'S FOOTHILL WATER TREATMENT PLANT.

Transmission: RECEVES WATER THROUGH A CONNECTION INTO THE 12 INCH ROCK CREST PIPELINE. DISTRIBUTION PIPING CONSISTS EXCLUSIVELY OF PVC PIPE.

Treatment: TREATED WATER IS PURCHASED WITH HOME OWNERS DUES FROM P.C.W.A.'S FOOTHILL WATER TREATMENT PLANT

Storage: STORAGE CONSISTS OF A 115,000 GALLON CLEARWELL LOCATED AT THE ABANDONED WATER TREATMENT PLANT.

Capacity Limitations: SIGNIFICANT RENOVATION OF THE OLD WATER TREATMENT PLANT IS NECESSARY IN ORDER FOR IT TO BE USED AS A STAND-BY.



**HIDDEN VALLEY COMMUNITY ASSOCIATION  
Water Service Area**

### LAKE FOREST WATER COMPANY

**District Overview:** The Lake Forest Water System is located on the North Shore of Lake Tahoe, about 2 miles northeast of Tahoe City. The system is approximately 70 to 80 years old. Two sources supply the system, a spring source and Lake Tahoe.

Safe Drinking Water Bond Law monies have been retained to construct system improvements. Developing a vertical groundwater well is thought to be highest priority.

The Water Company has only one metered commercial connection, the rest being flat rate residential. An annual connection fee is observed in addition to monthly service rates. Current rate schedules for water service and connection fees within the District boundaries are as follows:

|   |          |
|---|----------|
| Commercial annual connection fee (1 1/2 inch meter) | \$262.00 |
| Monthly Service rates per 100 c.u. ft.              | \$1.52   |
| Annual Flat Rate Per Service Connection Per Year    |          |
| For each single unit of residential occupancy       | \$245.20 |
| each additional on same premises                    | \$183.25 |

**Source Information:** The system has two sources supplies - a free flowing spring and Lake Tahoe. Spring water is captured by a cylindrical concrete collector which is buried and perched on a layer of filter sand. Flow from the spring source is estimated to be 17 gpm. Historically, little fluctuation of flow from the spring source is experienced.

The lake intake consists of a 4-inch steel line extending about 400 feet. Production capacity of the intake is unknown. The line is quite old, and believed to be submersed only 3 ft. during low lake level.

**Primary Distribution and Transmission:** The distribution system consists of one pressure zone, with static pressures ranging from 50 to 60 psi. Pressures are regulated by a redwood tank, floating on the system. Friction head losses, due to inadequately sized lines, cause pressures in some system areas to drop below 20 psi during peak usage.

System mains are constructed entirely of steel pipe varying in size. The following table breaks down the mains as follows:

**DISTRIBUTION MAIN MATERIALS AND SIZES**  
**Lake Forest Water Company**

| Material         | Size (in.)     | Amount (lf) | Condition |
|------------------|----------------|-------------|-----------|
| welded steel     | less than 2.5" | 3230        | poor      |
| welded steel     | 2.5" to 3.5"   | 1755        | poor      |
| welded steel     | 4"             | 5513        | poor      |
| welded steel     | 6"             | 785         | poor      |
| std. screw steel | 2" and under   | 1266        | poor      |
| galv. steel      | 3/4"           | 2541        | poor      |

Depicted by the above chart, mains are in poor condition and undersized. Undersized character of the mains has resulted in poor fire protection rating. The system contains only one fire hydrant, and during testing, water outages and syphon conditions are experienced.

Two transmission facilities convey water to the system. The spring transmission main is about 400 ft. long consisting of a combination of parallel 2.5 inch PVC and 4 inch steel pipe. The PVC portion lies above ground, and is frequently vandalized.

The second main extends between the storage tank and distribution system, consisting of approximately 100 lf of 8 inch PVC - C900 and 3700 lf. of 4 inch steel pipe. The 8 inch PVC pipe also lies above ground exposing it to significant hazards.

The overall condition of the transmission mains is poor, including the newer PVC portion, both construction and installation are inadequate.

**Storage:** Storage is provided by a 100,000 gallon redwood tank. The tank is structurally sound, however significant sanitary hazards exists such as lack of a roof. Water from the spring source first enters the tank and then moves to the distribution system. Lake water first travels through the distribution system, then to the storage tank.

**Treatment:** The only treatment provided is disinfection of large water by chlorination. The chemical feeding equipment is quite old, and plans exist for replacement with a newer, more reliable pump. Current feed rate of the pump and resulting chlorine concentration is unknown.

**1990 System Production:** According to the 1991 annual report the system serves a total of 114 connections, 1 of which is commercial. Population fluctuates between 1000 permanent to 2000 seasonal. Month of maximum water use is determined to be July.

**Deficiencies and Limitations:** Deficiencies and limitations to the Lake Forest Water System are numerous. The system is in need of major rehabilitation efforts from most every aspect. Among the numerous deficiencies are main line deterioration and ability to comply with Surface Water Treatment Regulations, if adequate supply of groundwater fails.

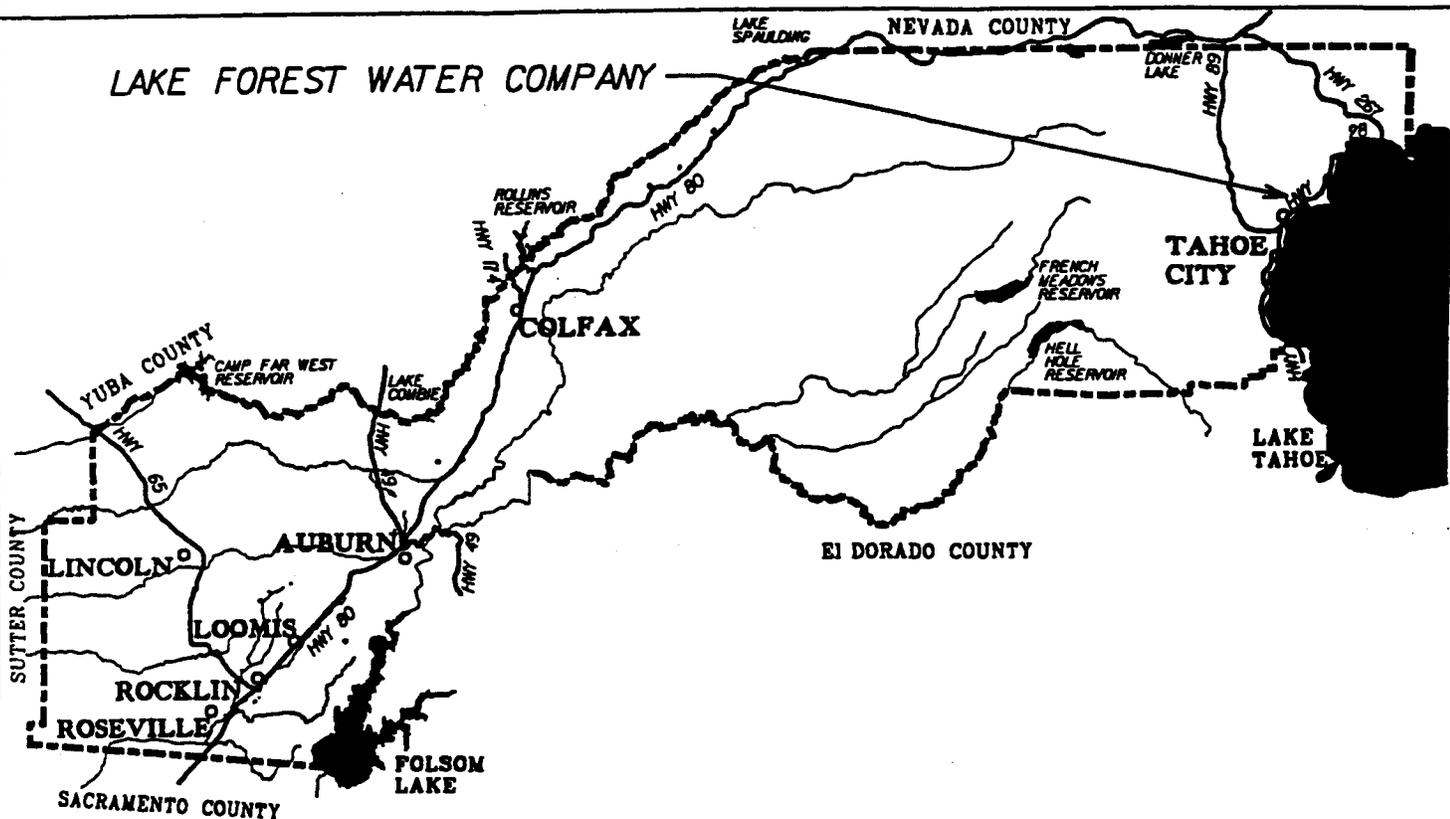
**Existing Planned Improvements:** Most significant of planned improvements is developing a groundwater source to the system. Safe Drinking Water Bond Law monies have been secured to complete this task, however little action has been taken.

**System Appraisal:** While current service meets requirements established by state health standards, many system upgrades will be required to meet oncoming health standards. Perhaps the largest factor effecting future system function is component age. The system was recently purchased by its current proprietor, and prior operation and maintenance was neglected.

Development of a groundwater source is highest priority to the company. Once this task is complete, maintenance and system rehabilitation can proceed.



# PLACER COUNTY WATER SYSTEMS



System Name: LAKE FOREST WATER COMPANY

Address: P.O. BOX 51, TAHOE CITY, CA 95730

Contact Name: DAVID ROBERTSON

Phone: (916)-581-2623

Service Area Size: \_\_\_\_\_ No. Connections: 114 Population Served: 1000-2000

Services Provided: ALL RESIDENTIAL AND ONE COMMERCIAL CONNECTION.

## Summary System Description

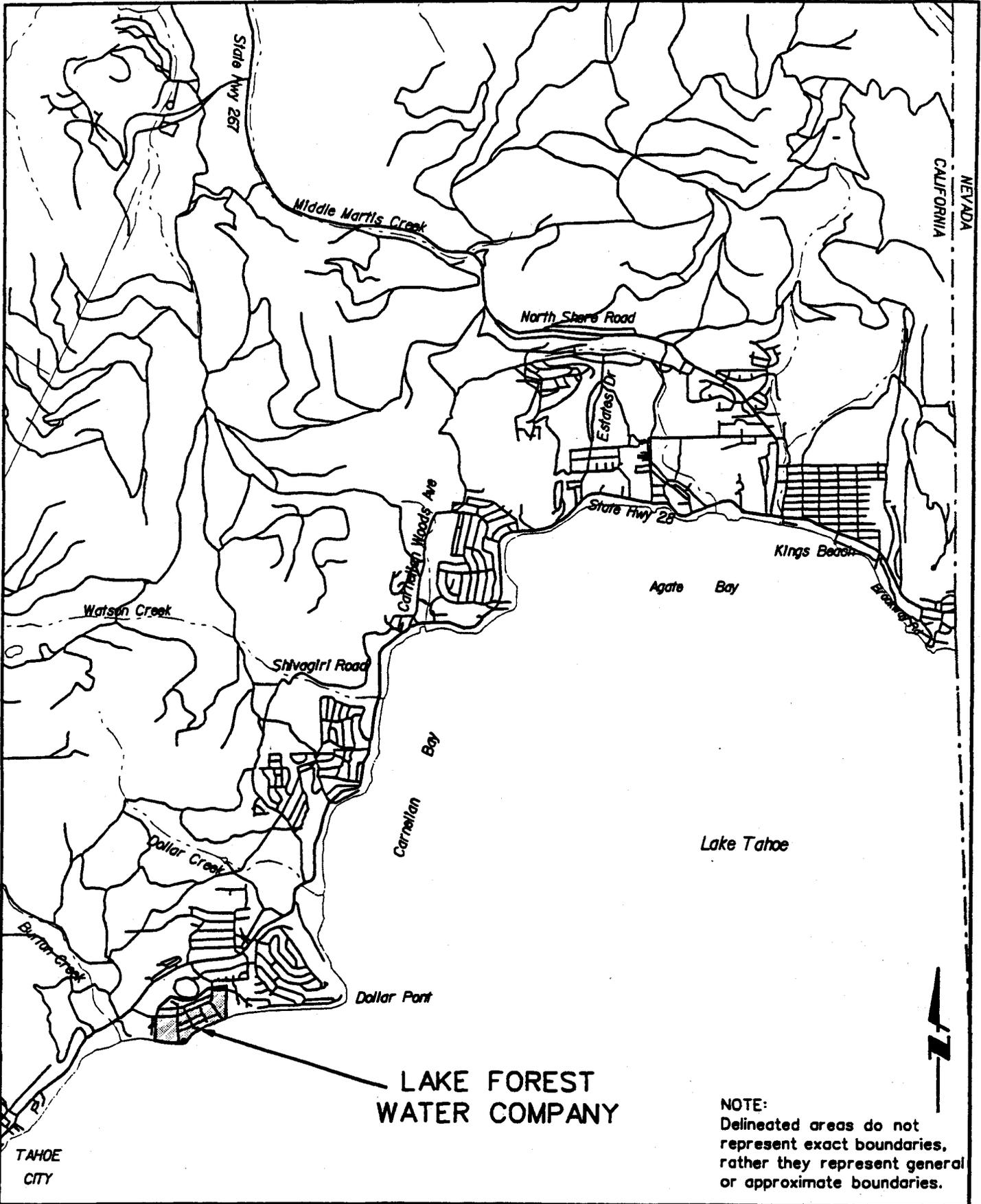
Source: THE SYSTEM HAS TWO SOURCES OF SUPPLY - A FREE FLOWING SPRING AND A LAKE TAHOE INTAKE. THE SPRING CAN SUPPLY ABOUT 17 GPM. CAPACITY OF THE LAKE SOURCE IS UNKNOWN.

Transmission: A 4 INCH STEEL TRANSMISSION LINE DELIVERS WATER TO DISTRIBUTE FACILITIES. ALL STEEL LINES ARE QUITE OLD AND DETERMINED TO BE IN POOR CONDITION.

Treatment: TREATMENT PROVIDED TO THE LAKE SOURCE IS DISINFECTION BY CHLORINATION. NO TREATMENT IS PROVIDED TO THE SPRING SOURCE.

Storage: A 100,000 GALLON REDWOOD STORAGE TANK FLOATS ONE DISTRIBUTION SYSTEM. THE TANK IS STRUCTURALLY SOUND.

Capacity Limitations: THE ENTIRE SYSTEM IS VERY OLD, AND OUT DATED. SIGNIFICANT SANITARY HAZARDS, AND PRESSURE LOSSES ARE EXPERIENCED THROUGHOUT THE SYSTEM DUE TO OLD UNDERSIZED MAINS. PROBLEMS W/COMPLIANCE TO SURFACE WATER TREATMENT REGULATIONS.



**LAKE FOREST  
WATER COMPANY**

**NOTE:**  
Delineated areas do not  
represent exact boundaries,  
rather they represent general  
or approximate boundaries.

**LAKE FOREST WATER COMPANY  
Water Service Area**

## LAKEVIEW HILLS COMMUNITY ASSOCIATION PUBLIC WATER SYSTEM

**District Overview:** Lakeview Hills Community Association was incorporated in 1956 and is located in Loomis. Raw water was previously transported by the Placer County Water Agency's Stallman Canal to a conventional water treatment plant. The plant, with a 200 gpm capacity, was operated and jointly owned by Hidden Valley Community Association until April 1991. Presently, this plant is delegated for backup purposes and Lakeview Hills CA receives treated water from PCWA's Foothill water treatment plant via the Rock Crest pipeline. Should employment of the standby plant become necessary, PCWA will assume operation duties under a lease from Hidden Valley CA.

Connection fees within the Lakeview Hills Community Association subdivision are \$1000/lot. Water service billing is inclusive within the homeowners dues, and are estimated to be \$30.00/month.

**Primary Transmission and Distribution:** Lakeview Hills CA receives treated water from PCWA's Foothill water treatment plant via the Rock Crest pipeline. Five hundred residents are served by 146 service connections. One water meter is used for the entire subdivision. The lower section of the distribution system is composed primarily of PVC pipe.

Pressures in the upper area of the Lakeview Hills CA domestic water system, consisting of 56 to 65 lots, are maintained by a booster pumping station and a 12,000 gallon pressure tank. Normal static pressures range from 40 to 70 psi in the upper zone and 20 to 40 psi in the lower zone.

**Storage:** Water storage facilities at Lakeview Hills CA consist of a 115,000 gallon clearwell, a component of the standby treatment plant, and a 12,000 gallon pressure tank located at the booster pumping station.

**Treatment:** Lakeview Hills CA homeowner dues produce funding for purchase of treated water from PCWA.

**1990 System Production:** The average water demand of the Lakeview Hills CA is 110 gpm.

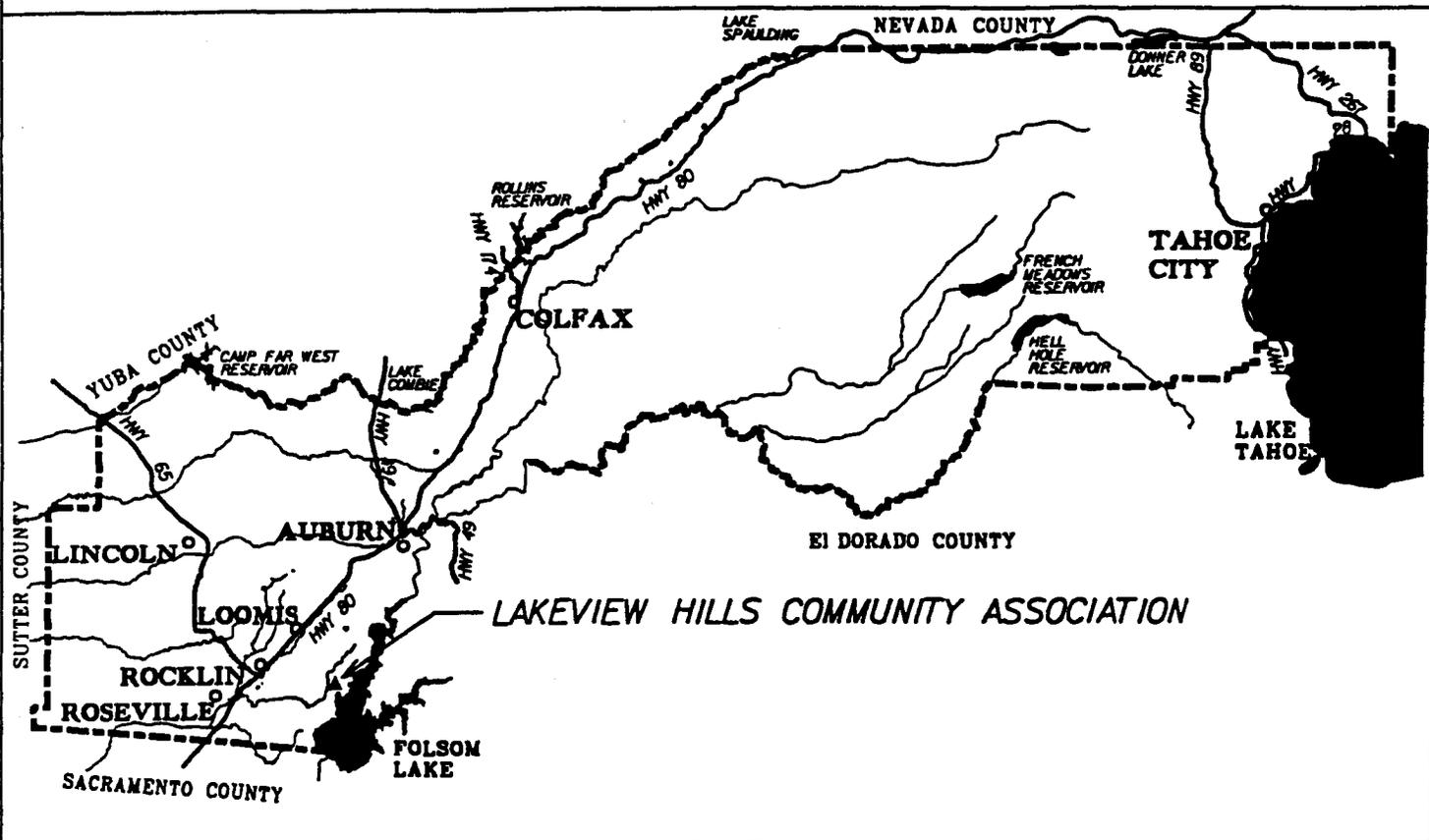
**Deficiencies and Limitations:** The Lakeview Hills CA distribution system does not meet California Waterworks Standards. Faulty cross-connection control and inappropriate disinfection practices were cited by the DOHS in a February 1991 Annual Inspection Report. Several major leaks occurred in the PVC joints.

The Lakeview Hills CA emergency notification plan is outdated. A schematic of the distribution system is missing and valve maintenance and distribution system flushing programs are nonexistent.

**System Appraisal:** The Lakeview Hills subdivision is nearly built out, thus expansion is not an issue. Recent changes including the purchase of treated water from PCWA have helped to solve some of the operation and maintenance problems. The only physical liabilities to the system are various leaks with the distribution system.



# PLACER COUNTY WATER SYSTEMS



System Name: LAKEVIEW HILLS COMMUNITY ASSOCIATION  
 Address: 8280 SOUTH LAKE CIRCLE, LOOMIS CA 95650  
 Contact Name: KENNETH G. ROBBINS Phone: (916)-791-1964  
 Service Area Size: \_\_\_\_\_ No. Connections: 147 Population Served: 500  
 Services Provided: RESIDENTIAL FLAT RATE ONLY

## Summary System Description

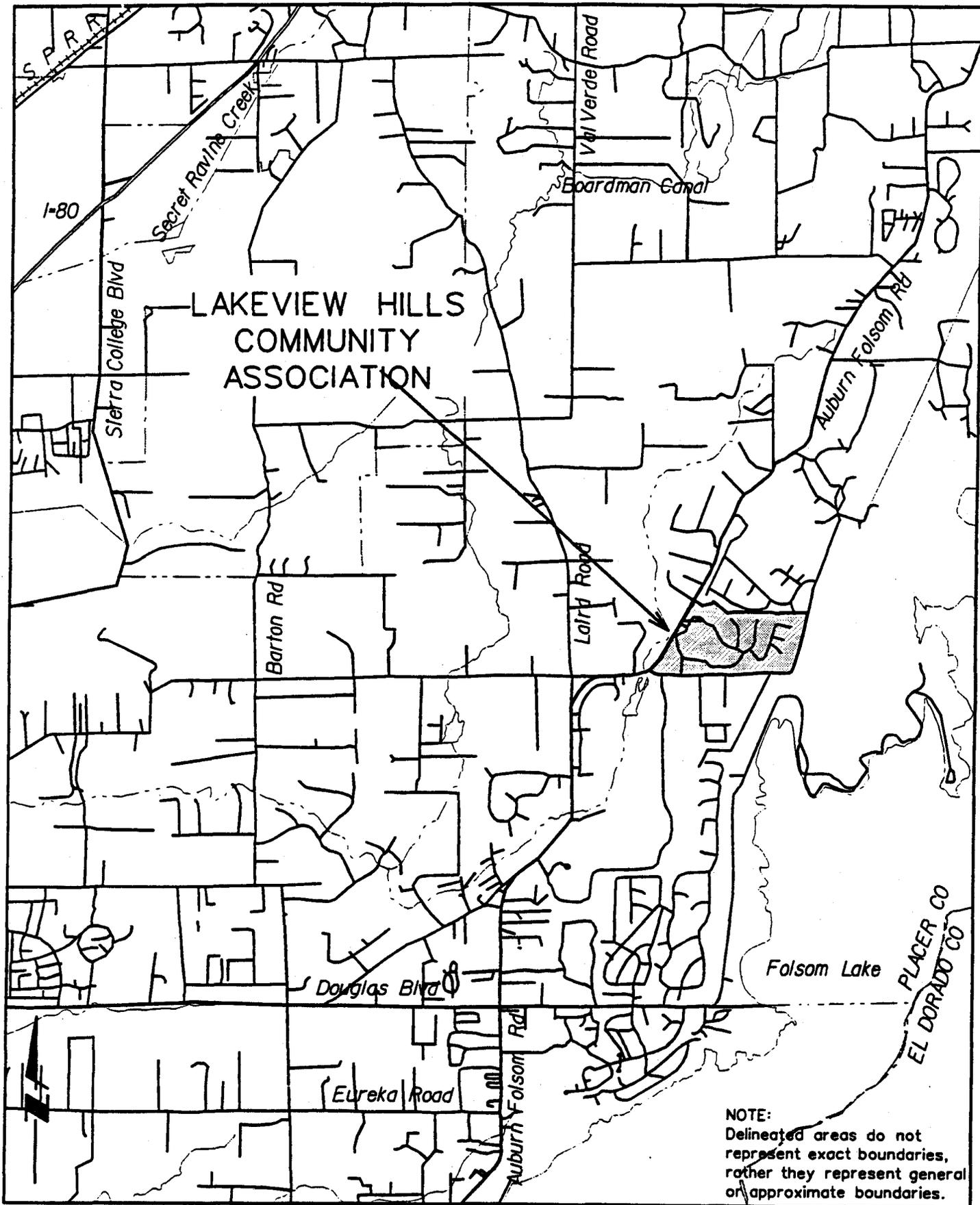
Source: PURCHASE TREATED WATER FROM P.C.W.A.'S FOOTHILL TREATMENT PLANT VIA THE ROCK CREST PIPELINE.

Transmission: PRIMARY TRANSMISSION TAKES PLACE WITHIN THE ROCK CREST PIPELINE. AN INNERTIE PROVIDES WATER TO THE DISTRIBUTION SYSTEM.

Treatment: "SAME AS SOURCE"

Storage: AVAILABLE STORAGE CONSISTS OF A 115,000 GALLON CLEARWELL AT THE OLD TREATMENT PLANT AND A 12,000 GALLON PRESSURE TANK LOCATED AT THE BOOSTER PUMPING STATION.

Capacity Limitations: NO SIGNIFICANT DEFICIENCIES



NOTE:  
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 represent exact boundaries,  
 rather they represent general  
 or approximate boundaries.

**LAKEVIEW HILLS COMMUNITY ASSOCIATION**  
**Water Service Area**

## MADDEN CREEK WATER COMPANY

**District Overview:** Madden Creek Water Company serves the small town of Homewood on the west shore of Lake Tahoe. The systems service area included a total of 131 service connections, mostly residential with a few motels and commercial services.

Madden Creek Water Company began in 1963. Due to common ownership with Tahoe Cedars Water Company, in the early 70's regulatory responsibility was transferred to the State Department of Health. Currently the water company operates under a water supply permit issued in the early 80's. The permit was issued when supply source changed from a diversion on Madden Creek to a vertical well.

**Source Information:** The sole water source for this system is a vertical well which is referred to as the Silver Street Well. The well has an 8 inch diameter casing and is approximately 108 ft. deep. The well is equipped with a 15 h.p. submersible pump which produces water at a rate of 200 gpm.

Madden Creek also has a 2 inch interconnection with neighboring Tahoe Swiss Village water system.

**Primary Transmission and Distribution:** The distribution system for Madden Creek has one pressure zone maintaining pressures between 30 to 50 psi. Water mains are constructed of dipped and wrapped, galvanized and untreated steel pipe. Sizes of the mains range from 2 to 6 inches diameter, with the majority being 2 inch diameter. The distribution system is approximately 70 years old but is reportedly in good condition.

**Storage:** Storage for this system is provided by a 10,000 gallon concrete tank. The tank is approximately 70 -80 years old and reportedly in poor condition.

**Treatment:** There is no treatment of the water produced by the well, nor are there provisions to provide emergency chlorination should the need arise. Sand separation is provided at the well.

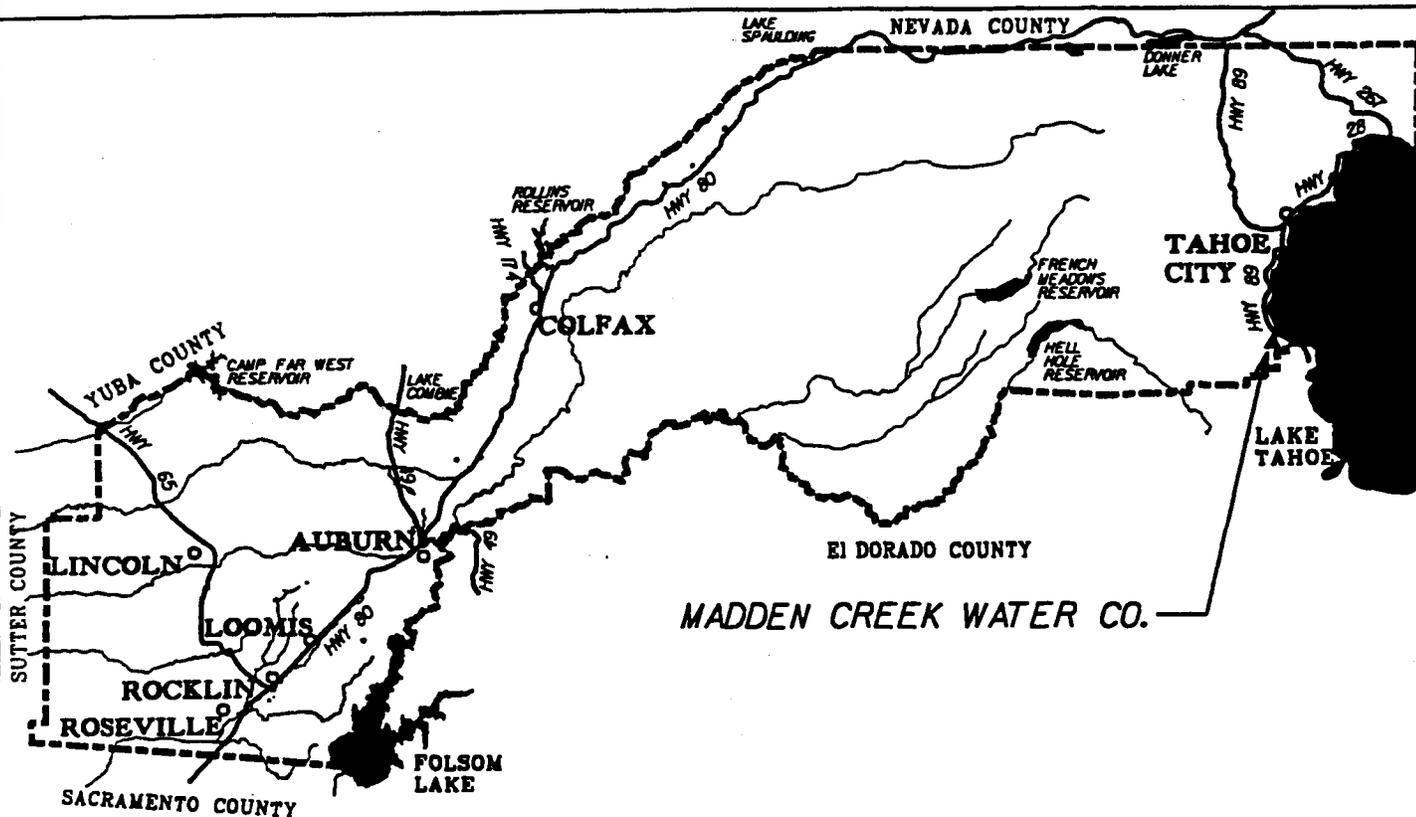
**1990 System Production:** According to the 1991 annual report, Madden Creek provided service to 131 service connections during the 1990 year. Population fluctuations ranged from 120 permanent up to 600 seasonal. Maximum day production totaled 271,000 gallons, with the month of July seeing maximum water use. Annual water produced by the system totaled 40.341 million gallons.

**Deficiencies and Limitations:** The largest deficiency facing the Madden Creek system is lack of auxiliary power for the well pump, and adequate storage should such an emergency occur. Also provisions to provide disinfection to the system, at least annually, are non-existent.

**System Appraisal:** The Madden Creek water system is small and very old, but is capable of continually supplying adequate supply of good quality water to its customers. Its source capacity is sufficient for meeting peak demands and there are no requirements to treat the well water. Adequacy and condition of the storage facility is also a rising concern to the water district. Age of the distribution system may cause future problems.



# PLACER COUNTY WATER SYSTEMS



System Name: MADDEN CREEK WATER COMPANY

Address: P.O. BOX 264, TAHOMA, CA 95733

Contact Name: EARL B. MARR

Phone: (916)-525-7555

Service Area Size: \_\_\_\_\_ No. Connections: 129 Population Served: 120-600

Services Provided: RESIDENTIAL AND SOME COMMERCIAL

## Summary System Description

Source: THE SOLE SOURCE OF WATER IS A WELL 108 FT DEEP WITH AN 8" CASING SUPPLYING 200 GPM TO THE SYSTEM.

Transmission: MAINS IN THE SYSTEM ARE CONSTRUCTED OF DIPPED AND WRAPPED, GALVANIZED AND UNTREATED STEEL PIPE. THE SIZES RANGE FROM 2 - 6 INCHES.

Treatment: NO TREATMENT IS PROVIDED TO THE WELL WATER. THE WELL IS, HOWEVER, EQUIPPED WITH A SAND SEPARATOR.

Storage: STORAGE IS PROVIDED BY A 10,000 GALLON CONCRETE TANK.

Capacity Limitations: ALL FACILITIES OF THIS SYSTEM ARE VERY OLD AND RENOVATION IS BECOMING A MAJOR EXPENDITURE.



## MCKINNEY WATER DISTRICT

**District Overview:** The McKinney Water District service area is located near the Tahoma area on the west side of Lake Tahoe approximately nine miles south of Tahoe City. The service area ranges in elevation from 6280 ft. to 6440 ft. containing two pressure zones. The system is operating under a water supply permit issued in 1964 and an amendment granted in 1979.

The system contains two wells serving approximately 192 connections. One of the wells is used primarily as a standby.

No connection fees are charged for hook-up to existing facilities within the McKinney Water District. Water service is billed at a rate of \$108.00/yr/lot inclusive of a standby charge for vacant lots.

**Source Information:** McKinney Water District is supplied by two metered wells. Well #1 was drilled in 1963, is 355 feet deep, and equipped with a 40 h.p. motor driving the turbine pump. It has capacity to supply 600 gpm to the system. Well #2 was drilled in 1982, equipped with a submersible pump having capacity of 400 gpm. It is also equipped with a hydropneumatic tank and booster pump.

Well #1 produces water containing a fine sand when pumping over 200 gpm, therefore is only used when needed during peak demand, or emergencies. It is also equipped with a propane auxiliary motor for emergency use during power outages. Further emergency supplies could be obtained through an interconnection with the Tahoe Cedars domestic water supply system.

**Primary Transmission and Distribution:** The distribution system is reportedly in good condition, composed of 1400 ft. of 4 inch and 15,100 ft. of 6 inch diameter pipe. Primary pipe material is composed of wrapped or dipped steel pipe. System pressures range from 45 to 70 psi. All dead ends are equipped with blowoff valves for flushing purposes.

**Storage:** A 50,000 gallon redwood storage tank is located at the upper portion of the system. The wells pump directly into the tank and in-turn the tank supplies the system by gravity. The tank is reportedly in good condition.

**Treatment:** No treatment is provided to the system; however, a chlorinator is available for installation on either well, if necessary.

**1990 System Production:** According to the 1991 annual report, the system produced 15.0 million gallons providing service to 192 connections. As with most Lake Tahoe systems a significant difference exists between the permanent population and maximum seasonal. Permanent population is approximately 175 with maximum seasonal reaching 1000.

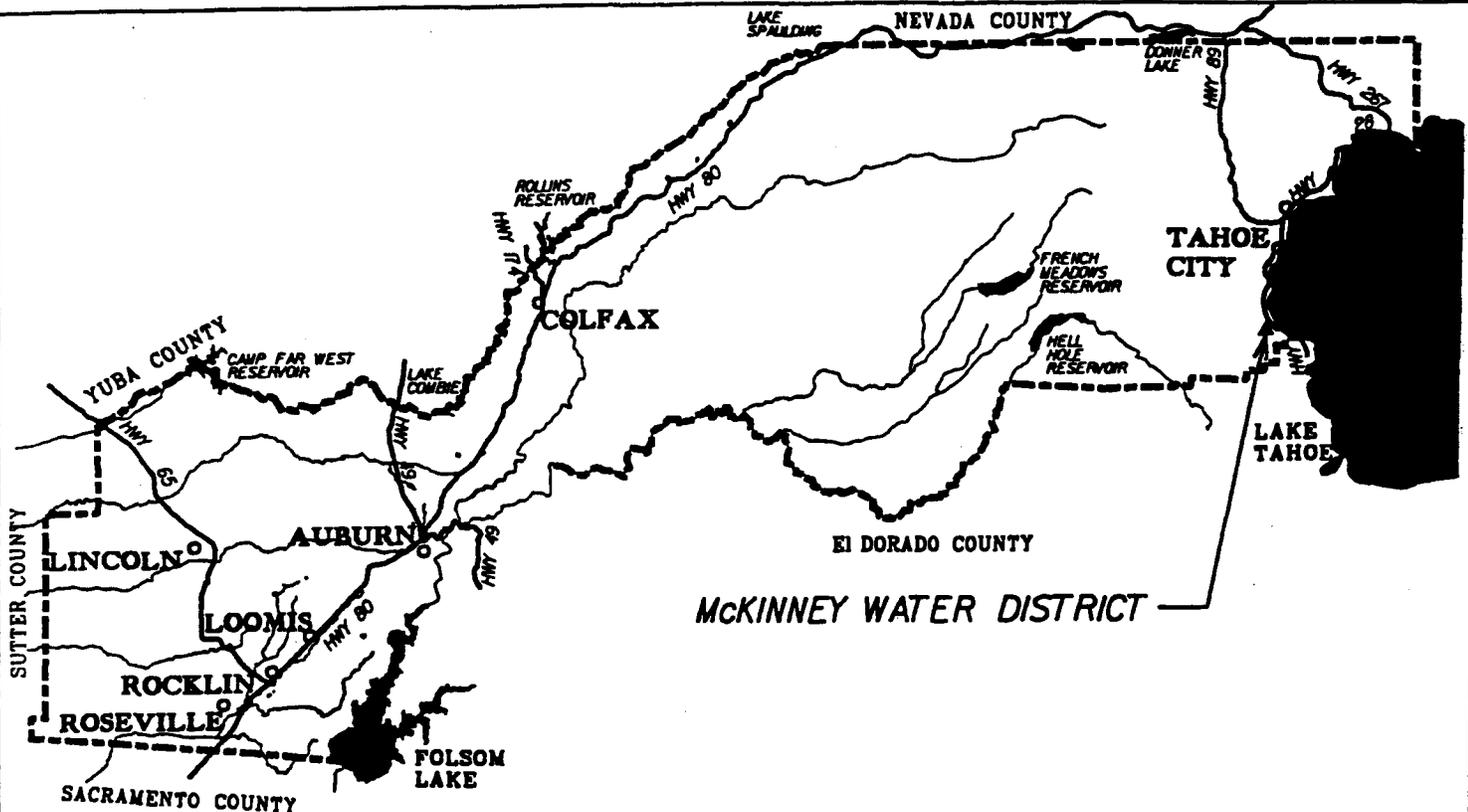
**Deficiencies and Limitations:** No major sanitary defects were reported for the McKinney Water system.

**Existing Planned Improvements:** The only planned future improvement is establishment of a capital replacement program for the distribution system.

**System Appraisal:** The McKinney Water District is a relatively simple straightforward system to understand and operate. All facts which comprise the system seem to be in good condition. Although storage is inadequate, provision to well #2 supplies adequate emergency storage.



# PLACER COUNTY WATER SYSTEMS



System Name: MCKINNEY WATER DISTRICT

Address: P.O. BOX 538, PALO ALTO, CA 94302

Contact Name: KARL KINKER/RICK LIERMAN Phone: (415)-494-7565/(916)-538-4692

Service Area Size:        No. Connections: 192 Population Served: 175-1000

Services Provided: ALL RESIDENTIAL

## Summary System Description

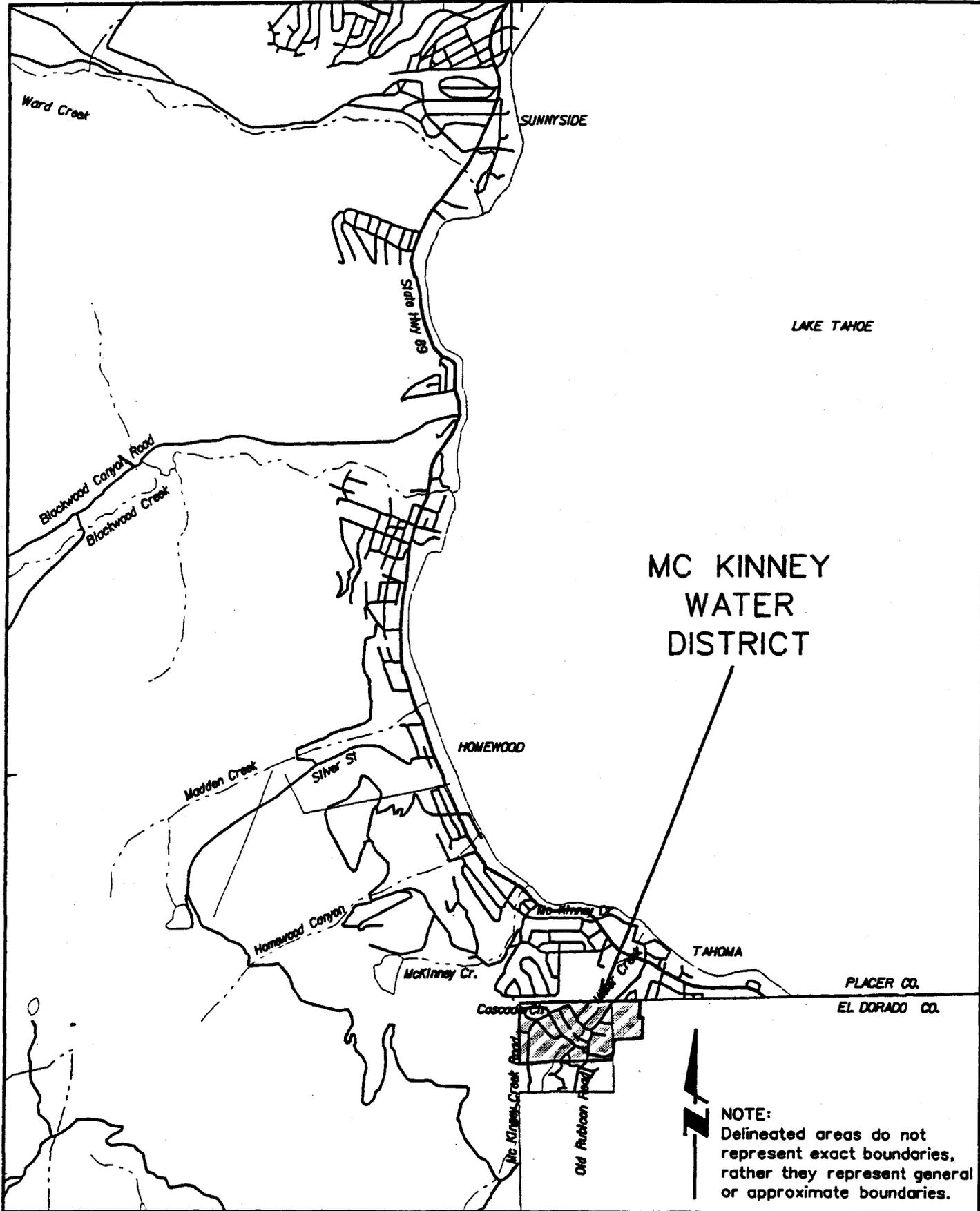
Source: THE DISTRICT IS SUPPLIED BY TWO METERED WELLS, CAPABLE OF PRODUCING 1000 GPM TOTAL.

Transmission: DISTRIBUTION SYSTEM IS IN GOOD SHAPE-COMPOSED PRIMARILY OF 4 & 6 INCH WRAPPED OR DIPPED STEEL PIPE. ALL DEAD ENDS ARE EQUIPPED WITH BLOWOFFS FOR FLUSHING.

Treatment: NO TREATMENT IS PROVIDED, HOWEVER A CHLORINATOR IS AVAILABLE FOR INSTALLATION ON EITHER WELL IF NECESSARY.

Storage: THE WELLS PUMP DIRECTLY UP TO A 50,000 GALLON REDWOOD STORAGE TANK, WHICH GRAVITY SUPPLIES THE DISTRIBUTION SYSTEM.

Capacity Limitations: MOST SIGNIFICANT ISSUE FACING THE DISTRICT IS ESTABLISHMENT OF A CAPITAL REPLACEMENT PROGRAM FOR THE DISTRIBUTION SYSTEM.



MC KINNEY  
WATER  
DISTRICT

MC KINNEY WATER DISTRICT  
Water Service Area

## MEADOW VISTA COUNTY WATER DISTRICT

**District Overview:** The 2.5 MGD Meadow Vista water treatment plant was constructed in the late 70's as a gravity filter plant. Currently the plant adheres to a limited rating of 1.5 MGD with settling detention times and flocculation as limiting factors.

The District recently underwent a surface water treatment evaluation by the DOHS. Aside from additional monitoring and minor plant upgrades the most significant item lacked by the District was a water shed survey. The District is governed by a five member board of directors. Recently a large change in rate structure was adopted. Connection fees and rate schedule for 1991 within the Meadow Vista County Water District are as follows:

| <b>Connection Fees</b> |                |
|------------------------|----------------|
| Facility fee           | \$1,900        |
| Meter set fee          | \$425          |
| Deposit                | \$50           |
| Service charge         | \$50           |
| <b>Total</b>           | <b>\$2,390</b> |

Basic water service is a flat rate of \$12.00/mo plus a \$2.00 PCWA surcharge. Water usage is billed at a rate of \$0.40/100 cu. ft.

**Source Information:** Source water is diverted from the Bowman Feeder Canal, which is fed from the Boardman Canal. The watershed is relatively uninhabited, however, it is open to the public for recreational purposes and both canals pass through sparse residential areas with septic systems and cross Southern Pacific Railroad tracks.

Past efforts have been attempted to located groundwater as an alternate source supply but all efforts have failed.

**Primary Transmission and Distribution:** Primary transmission facilities gravity feed directly into the plant from the Bowman Feeder Canal. From the plant, water then is transported to both the distribution system and storage tanks.

The distribution system is reportedly in fair shape. Most significant problems existing are maintenance and repair of steel lines. The distribution system is composed primarily of 14, 12, 10, 8, and 24 inch AC, PVC, and steel lines. Corrosion is not a problem within the system.

**Storage:** Available storage facilities include a 2.5 MG clearwell at the treatment plant and a 2 MG concrete reservoir. These facilities are considered adequate, being able to supply water for two to three days during power outages.

**Treatment:** The existing plant is a gravity filter plant, having capacity of 2.5 mgd.

**1990 System Production:** Meadow Vista County Water District water treatment plant is responsible for serving a total of 1,081 connections.

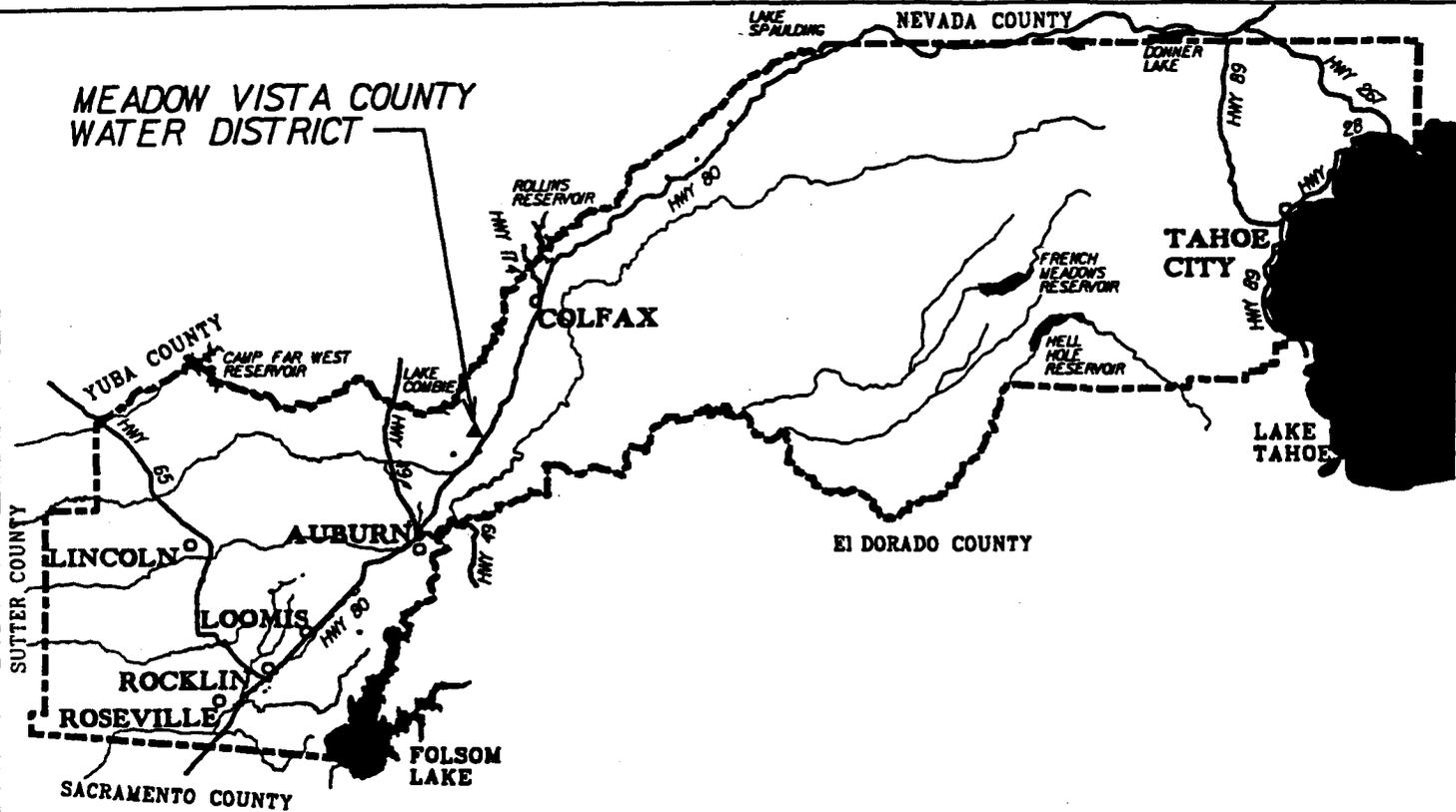
Maximum day demand during the 1990 year reached 1.8 million gallons. The month of maximum water use was July, serving a total of 48.5 million gallons for the 1990 year.

**Deficiencies and Limitations:** Recently an inspection was performed on the treatment plant regarding compliance with surface water treatment regulations. There are several areas targeted for improvement, however, most are directed toward operation and monitoring, opposed to lacking facilities or processes necessary to comply.

**Existing Planned Improvements:** Existing planned improvements are directed at providing service to a proposed large development project (Winchester). The treatment plant currently has enough capacity provided pretreatment capabilities can be improved to allow for full use of the 2.5 mgd capacity.

**System Appraisal:** Compliance with surface water treatment regulations and continued maintenance of transmission and distribution facilities are the two major issues concerning Meadow Vista County Water District. Compliance with the regulations by 1993 is expected to be possible. Due to a continual corrosion problem many of the main lines are currently being replaced when funding permits. Additional service area of the Winchester Development (if approved) will bring about significant funds further improving the system.

# PLACER COUNTY WATER SYSTEMS



System Name: MEADOW VISTA COUNTY WATER DISTRICT

Address: 17000 PLACER HILLS ROAD, MEADOW VISTA CA 95722

Contact Name: NORMAN DEAN/FRED FAHLEN Phone: (916)-878-0828

Service Area Size:      No. Connections: 1081 Population Served: 3200

Services Provided: TREATED POTABLE WATER AND FIRE

## Summary System Description

Source: SOURCE WATER IS DIVERTED FROM THE BOWMAN FEEDER CANAL, WHICH IS FED FROM THE BOARDMAN CANAL.

IS IN GOOD SHAPE.

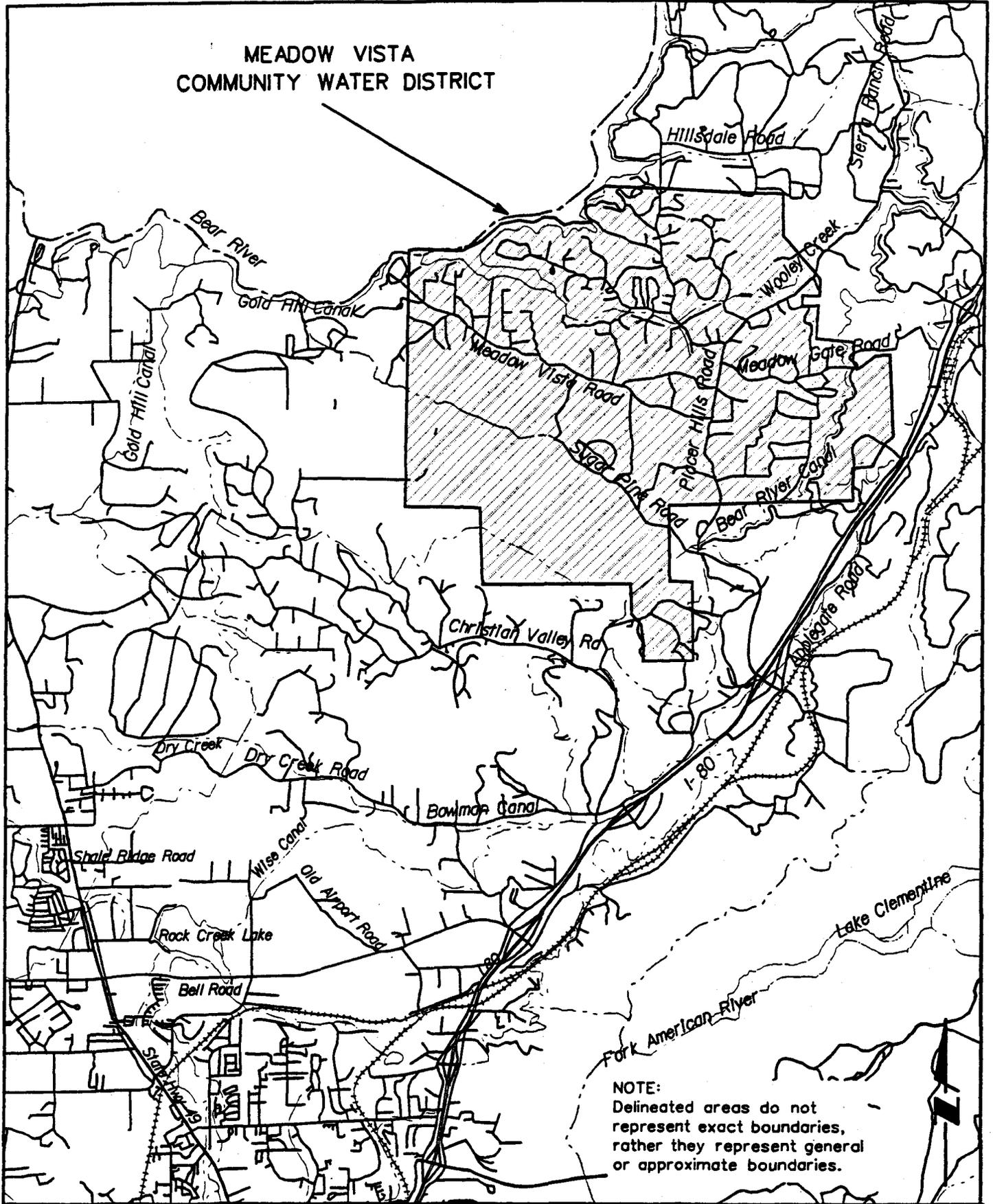
Transmission: A PUMPING STATION ON THE BOWMAN FEEDER CANAL TRANSPORTS WATER TO THE TREATMENT PLANT. THE DISTRIBUTION SYSTEM.

Treatment: THE DISTRICT HAS A CONVENTIONAL SURFACE WATER TREATMENT PLANT HAVING A CAPACITY OF 2.5 MDG, BUT DUE TO PRETREATMENT FACILITIES, IT'S RATED @ 1.6 MGD.

Storage: STORAGE FACILITIES INCLUDE A 2.5 M.G. CLEARWELL AND A 2 M.G. CONCRETE TANK.

Capacity Limitations: PRETREATMENT FACILITIES LIMIT THE PLANT CAPACITY, AND OPERATION/MONITORING DEVICES NEED TO BE IMPLEMENTED IN ORDER TO COMPLY WITH SURFACE WATER TREATMENT REGULATIONS.

MEADOW VISTA  
COMMUNITY WATER DISTRICT



NOTE:  
Delineated areas do not  
represent exact boundaries,  
rather they represent general  
or approximate boundaries.

MEADOW VISTA CWD  
Water Service Area

## MIDWAY HEIGHTS COUNTY WATER DISTRICT PUBLIC WATER SYSTEM

**District Overview:** Midway Heights County Water District was formed in 1954, serving a rural area in Central Placer County. Connection fees are assessed through first years taxes, which total approximately \$3620.00/lot. A flat rate service charge of \$13.00/month plus \$1.12/100 cu.ft. is billed for the first 800 cu.ft. of water usage. Additional water usage is billed at a rate of \$3.00/100 cu. ft.

**Source Information:** Treated water is supplied to Midway Heights CWD by the Weimar Water Company.

**Primary Transmission and Distribution:** Treated water from Weimar WC is conveyed 2,300 feet by gravity through a 4-inch PVC pipe.

The distribution system contains 23 miles of PVC mains ranging in diameter from 2 to 8 inches. Although California Waterworks Standards require a minimum pipe size of 4 inches, the State Department of Health Services (DOHS) regards this deviation as justifiable. The system meets minimum pressure requirements and a separate irrigation system provides necessary fire flows.

Two hundred and thirty-one metered service connections are equipped with double check backflow prevention devices. System pressures vary from 32 to 170 psi and are regulated by seven pressure reducing stations.

Blue Oak Water Services is contracted to operate and maintain the distribution system.

**Storage:** A welded steel tank constructed in 1990, provides storage capacity of 140,000 gallons to the District.

**Treatment:** Treated water is purchased from Weimar WC, which conventionally treats raw surface water from the Boardman Canal.

**1990 System Production:** Midway Heights serves an estimated population of 1,000 through 231 residential connections.

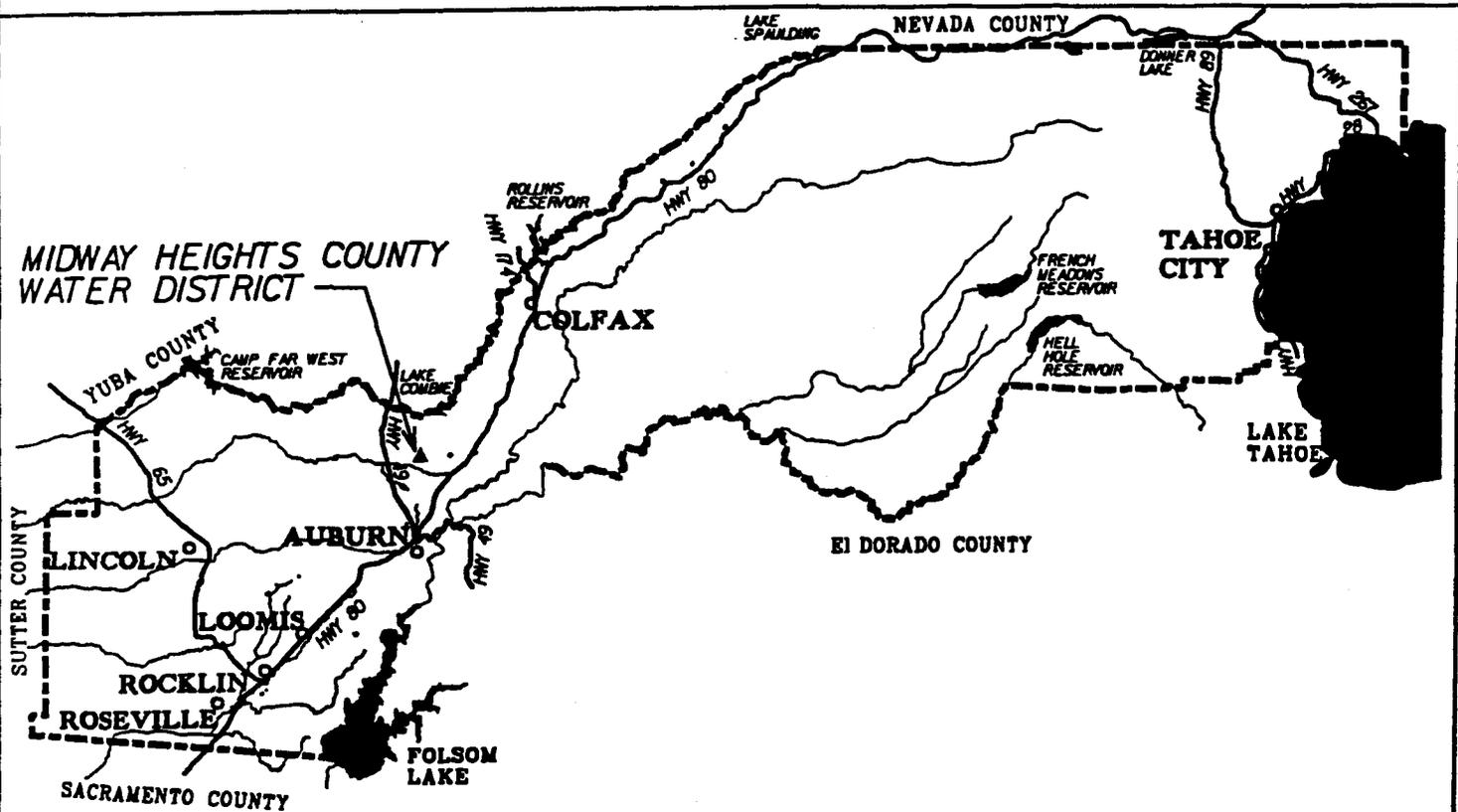
Midway Heights CWD recorded a maximum daily purchase from Weimar WC of 40,000 gallons and a maximum monthly purchase of 1,140,000 gallons in 1990.

**Deficiencies and Limitations:** After unresolved legal altercations between Midway Heights CWD and such regulatory agencies as the Placer County Health Department and DOHS, a consent decree was negotiated with the US EPA in 1988. In response to a court order, Midway Heights CWD made significant progression, including installation of a second distribution system for domestic water supply and complies with the requirements of the Safe Drinking Water Act. All services are connected to a potable water system.

**System Appraisal:** Midway Heights CWD recently constructed a new treated water distribution system and storage facility and added (treated) supply sources, while continuing to serve untreated water for irrigation purposes through the old distribution system. Treated water is supplied by Weimar WC. Recent improvements to the system were repercussions of a consent decree with the US EPA, which expounded Midway Heights as a public water system and subject to the requirements of the Safe Water Drinking Act.



# PLACER COUNTY WATER SYSTEMS



System Name: MIDWAY HEIGHTS COUNTY WATER DISTRICT

Address: P.O. BOX 596, MEADOW VISTA, CA 95722

Contact Name: JIM MEHL Phone: (916) 637 - 5485

Service Area Size: \_\_\_\_\_ No. Connections: 231 Population Served: 1000 EST.

Services Provided: ALL SERVICE CONNECTIONS ARE RESIDENTIAL

### Summary System Description

Source: PURCHASES WATER FROM WEIMAR WATER COMPANY

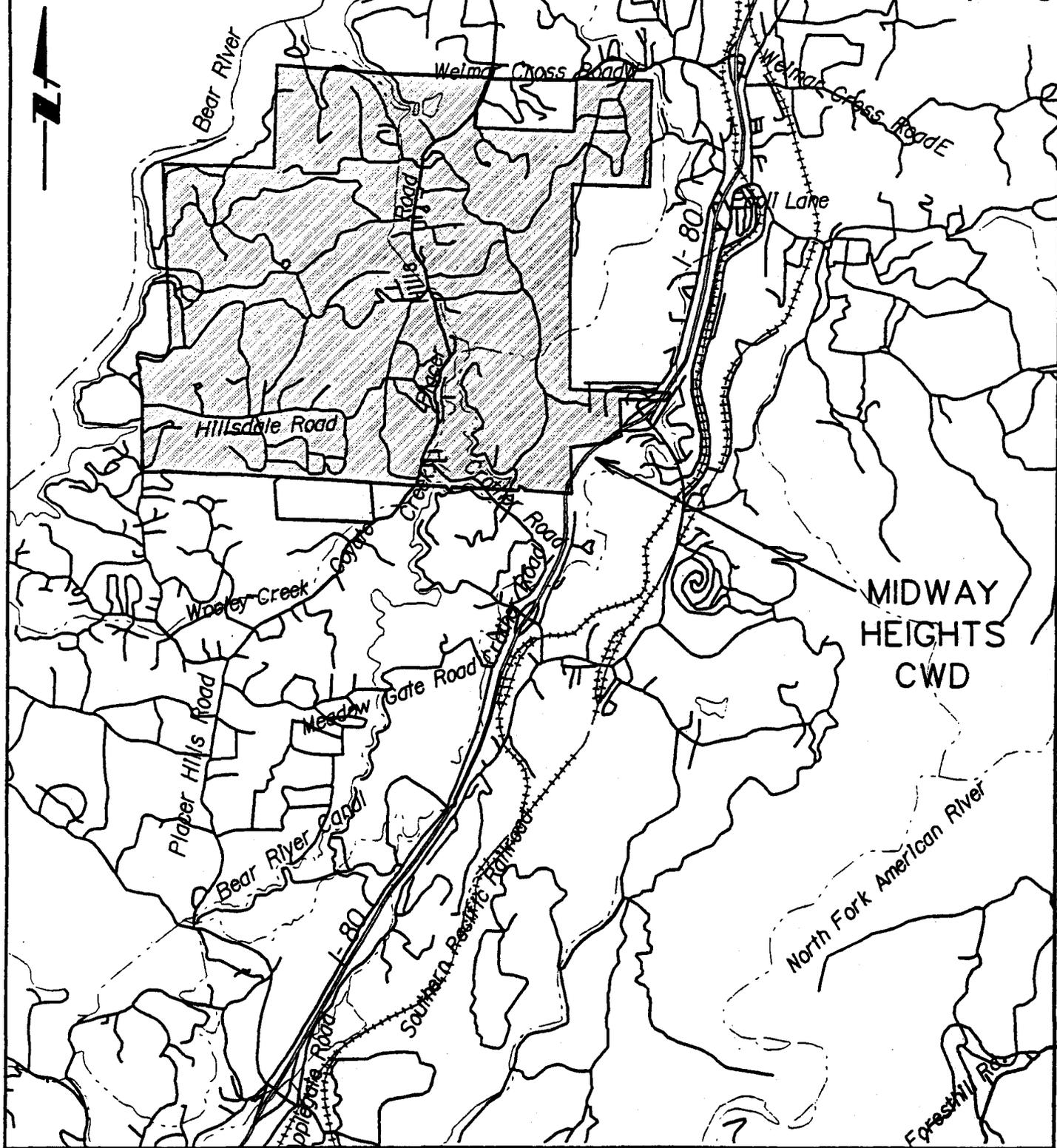
Transmission: TREATED WATER FROM WEIMAR WATER COMPANY IS CONVEYED THROUGH 2,300 FT OF 4 INCH PVC PIPE.

Treatment: WEIMAR WATER COMPANY PROVIDES FULL CONVENTIONAL TREATMENT TO WATER SOLD TO MIDWAY HEIGHTS COUNTY WATER DISTRICT.

Storage: A WELDED STEEL TANK CONSTRUCTED IN 1990 PROVIDES A STORAGE CAPACITY OF 140,000 GALLONS.

Capacity Limitations: RECENT IMPROVEMENTS INCLUDE INSTALLATION OF A SEPARATE DISTRIBUTION SYSTEM FOR DOMESTIC WATER. ALL SERVICES ARE CONNECTED.

NOTE:  
Delineated areas do not  
represent exact boundaries,  
rather they represent general  
or approximate boundaries.



**MIDWAY HEIGHTS CWD**  
**Water Service Area**

**NEVADA IRRIGATION DISTRICT - NORTH AUBURN SYSTEM**

**District Overview:** The Nevada Irrigation District is a non-profit water district operated by land owners within its district boundaries, and governed by an elected five member board of directors. The District was formed in 1921 by local farmers and ranchers who needed a reliable year-around water supply. The District includes 287,000 acres within its district boundaries, serving a total of 19,500 customers.

While the water system is expected to encounter little problem complying with the Surface Water Treatment Regulations, a fee restructuring imposed by Department of Health Services is expected to affect the current rate structure.

A water supply permit was granted to N.I.D. by the DOHS in December 1971. Later, with Safe Drinking Water Bond Law funding, an amendment was filed inclusive of a 1187 foot mainline extension.

The North Auburn System serves a large commercial and residential area along Highway 49 on the northern edge of the City of Auburn.

Residential connection and rate schedule charges for 1991 are as follows:

Connection Fee 5/8" meter = \$2120.00  
Connection Fee 3/4" meter = \$3230.00  
Vacant lot standby charge = \$4.00/month

A flat rate charge of \$25.70/bi-monthly covers the first 200 cu. ft. of water usage. Additional water use is billed at a rate of \$0.66/100 cu. ft.

**Source Information:** Direct source to the system is PG & E owned Rock Creek Reservoir, impounding water from the Wise Canal. The Wise Canal is part of PG & E's Bear River Canal system. This system is subjected to significant water shed hazards including runoff from private residences and small communities, Interstate 80 Freeway runoff and various other county roads, Southern Pacific Rail Road runoff, and recreation activities in upstream reservoirs.

An alternate supply source is N.I.D. owned Combie-Ophir Canal, diverting water from Lake Combie. Lake turbidity fluctuations constitute using this source a few times a year. Two emergency six inch inner ties with PCWA's Auburn system provide additional back-up supply.

**Primary Transmission and Distribution:** Water flows by gravity from Rock Creek Reservoir to the 3.0 MGD treatment plant via a 1256 foot long, 24 inch diameter, ductile iron transmission main. Following treatment, water is stored in a 600,000 gallon clearwell reservoir located at the plant site. Water is then pumped into the distribution system by three booster pumps. An auxiliary generator starts automatically, running the pumps, when normal power supply fails.

Most distribution system construction occurred in the early 70's; however, numerous pipeline extensions have been added corresponding to development throughout the years. One pressure zone exists throughout the system. The distribution system consists of Ductile Iron, Asbestos Cement, and PVC C-900 pipe, and is reportedly in good shape.

**Storage:** Six hundred thousand gallons of storage at the treatment plant, coupled with a 2.0 MG distribution storage tank provides storage to the system. The 2.0 MG tank is located on a hilltop near the Auburn airport, and is fed by booster pumps pressurizing the system located at the treatment plant.

**Treatment:** The 3.0 MG treatment plant provides full, complete treatment. The plant is equipped with dual media gravity filters, and has all necessary warning and emergency backup devices necessary to maintain confident safety factor. N.I.D. expects no problems in meeting the Surface Water Drinking Regulations.

**1990 System Production:** According to the 1991 annual report, 1,780 general and residential metered connections served a permanent population of 4,630 during the 1990 year.

Following information further describes operation production.

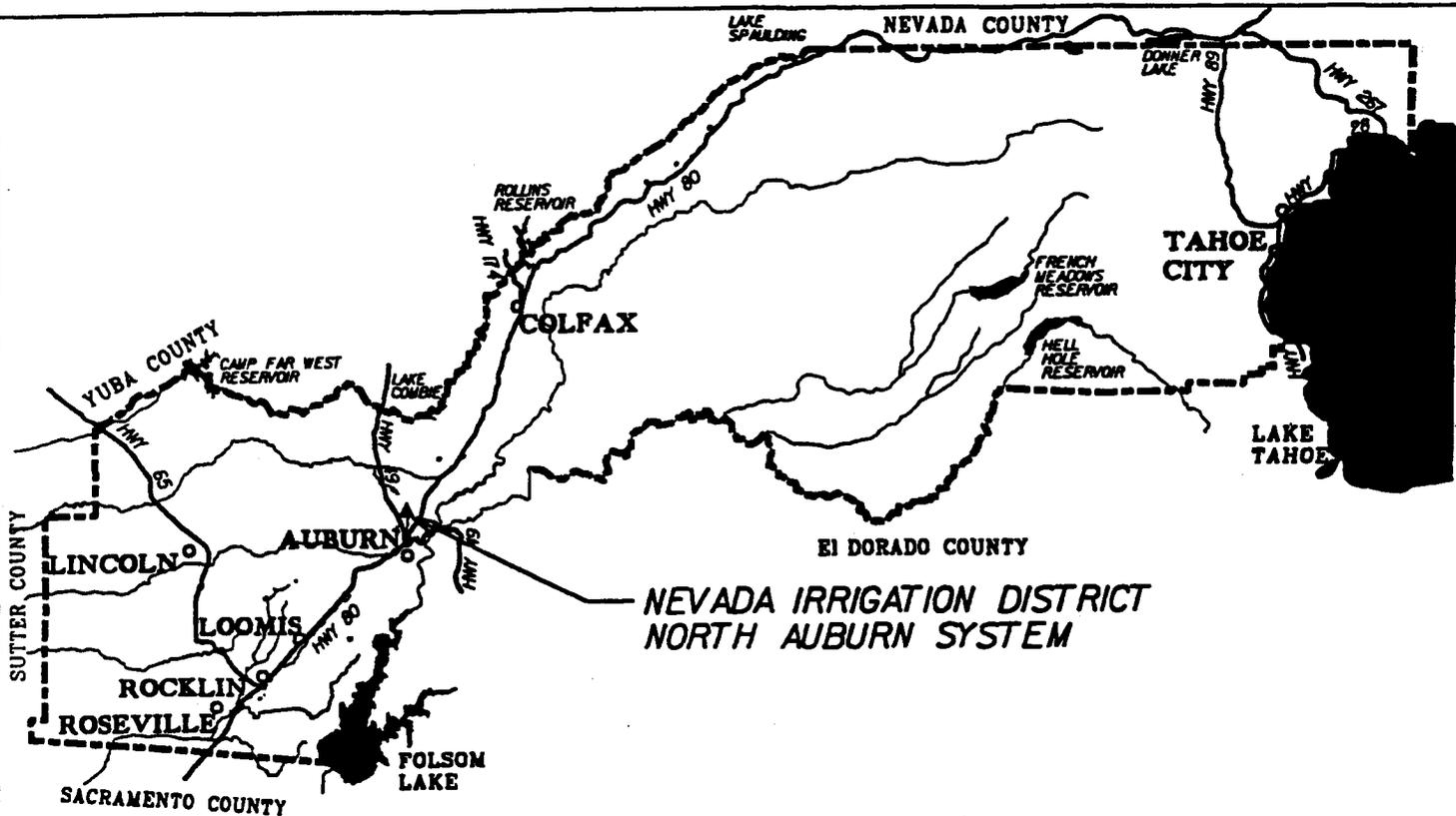
|                                 |                         |
|---------------------------------|-------------------------|
| Maximum Day Water Production    | 2.750 million gallons   |
| Month of Maximum Water Use      | July                    |
| Annual Water Produced by System | 470.257 million gallons |

**Deficiencies and Limitations:** No significant deficiencies or limitations exist within the north Auburn Treatment Plant. Future development will require significant distribution system improvements, due to capacity restrictions with existing facilities. Two issues expected to impact administration are state fee increases and requirement of water shed surveys by the year 1995.

**Existing Planned Improvements:** Currently evaluation is underway looking at a 4.5 - 6.0 MGD expansion of the treatment plant.

**System Appraisal:** Nevada Irrigation District is presently in excellent condition. The upcoming expansion will further its ability to meet both existing and future development. Three major issues expected to have significant impacts, both administratively and physically, on the system are: 1) State mandated fee increases to the District pertaining to number of service connections, 2) Requirement of a water shed survey, and 3) Distribution system extensions impacting the already at capacity existing mains.

# PLACER COUNTY WATER SYSTEMS



System Name: NEVADA IRRIGATION DISTRICT - NORTH AUBURN SYSTEM

Address: P.O. BOX 1019, GRASS VALLEY, CA 95945

Contact Name: WAYNE WAGNER

Phone: (916)-273-6185

Service Area Size: \_\_\_\_\_ No. Connections: 1780 Population Served: 4630

Services Provided: SERVICE TO GENERAL, RESIDENTIAL AND COMMERCIAL.

## Summary System Description

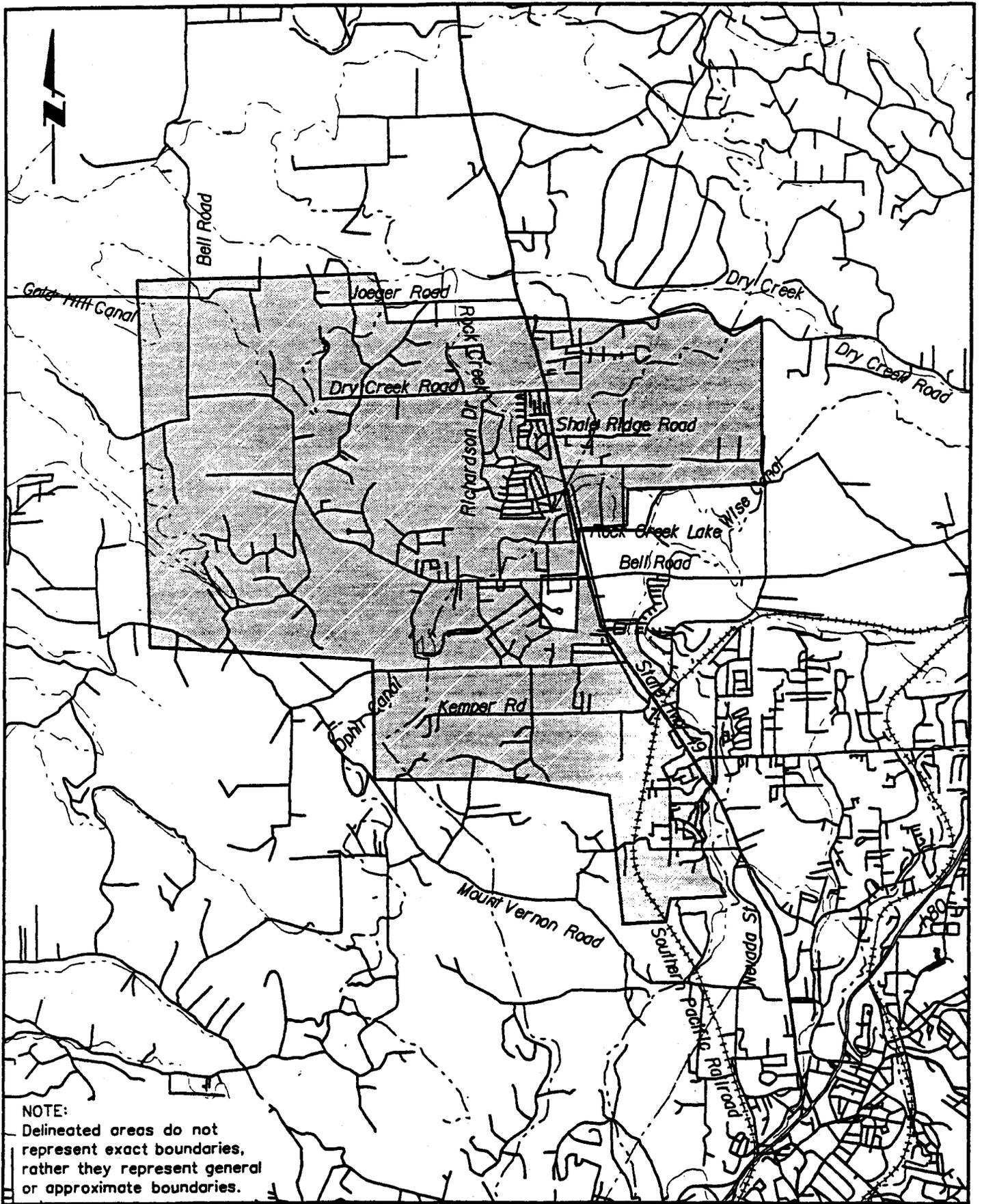
Source: DIRECT SOURCE TO THE SYSTEM IS P.G. & E. OWNED ROCK CREEK RESERVOIR IMPOUNDING WATER FROM THE WISE CANAL.

Transmission: WATER FLOWS BY GRAVITY FROM ROCK CREEK RESERVOIR TO A 3.0 MGD TREATMENT PLANT VIA A 1256 FT LONG 24 INCH DIAMETER DUCTILE IRON TRANSMISSION MAIN.

Treatment: A 3.0 MGD TREATMENT PLANT PROVIDES FULL CONVENTIONAL TREATMENT.

Storage: A TOTAL OF 26 MILLION GALLONS OF STORAGE IS AVAILABLE TO THE SYSTEM, BETWEEN A 600,000 GALLON CLEARWELL AT THE TREATMENT PLANT AND A 2.0 MILLION GALLON STORAGE TANK, LOCATED NEAR THE AUBURN AIRPORT.

Capacity Limitations: DISTRIBUTION MAINS THROUGHOUT THE SYSTEM ARE AT CAPACITY, THUS FURTHER DEVELOPMENT WILL REQUIRE SIGNIFICANT PIPING UPGRADES.



**NEVADA IRRIGATION DISTRICT**  
**North Auburn - Water Service Area**

**NORTH TAHOE PUBLIC UTILITY DISTRICT: DOLLAR COVE, CARNELIAN WOODS, AND KINGS BEACH**

**District Overview:** North Tahoe Public Utility District was incorporated in 1948 for the purpose of sewage collection and treatment. Poor water quality and service within early district boundaries became an issue which resulted in acquisition of the major water supplier by the District in the late 1960's. Since incorporation, the District has acquired five separate water systems within its sewerage service area.

The District water service areas are comprised of three physically separate areas. Within the Kings Beach area, Dollar Cove area, and Carnelian Woods area, the following system components are currently in use:

- > eleven pressure zones
- > three lake intakes
- > one well
- > seven storage tanks
- > approximately 45 miles of pipeline

Rapid development in the 1970's resulted in expansion of existing water systems, purchase or donation of additional systems, and improvements to existing facilities. Safe Drinking Water Bond Loan monies in the early 1980's funded source supply improvements posing significant health threats.

Current average system age is 30 years. Effective system life is estimated at 60 years. Much of the system has reached its effective life of forty to forty-five years, making restoration measures an impending endeavor.

The District is governed by a five member Board of Directors having three primary responsibilities; water service, sewer service, and recreation and parks.

Current rate schedule for the District is as follows:

**CURRENT RATE SCHEDULE**

| Meter Size                  | Minimum Rate<br>Per Month         | Monthly<br>Gallons Allowed | Daily<br>Gallons Allowed |
|-----------------------------|-----------------------------------|----------------------------|--------------------------|
| 5/8" or 3/4"                | \$ 25.96                          | 7,500                      | 250                      |
| 1"                          | \$ 36.20                          | 10,000                     | 333                      |
| 1-1/2"                      | \$ 53.36                          | 15,000                     | 500                      |
| 2"                          | \$ 72.25                          | 20,000                     | 667                      |
| 3"                          | \$105.57                          | 30,000                     | 1,000                    |
| <b>Multiple Residential</b> | <b>Minimum Rate<br/>Per Month</b> | <b>Gallons Allowed</b>     |                          |
|                             | \$12.98                           | 3,750                      |                          |

All usage over the minimum shall be charged at \$1.60 per 1,000 gallons.

| Meter Size   | Connection Fee |
|--------------|----------------|
| 5/8" or 3/4" | \$1,900        |
| 1"           | \$2,660        |
| 1-1/2"       | \$3,900        |
| 2"           | \$5,270        |
| 3"           | \$7,695        |

**Source Information:** Source supply to the District is provided by Lake Tahoe and one well. The District has three lake intakes. Concerning the amount of surface water used, the District operates under three different State water rights utilizing Lake Tahoe water: five permits, three licenses, and three pending applications for appropriative rights. In addition, two Statements of Diversion for riparian and pre-1914 rights are filed on an annual basis with the State Water Resources Control Board (SWRCB), Division of Water Rights.

The following table shows water rights allocation to the North Tahoe Public Utility District as of 1979:

**WATER ALLOCATION  
North Tahoe Public Utility District**

|                         |                          |
|-------------------------|--------------------------|
| Dollar Cove             | 54 acre-feet/annum (AFA) |
| Carnelian               | 140 AFA                  |
| Tahoe Vista/Kings Beach | 1860 AFA                 |

There has been no action on pending applications by the Division of Water Rights since 1972. There is no timetable for adjustments, adjudication or other action to resolve Lake Tahoe water rights as of this date.

**Primary Transmission and Distribution--Kings Beach:** The Kings Beach system is composed of three pressure zones. Source supply is derived from two lake intakes. Additional historical supply came from a reservoir and spring diversion, however sampling showed evidence of *Giardia Lamblia* cysts and the system was forced to discontinue use until adequate treatment or protection could be implemented. Future use of these sources is not contemplated.

The primary lake intake houses 125 hp and 100 hp pumps, with respective capacities of 1,000 gpm and 700 gpm. A standby generator located in an adjacent sewage pumping facility is able to provide power to one of the two pumps in the event of an emergency or power outage subject to the sewer pumping requirements being met. The secondary lake intake houses 40 hp and 125 hp pumps, with respective capacities of 245 gpm and 625 gpm.

Water is pumped from the lake through pressure zone 1 to two storage facilities; a 500,000 gallon steel tank in Kingswood Estates, and a 500,000 gallon steel tank in Kings Beach. The Kingswood Estates tank is too low to actually supply sufficient pressure, and is therefore viewed more as a booster pump reservoir. From the Kingswood Estates, tank water is boosted twice more to 120,000 gallon and 500,000 gallon storage tanks.

**Primary Transmission and Distribution--Carnelian Bay:** Carnelian Bay Subdivision and water distribution system began in the early 1900's. In 1930 the Carnelian Bay Water Company was formed and operated the system until district purchase in 1975. A lake intake was constructed in the early 1920's but has since been abandoned, although physical improvements still remain. In the early 1970's the Carnelian Woods project was developed, and its water system was purchased in 1974 by the District.

The Carnelian Bay/Carnelian Woods system is divided into four pressure zones, supplied by a high quality ground water well source. The well is equipped with a 60 hp pump supplying 359 gpm to a 500,000 gallon steel tank. Water is again lifted to a second 500,000 gallon steel tank.

Upper zone distribution facilities are relatively new ranging in size from 6 to 14 inches, with corresponding pressures ranging from 25 to 115 psi. Lower zones contain primarily 3 inch diameter mains and are quite old.

**Primary Transmission and Distribution--Dollar Cove:** The Lake Forest No. 3 subdivision and water system began in 1929, utilizing Dollar Creek as a source. In 1970 Chinquapin development began negotiations with North Tahoe Public Utility District for sewered and water service agreements. The District formally purchased the Dollar Cove water system in 1977 after several years of lease agreements. Use of the water dates back to 1917, with filing to the California Water Rights Commission in 1929 for approved water use.

The Dollar Cove system derives water from the Dollar Cove pump station, consisting of a lake intake and two vertical turbine 125 hp pumps. Each pump is rated at 1,000 gpm at 344 feet of head. Standby power is provided by a direct coupled natural gas engine.

Water is pumped to a single 350,000 gallon steel storage tank supplying the distribution system. Distribution system sizes vary and ages date back to 1937 with the average age being 26 years. Sizes range from 2 inches to 12 inches. A 2-inch inner-tie with Fulton Water Company is available for emergency supply.

**Treatment:** Treatment is not provided to the groundwater well in the Carmelian Woods area although provisions for disinfection have recently been installed, and only chlorine disinfection is provided to lake intakes.

**1990 System Production:** The following tables outline system production for each of the three physically separate water systems.

#### ANNUAL SYSTEM PRODUCTION Main (Kings Beach)

|                            |                       |
|----------------------------|-----------------------|
| Maximum Day Production     | 1.47 million gallons  |
| Month of Maximum Water Use | July                  |
| Total Annual Water Usage   | 399.1 million gallons |

The Main, or Kings Beach System, serves a total permanent population of approximately 5,000; however, this more than doubles during the seasonal population influx.

Connections are broken down as follows:

#### SYSTEM SERVICE CONNECTIONS

|                         | Metered | Flat Rate | Total |
|-------------------------|---------|-----------|-------|
| General and Residential | 2615    | 29        | 2644  |
| Commercial              | 194     | 1         | 195   |
| Total Active            | 2809    | 30        | 2839  |

**CARNELIAN BAY-CARNELIAN WOODS SYSTEM PRODUCTION**

|                            |                       |
|----------------------------|-----------------------|
| Maximum Day Production     | 0.112 million gallons |
| Month of Maximum Water Use | August                |
| Total Annual Water Usage   | 27.11 million gallons |

The Carnelian Bay/Carnelian Woods System serves a total permanent population of 600; however, reaching up to 900 during seasonal population influx.

Connections are broken down as follows:

**CARNELIAN BAY-CARNELIAN WOODS SERVICE CONNECTIONS**

|                         | Metered | Flat Rate | Total |
|-------------------------|---------|-----------|-------|
| General and Residential | 228     | 0         | 228   |
| Commercial              | 15      | 0         | 15    |
| Total Active            | 243     | 0         | 243   |

**DOLLAR COVE ANNUAL PRODUCTION**

|                            |                       |
|----------------------------|-----------------------|
| Maximum Day Production     | 0.11 million gallons  |
| Month of Maximum Water Use | July                  |
| Total Annual Water Usage   | 21.30 million gallons |

The Dollar Cove/Chinquapin System, serves a total permanent population of 800, however this more than doubles during seasonal population influx. Connections are broken down as follows:

**DOLLAR COVE SERVICE CONNECTIONS**

|                         | Metered | Flat Rate | Total |
|-------------------------|---------|-----------|-------|
| General and Residential | 255     | 0         | 255   |
| Commercial              | 3       | 0         | 3     |
| Total Active            | 258     | 0         | 258   |

**Deficiencies and Limitations--General:** The average age of the system is excessive. All systems have an average age of 30 years or greater. That means that there are significant lengths of line in service 60 years old or older. These lines not only have reached or exceeded their useful life but are also inadequate to supply reliable year round service, fire protection, and protect the delivered water quality.

The financial resources to alter a trend toward further aging are questionable. With little or no new growth the systems must rely on the existing customer base to fund all necessary improvements.

The District is within the Placer County Water Agency's jurisdiction. The agency, however, has not returned to the community services equivalent to the taxes generated. North Tahoe PUD, together with other eastern county entities, is seeking a return of funds to the area to help offset the increasing capital needs, regulatory costs, and changes in operation necessitated by new regulations.

**Deficiencies and Limitations--Main (Kings Beach):** The most significant deficiency within the Kings Beach service area is average age and size of distribution mains. The average diameter of water mains is 5.5 inches, and the average age of the pipe is 35 years. Excessive amounts of budget monies are spent each year in repairs and maintenance, which could otherwise be used for system upgrades and replacement programs.

The loss of Griff Creek and Mount Baldy Springs source, which were responsible for 1.2 million gallons of storage and approximately 1 million gallons per day of source capacity, placed further limitations on the system.

**Deficiencies and Limitations--Carnelian Bay/Carnelian Woods:** Lower zones in the Carnelian service area do not contain adequate looping or properly sized mains. Most mains are 3 inches diameter or smaller and have an average age of 32 years.

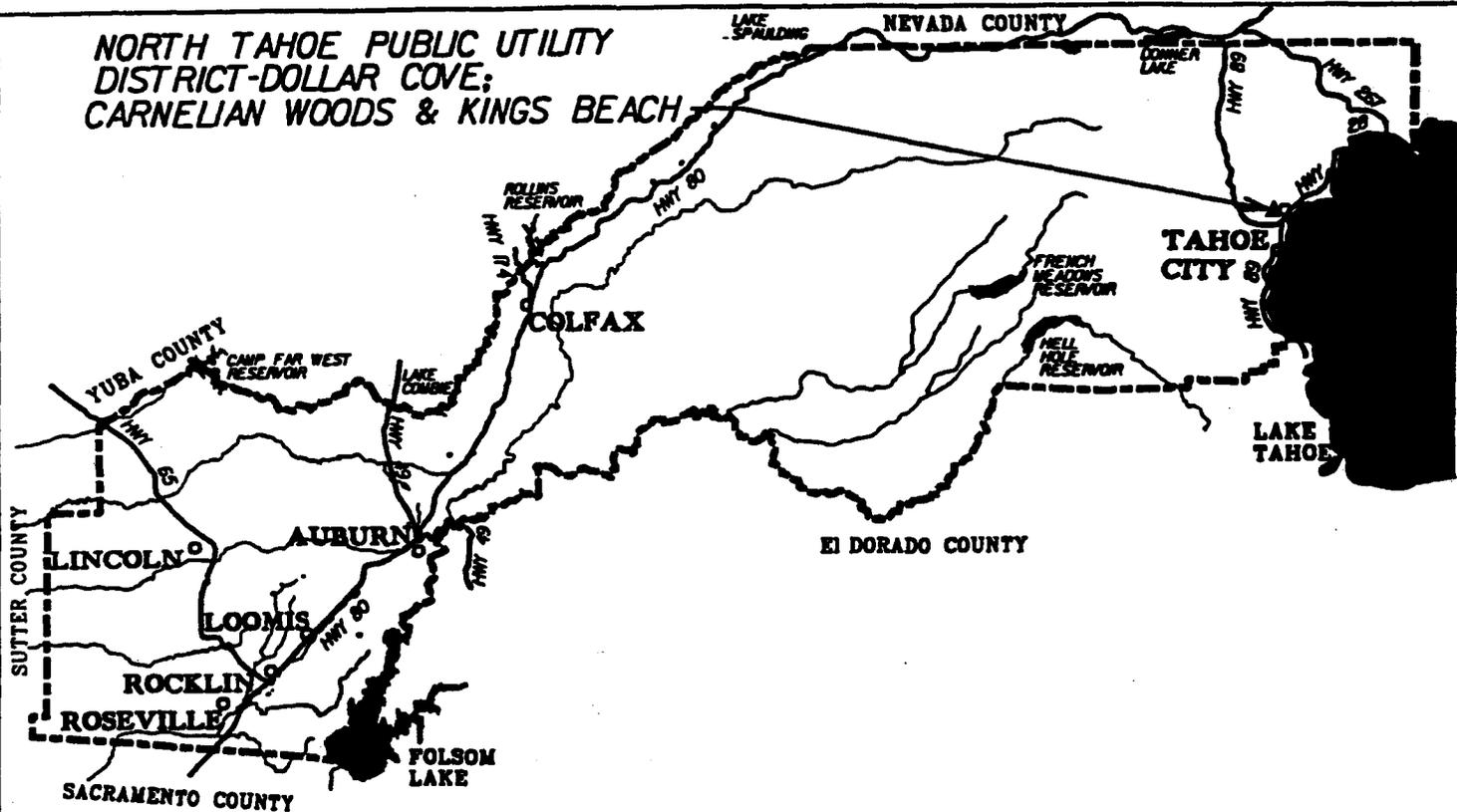
**Deficiencies and Limitations--Dollar Cove:** Deficiencies occurring within the Dollar Cove service area include undersized mains, inadequate looping and provision for fire flows, and burial depths too shallow to prevent frozen mains and increased maintenance costs. The distribution system average age is 30 years.

**Existing Planned Improvements:** The major existing planned improvements to the District includes new or modified sources to comply with the Safe Drinking Water Act, maintenance of a systematic replacement program and creation of an appropriate reserve fund.

**System Appraisal:** District awareness of its strengths and weaknesses is evident upon a review of their *Master Water Plan*. Development along the lake area is essentially halted. Funding of future replacement programs is underway and discussed in the *Master Water Plan*. Due to rising costs imposed on the District by the Surface Water Treatment Regulations, alternate sources of supply are being aggressively evaluated. A study in conjunction with the Bureau of Reclamation to locate significant ground water supply is underway.



# PLACER COUNTY WATER SYSTEMS



**System Name:** NORTH TAHOE PUBLIC UTILITY DISTRICT-DOLLAR COVE; CARNELIAN WOODS AND KINGS BEACH

**Address:** P.O. BOX 139, TAHOE VISTA, CA 96148

**Contact Name:** LEON C. SCHEGG **Phone:** (916) 546-4212

**Service Area Size:** 2186 ac. **No. Connect.:** 340 **Population Served:** 5000 :

**Services Provided:** PRIMARILY RESIDENTIAL W/ SOME COMMERCIAL

## Summary System Description

**Source:** THREE LAKE INTAKES AND I WELL SERVE THE DISTRICT NEEDS. THE DISTRICT HAS WATER RIGHTS TOTALING 2054 ACRE FEET/ANNUM OF LAKE TAHOE WATER.

**Transmission:** DISTRIBUTION SYSTEMS VARY WIDELY IN CONDITION. TRANSMITTING WATER TO STORAGE FACILITIES FOR GRAVITY DISTRIBUTION.

**Treatment:** ALL THREE OF THE LAKE INTAKES PROVIDE CHLORINATION TO THE SYSTEM. NO TREATMENT IS PROVIDED TO THE WELL WATER.

**Storage:** THE KINGS BEACH AREA HAS 162 MILLION GALLONS OF STORAGE AVAILABLE, CARNELIAN BAY HAS 1 MILLION GALLONS OF STORAGE AND DOLLAR COVE HAS 350,000 GALLONS OF STORAGE.

**Capacity Limitations:** AGE AND SIZE OF DISTRIBUTION MAINS CAUSE SIGNIFICANT MAINTENANCE PROBLEMS. COMPLIANCE WITH THE SURFACE WATER TREATMENT REGULATIONS IS ALSO A PROBLEM.

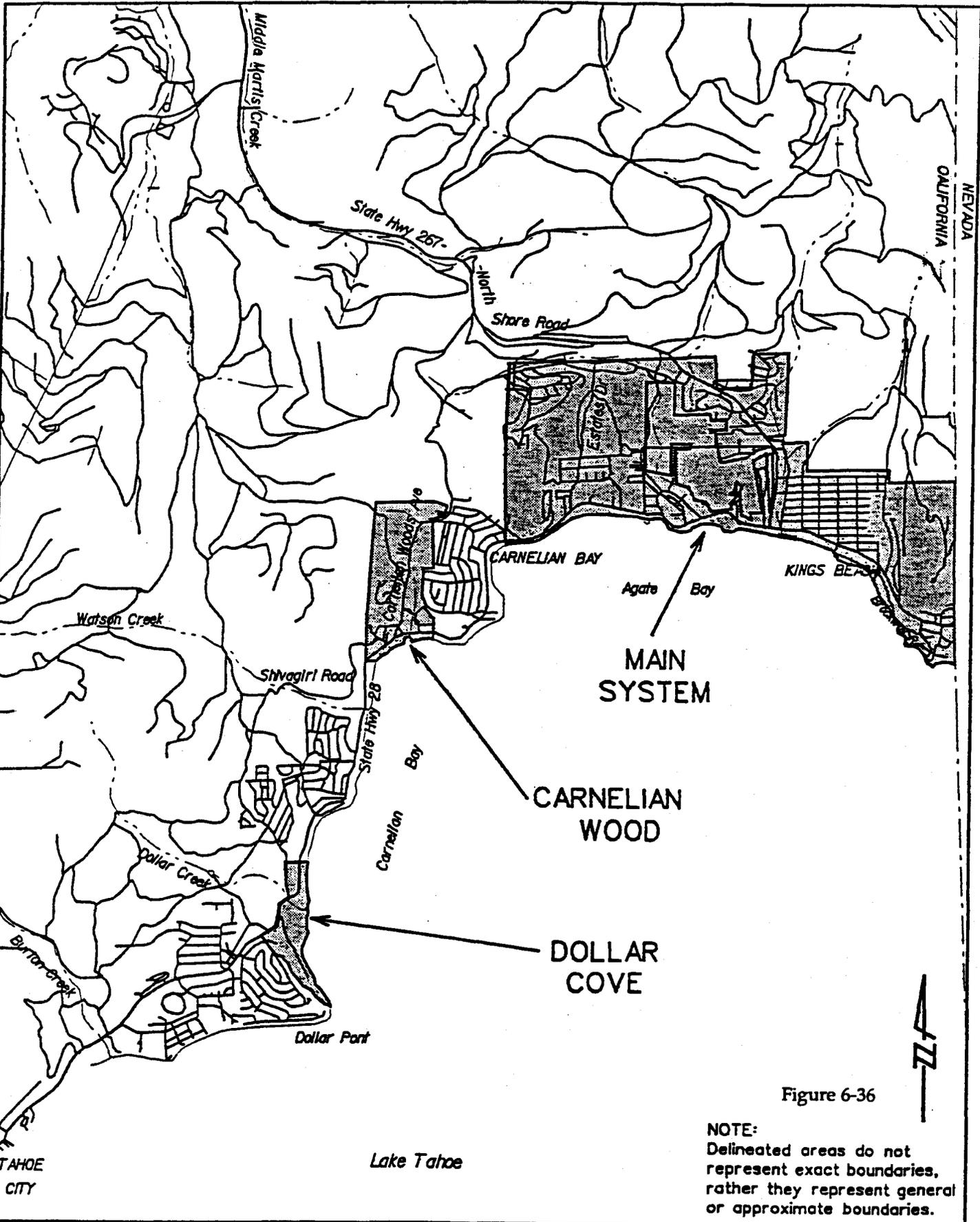


Figure 6-36

NOTE:  
 Delineated areas do not represent exact boundaries, rather they represent general or approximate boundaries.

**NORTH TAHOE PUBLIC UTILITY DISTRICT  
 Water Service Areas**

## NORTHSTAR COMMUNITY SERVICES DISTRICT

**District Overview:** The Northstar County Service Area No. 21 (now the Northstar Community Services District) began operation in 1972. Initial beginnings included collection and treatment facilities.

In 1971, under form of a permit application, and in conjunction with the Martis Base Development Area, new facilities were proposed for the area. These facilities included such improvements as construction of distribution piping, a water treatment plant and a steel storage reservoir.

Water was originally extracted from Big Spring and Sawmill Flat Spring, considered groundwater sources, and piped to the water treatment plant providing full filtration. With increasing development in the late 80's and decreasing spring flows due to a lack of precipitation it became necessary to also extract water from reservoir "A". Reservoir "A" is a storage facility reserved for municipal and snow making purposes.

Current residential and commercial facilities served by Northstar CSD include the following:

- > 18 hole golf course
- > ski hill facilities for approx. 6,000
- > Recreation Center
- > Big Springs Lodge
- > Northstar Village (Commercial)
- > 598 residential lots
- > 654 condominiums

Recently, the Northstar area became independent of Placer County Water Agency, and is now referred to as Northstar Community Services District. The District is quite self-contained having its own staff, utility manager and a five member governing board of directors. However, Northstar CSD's services do not extend to wastewater treatment.

Fees are separated into metered and flat rates (shown below) with water connection fee of \$300. Fees are collected on a bi-monthly basis.

| Metered    |            | Flat Rate          |         |
|------------|------------|--------------------|---------|
| Meter Size | Bi-Monthly | Residence Type     | Monthly |
| 3/4"       | \$ 22.95   | Studio             | \$ 6.89 |
| 1"         | \$ 27.47   | One Bed/One Bath   | \$ 8.03 |
| 1 1/2"     | \$ 36.65   | Two Bed/One Bath   | \$ 9.72 |
| 2"         | \$ 45.76   | Two Bed/Two Bath   | \$10.33 |
| 3"         | \$114.34   | Three Bed/Two Bath | \$10.87 |
| 4"         | \$182.92   | Four Bed/Two Bath  | \$11.47 |
| 6"         | \$320.15   |                    |         |

**Source Information:** Northstar CSD is supplied by three sources: Big Springs, Sawmill Flat Spring and Reservoir "A". Recent utilization of Reservoir "A" resulted from golf course irrigation demands and successive below-average years of precipitation.

**Primary Transmission and Distribution:** Primary transmission of water from the reservoirs to the treatment plant takes place in 12 inch diameter AC pipe. The water treatment plant gravity feeds the

distribution system. Two of the three sources constantly supply water to the treatment plant in various quantity combinations. Valves at each source enable alternation of source supplies.

The distribution system primarily consists of 6 inch and 8 inch diameter AC pipe. The distribution system is reportedly in good shape.

Seven pressure zones exist within the distribution system, regulated by pressure reduction stations. Pressure zones within the distribution system are defined by a 150 foot elevation differential in each zone. Pressures range from 40 to 150 psig.

**Storage:** The system is subject to many radical changes in both demand and weather. Emergency shutdown of the treatment plant could have drastic effects on the system during peak demand hours including fire hazards.

Currently Northstar provides enough storage to supply the system during peak demand for two days including one fire. Storage consists of a 60,555 gallon clearwell located at the water treatment plant, and two 1 MG steel welded storage tanks.

**Treatment:** The Northstar CSD treatment plant is located on a hill above development. It is gravity fed by the springs and reservoir which in turn gravity feed the storage tanks and distribution system. The treatment plant was constructed in the early 70's, and has a capacity of 3.0 million gallons per day. Full conventional treatment can be provided by the plant consisting of coagulation, flocculation, sedimentation, filtration, and disinfection. The facilities include chemical feeding equipment for alum, lime and chlorination. Flocculation and sedimentation are provided by a clarifier basin, and filtration is provided by four multimedia sand and anthracite gravity filters.

Currently water bypasses the clarifier directly to the filters. No coagulant chemicals have ever been required while using the spring sources, however, disinfection and a polymer filter aid are mandatory when utilizing the reservoir.

**1990 System Production:** According to the 1991 annual report the system has a total of 2 approved groundwater sources (the springs) and one approved surface water source, reservoir "A". The following annual productions were recorded for 1990:

**ANNUAL SYSTEM PRODUCTION  
Northstar Community Services District**

|                              |                       |
|------------------------------|-----------------------|
| Maximum Day Production       | 1.024 million gallons |
| Month of Maximum usage       | July                  |
| Total produced by the system | 129.3 million gallons |

Northstar Community Services District serves a permanent population of 1,135 with a maximum seasonal population of up to 9,000. Service connections are as follows:

**SERVICE CONNECTIONS**  
**Northstar Community Services District**

| Service type            | Metered | Flat | Total |
|-------------------------|---------|------|-------|
| General and Residential | 484     | 654  | 113   |
| Commercial              | 4       | 10   | 14    |
| Agricultural            | 1       | --   | 1     |
| Total                   | 489     | 664  | 1153  |

**Deficiencies and Limitations:** The Northstar CSD system is in good overall condition; however, some upcoming issues could impact system operation, capacity, and maintenance. These issues include implementation of the Surface Water Treatment Regulations.

Increased development has made it necessary to utilize reservoir "A" to supply the system. This supply includes irrigating the golf course. A five hundred gpm well system was developed by Trimont Land Company for golf course irrigation but is currently not on line. No separate distribution system presently exists to irrigate the golf course; therefore, water being applied is potable water from the treatment plant.

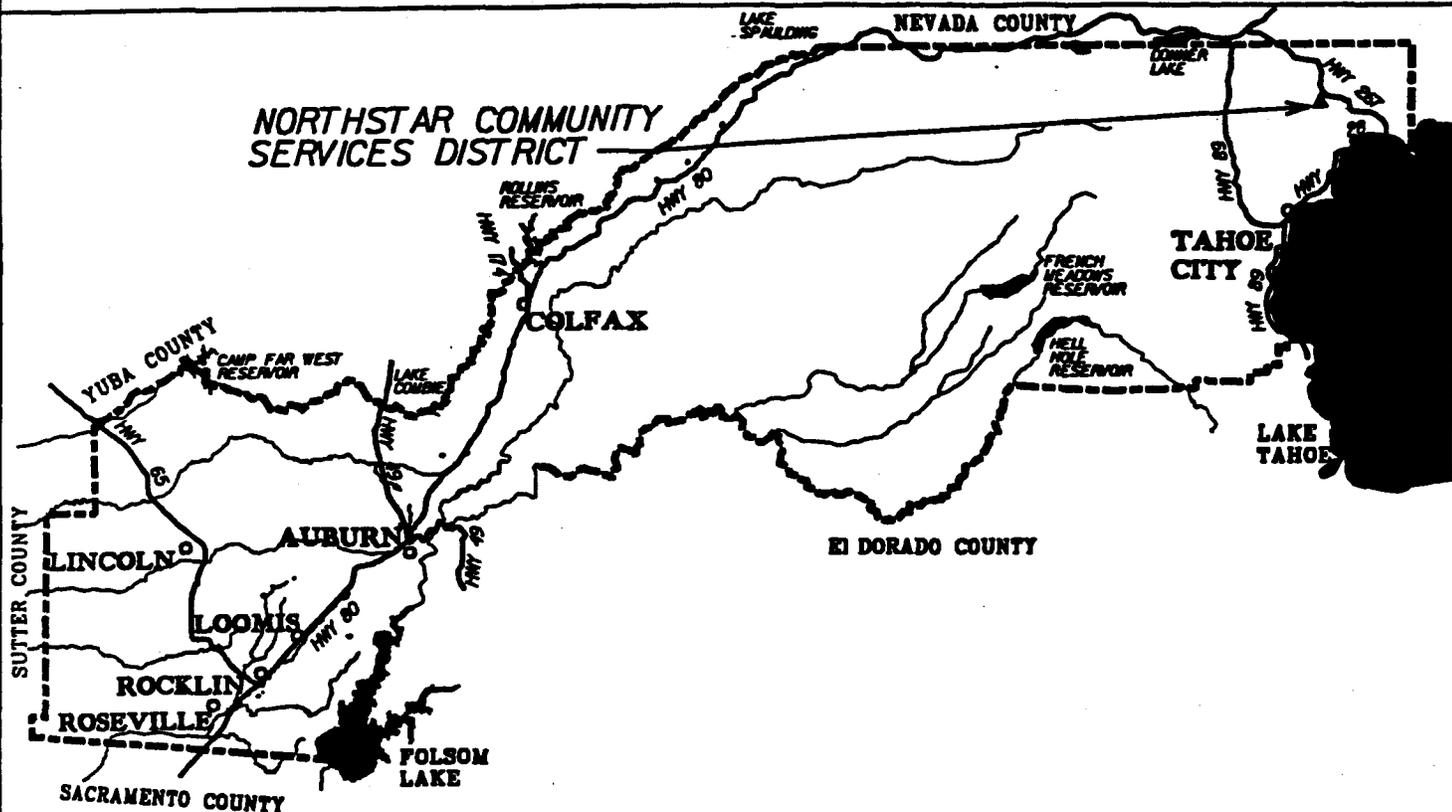
A capital replacement funding program is currently nonexistent. The present fee rate structure matches only current operating costs of the system. No reserve funds are available to replace existing main lines, etc., with aging. It is also quite conceivable that, resulting from the Surface Water Treatment Regulations, additional improvements and an increased maintenance and monitoring program will become necessary, thus requiring additional expenditures.

**Existing Planned Improvements:** Water system improvements will coincide with expanded development within the Northstar CSD boundaries. Currently a 182 lot development is planned for the area. Corresponding with development, significant water system improvements will occur such as increased storage and further looping of the entire water line distribution system mains.

**System Appraisal:** Existing water supply and distribution systems are of sufficient quantity and size to serve both residential use and fire flows. A significant issue is creating a reserve capital replacement program. This program may be funded by increasing the service rates and connection fees or by other means. Creation of this program will enable the Northstar system to meet future improvements and adjustments as required under the Surface Water Treatment Regulations.



# PLACER COUNTY WATER SYSTEMS



System Name: NORTHSTAR COMMUNITY SERVICES DISTRICT

Address: 51 TRIMONT LANE, TRUCKEE, CA 96161

Contact Name: JIM LOCHRIDGE Phone: (916)-562-0669

Service Area Size: \_\_\_\_\_ No. Connections: 1153 Population Served: 1135-9000

Services Provided: RESIDENTIAL AND COMMERCIAL SERVICES

## Summary System Description

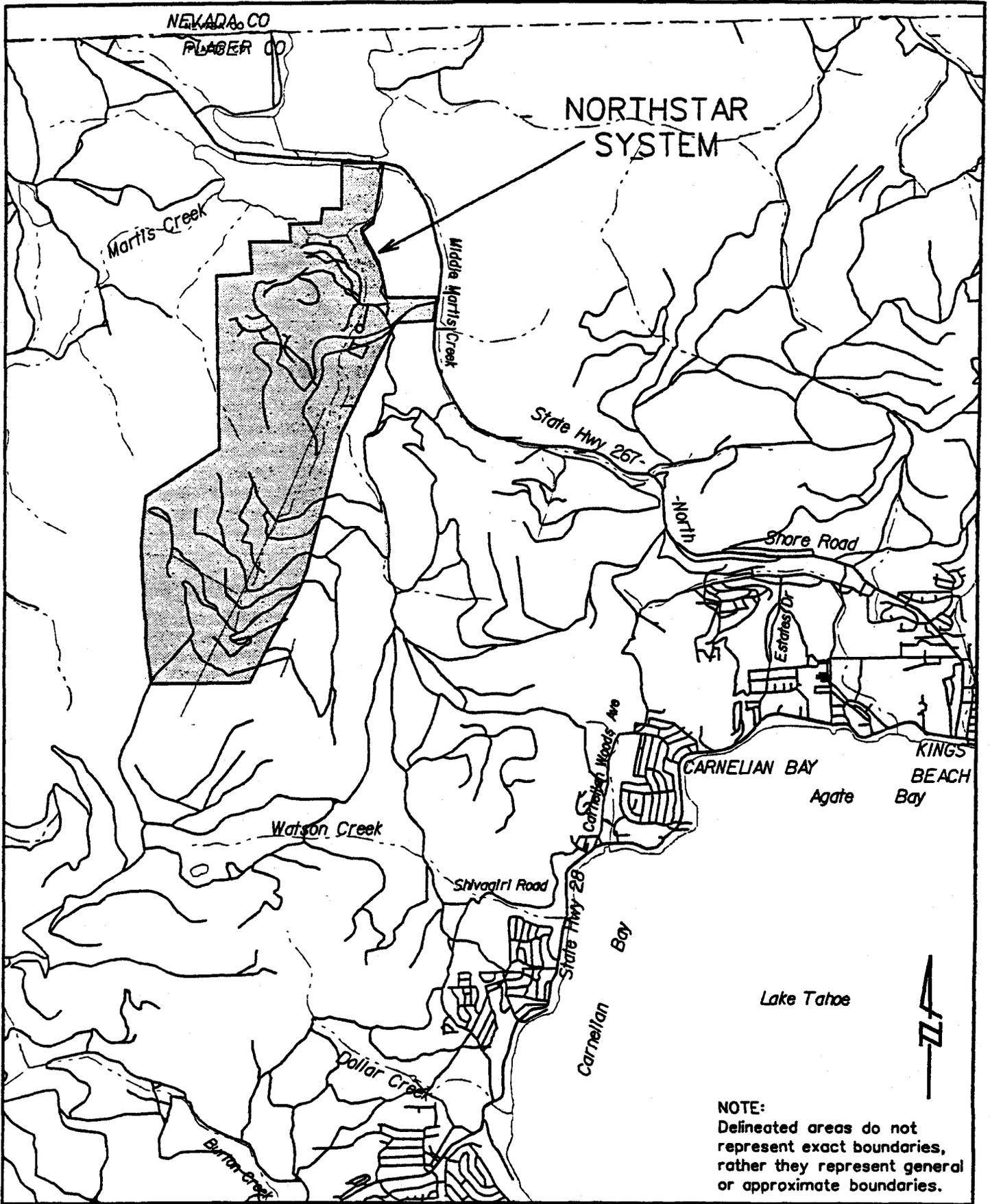
Source: SUPPLIED BY TWO GROUNDWATER SOURCES AND A RESERVOIR. THE GROUNDWATER SOURCES ARE SPRINGS.

Transmission: THE DISTRIBUTION SYSTEM IS IN GOOD SHAPE. TRANSMISSION MAINS ARE CONSTRUCTED PRIMARILY OF 6in. PIPE.

Treatment: A 30 MGD TREATMENT PLANT PROVIDES FULL CONVENTIONAL TREATMENT.

Storage: STORAGE TO THE SYSTEM TOTALS 2,061 MILLION GALLONS, COMPRISED OF (2) 1 MILLION GALLON STEEL BOLTED STORAGE TANKS AND A 60,555 GALLON CLEARWELL.

Capacity Limitations: TREATMENT PLANT UPGRADES ARE REQUIRED TO MEET SURFACE WATER TREATMENT REGULATIONS WHEN USING RESERVOIR 'A'. WATER USED TO IRRIGATE THE GOLF COURSE IS SUPPLIED FROM TREATMENT PLANT. WELL SYSTEM HAS BEEN DRILLED AND CAPPED FOR LATER USE BY TALMONT LAND COMPANY FOR GOLF COURSE IRRIGATION.



**NORTHSTAR COMMUNITY SERVICE DISTRICT  
Water Service Area**

## PLACER COUNTY SERVICE AREA #28 -ZONE 6 SHERIDAN

**District Overview:** The community of Sheridan is located along Highway 65 just north of the City of Lincoln. A population of approximately 600 reside within the small community. Groundwater is source supply to the Sheridan area. Two well sources supply a total of 200 service connections.

**Source Information:** Three well sources exist within the Sheridan water system, however one well is no longer used because of its close proximity to a sewer main feeding the town's evaporation ponds. The remaining two wells have a pumping capacity of 243 and 146 gpm.

According to the California Code of Regulations (CCR), Title 22, the current maximum production rate for all sources in this system is 389 gpm. This shows a 111 gpm deficit.

**Primary Transmission and Distribution:** The distribution system consists of a single pressure zone. Operating pressures within the system range from 43 - 67 psi. Original system mains consist of asbestos cement pipe. All newly added or replacement pipe is PVC C-900 CI 150. Existing pipe sizes range from 4-6 inches in diameter. Ongoing concern is raised from the fact that sewer and water mains were placed in a common trench during initial installation.

**Storage:** No storage to the system is provided because source capacity nearly meets minimum flow requirements established by Title 22 CCR.

**Treatment:** One of the wells is equipped with a chemical feed pump for chlorination, although continuous disinfection is not practiced.

**1990 System Production:** According to the 1991 annual report, the Sheridan system supplied 47.36 million gallons during the 1990 year serving 200 service connections. Maximum monthly production was experience in July.

**Deficiencies and Limitations:** Recent well testing conducted by PG&E showed low pumping efficiencies from the existing wells. These low efficiencies limit supply to the system substantially. According to the California Code of Regulations (CCR), Title 22, the current maximum production rate for all sources in this system is 389 gpm. This shows a 111 gpm deficit. Recommended repairs to pumps could improve the system yield to 624 gpm, a 124 gpm surplus.

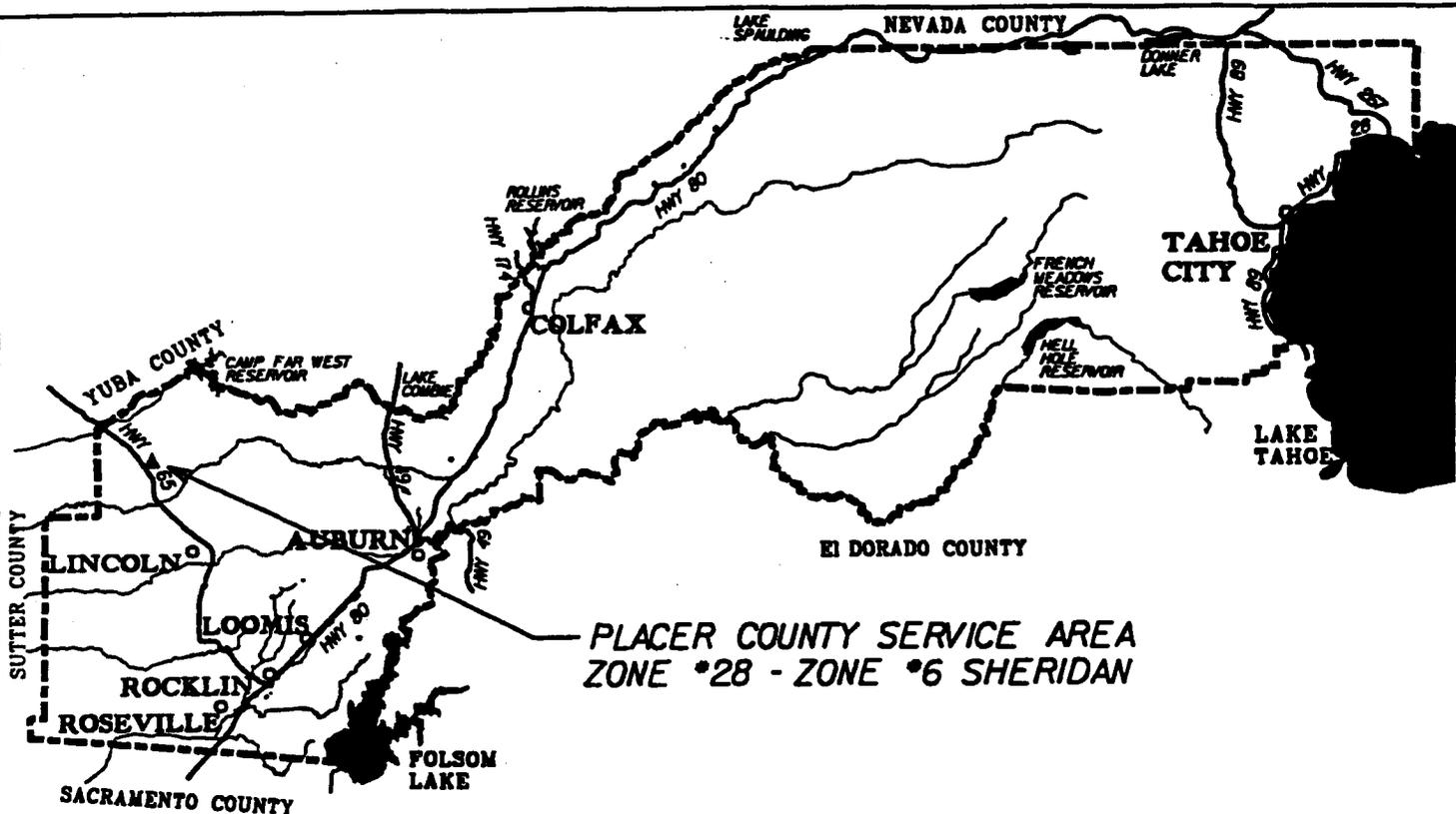
Ongoing concern is raised from the fact that sewer and water mains were placed in a common trench during initial installation.

Emergency power back-up is not available for pumps in case of a power outage.

**System Appraisal:** In general the system delivers adequate amount and good quality water to its customers. Retrofitting of pumps would appear to better enhance service and accommodate expansion possibilities. Close monitoring of water and sewer mains is a continued concern.



# PLACER COUNTY WATER SYSTEMS



System Name: PLACER COUNTY SERVICE AREA ZONE \*28 - ZONE \*6 SHERIDAN

Address: 11444 B AVENUE, AUBURN CA 95603

Contact Name: DAVID BABITZ Phone: (916)-889-7513

Service Area Size:        No. Connections: 235 Population Served: 576

Services Provided: RESIDENTIAL & TWO COMMERCIAL CONNECTIONS

## Summary System Description

Source: TWO GROUNDWATER WELLS ARE CAPABLE OF PROVIDING 500 GPM TO THE DISTRIBUTION SYSTEM.

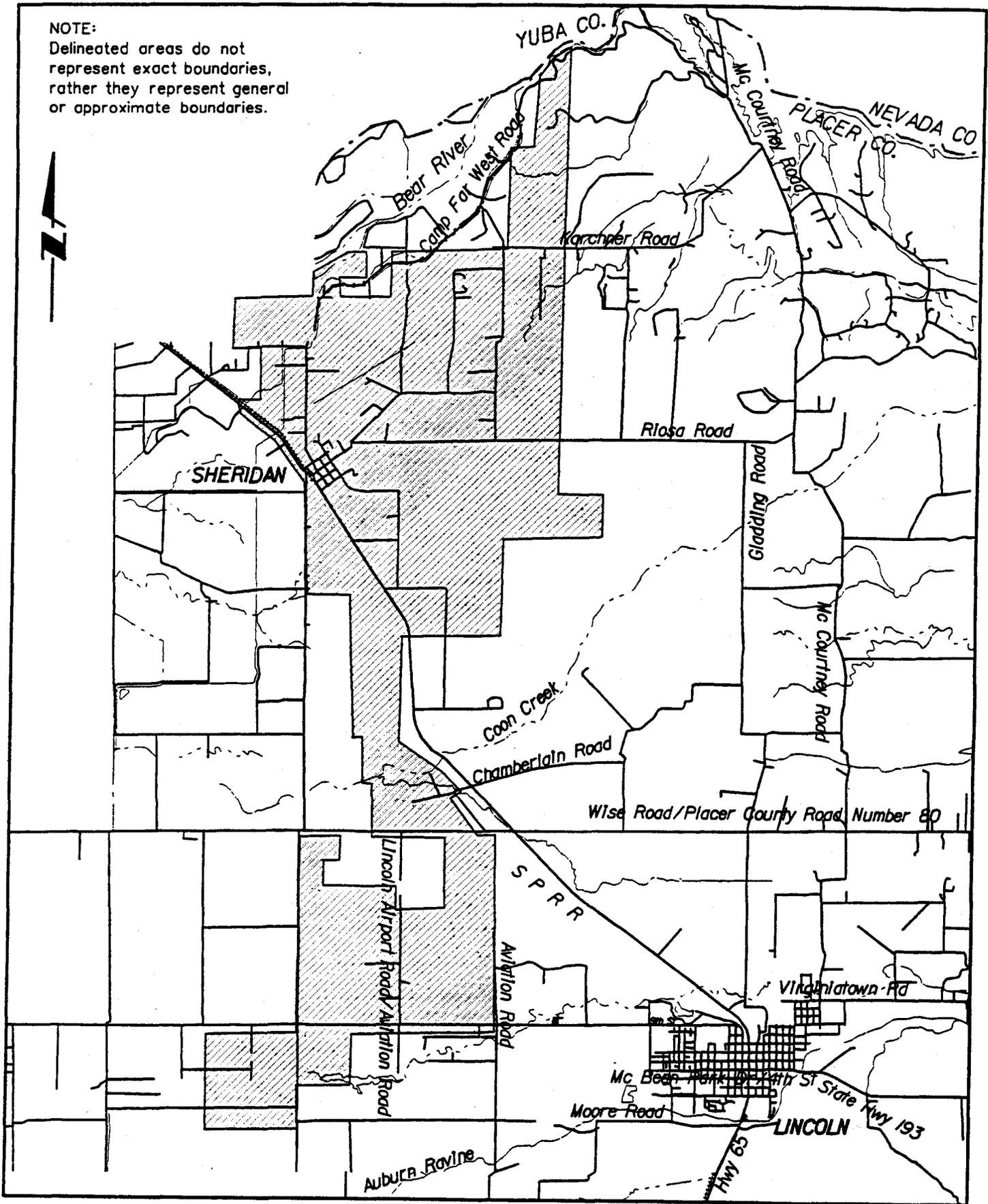
Transmission: THE DISTRIBUTION SYSTEM CONSISTS PRIMARILY OF ASBESTOS CEMENT PIPE RANGING IN SIZE FROM 4 TO 6 INCHES.

Treatment: WELL \*2 HAS EQUIPMENT ENABLING CHLORINATION TO BE PROVIDED TO THE SYSTEM, ALTHOUGH DISINFECTION IS NOT CONTINUALLY PRACTICED.

Storage: BOTH WELLS ARE EQUIPPED WITH A 5000 GALLON HYDROPNEUMATIC TANK.

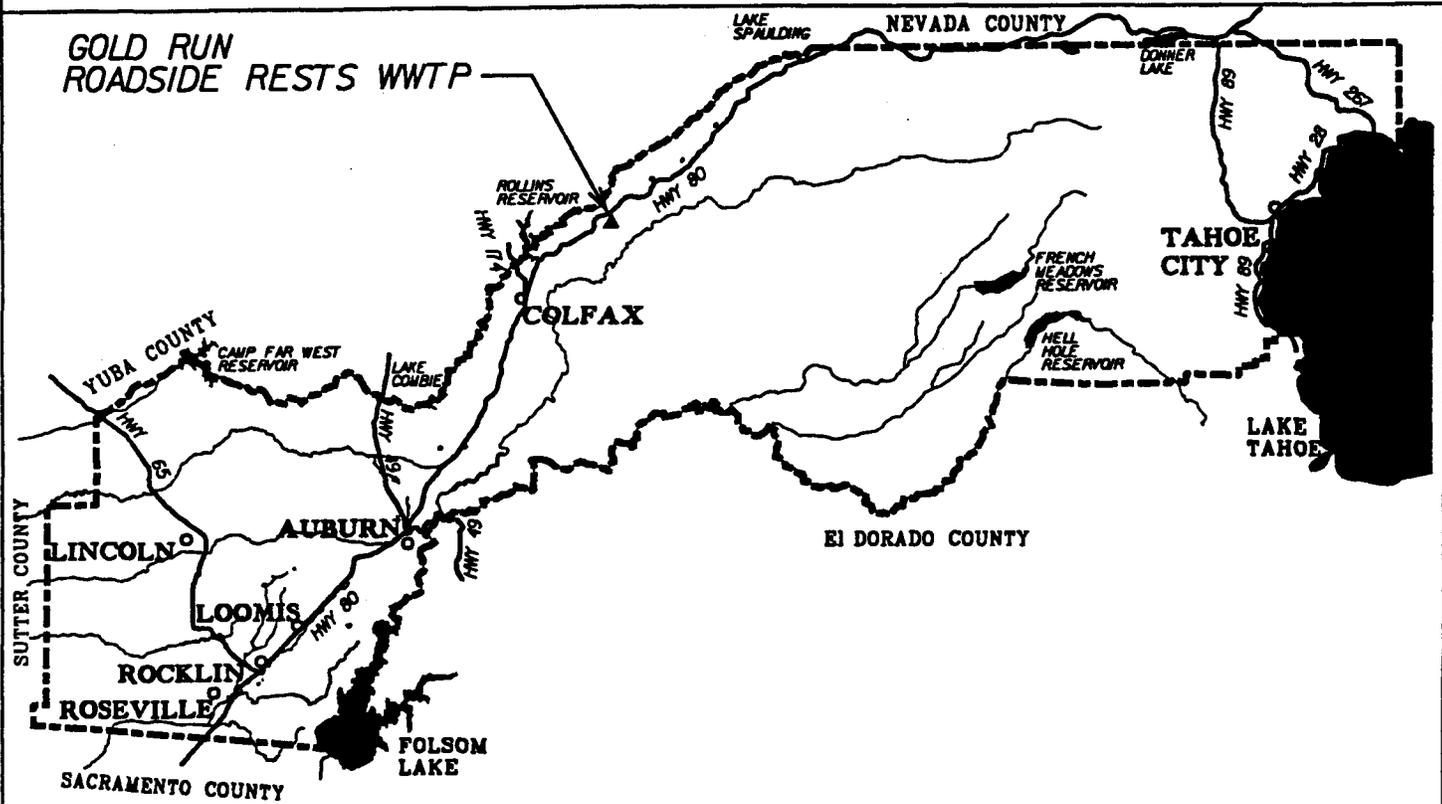
Capacity Limitations: ONE AREA OF ONGOING CONCERN IS THAT SEWER AND WATER MAINS ARE PLACED IN A COMMON TRENCH.

NOTE:  
Delineated areas do not  
represent exact boundaries,  
rather they represent general  
or approximate boundaries.



**PLACER COUNTY SERVICE AREA ZONE #28**  
**Sheridan Water Service Area**

# PLACER COUNTY WASTEWATER SYSTEMS



System Name: DEPT.OF TRANSPORTATION - GOLD RUN ROADSIDE RESTS WWTP

Address: HWY 80, GOLD RUN, CA

Contact Name: RICHARD SANNAR Phone: (916)-741-4295

Service Area Size: \_\_\_\_\_ No. Connect.: 2 Population Served: VARIES

Services Provided: WASTEWATER COLLECTION, TREATMENT AND DISPOSAL.

## Summary System Description

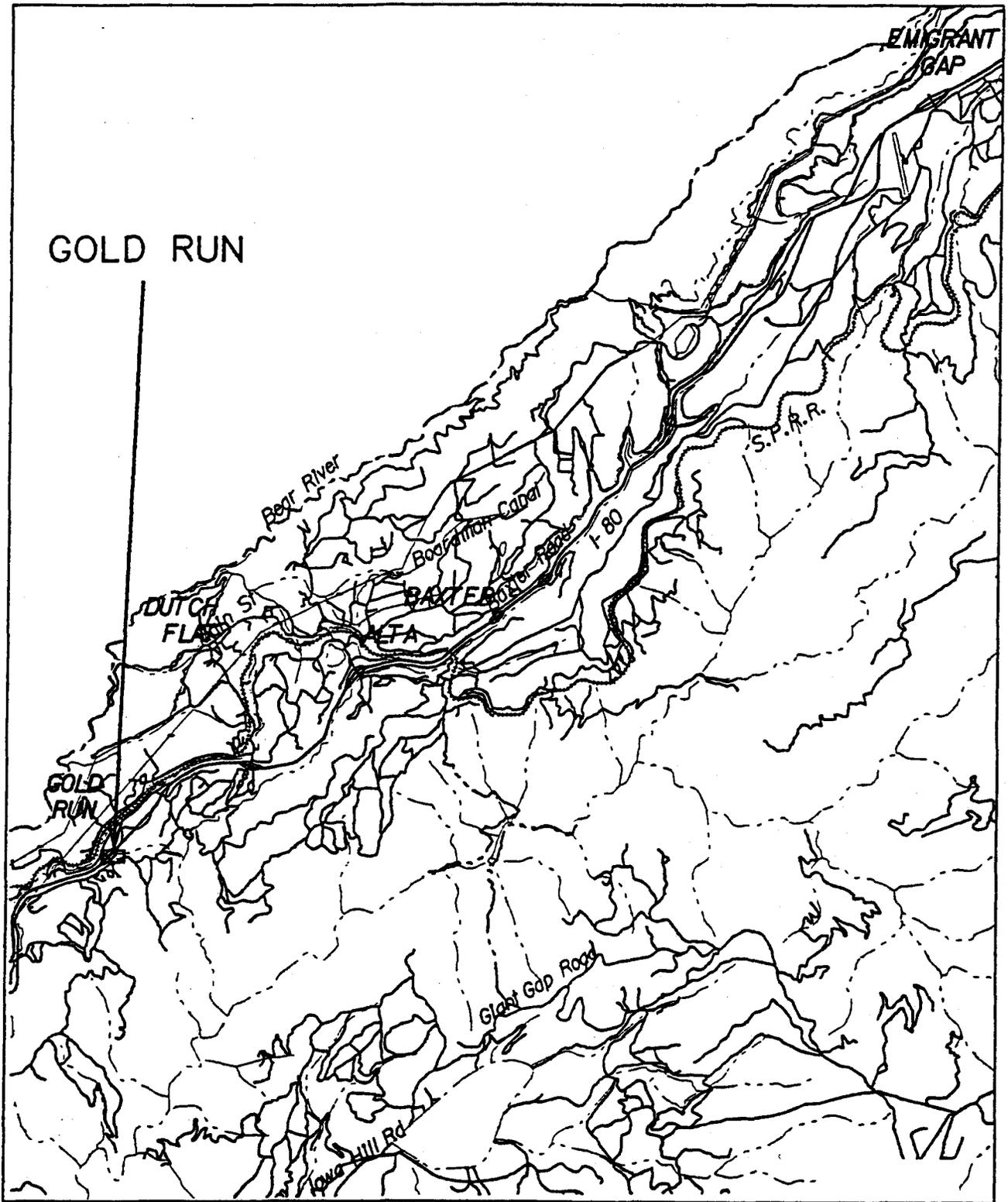
Service Area Characteristics: ROADSIDE REST AREAS ON BOTH THE EASTBOUND AND WESTBOUND SIDES OF HWY 80 ARE SERVED BY THE SINGLE WASTEWATER FACILITIES. SIERRA NEVADA MOUNTAIN, WOODED TERRAIN.

Collection: WASTEWATER GENERATED BY RESTROOM FACILITIES ON BOTH SIDES OF THE HIGHWAY ARE COLLECTED AND CONVEYED TO THE WASTEWATER TREATMENT FACILITIES. HOOKUPS FOR RECREATIONAL VEHICLES TO DUMP ARE ALSO PROVIDED.

Treatment: PROVIDED BY SEPTIC TANKS, A STABILIZATION POND, A LEACHFIELD AND AN IRRIGATION SYSTEM. SPRAY EFFLUENT IS CHLORINATED.

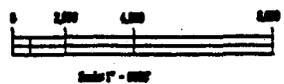
Disposal: SPRAY IRRIGATION IS USED IN THE SUMMER MONTHS. WINTER DISPOSAL IS TO A SUBSURFACE LEACHFIELD. LEACHFIELD.

Capacity Limitations: MAXIMUM PERMITTED DISPOSAL OF 41,000 GPD.



Placer County General Plan

Figure — Wastewater Service Area



Date: 1/15/92  
 Prepared by:  
**PSOMAS & ASSOCIATES**

LEGEND Department of Transportation-Gold Run

- Streets
- Waterways
- County Line
- District Service Area

**NOTE:**  
 Delineated areas do not represent exact boundaries, rather they represent general or approximate boundaries.

## PCWA ALTA SYSTEM PUBLIC WATER SYSTEM

**Agency Overview:** The PCWA Alta System is situated on a ridge between the Bear River and the North Fork of the American River. The service area is located about 30 miles northeast of Auburn extending along the north side of Interstate 80. Service area elevations range from 3,300 to 4,100 feet. PG&E first applied for a domestic water supply permit in 1960 to serve the community of Alta. The Placer County Water Agency purchased the water system in 1985 extending the system to serve the Dutch Flat Terrace area, west of Alta.

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** Lake Spaulding is raw water source for the PCWA Alta System. PG&E's Towle Canal supplies the Alta Forebay, an impoundment with a capacity of 37.5 acre-feet. The Lake Spaulding watershed covers 225 square miles of the western slopes of the Sierra Nevada including Interstate 80, runoff from which is to contribute intermittent significant pollution.

**Primary Transmission and Distribution:** The distribution system consists of 4 and 6-inch steel pipe. Water pressures range from 20 to 250 psi within the service area.

**Storage:** A 100,000 gallon redwood clearwell, situated uphill from the treatment plant, provides gravity storage to the area.

**Treatment:** Water from Alta Forebay is pumped by a 5 hp pump through a 6-inch pipeline at a rate of 300 gpm. Chlorine and a sodium hypochlorite solution is injected prior to filtration. Three vertical pressure sand and anthracite dual media filters produce a maximum of 300 gpm.

The PCWA Alta System treatment plant is not equipped with pretreatment processes.

Chlorine residuals, turbidity levels, and pH are tested routinely.

**1990 System Production:** The PCWA Alta System serves an estimated population of 1,450 through 217 metered service connections. Except for 14 commercial connections, water consumption is necessarily restricted to household use.

PCWA Alta produced a maximum daily water supply of 378,600 gallons, a maximum monthly supply of 8.366 million gallons, and an annual total of 84.132 million gallons in 1990. The plant has a rated capacity of 430,000 gpd.

**Deficiencies and Limitations:** The PCWA Alta plant is not yet equipped to treat high influent turbidity. The plant is unattended and not equipped with automatic chemical dosage adjustment or shutdown mechanisms.

Chlorine contact time is considered inadequate.

The distribution pipelines do not have limited capacity for irrigation and fire protection and suffer substantial leaking.

**Existing Planned Improvements:** The current revision of the Surface Water Treatment Regulations (SWTR) will require that the PCWA Alta System submit an engineering report demonstrating that the existing plant, without pretreatment processes, can reliably produce water that meets new specific performance fundamentals. If water produced by the existing treatment operation fails to meet the requirements, provision of pretreatment processes such as rapid mixing, coagulation, flocculation, and sedimentation may become necessary. These processes will prevent excessive turbidity in treated water during periods of elevated turbidity and giardia contamination.

The Department of Health Services instructed PCWA Alta to provide an alarm signal, transmitted to an operator on a 24-hour basis, indicating high influent turbidity levels. This improvement is expected to be complete during mid-1992.

**System Appraisal:** The PCWA Alta System, which experiences a typical growth of 5 new connections each year, is currently at capacity, mainly due to substantial leaks in old pipe. Planned treatment plant expansion activities, assimilating the new SWTR's, include enlargement of filtration capacity and implementation of alarm instrumentation. A 1 mgd package water treatment plant will be transferred from the PCWA Bowman System to facilitate the Alta system about 1994 or 1995.

## PCWA COLFAX SYSTEM PUBLIC WATER SYSTEM

**District Overview:** The City of Colfax is located 15 miles northeast of Auburn along Interstate 80.

Placer County Water Agency purchased the Colfax water system from PG&E in 1985. The treatment plant was constructed in 1970.

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** The PCWA Colfax System derives water from the Boardman Canal. The Boardman Canal diverts water from Jackson Meadows Reservoir, Bowman Reservoir, Lake Fordyce, and Lake Spaulding.

**Primary Transmission and Distribution:** Water flows by gravity from the Boardman Canal to the PCWA Colfax water treatment plant through a 14-inch diameter, 5,500 foot PVC transmission line. Distribution mains consists primarily of asbestos cement pipe ranging from 2.5 to 6-inches in diameter. The gravity supplied service area contains five pressure zones, between 40 and 100 psi. Elevations range from 2,400 to 2,550 feet.

**Storage:** Treated water is pumped to three tanks providing a combined storage capacity of 1.9 million gallons.

**Treatment:** Water supply is given complete treatment at the PCWA Colfax water treatment plant. Unit processes consist of chlorination, coagulation, flocculation, sedimentation, filtration, and corrosion control and produce a maximum of 1.3 mgd. Operators make daily adjustments to the chemical doses and check the equipment.

**1990 System Production:** The PCWA Colfax System serves an estimated population of 2,900 through 1,050 total service connections, including some 658 metered residential customers. The plant produced a maximum daily water supply of 1.274 million gallons, a maximum monthly supply of 24.351 million gallons, and an annual total of 169.656 million gallons in 1990.

**Deficiencies and Limitations:** Runoff from the Boardman Canal watershed is suspected by the Department of Health Services to contribute intermittent significant contamination. Some 100 residences with on-site sewage disposal systems are located above the canal between Colfax and Alta. A tributary area to the canal above Alta is used for cattle grazing, logging, and recreation. Additionally, the canal, whose course is parallel to Interstate 80 and near a Southern Pacific Railroad line, is subject to traffic pollution, including fuel and chemical spills. The Surface Water Treatment Regulations (SWTR's) specify unit process limitations having ramifications on the rated capacity.

**Existing Planned Improvements:** Treatment plant improvements stipulated by the SWTR's include construction of a clearwell and a backwash basin and installation of a recording turbidimeter for each filter. PCWA is currently analyzing these improvements and proposing adjustments. Rapid turbidity fluctuations, due to suspect quality of watershed runoff, are common at the PCWA Colfax plant. The SWTR's mandate a sanitary survey of the watershed area every five years which is required for all PCWA treatment plants. A proposed commuter train project, which is expected to increase the Colfax residential

population, will make water service a critical issue. Both the treatment plant and distribution system are currently at capacity.

**System Appraisal:** The PCWA Colfax System provides complete water treatment. Runoff from the Boardman Canal watershed is of adverse quality, making automobile and agricultural wastes a regular treatment consideration. These types of chemical hazards are not addressed by the SWTR's. Regulations for these items require plant shutdown. The SWTR's mandate improvements and specify limitations on unit processes which accords negative implications on the present rated capacity. Expansion planning is an immediate concern, particularly since the plant is at capacity and a population boom is expected in Colfax with the advent of a commuter train.

## PCWA MONTE VISTA SYSTEM

**District Overview:** The PCWA Monte Vista service area is located about 30 miles northeast of Auburn on a ridge between the Bear River and the North Fork of the American River. The service area includes a mobile home park, a California Highway Patrol station, and two restaurants. Elevations in the service area vary from 3,200 to 3,440 feet.

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** The PCWA Monte Vista System derives water from a well, which produces a maximum of 7 gpm, and a canal. The Boardman Canal diverts water from the Bear River about two miles from Lake Spaulding.

**Primary Transmission and Distribution:** The distribution system consists of 6-inch steel pipe. Water pressures range from 20 to 85 psi in the service area.

**Storage:** A 60,000 gallon redwood clearwell, located uphill from the treatment plant, provides gravity storage to the subdivision.

**Treatment:** The PCWA Monte Vista System acquired the existing PG&E water treatment plant in 1988. The plant, originally constructed in the 1940's, provides chlorination and pressure sand filtration processes as well as the addition of chemical coagulation and disinfection solutions. However, the plant is not equipped with pretreatment sedimentation capability. The plant has a rated capacity of 68 gpm.

**1990 System Production:** The PCWA Monte Vista System serves an estimated population of 250 through 13 metered service connections. Water consumption is necessarily restricted to household use. PCWA Monte Vista produced a maximum daily water supply of 51,163 gallons, a maximum monthly supply of 0.749 million gallons, and an annual total of 6.984 million gallons in 1990.

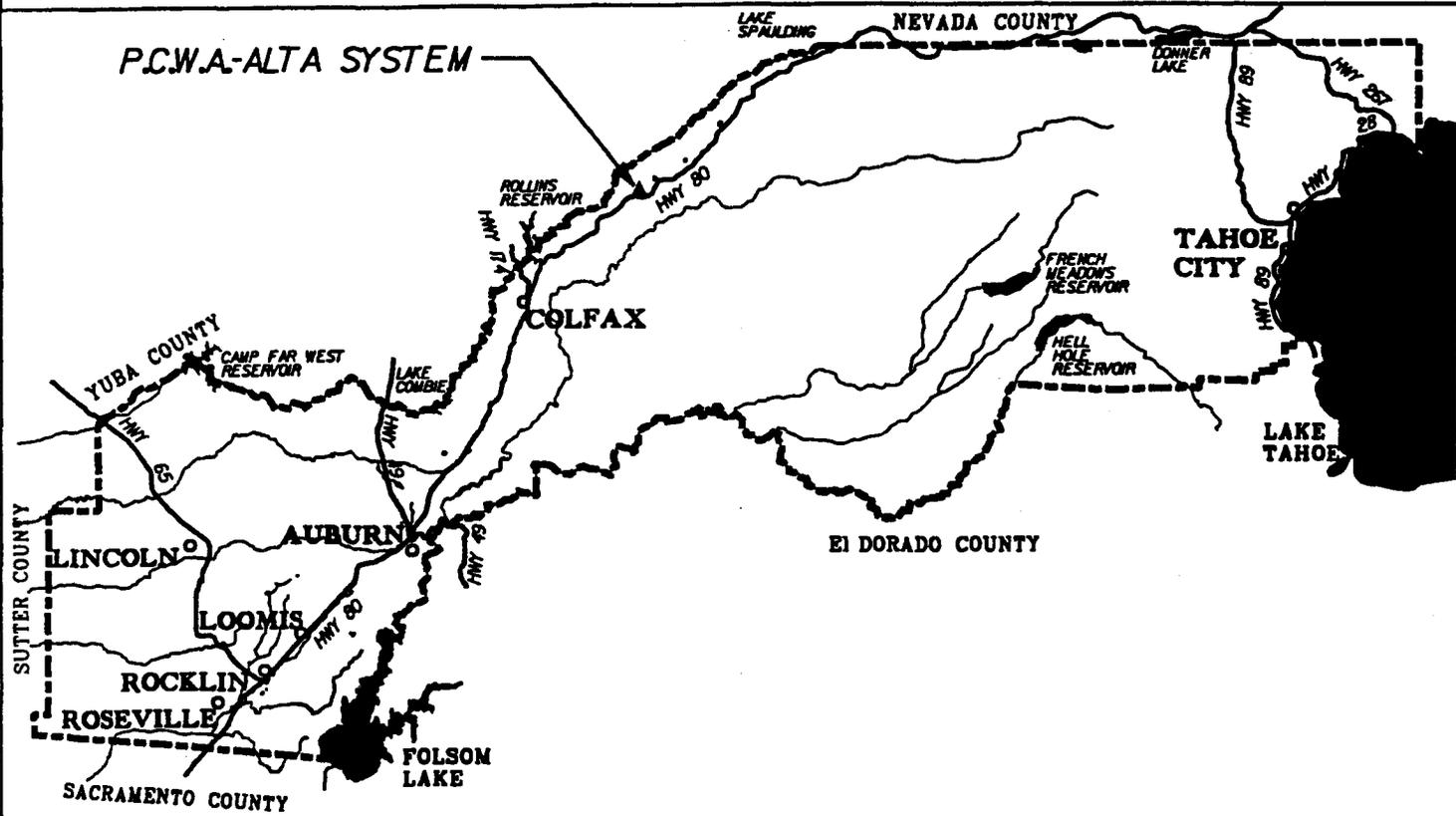
**Deficiencies and Limitations:** The condition of the distribution system warrants substantial repair. The filtration plant is very old and lacks current facilities found on newer plants.

**Existing Planned Improvement:** The current revision of the Surface Water Treatment Regulations (SWTR) will require that the PCWA Monte Vista System submit an engineering report demonstrating that the existing plant, without pretreatment processes, can reliably produce water that meets new specific performance fundamentals. If water produced by the existing treatment operation fails to meet the requirements, provision of pretreatment processes such as rapid mixing, coagulation, flocculation, and sedimentation will become necessary. These processes will prevent overloading of the filters during periods of elevated turbidity and giardia contamination.

**System Appraisal:** Expansion and upgrade of the PCWA Monte Vista System to meet increased water demand and the SWTR's is under consideration. The plant is in good working order, and with retrofits should be able to continue serving its present demands. The Monte Vista area experiences relatively few new connections each year due to large lot zoning implementations.



# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A.- ALTA SYSTEM

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH

Phone: (916)-823-4850

Service Area Size: \_\_\_\_\_ No. Connect.: 217 Population Served: 1450

Services Provided: SERVICE PROVIDED PRIMARILY TO RESIDENTIAL W/SOME COMMERCIAL

## Summary System Description

Source: THE ALTA SYSTEM IS SUPPLIED BY THE ALTA FOREBAY, FED BY THE TOWLE CANAL, FED BY LAKE SPAULDING.

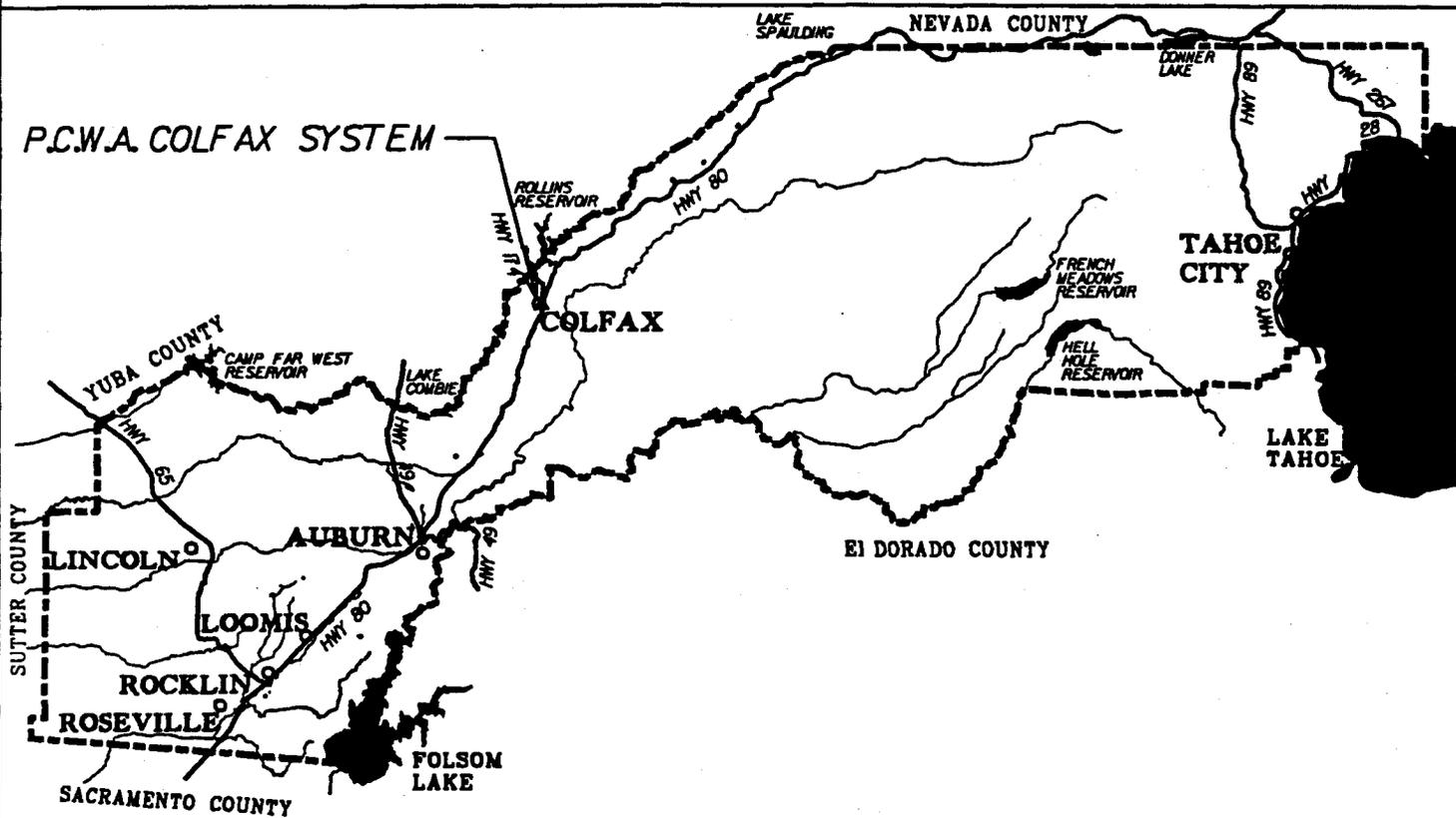
Transmission: THE DISTRIBUTION SYSTEM CONSISTS OF 4 INCH AND 6 INCH STEEL PIPE.

Treatment: TREATMENT CONSISTS OF DISINFECTION FOLLOWED BY PRESSURE FILTERS.

Storage: A 100,000 GALLON REDWOOD CLEARWELL PROVIDES GRAVITY STORAGE TO THE SYSTEM.

Capacity Limitations: THE TREATMENT PLANT IS OLD AND LACKS ABILITY TO EFFECTIVELY TREAT HIGH INFLUENT TURBIDITY, NOR IS THE TREATMENT PLANT EQUIPPED WITH AUTOMATIC CHEMICAL DOSAGE OR SHUTDOWN MECHANISMS.

# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. COLFAX SYSTEM

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH Phone: (916)-823-4850

Service Area Size:      No. Connections: 1050 Population Served: 2900

Services Provided: RESIDENTIAL AND COMMERCIAL SERVICES

## Summary System Description

Source: DERVES WATER FROM P.G.&E. OWNED BOARDMAN CANAL WHICH IS FED BY LAKE SPAULDING.

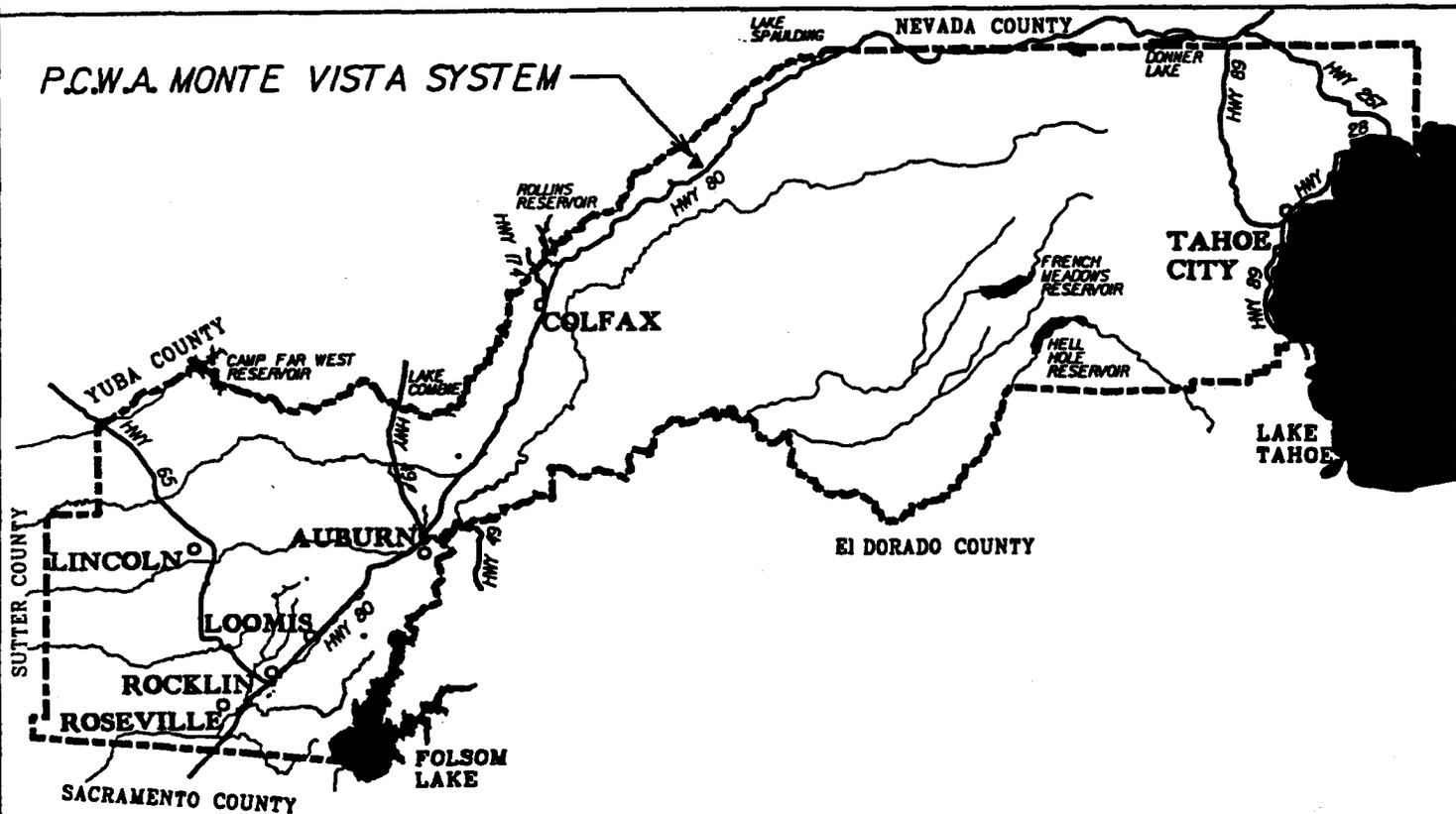
Transmission: WATER FLOWS BY GRAVITY FROM THE BOARDMAN CANAL TO THE WATER TREATMENT PLANT THROUGH A 14 INCH DIAMETER, 5,500 FT PVC PIPELINE.

Treatment: WATER SUPPLY IS GIVEN FULL CONVENTIONAL TREATMENT AT THE TREATMENT PLANT.

Storage: TREATED WATER IS PUMPED TO THREE TANKS PROVIDING A COMBINED STORAGE OF 19 MILLION GALLONS.

Capacity Limitations: THE SURFACE WATER TREATMENT REGULATIONS SPECIFY UNIT PROCESS LIMITATIONS WHICH REDUCE THE RATED CAPACITY OF THE FILTERATION PROCESS.

# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. MONTE VISTA SYSTEM  
 Address: P.O. BOX 6570, AUBURN, CA 95604  
 Contact Name: EINAR MAISCH Phone: (916)-823-4850  
 Service Area Size: \_\_\_\_\_ No. Connect.: 13 Population Served: 250  
 Services Provided: RESIDENTIAL CONNECTIONS ONLY

## Summary System Description

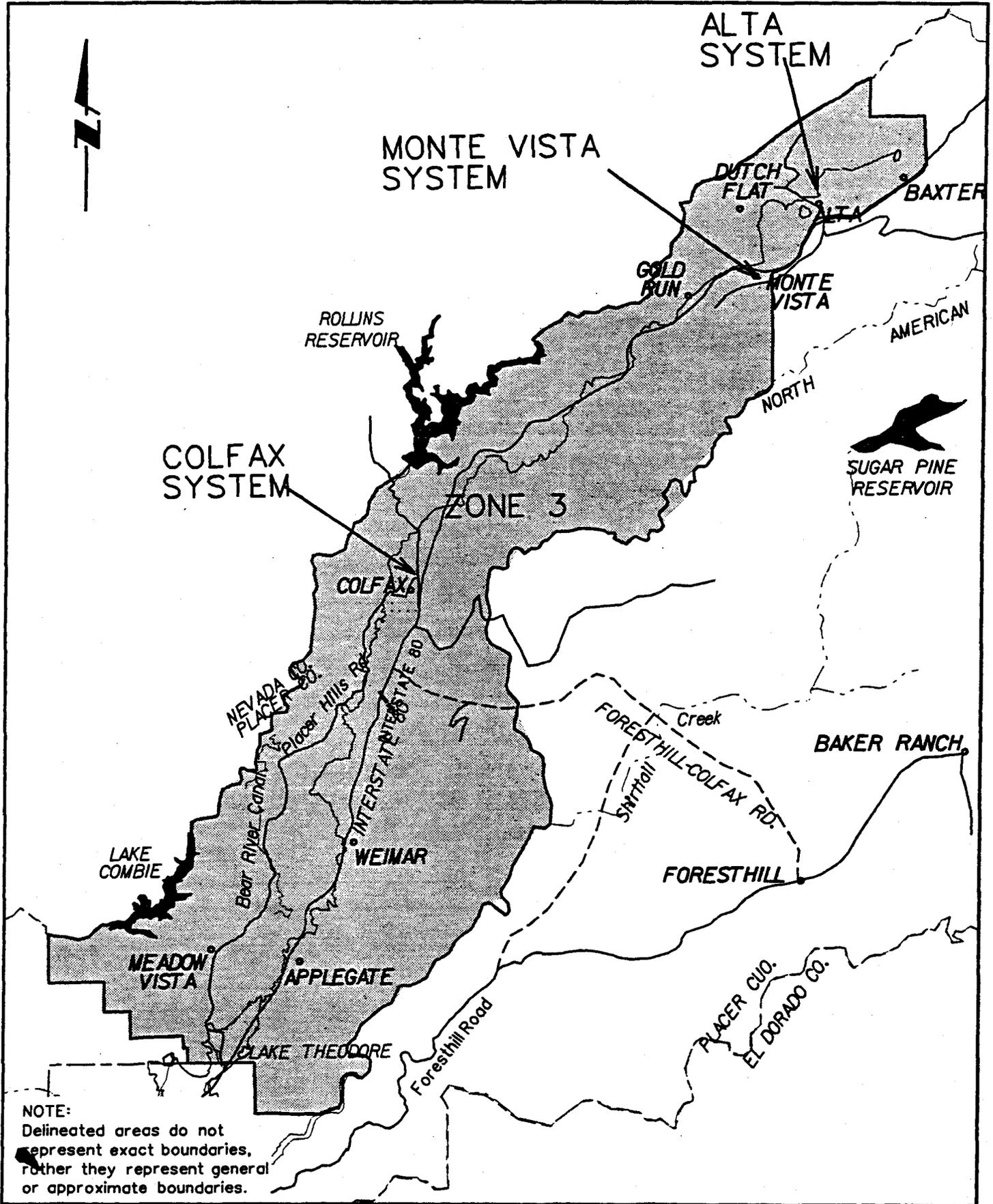
Source: THE MONTE VISTA SYSTEM DERIVES WATER FROM TWO SOURCES 1) A WELL PRODUCING 7 GPM AND 2) THE BOARDMAN CANAL

Transmission: WATER IS TRANSMITTED TO THE WATER TREATMENT PLANT VIA A 6 IN., 10 FT. LONG PIPE. THE DISTRIBUTION SYSTEM CONSISTS OF 4 & 6 INCH PIPE.

Treatment: THE TREATMENT PLANT WAS PURCHASED FROM P.G. & E. IN 1988. THE PLANT WAS CONSTRUCTED IN THE 1940'S AND LACKS PRETREATMENT FACILITIES. RATED @ 68 GPM.

Storage: A 60,000 GALLON CLEARWELL LOCATED UPHILL FROM THE TREATMENT PLANT PROVIDES GRAVITY STORAGE TO THE SYSTEM.

Capacity Limitations: THE CONDITION OF THE DISTRIBUTION SYSTEM WARRANTS SUBSTANTIAL REPAIR. FILTERING PROCESSES AND LACK OF PRETREATMENT FACILITIES LIMITS THE TREATMENT PLANT RATING.



**PLACER COUNTY WATER AGENCY  
Zone Three Water Service Areas**

## PCWA BIANCHI ESTATES SYSTEM PUBLIC WATER SYSTEM

**District Overview:** The PCWA Bianchi Estates System serves the residential subdivision Bianchi Estates No. 2. Water supply facilities and appurtenances were financed by the subdivision developer.

Current rate schedules for water service and connection within district boundaries are as follows:

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** PCWA Bianchi Estates has two approved groundwater sources: Well #1 providing approximately 550 gallons per minute and Well #2 providing approximately 500 gallons per minute.

**Primary Transmission and Distribution:** A 5 hp booster pump delivers water from the storage tank to a 5,000 gallon hydropneumatic pressure tank connected to the distribution system. A second booster pump is available for fire protection. The wells pump directly into the system.

**Storage:** A 120,000 gallon redwood storage tank is situated adjacent to the well pumps.

**Treatment:** Groundwater from the two wells is chlorinated as it enters the storage tank. Lime is added for pH adjustment.

**1990 System Production:** The PCWA Bianchi Estates System serves an estimated population of 135 through 46 metered service connections. PCWA Bianchi produced a maximum daily water supply of 488,000 gallons, a maximum monthly supply of 3.280 million gallons, and an annual total of 20.105 million gallons in 1990.

**Deficiencies and Limitations:** The Department of Health Services (DOHS), in a December 1989 inspection, found monitoring efforts not in compliance with Title 22 regulations. Sampling of each groundwater source for general mineral, general physical, and inorganic chemical composition must occur on three year intervals. Radiological monitoring of each source must be conducted every four years.

**System Appraisal:** The PCWA Bianchi Estates water system is considered by the DOHS competently operated and maintained and has adequate source supply. Long term plans indicate, however, that consolidation with the PCWA Foothill/Sunset System will streamline production.

## PCWA BOWMAN/AUBURN

**District Overview:** The system currently operates under a permit issued in 1983. Under that permit significant changes to the PCWA system have taken place. One such change was interconnecting the Bowman water treatment plant with the Auburn water treatment plant. Because of this interconnection the two separate systems are considered to be one system functionally having two treatment plants.

The PCWA Bowman Water Treatment Plant was constructed in 1979 with a capacity of 5 MGD. Currently the plant is undergoing a 15 MGD expansion. The expansion is scheduled to come on line in the spring of 1995, and is anticipated to cost approximately 13.6 million dollars.

The PCWA Auburn Water Treatment Plant was constructed in the late 40's, having a capacity of 5 MGD. Because of the age of the plant a large amount of retro-fitting will be performed very soon resulting from implementation of the Surface Water Treatment Regulations.

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** The overall source of water to the Bowman/Auburn System, as to all PCWA's water systems is from PG&E's Boardman Canal, originating in Lake Spaulding.

Direct raw water supply to the Bowman treatment plant comes from a series of diversions from the Boardman Canal. Water is first diverted from the Boardman Canal to the Bear River Canal, then just prior to Halsey Forebay water is again diverted from the Bear River Canal to the Bowman Canal.

Direct raw water supply to the Auburn treatment plant just down stream of the Bowman plant is diverted directly from the Boardman Canal.

**Primary Transmission and Distribution:** The entire system is gravity based, including all distribution systems. Several pressure reduction stations account for the vast change in elevation between the 3 Placer county service zones. Primary transmission of water to the system takes place through a series of canals owned and operated by PG&E. The transmission begins in Lake Spaulding and enters the Drum Canal. The Drum Canal turns into the Towle Canal in the Alta Area and following the Alta Power House becomes the Cedar Canal. Once intersecting Interstate 80 around the Dutch Flat area canal again changes to become the Boardman Canal. A map and schematic provided will help in understanding the complex canal system.

The distribution system directly affiliated to the Bowman Plant is reportedly in good condition, and of adequate size to handle the additional 15 MGD expansion.

The distribution system directly affiliated with the Auburn System is reportedly at capacity. Further development will require additional upgrade to the pipes in order to accommodate adequate supply.

Due to the geographic location of the Bowman plant upstream of the Auburn plant, it is possible that during an emergency shut down of the Auburn Plant that the Bowman Plant will be able to provide service to the Auburn Plant area. However, the reverse is not true due to inadequate pumping facilities located near the Auburn Plant.

**Storage:** The entire system has a total storage capacity of 3 million gallons, with a 10 million gallon reservoir completed in December 1991. The Bowman plant has a million gallons of clear well capacity. The remainder of storage occurs within a one million gallon steel tank located at Channel Hill and a one million gallon steel tank along Bell Road.

**Treatment:** The existing Bowman Water Treatment Plant has a rated capacity of 5 MGD. Peak hour water system demands exceed this capacity during periods of high usage. Resulting from the necessity to increase the capacity of the water treatment facility State Safe Drinking Water Bond Law funds were issued to construct a 15 MGD expansion to the treatment plant. The existing 5 MGD treatment plants provide treatment including a mixing chamber, flocculation, settling basins, and dual media gravity filters, with the ability for disinfection.

The adopted Surface Water Treatment Regulations when implemented in 1993, will effect the PCWA Auburn/Bowman System. Retrofits to the existing 5 MGD water treatment plants will not meet the regulations. Only minor modifications are required for the Bowman plant.

**1990 System Production:** According to the 1991 annual report the system had a total of 7,645 connections, serving a population of approximately 11,000. The maximum day demand recorded for the Bowman plant was 5.849 million gallons, and for the Auburn plant was 4.948 million gallons. Month of maximum water use for the system was August. Connections for the system are outlined below.

| Type of Connection       | Metered | Flat Rate | Total |
|--------------------------|---------|-----------|-------|
| General and Residential  | 6,216   | 88        | 6,304 |
| Commercial               | 696     | 8         | 704   |
| Industrial               | 1       | -         | 1     |
| Agricultural (Raw Water) | 121     | 514       | 635   |
| Other Water Utilities    | 1       | -         | 1     |
| Total                    | 7,035   | 610       | 7,645 |

**Deficiencies and Limitations:** Given the existing condition of the water system, treatment plants and distribution systems, the only major deficiency lies with the Auburn distribution system reaching capacity and modifications to the treatment plant, and expansion of the Bowman facility. Implementation of the Surface Water Treatment Regulations should not be a limitation to the systems existing treatment plants.

Other underlying limitations to the system include location and maintenance and operation of the canal system. The canals are primarily located next to roadways such as Interstate 80 subjecting them to contamination from car accidents and spills. Recreation is also a primary source of contamination throughout the canal system. Since operation and maintenance are performed by PG&E, the canal system is shut down for a three week period for cleaning and maintenance, which puts a strain on the system supply.

**Existing Planned Improvements:** As previously stated the Bowman area is undergoing a 15 MGD expansion project to the treatment plant. As the Auburn plant nears its peak capacity, the Bowman plant already exceeds its capacity. The 15 MGD expansion will enable service both systems. With treatment plant expansion, additional storage of 10 million gallons is also completed, offering some relief for the deficient treatment plant capacity.

Expansion construction is currently underway, however a 2 MGD "package" treatment plant was purchased and added to the Bowman facility until the expansion is completed. The 1 MGD "package" treatment

plant is then planned for shipment to serve the Alta Area, and a 1 MGD plant transferred to the Colfax system.

**System Appraisal:** In general, existing pipeline are quite old, although water delivered meets current regulatory standards mandatory implementation of the Surface Water Treatment Regulations are in effect in 1993, some retrofitting is expected. Turbidity spikes during high intensity storms occur with the existing treatment plants. Increased human activity throughout the county has greatly increased contamination possibilities both within the water sheds and the canal system.

Due to lack of capacity for the entire system a 15 MGD treatment plant expansion is underway, however a 2 MGD "package" treatment plant has been purchased for service until the 15 MGD expansion comes on-line. Concerted efforts are underway to identify and correct or add retrofits to the existing 5 MGD plants.

## PCWA FOOTHILL/SUNSET WATER SYSTEM

**District Overview:** Placer County Water Agency has recently filed a permit combining the Foothill and Sunset service areas. The systems are already intertied and will be referred to hereinafter as the Foothill System.

The Foothill system is comprised of three water treatment plants, the new Foothill Treatment Plant, the old Foothill Treatment Plant, and the Sunset Treatment plant. The old Foothill Treatment Plant was constructed in 1979. The Sunset Treatment Plant was constructed in the late 1940's. Construction of the new Foothill Treatment Plant was completed recently.

Expansion of the Foothill Treatment Plant and completion of the Rock Crest Pipeline enabled PCWA to absorb other systems within their jurisdiction, thus simplifying and reducing their workload. Significant other systems now serviced by the Foothill System is Los Logos, Lakeshore Estates. Foothill system also now serves two other systems which are not under their jurisdiction, Hidden Valley Community Association, and Lakeview Hills Community Association subdivisions.

Presently the two Foothill Water Treatment Plants are capable of serving the entire combined Foothill System, except for the City of Lincoln.

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** The Foothill system draws water from two locations. PG&E's South Canal is the main source utilizing the Boardman Canal as a secondary source. The Sunset Treatment Plant draws water from Whitney Reservoir, supplied by the Caperton Canal.

**Storage:** Storage consist for the Foothill System is outlined below:

| Reservoir Name/Location | Capacity         | Material        |
|-------------------------|------------------|-----------------|
| Foothill WTP            | 10 MG/1 MG       | Steel/concrete  |
| Penryn                  | 1 MG/0.05 MG     | Steel/Redwood   |
| Loomis                  | 0.2 MG-elev      | Steel           |
| Rocklin                 | 1 MG             | Steel           |
| Sierra Ridge            | 0.1 MG           | Steel           |
| Sierra Ridge Reservoir  | 0.14 MG          | Hypalon Covered |
| Sunset WTP              | 2.5 MG-clearwell | Steel           |
| Sunset/Whitney Ranch    | 3.0 MG           | Steel           |
| Stanford Ranch          | 2.5 MG           | Steel           |

**Treatment:** The total combined plant capacities of all three water treatment plants is 33 MGD. Design flows for the plants are as follows: Sunset = 6 MGD, New Foothill = 15 MGD, Old Foothill = 12 MGD.

A great deal of modifications will be required to the Foothill systems water treatment plants in order to comply with the new Surface Water Treatment Regulations. A master plan is currently being developed for the Sunset System. The following table shows the capacities, filtration processes performed, and modification needs of each the treatment plants.

| Treatment Plant    | Capacity | Filtration Processes   | Modifications Needs  |
|--------------------|----------|--|--|
| Foothill WTP (New) | 15 MGD   | sedimentation, coagulation, flocculation, disinfection, filtration | Computer system  |
| Foothill WTP (Old) | 12 MGD   | sedimentation, coagulation, flocculation, disinfection, filtration | Contact time   |
| Sunset WTP         | 6 MGD    | coagulation, disinfection, filtration                              | Mixing tank inoperable, contact time, need backwash capabilities |

**1990 System Production:** According to the 1991 annual report the old Foothill Plant experienced max day demands of 12.402 million gallons. The Sunset Plant experienced max day demands of 5.567 million gallons. Both plants produced 2,422.433 and 926.235 million gallons respectively for the 1990 year. The Foothill Plant is responsible for 12554 active connections, 2590 of which are raw water agricultural connections. The Sunset Plant is responsible for 7 active connections, City of Lincoln being the primary service.

**Deficiencies and Limitations:** Many of the deficiencies and limitations lying within the two older water treatment plants are listed in the tabled information above. A limitation to the Sunset system is the capacity of the canal carrying raw water from South Canal to Whitney Reservoir. If current master planning calls for an expansion of the plant, the main transmission canal will also have to be enlarged.

**Existing Planned Improvements:** Existing planned improvements to the Foothill system include making modifications to the older treatment plants to meet the Surface Water Treatment Regulations. Depending of the outcome of the current master plan for the Sunset area, other improvements may be proposed in the near future which may significantly change the Foothill System.

Current plans include construction of a 36-inch pipeline from the Sunset Water Treatment Plant to Penryn. Once this pipeline is completed, then the City of Lincoln can also be served with the Foothill Water Treatment Plant.

Current plans are directed towards construction of a new 100 MGD plant over time to be constructed in another location along the Caperton Canal.

**System Appraisal:** The 15 MGD plant expansion helped to improve the water treatment and production situation in several areas within PCWA's jurisdiction. The expansion by no means alleviates current problems of treatment with the other two older yet necessary treatment plants. Capacity limitations may inhibit further growth within the area until further upgrades of both treatment plants and primary transmission systems are resolved.

## PCWA LOS LAGOS SYSTEM PUBLIC WATER SYSTEM

**District Overview:** The PCWA Los Lagos System was recently incorporated into the PCWA Foothill/Sunset System.

Current rate schedules for water service and connection within district boundaries are as follows:

Connection fees are assessed for connecting into an existing water service and new developments \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** Before assimilation with the PCWA Foothill/Sunset System, PCWA Los Lagos was supplied solely by water purchased from the San Juan Suburban Water District. San Juan SWD diverts their supply from Folsom Lake.

**Primary Transmission and Distribution:** The distribution system consists solely of asbestos cement pipe in sizes ranging from 8 to 14 inches in diameter.

The distribution system contains two pressure zones. Upper zone water pressures, regulated by a storage tank, vary from 55 to 65 psi. Lower zone pressure, supplied by a booster station equipped with three pumps, range from 85 to 95 psi. A 5,000 gallon hydropneumatic tank moderates fluctuations within the lower zone pressures.

**Storage:** A 0.6 million gallon steel tank provides storage for the PCWA Los Lagos System.

**Treatment:** San Juan SWD provides full conventional treatment. PCWA regularly obtains water quality reports from San Juan SWD and notifies their consumers.

**1990 System Production:** The PCWA Los Lagos System reported 131 total active connections in 1990. The calculated system demand is 82 gpm.

**Deficiencies and Limitations:** No significant deficiencies or limitations were discerned at the PCWA Los Lagos System.

**Existing Planned Improvements:** There are no existing planned improvements at PCWA Los Lagos System.

**System Appraisal:** PCWA Los Lagos System was recently incorporated into the PCWA Foothill/Sunset System. The Los Lagos subdivision is currently underway to achieve build-out. All facilities (piping) are in good shape.

## PCWA NEWCASTLE SYSTEM PUBLIC WATER SYSTEM

**District Overview:** The PCWA Newcastle service area is located about 5 miles southwest of Auburn. Service area elevations vary from 800 to 1,300 feet.

Placer County Water Agency purchased the domestic water supply system serving Newcastle and Penryn from PG&E in October 1968.

Current rate schedules for water service and connection within district boundaries are as follows:

Connection fees are assessed for connecting into an existing water service and new developments at \$3,418/lot plus \$125/lot for meter cost. Residential meters are generally 5/8" and are charged a flat rate of \$11.10/bi-monthly plus water usage @ \$0.453/100 cu.ft.

**Source Information:** The PCWA Newcastle System derives water from the Newcastle Canal, which is fed by the Boardman Canal. The Boardman Canal diverts water from the Bear River about two miles from Lake Spaulding. Runoff from Interstate 80, other roadways, and railroad lines is suspected by the Department of Health Services to cause a significant contamination hazard.

**Primary Transmission and Distribution:** The distribution system, supplied by the clearwell, has one pressure zone. System pressures range from 33 to 110 psi.

**Storage:** An uncovered 160,000 gallon clearwell provides storage for the PCWA Newcastle System. The clearwell is gunite lined.

**Treatment:** The PCWA Newcastle System, which was originally constructed in the 1940's, provides complete treatment. Treatment consists of clarification with internal flocculation, and dual media filters. Alum and chlorine are applied at the clarifier inlet and lime is added at the clearwell inlet for corrosion control. The plant's rated capacity is 330 gpm. The PCWA Newcastle plant is also equipped with a recording turbidimeter, portable generators, and an automatic shutoff switch activated by excessive effluent turbidity.

The plant has a rated capacity of 330 gpm.

**1990 System Production:** The Newcastle System serves an estimated population of 2,850 through 1,131 total service connections, including some 220 domestic customers.

PCWA Newcastle produced a maximum daily water supply of 0.401 million gallons, a maximum monthly supply of 7.315 million gallons, and an annual total of 50.529 million gallons in 1990.

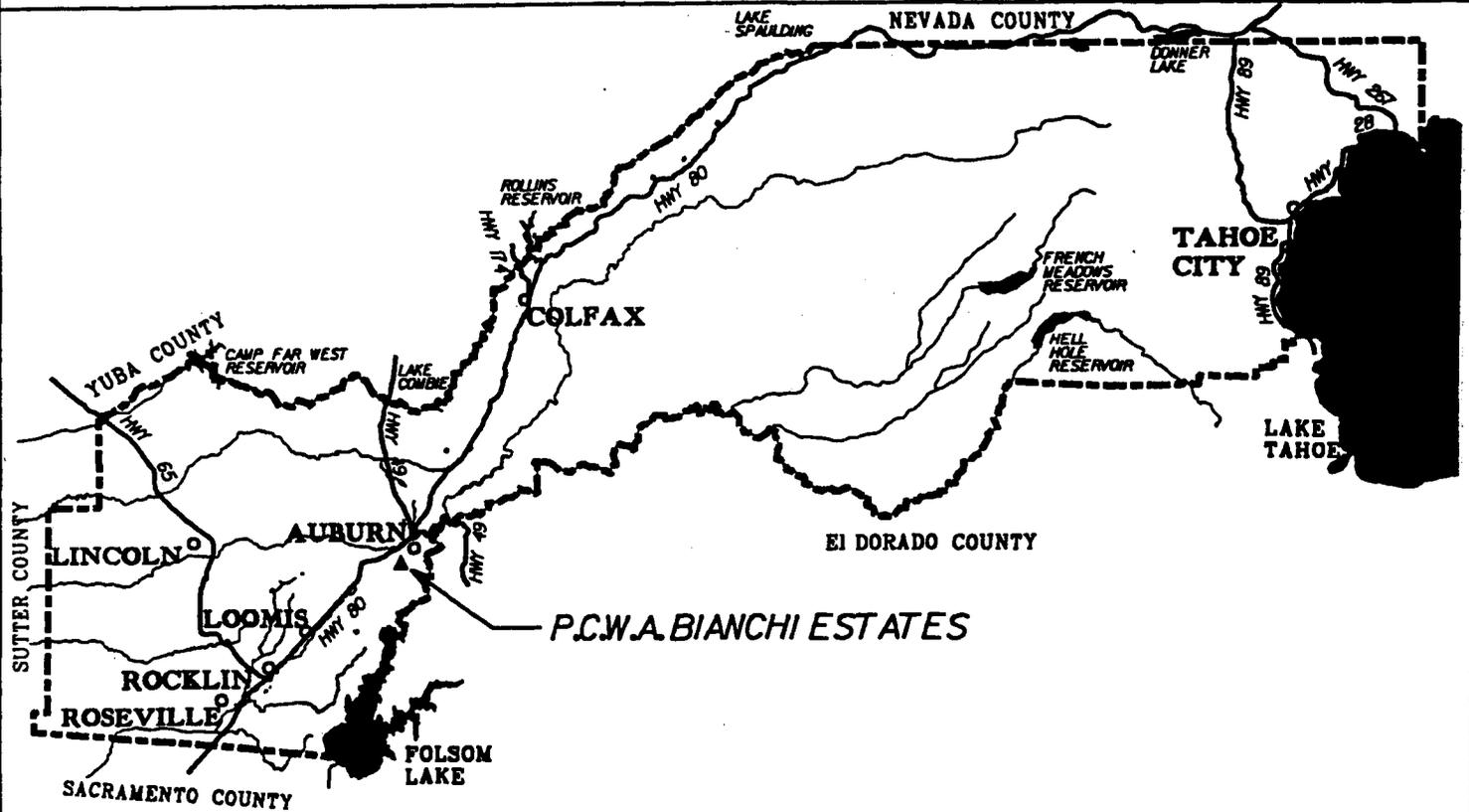
**Deficiencies and Limitations:** The condition of the distribution system warrants substantial repair, including to the chlorination facility, which is not equipped with failure alarms.

**Existing Planned Improvements:** PCWA has a signed contract with the Department of Water Resources to construct a pipeline from Auburn to Newcastle. Plans are to eliminate the Newcastle plant by 1994 or 1995. According to PCWA staff the Department of Health Services has approved this.

**System Appraisal:** The PCWA Water Systems Superintendent plans to abandon the Newcastle treatment plant. PCWA Newcastle System can be supplied either by gravity flow from PCWA Auburn or by pumping treated water from the PCWA Foothill System. The distribution system warrants some repairs.



# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. BIANCHI ESTATES

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH

Phone: (916)-823-4850

Service Area Size: \_\_\_\_\_ No. Connect.: 46 Population Served: 135

Services Provided: ALL RESIDENTIAL

## Summary System Description

Source: THE SYSTEM CURRENTLY HAS TWO WELLS PRODUCING 550 GPM AND 500 GPM.

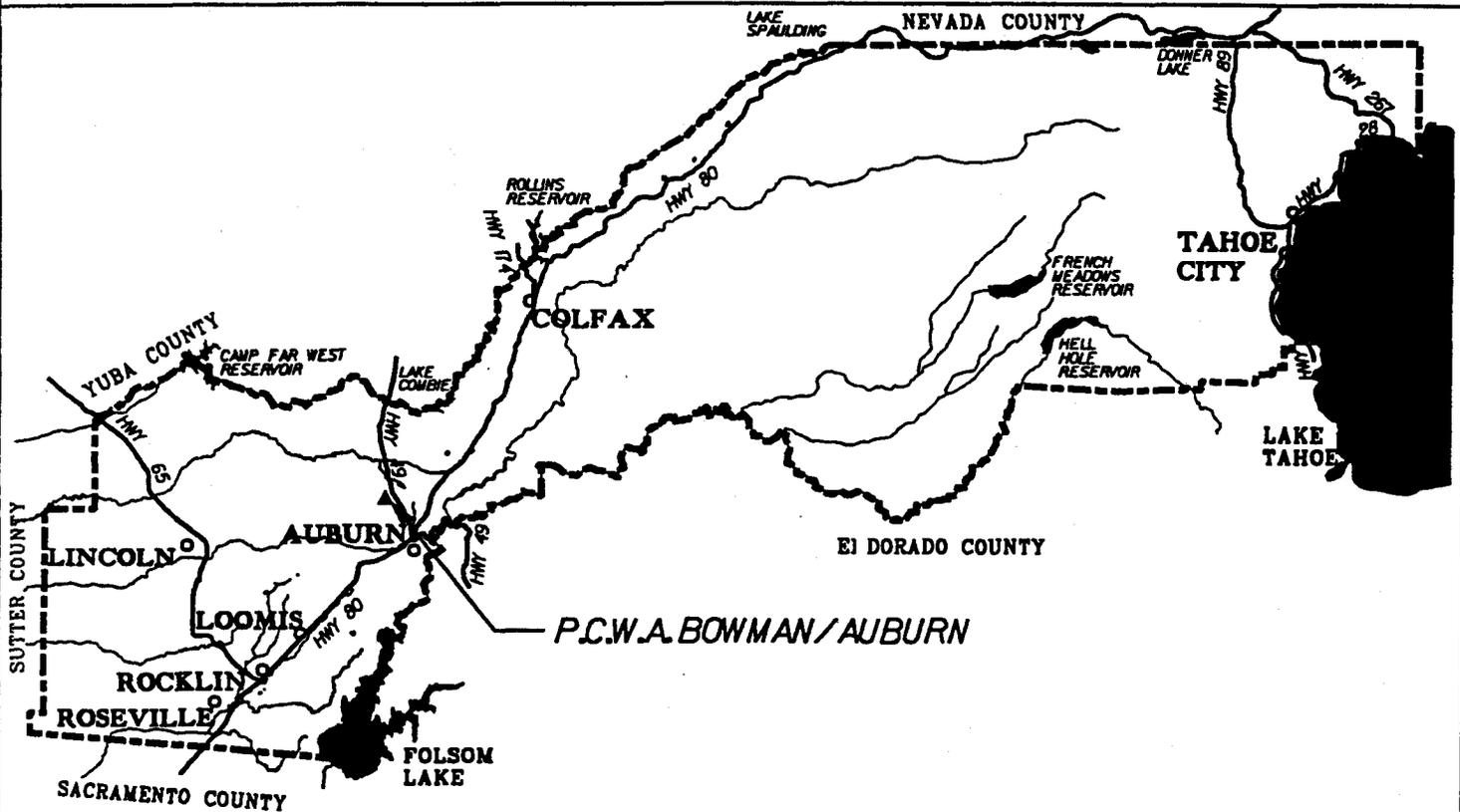
Transmission: A 5 H.P. BOOSTER PUMP DELIVERS WATER FROM THE STORAGE TANK TO A 5,000 GALLON HYDROPNEUMATIC VIA 8 INCH PIPELINE.

Treatment: DISINFECTION IS PROVIDED @ EACH WELL.

Storage: A 120,000 GALLON REDWOOD STORAGE TANK IS AVAILABLE TO SUPPLY THE HYDROPNEUMATIC TANK.

Capacity Limitations: THE SYSTEM IS SUFFICIENT HOWEVER LACKS BACK-UP POWER IN CASE OF AN EMERGENCY, FUTURE PLANS INCLUDE ABSORPTION OF THE BIANCHI SYSTEM WITHIN THE FOOTHILL SUNSET SYSTEM.

# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. BOWMAN/AUBURN

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH

Phone: (916)-823-4850

Service Area Size: \_\_\_\_\_ No. Connections: 7645 Population Served: 11,000

Services Provided: PRIMARILY RESIDENTIAL, COMMERCIAL AND AGRICULTURAL RAW WATER.

## Summary System Description

Source: P.G. & E.'S BOARDMAN CANAL, ORIGINATING IN LAKE SPAULDING IS DIRECT SOURCE SUPPLY TO THE SYSTEM.

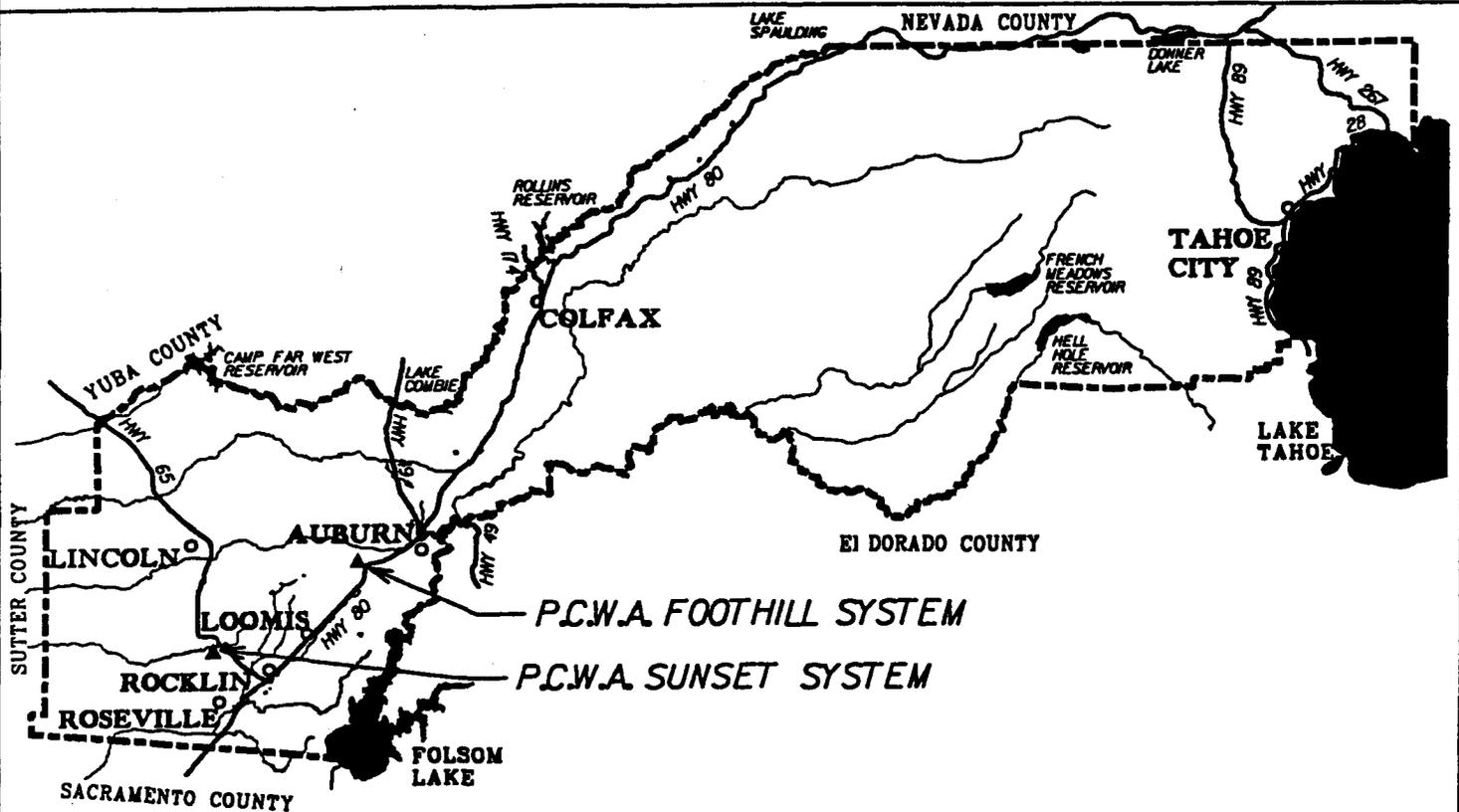
Transmission: WATER IS DRAWN FROM P.G. & E.'S BOARDMAN CANAL AND TRANSMITTED TO THE TREATMENT PLANTS.

Treatment: THE BOWMAN PLANT IS UNDER GOING A 15 MGD EXPANSION. THE EXPANSION WILL PROVIDE FULL CONVENTION TREATMENT. THE AUBURN PLANT IS RATED AT 5 MGD AND PROVIDES FULL CONVENTIONAL TREATMENT.

Storage: THE ENTIRE SYSTEM WILL SOON HAVE 13 MILLION GALLONS OF STORAGE AVAILABLE WITH COMPLETION OF A 10 MILLION GALLON STORAGE TANK.

Capacity Limitations: THE AUBURN DISTRIBUTION SYSTEM IS CURRENTLY OPERATING AT CAPACITY. ABILITY TO MEET SURFACE WATER TREATMENT REGULATIONS WITH EXISTING FACILITIES IS ALSO QUESTIONABLE. TURBIDITY SPIKES DURING STORMS ARE AN ONGOING CONCERN.

# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. FOOTHILL/SUNSET WATER SYSTEM

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH Phone: (916)-823-4850

Service Area Size: \_\_\_\_\_ No. Connect.: 12554/7 Population Served: \_\_\_\_\_

Services Provided: RESIDENTIAL, COMMERCIAL AND AGRICULTURAL SERVICES

## Summary System Description

Source: WATER FOR BOTH TREATMENT PLANTS IS DERIVED FROM THE BOARDMAN CANAL.

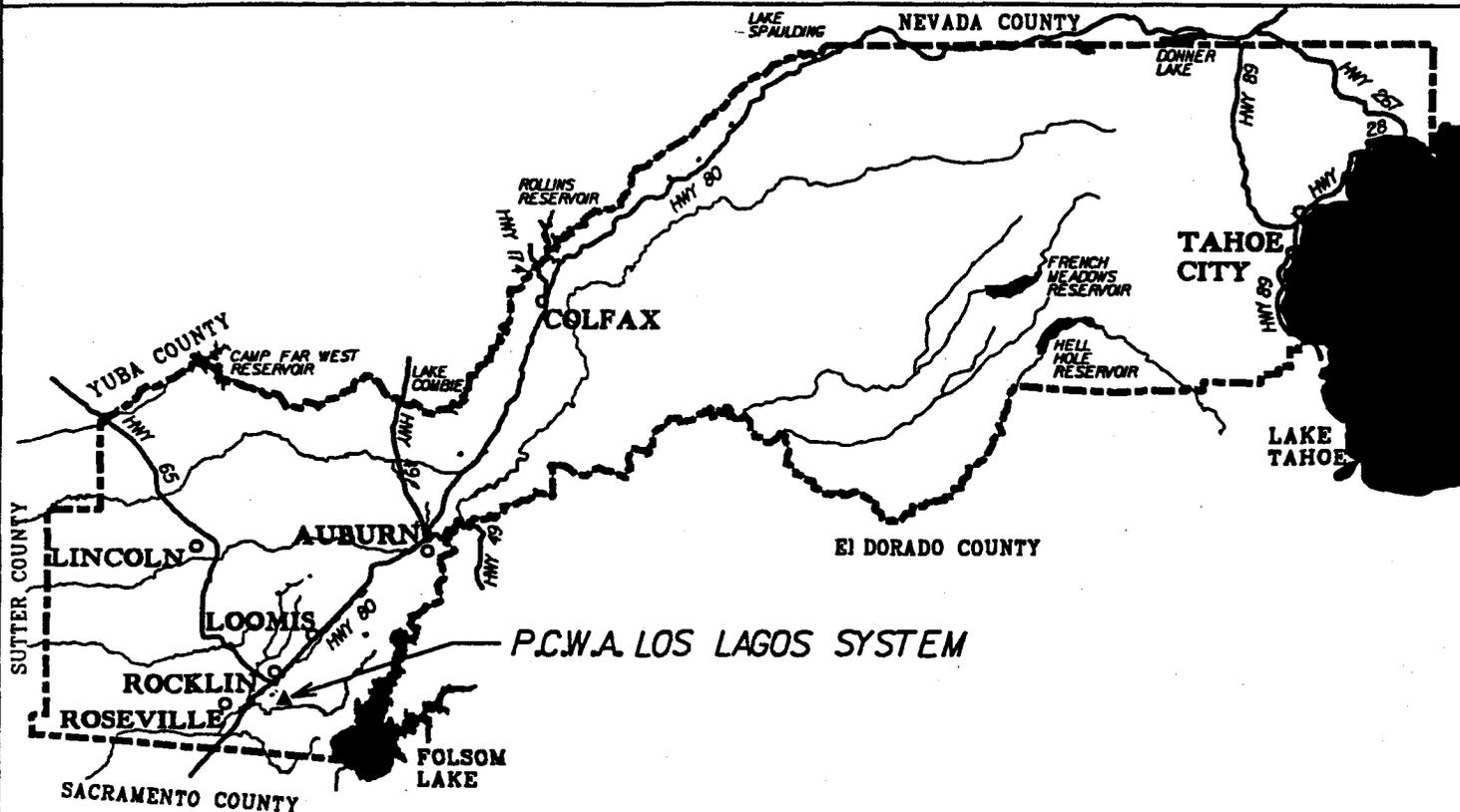
Transmission: WATER FLOWS BY GRAVITY TO BOTH TREATMENT PLANTS VIA 2-36 INCH PIPE TO THE FOOTHILL PLANT AND 18 INCH PIPE TO THE SUNSET PLANT.

Treatment: TOTAL COMBINED CAPACITY IS 33 MGD - SUNSET - 6 MGD, NEW.

Storage: 21.49 MILLION GALLONS OF STORAGE EXIST THROUGHOUT THE DISTRIBUTION SYSTEM BETWEEN 10 TANKS.

Capacity Limitations: DEFICIENCIES AND LIMITATIONS EXISTS WITHIN THE TWO OLDER TREATMENT PLANTS - NEEDING RETROFITTING IN ORDER TO MEET SURFACE WATER TREATMENT REGULATIONS. ALSO A 36 INCH TRANSMISSION LINE MUST BE INSTALLED FROM PENRYN TO THE SUNSET PLANT.

# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. LOS LAGOS SYSTEM

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH Phone: (916)-823-4850

Service Area Size: \_\_\_\_\_ No. Connect.: 131 Population Served: \_\_\_\_\_

Services Provided: RESIDENTIAL CONNECTIONS ONLY

## Summary System Description

Source: OBTAINS WATER FROM THE FOOTHILL/SUNSET SYSTEM.

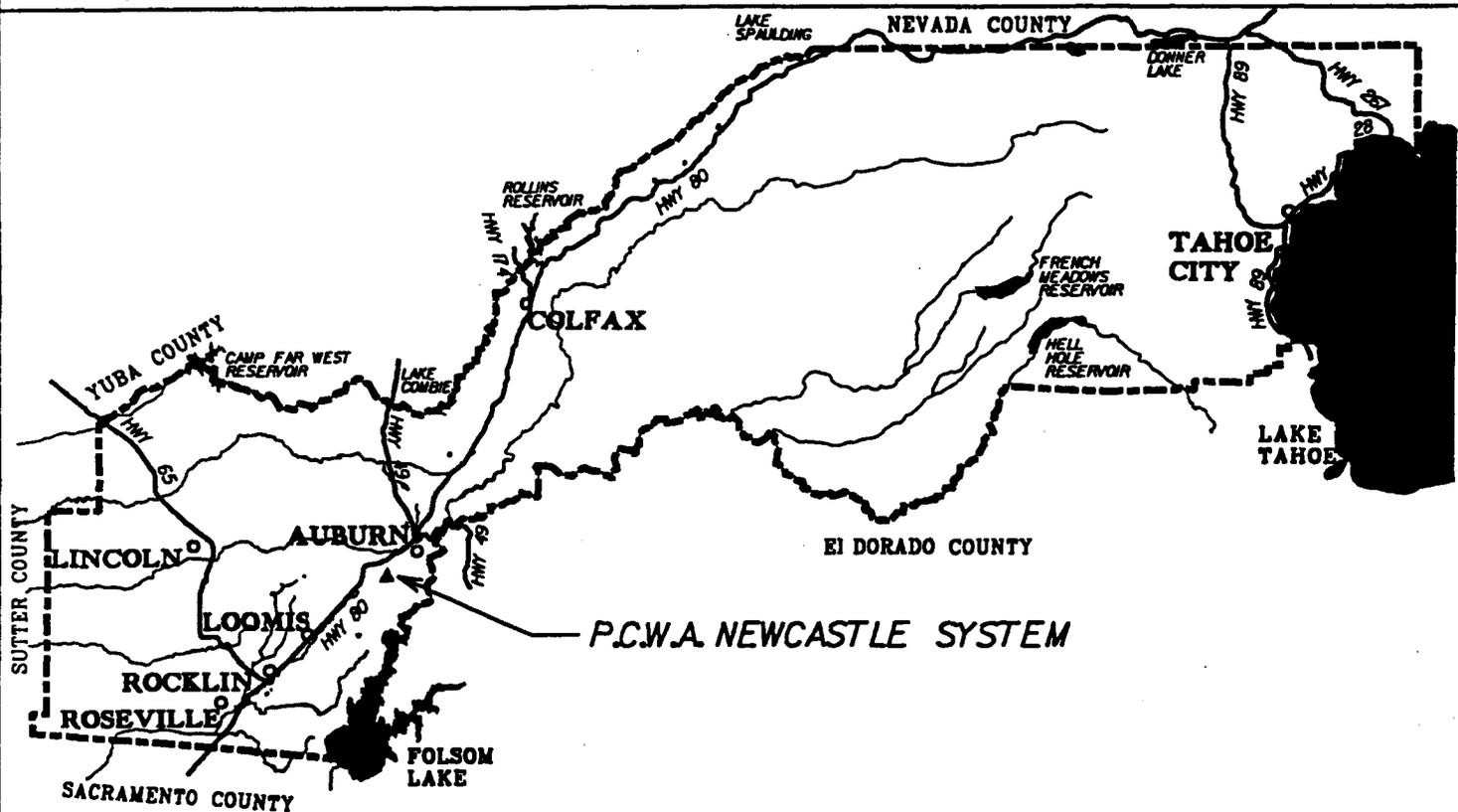
Transmission: WATER IS TRANSMITTED TO THE LOS LAGOS SYSTEM FROM THE FOOTHILL TREATMENT PLANT. THE DISTRIBUTION SYSTEM IS PRIMARILY ASBESTOS CEMENT PIPE RANGING FROM 8 TO 14 INCHES IN DIA.

Treatment: TREATMENT IS PROVIDED @ THE FOOTHILL WATER TREATMENT FACILITY.

Storage: SINCE ADOPTED INTO THE FOOTHILL SYSTEM, STORAGE IS PROVIDED FROM FOOTHILL SYSTEM TANKS.

Capacity Limitations: NO MAJOR LIMITATIONS AFFECT THE BUILT-OUT LOS LAGOS SYSTEM. THE SYSTEM WAS ABSORBED INTO THE FOOTHILL SYSTEM COMPLETELY IN 1990.

# PLACER COUNTY WATER SYSTEMS



System Name: P.C.W.A. NEWCASTLE SYSTEM

Address: P.O. BOX 6570, AUBURN, CA 95604

Contact Name: EINAR MAISCH Phone: (916)-823-4850

Service Area Size: \_\_\_\_\_ No. Connect.: 1131 Population Served: 2850

Services Provided: PRIMARILY RESIDENTIAL & COMMERCIAL CONNECTIONS

### Summary System Description

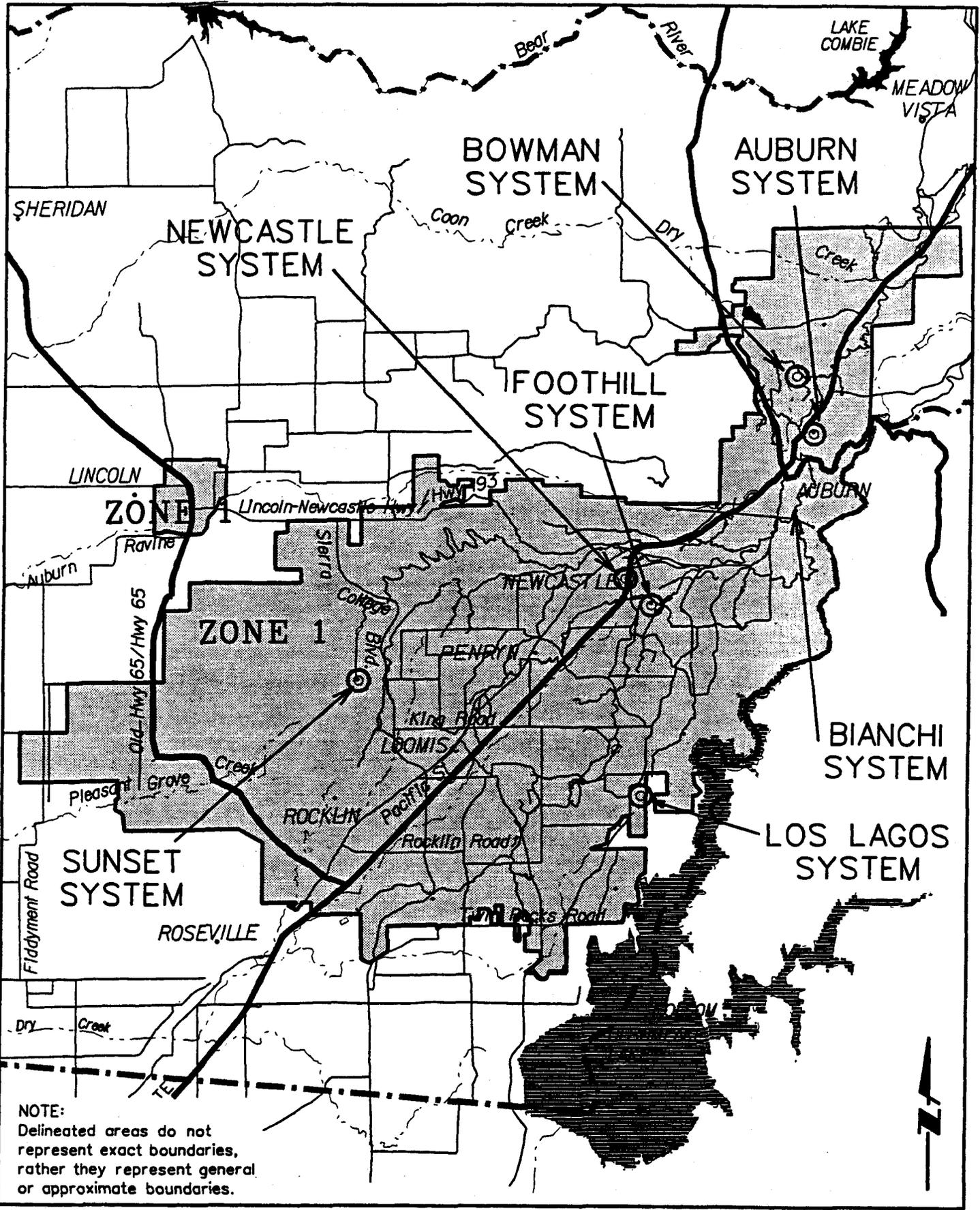
Source: THE NEWCASTLE SYSTEM DERIVES WATER FROM THE NEWCASTLE CANAL, FED BY THE BOARDMAN CANAL.

Transmission: WATER IS TRANSMITTED FROM THE NEWCASTLE CANAL VIA A 12 INCH PIPE.

Treatment: THE TREATMENT PLANT, CONSTRUCTED IN THE 1940'S, PROVIDES COMPLETE TREATMENT. THE PLANT HAS A RATED CAPACITY OF 330 GPM.

Storage: A GUNITE LINED, UNCOVERED, 160,000 GALLON CLEARWELL PROVIDES STORAGE TO THE SYSTEM.

Capacity Limitations: THE TREATMENT PLANT NEEDS SOME RETROFITTING IN ORDER TO COMPLY WITH SURFACE WATER TREATMENT REGULATIONS, AND THE DISTRIBUTION SYSTEM WARRENTS SUBSTANTIAL REPAIR.



**PLACER COUNTY WATER AGENCY**  
**Zone 1 Water Service Areas**

## PLACER ENERGY CENTER MAIN AND RESIDENCES

**District Overview:** Placer Energy Center is located at the end of Christian Valley Road about 8 miles north of Auburn. The site covers approximately 16 acres ranging in elevation from 1,500 to 1,745 feet. The administrative area (main) is served by the camp water distribution system consisting of ten buildings. Approximately 100 residents occupy the camp throughout the year. The water system began with site development by the Placer Fire Center, under the California Department of Forestry, originally using groundwater wells for supply sources. Eventually the wells were abandoned and replacement source became the Combie Ophir Canal.

Original treatment consisted of sedimentation, addition of alum as a coagulant, filtration, and disinfection. Inability to meet turbidity, and bacteriological requirements constituted installation of a package water treatment plant in 1988. This addition increased the systems ability to produce acceptable water, however, the standards were occasionally not met. A citation issued in 1991 resulting from failing to meet standards for turbidity in a domestic water supply. Plant improvements recently completed address citation requirements.

The residence system is located about 2 miles southeast of the camp along Christian Valley Road. It is comprised of two resident houses owned by the California Conservation Corps, and are occupied year around by employees. The residence water system is independent of the camp water system.

Since the facility is state operated and owned, there are no connection or water service fees applicable.

**Source Information:** Placer Energy Center's sole water source for the camp (main) system is provided by Nevada Irrigation District's Combie Ophir Canal. The California Conservation Corps pay Nevada Irrigation District for diversion of 1 miners inch (11.25 gpm) from the canal year around (5.913 MG per year). Water is diverted through a 2 inch PVC pipe to a 44,000 gallon raw water reservoir. The diversion structure and reservoir are located at the end of Witt Road in Christian Valley.

Placer Energy Center also utilizes a well source for the residences (two houses), located approximately 2 miles southeast along Christian Valley Road. The well is equipped with a 2 h.p. submersible pump and has capacity of 10 - 15 gpm.

**Primary Transmission and Distribution:** Primary transmission of water to the camp site from the 44,000 reservoir takes place in a 2 inch PVC line. Water is pumped from the reservoir to the treatment plant and stored in a 30,000 gallon storage tank located on a hill, feeding the gravity distribution system. System pressures range from 65 - 70 psi.

The well supplies the residences directly, switching on when necessary.

**Storage:** A total 84,000 gallons of storage is available to the main system. About half is potable water. There is no storage for the residences. The following table outlines the storage available to the system:

**STORAGE**  
**Placer Energy Center Main and Residences**

| <b>Reservoir</b>      | <b>Capacity</b> | <b>Storage Type</b> |
|-----------------------|-----------------|---------------------|
| Raw Water on Witt Rd. | 4,000 gallons   | raw water           |
| Clearwell at plant    | 10,000 gallons  | potable water       |
| Tank on Hilltop       | 30,000 gallons  | potable water       |

**Treatment:** Recently improvements were completed in compliance to the above citation referenced, upgrading the plants operation and treatment processes. The plant performs full treatment at a capacity of 10 gpm. A bypass on the plant provides fire flow of 60 gpm.

The well at the residences has no treatment.

**1990 System Production:** The following table illustrates 1990 system production:

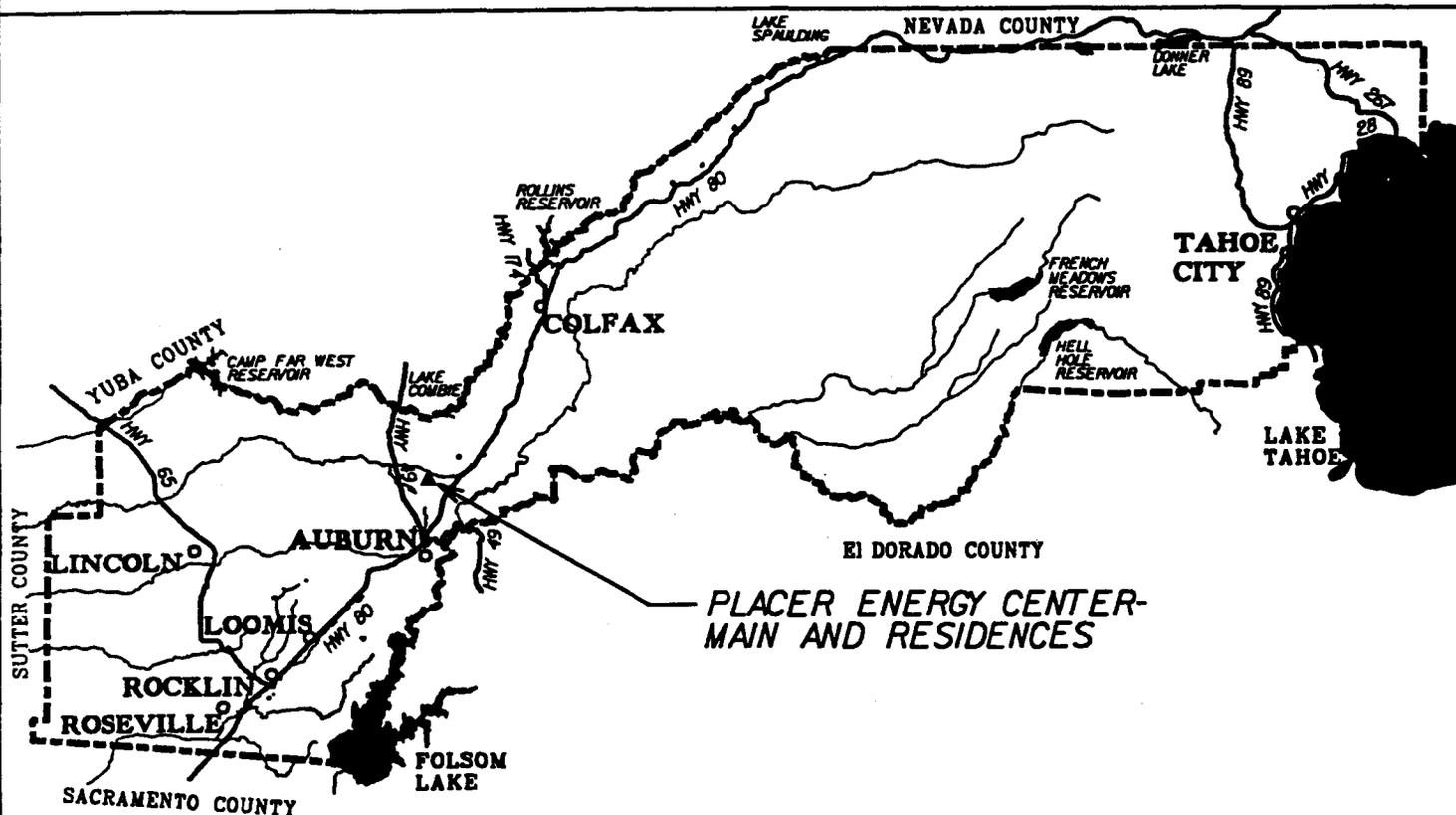
|                                       | <b>Residences</b> | <b>Main</b> |
|---------------------------------------|-------------------|-------------|
| Maximum day demand                    | 0.01221 MG        | 0.019 MG    |
| Month of Maximum Water Use            | August            | August      |
| Total Annual Water Produced by System | 3 MG              | -----       |
| Number of Connections                 | 120               | 2           |

**Deficiencies and Limitations:** Turbidity spikes during periods of heavy rain historically created problems for the treatment plant. Recent improvements required by the citation were directed at turbidity reduction during such periods meeting requirements. Since the improvements were recently completed, it is not known whether they will be successful.

**Existing Planned Improvements:** There are no planned improvements to expand facilities of the California Conservation Corps, nor build more residences. Ultimately connection into an alternative source supply such as Christian Valley Park CSD is being evaluated, but constitutes no course of action at this time for either the main or residences.

**System Appraisal:** Recent improvements to the water treatment plant should allow water delivery of adequate supply, meeting all water quality standards and state regulations. Some concern exists with the well serving the two residences regarding turbidity and bacteriological contaminates. No expansion for the area is planned. The cost of operating the treatment plant for such a small community are astronomical, thus connecting into the Christian Valley Park Community Services District is much more economical.

# PLACER COUNTY WATER SYSTEMS



System Name: PLACER ENERGY CENTER- MAIN AND RESIDENCES

Address: 3710 CHRISTIAN VALLEY ROAD, AUBURN, CA 95603

Contact Name: CLAUDIA RODGERS Phone: (916)-823-4900

Service Area Size: \_\_\_\_\_ No. Connections: 120/2 Population Served: 120/7

Services Provided: ALL RESIDENTIAL

## Summary System Description

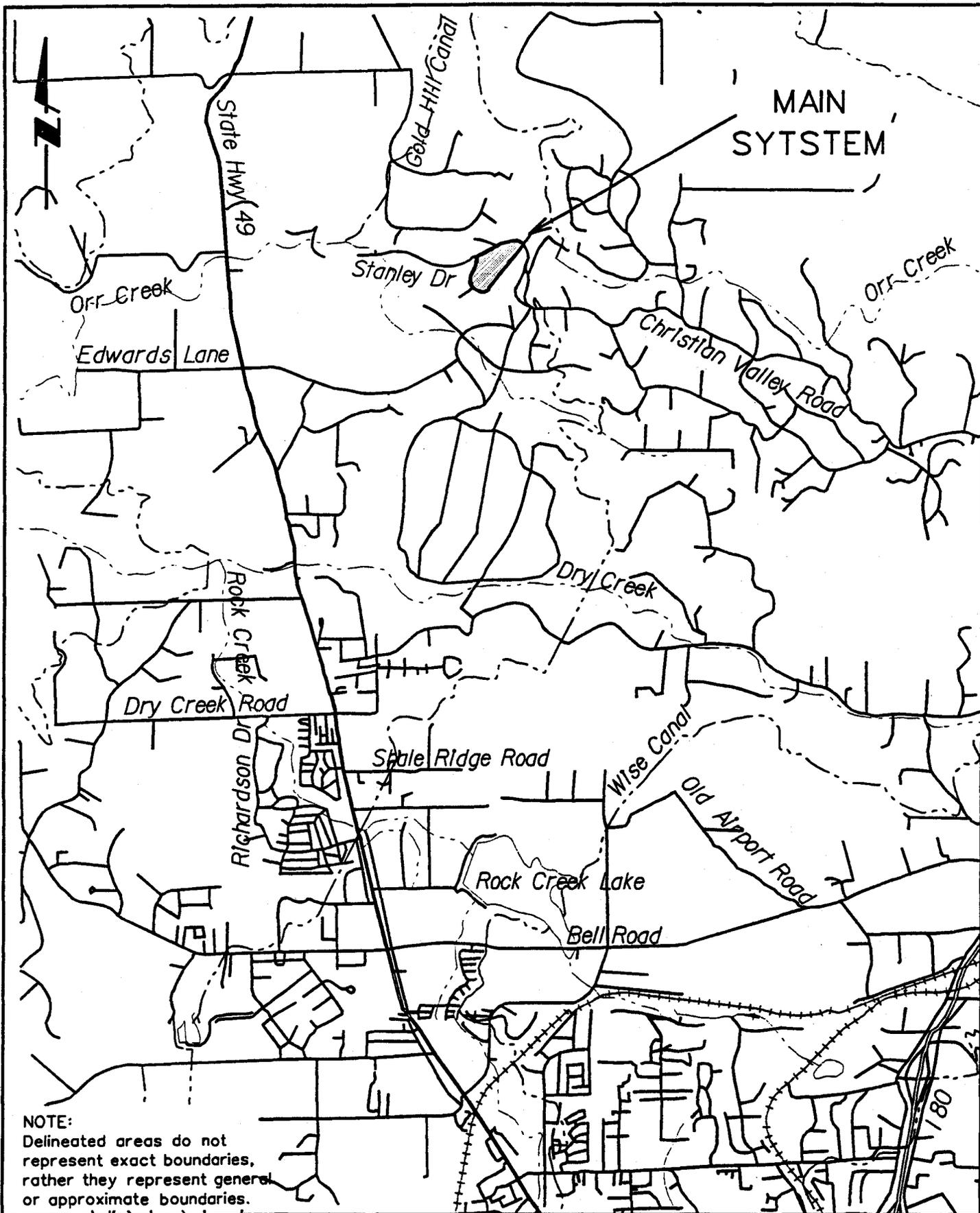
Source: THE MAIN (CAMP) SYSTEM IS SUPPLIED BY NEVADA IRRIGATION DISTRICT'S COMBIE OPHIR CANAL THE RESIDENCES (TWO HOUSES) ARE SUPPLIED BY A WELL SOURCE.

Transmission: THE DISTRIBUTION SYSTEM IS QUITE OLD - THUS REQUIRING AN AGGRESSIVE MAINTENANCE PROGRAM.

Treatment: A RECENTLY CONSTRUCTED 3.0 MGD TREATMENT PLANT PROVIDES FULL CONVENTIONAL TREATMENT.

Storage: 84,000 GALLONS OF STORAGE IS AVAILABLE TO THE SYSTEM. STORAGE IS DIVIDED BETWEEN A 30,000 GALLON TANK, A 10,000 GALLON CLEARWELL, AND A 44,000 GALLON RAW WATER POND.

Capacity Limitations: TURBIDITY "SPIKES" DURING PERIODS OF HEAVY RAIN REQUIRE CONSTANT MONITORING OF THE NEWLY RENOVATED TREATMENT PLANT.



NOTE:  
 Delineated areas do not  
 represent exact boundaries,  
 rather they represent general  
 or approximate boundaries.

**PLACER ENERGY CENTER - MAIN SYSTEM  
 Water Service Area**

## QUAIL LAKE WATER COMPANY

**District Overview:** Quail Lake Water Company is located on the west shore of Lake Tahoe near Homewood. The system is composed of two separate distribution systems and two sources of supply. The water company is investor owned (51%) by an independent entity, Perini Resorts.

The two separate systems are referred to as the "Main" and the "Chambers Landing System". The main is supplied by water flowing by gravity from Quail Lake pumped from Lake Tahoe. The Chambers Landing system serves a group of condominiums between Highway 89 and Lake Tahoe, having a separate domestic and fire protection system.

Major issues facing the Quail Lake Water Company is implementation of surface water treatment regulations. A well has recently been completed, and pending approval from Department of Health Services, the company can abandon its surface water supplies.

There is presently no connection charge for new services. Water service for the 1991 year was based on an annual rate of \$195.00/yr flat rate service plus \$203.00/year Department of Water Resources assessment.

**Source Information:** The Quail Lake Water Company relies on two sources, a Lake Tahoe Intake and Quail Lake. Quail Lake is a 15 ac lake which poses significant difficulties to the water system, freezing during the winter, and having an algae bloom causing excess turbidities. The Lake Tahoe Source supplies the Chambers Landing area.

**Primary Transmission and Distribution:** The distribution system consists of approximately 8 miles of 4 - 6 inch Asbestos Cement pipe, and is reportedly in good shape. It contains (2) pressure zones, the Chamberland and Main systems.

**Storage:** Currently there is no available potable water storage available. Existing plans include installation of a 400,000 gallon steel bolted storage tank in the near future with water law bond money.

**Treatment:** The only treatment provided to the Lake Tahoe and Quail Lake supply sources is chlorination. Once the well approval process is complete, the surface water sources and their chlorination facilities will only serve as standby to the system.

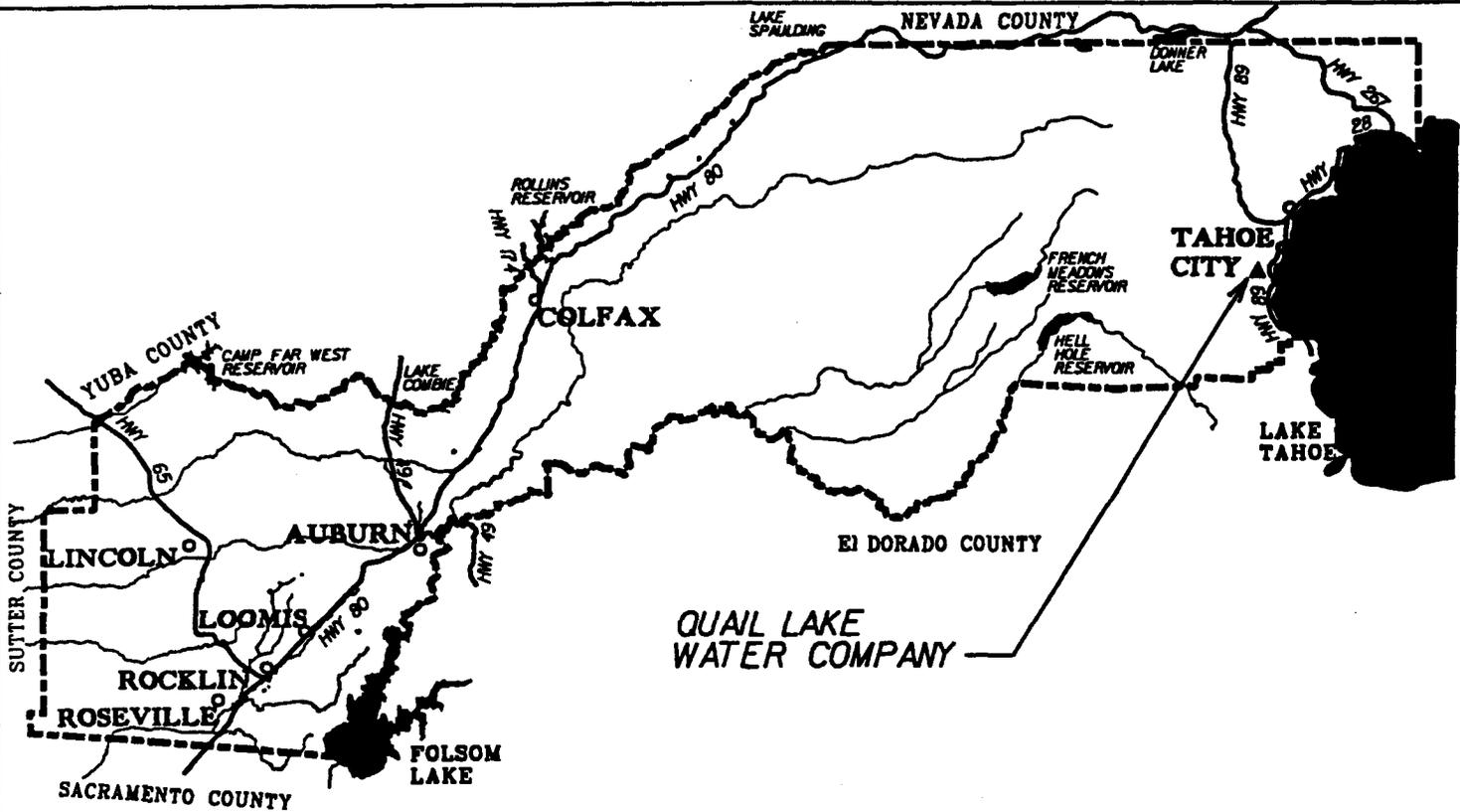
**1990 System Production:** Currently there are 368 service connections to the system, of which 13 are metered. The system served an approximate total of 68,522 million gallons during the 1990 year. Maximum monthly production was approximately 11,115,360 gallons while maximum daily production was reached 358,360 gallons.

**Deficiencies and Limitations:** The most significant concern facing Quail Lake Water Company is compliance with Surface Water Treatment Regulations. Vegetation around the lake tends to provide an unpleasant odor and taste, and continual freezing each winter provides anaerobic conditions. Pending well approval as a source supply, the previous concerns mentioned will be alleviated.

**System Appraisal:** The Quail Lake Water Company is overall in good condition. Several maintenance programs are in the process being implemented such as, a cross-connection program and a lead notification program. With approval of the new well and development of other groundwater wells, the water company is in an excellent position for providing future service.



# PLACER COUNTY WATER SYSTEMS



System Name: QUAIL LAKE WATER COMPANY

Address: P.O. BOX 2030, OLYMPIC VALLEY, CA 95730

Contact Name: PAT PATTERSON

Phone: (916)-525-4596

Service Area Size:        No. Connections: 368 Population Served: 75-350

Services Provided: FLAT RATE RESIDENTIAL SERVICES

## Summary System Description

Source: THE WATER SYSTEM IS IN PROCESS OF ABANDONING THE 15 AC.

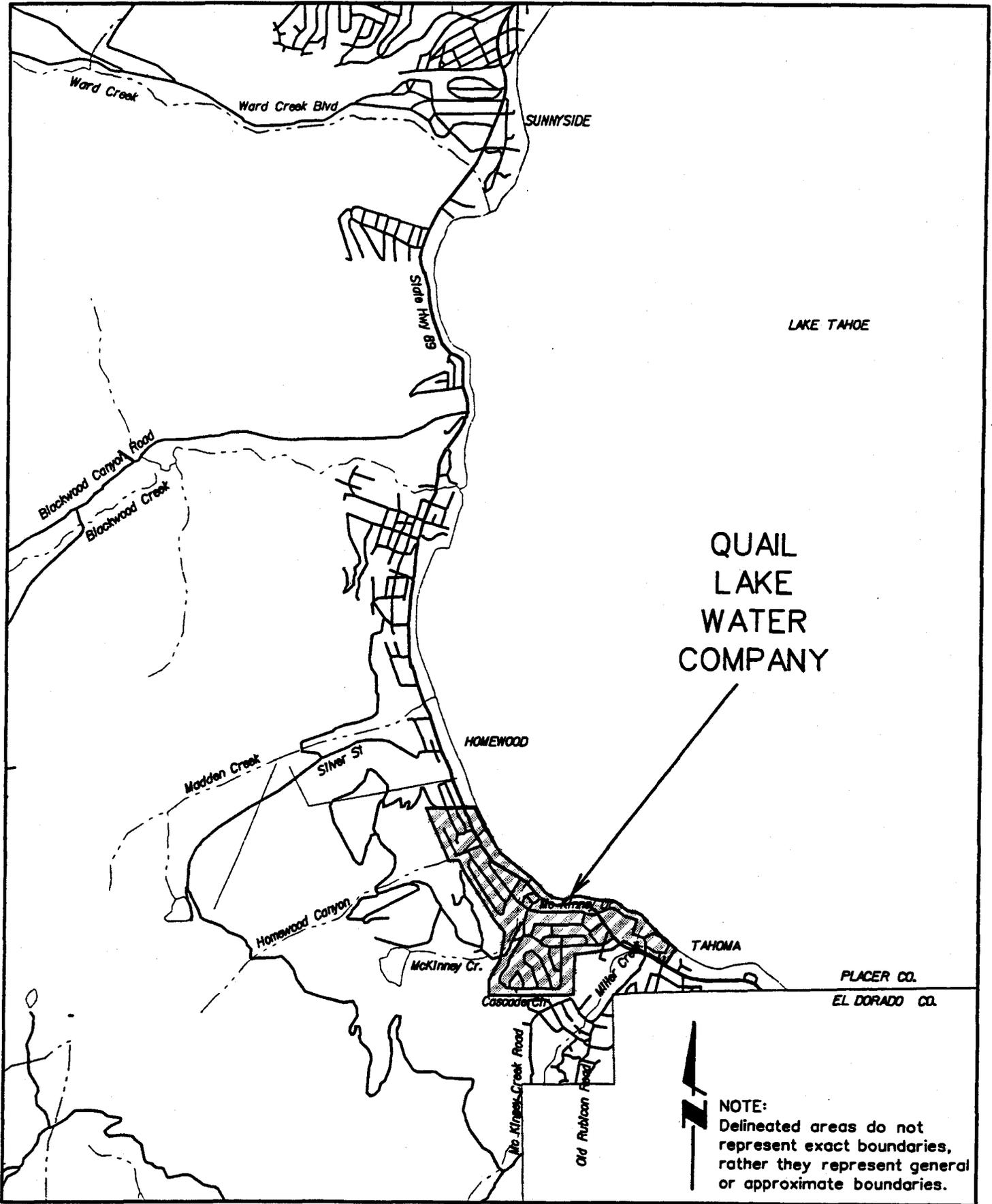
QUAIL LAKE RESERVOIR AND IMPLEMENTING A WELL SOURCE AS WELL AS UTILIZING A LAKE TAHOE INTAKE.

Transmission: DISINFECTION BY CHLORINATION IS THE ONLY TREATMENT PROVIDED.

Treatment: DISINFECTION BY CHLORINATION IS THE ONLY TREATMENT PROVIDED TO SURFACE WATER SOURCES.

Storage: CURRENTLY THERE IS NO POTABLE WATER STORAGE AVAILABLE, BUT FUTURE PLANS INCLUDE INSTALLATION OF A 400,000 STEEL BOLTED STORAGE TANK.

Capacity Limitations: ABANDONMENT OF BOTH LAKE SOURCES SUBSTITUTING FOR GROUNDWATER IS AN ISSUE OF CONSIDERABLE IMPORTANCE.



**QUAIL LAKE WATER COMPANY**  
**Water Service Area**

## ROCK CREEK MOBILE HOME PARK

**District Overview:** Rock Creek Mobile Home Park is located approximately three miles north of Highway 80 along Highway 49. Records indicate the system started and first well drilled in 1969. In 1973, the system having approximately 116 service connections, connected to Nevada Irrigation District through a metered double check valve assembly and pressure regulator. Nevada Irrigation District supplies water to the system when the pressure inside the park drops below 40 psi or during peak hours or fire flows. A second well was constructed in 1977 supplementing the system during drought periods.

Other than addition of spaces to bring the total to 225 services, very little has changed with the system to date. Recently one of the wells experienced high levels of arsenic and was shut down.

Following is the rate schedule and connection fees assessed during 1991:

Water service connection fee = No Charge

Residential service is a flat rate charge = \$20.20/bi-monthly yielding 200 cu-ft of water. Additional water usage is billed at a rate of \$0.66/100 cu-ft.

**Source Information:** The source supply for the system is a well and the Nevada Irrigation tie. With anticipation of more strict regulations and the additional cost of well maintenance, the park is looking to purchase all of its water from Nevada Irrigation District and abandon the well.

**Primary Transmission and Distribution:** The park is tied to the NID line with a six inch service at Highway 49. The service is metered through a 4 inch meter and then continues a 6 inch asbestos cement service loop around the park. Services are 3/4 inch galvanized steel.

**Storage:** At each well exists a hydropneumatic tank, however the tanks are not large enough to provide significant storage amount and viewed only as pressurizing the system. No other storage exists for the system.

**Treatment:** No treatment is provided at the well. Treated water is purchased from NID's North Auburn Treatment Plant through the inner-tie. For further description of treated water refer to section titled Nevada Irrigation District - North Auburn.

**1990 System Production:** The system used approximately 15.60 million gallons of water during the 1990 year, servicing 216 connections. The approximated permanent population served is 320. Peak period occurred during August and September.

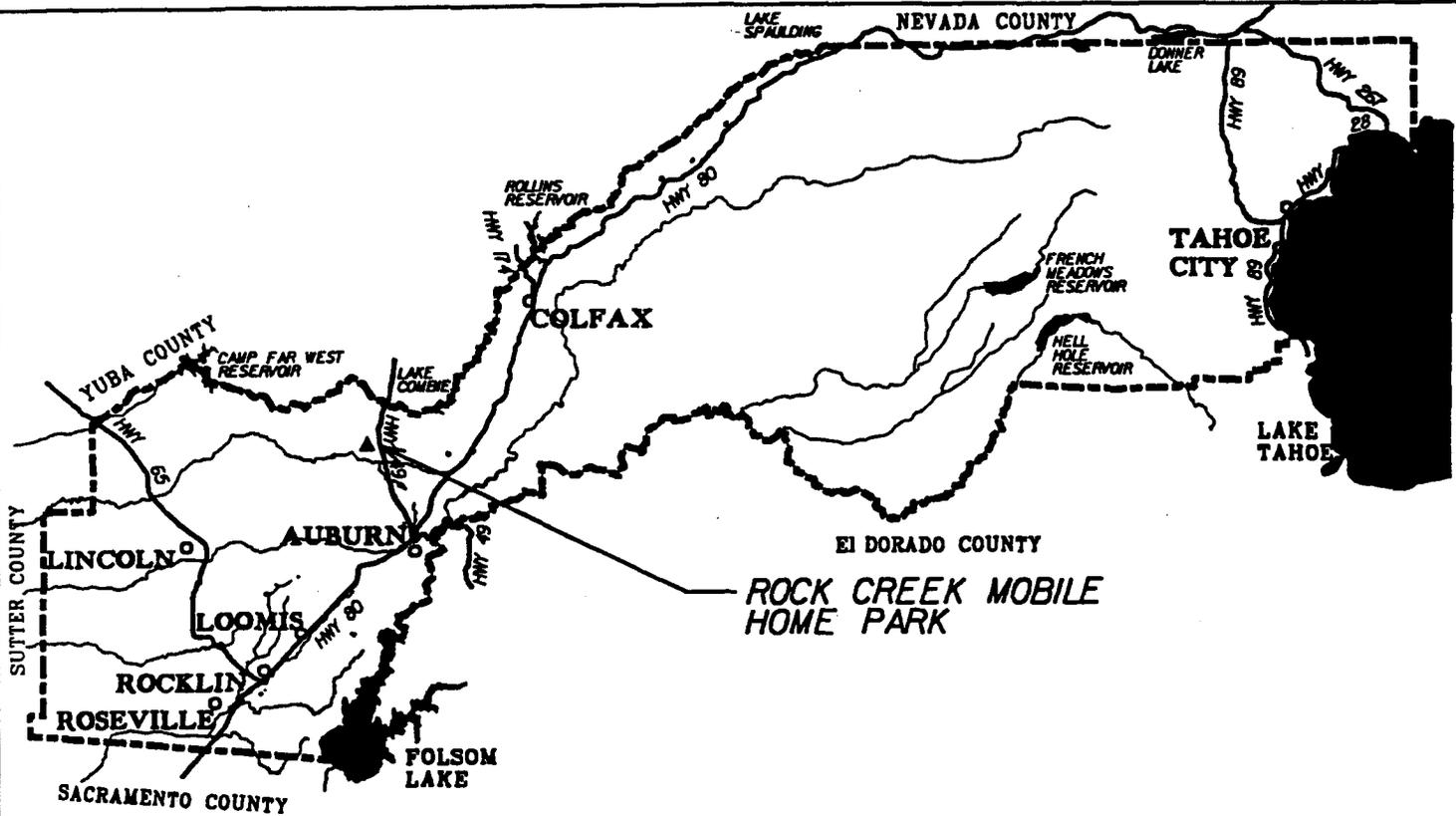
**Deficiencies and Limitations:** Newly adopted fourth coming well regulations soon will no longer justify economical operation and maintenance of the park's well. Water currently bought from NID is metered by NID and is looked upon as a service provided by the park to its owners. Meter installation currently underway will enable the park to charge residents for water usage, however, the water is purchased at a commercial rate, and is sold at a cheaper residential rate to costumers. This incurs an operating loss the Mobile Home Park which must be accounted for in charges for other services.

Lack of back-up supply is another deficiency, with the abandonment of the well. During large cut-backs due to drought or other considerations, or a mechanical emergency the system becomes quite vulnerable.

**Existing Planned Improvements:** The only planned improvements are installation of water meters on all connections enabling enforcement of conservation measures. All water meters should be installed by 1992.

**System Appraisal:** Rock Creek Mobile Home Park appears to be a simple straight forward system with few deficiencies. Water delivered to its customers is high quality and sufficient quantity. The park is built-out thus need not worry about expansion of its system in the future. Lack of a back-up source supply or at least significant storage in case of an emergency once the well has been abandoned may become an issue in the future.

# PLACER COUNTY WATER SYSTEMS



System Name: ROCK CREEK MOBILE HOME PARK

Address: 3765 GRASS VALLEY HIGHWAY, AUBURN, CA 95603

Contact Name: BOB BAUMER Phone: (916)-885-0141

Service Area Size:      No. Connections: 216 Population Served: 320

Services Provided: RESIDENTIAL ONLY

## Summary System Description

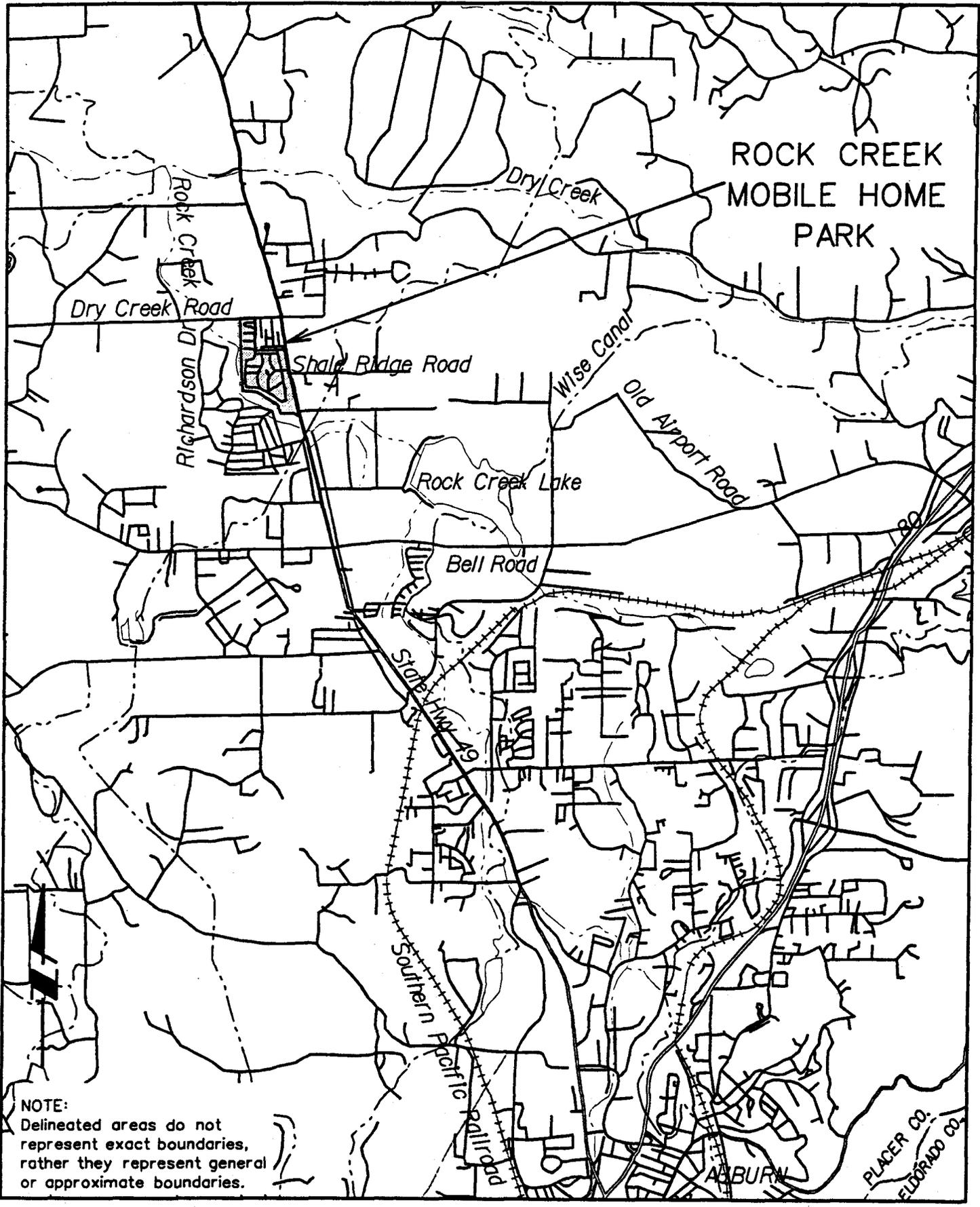
Source: SOURCE SUPPLY TO THE SYSTEM IS A WELL AND AN INNERTIE WITH THE NEVADA IRRIGATION DISTRICT. ANTICIPATING MORE STRICT REGULATIONS AND ADDITIONAL WELL MAINTENANCE COSTS, THE PARK WILL BEGIN PURCHASING ALL WATER FROM N.I.D.

Transmission: THE PARK HAS A 6 INCH INNER TIE WITH NEVADA IRRIGATION DISTRICT @ HIGHWAY 49.

Treatment: PURCHASED WATER IS TREATED AT THE NORTH AUBURN TREATMENT PLANT. NO TREATMENT IS PROVIDED TO WELL WATER.

Storage: NO SIGNIFICANT STORAGE EXISTS TO THE SYSTEM.

Capacity Limitations: THE PARK PURCHASES AND SELLS WATER INCURRING AN OPERATING LOSS WHICH MUST BE COMPENSATED FOR AMONG OTHER COSTS.



NOTE:  
 Delineated areas do not  
 represent exact boundaries,  
 rather they represent general  
 or approximate boundaries.

**ROCK CREEK MOBILE HOME PARK**  
**Water Service Area**

**SIERRA LAKES COUNTY WATER DISTRICT PUBLIC WATER SYSTEM**

**District Overview:** Sierra Lakes CWD serves the Serene Lakes development which is located about 1.5 miles south of Soda Springs.

The combined annual fee for water service and wastewater management is \$675 of which \$270 is designated for water system purposes (\$160 is engaged for operation and maintenance and \$110 is reserved for repayment of a loan to the Department of Water Resources).

The combined Sierra Lakes CWD connection fee of \$3,750 is divided into four accounts: water system maintenance and operation expropriates \$657, while \$656 is reserved for water system capital improvements; \$1,219 for wastewater system maintenance and operation; and \$1,218 for wastewater system capital improvements. A combined connection fee increase to \$4,250 is scheduled on July 1, 1992.

The *Sierra Lakes County Water District Five Year Facilities Plan* discusses financing alternatives for facilities improvements. The total cost for wastewater management, water system, and operational upgrades is estimated at about \$3,000,000 for the planning period.

**Source Information:** Sierra Lakes CWD derives water from Lake Serena.

The *Sierra Lakes County Water District Five Year Facilities Plan* advises initiation of a study to determine the current water quality of Lake Serena. Algal growth and sediment buildup conditions warrant construction of a lake aeration system at the raw water intake.

A well drilled near the water treatment plant, which has a capacity of 60 gpm, provides a backup source of supply although groundwater is considered to have elevated iron and manganese levels.

**Primary Transmission and Distribution:** Raw water from Lake Serena is conveyed to the filtration plant through 1,400 feet of 12-inch diameter ductile iron pipe. Both the raw water transmission line and the 10-inch finished water transmission line from the plant to the storage tank are of sufficiently sized to handle two times the current flow.

The distribution system was predominately installed between 1961 and 1965 consisting of about 24,800 feet of 4-inch AC pipe and 8,500 feet of 6-inch AC pipe. Distribution system pressures range from 40 to 65 psi. Ten new fire hydrants are scheduled for installation by 1991 and replacement of 17 outdated hydrants is planned before 1995.

**Storage:** Water volume storage presently available is not adequate to meet operational, emergency, and fire flow demands. A 300,000 gallon underground reinforced concrete reservoir, situated at the highest elevation of the system (7,060 feet), currently provides storage for Sierra Lakes CWD. Calculations in the *Sierra Lakes County Water District Five Year Facilities Plan* demonstrate the need for 800,000 gallons of storage in 1995 and 910,000 gallons of storage by the year 2000.

Peak water use is estimated at 330,000 gpd by the year 2000. Average demand is expected to be 128,700 gpd in 2000.

**Treatment:** Two wet well structures located on the north shoreline of Lake Serena are supplied by a single intake line. Each wet well supports two pumps. Chemical pretreatment occurs at these pump stations.

The filter plant consists of rapid multi-media filters. The plant was designed to accommodate two additional filters without major renovations.

The new drinking water standards (SWTR), particularly the 0.2 NTU turbidity and 0.10 THM levels, will impact current water treatment methods at Sierra Lakes CWD.

Design and construction of well water treatment for iron and manganese is scheduled for completion by 1992. Given the proximity of the wastewater export pump station to Lake Serena and consequential possibility of inadvertent contamination, development of an alternate water supply is critical.

**1990 System Production:** Sierra Lakes CWD serves a maximum seasonal population of 2,600 through 500 total service connections.

Sierra Lakes CWD produced a maximum daily water supply of 0.192 million gallons, a maximum monthly supply of 2.567 million gallons, and an annual total of 22.914 million gallons in 1990.

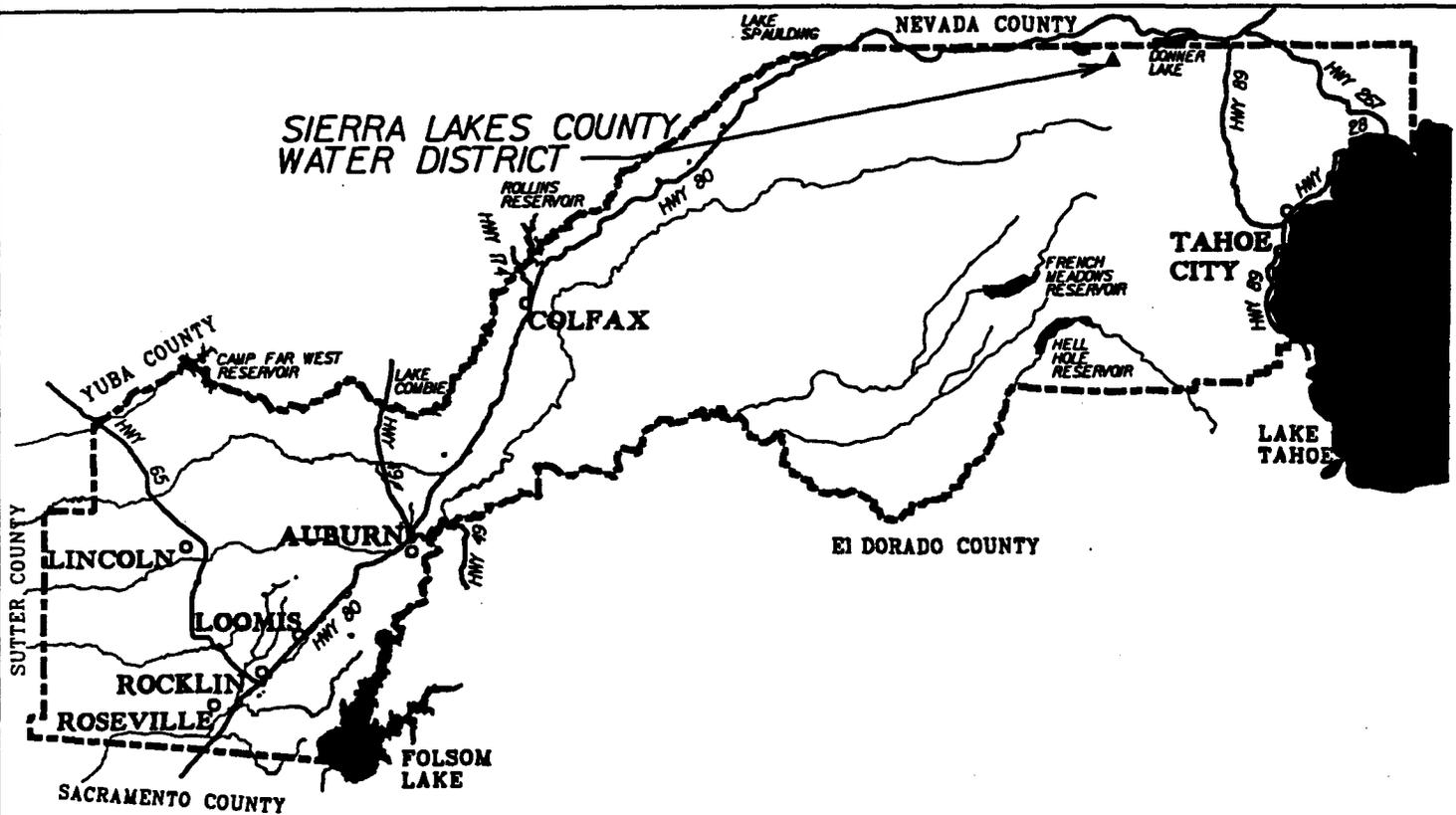
**Deficiencies and Limitations:** The Sierra Lakes CWD suffers insufficient storage capacity, nonexistent backup source water treatment, and ineffectual fire protection due to a lacking number of fire hydrants.

**Existing Planned Improvements:** The *Sierra Lakes County Water District Five Year Facilities Plan* projects growth to 740 units by the year 2000, a 64% increase from the number of 1990 service connections.

Planned improvements in response to this projected growth and the new SWTR include filter plant expansion, backup source water treatment, construction of supplementary water storage, installation and replacement of fire hydrants, and development of measures to protect Lake Serena water quality.

**System Appraisal:** The Sierra Lakes County Water District operates a water treatment and distribution service and wastewater collection system. The system is in good condition, most importantly, management recognizes and identifies future needs. With current planning and construction efforts being met, by the time full build-out of the area is achieved, all corresponding facilities and replacement programs will be implemented.

# PLACER COUNTY WATER SYSTEMS



System Name: SIERRA LAKES COUNTY WATER DISTRICT

Address: P.O. BOX 826, SODA SPRINGS, CA 95728

Contact Name: ORIN BENNETT Phone: (916)-929-7100

Service Area Size:        No. Connections: 500 Population Served: 2600 MAX.

Services Provided: PRIMARILY RESIDENTIAL WATER AND WASTEWATER SERVICES

### Summary System Description

Source: THE DISTRICT HAS TWO RAW WATER SOURCE SUPPLIES - LAKE SERENA PRIMARY AND A WELL HAVING CAPACITY OF 60 GPM FOR BACKUP.

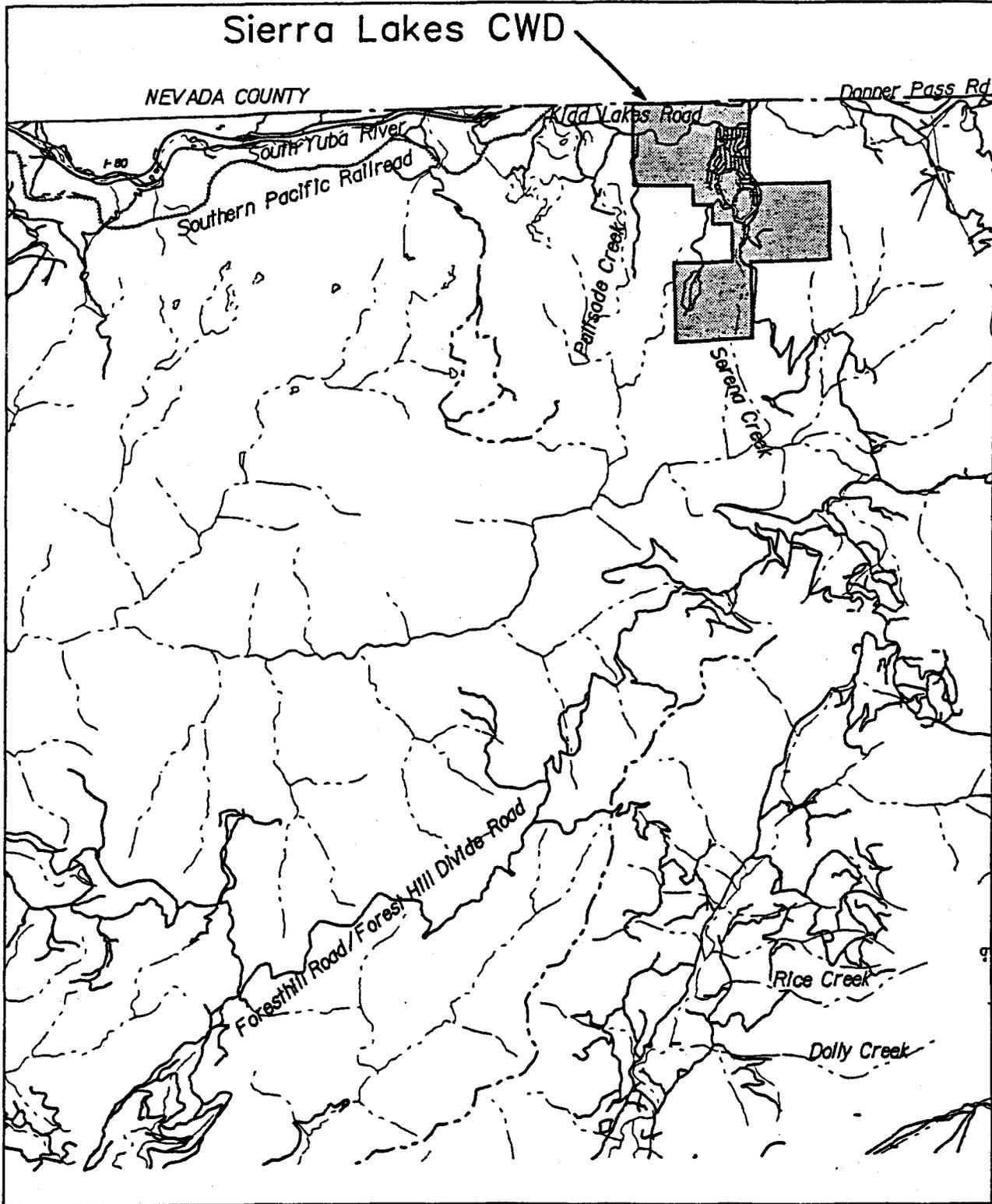
Transmission: RAW WATER FROM LAKE SERENA IS CONVEYED TO THE TREATMENT PLANT VIA 1400 FT OF 12 INCH DIA. DUCTILE IRON PIPE.

Treatment: CHEMICAL PRETREATMENT @ LAKE INTAKES IS FOLLOWED BY RAPID MULTI-MEDIA FILTERS @ THE TREATMENT PLANT.

Storage: A 300,000 GALLON UNDERGROUND REINFORCED CONCRETE RESERVOIR PROVIDES STORAGE.

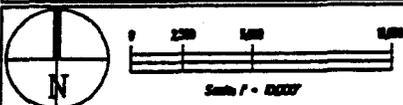
Capacity Limitations: STORAGE IS INSUFFICIENT, BACK-UP WATER TREATMENT FACILITIES FOR THE WELL, AND AN INSUFFICIENT NUMBER OF FIRE HYDRANTS ARE MAJOR LIMITATIONS TO THE SYSTEM.

# Sierra Lakes CWD



## Placer County General Plan

### Figure \_\_\_\_\_ Water Service Area



Date: 1/15/92

Prepared by:  
**PSOMAS & ASSOCIATES**

### LEGEND

## Sierra Lakes CWD

- Streets
- County Line
- Waterways
- District Service Area

**NOTE:**  
Delineated areas do not represent exact boundaries, rather they represent general or approximate boundaries.

## SQUAW VALLEY COUNTY WATER DISTRICT

**District Overview:** Squaw Valley County Water District is a special district located in Eastern Placer County in Olympic Valley. Area covered by the District totals approximately 15 square miles (9,600 ac.)

Squaw Valley CWD was organized in 1964 to acquire existing water supply works, construct improvements, and make the necessary alterations to provide service within district boundaries. A water supply permit was granted by Placer Health Department in 1966. Due to the continual acquisition of service area connections, Squaw Valley CWD came under jurisdiction of the State of California Department of Health Services in 1976.

The Squaw Valley/Olympic Valley area contains various recreational features and is primarily noted for downhill skiing. Recently phase I of a new resort/golf course area has been completed in the Olympic Valley.

**Source Information:** Squaw Valley CWD relies entirely upon groundwater for its source supply. Olympic Valley is an 8 square mile (5,100 ac.) watershed tributary to the Truckee River basin between Lake Tahoe and Truckee, California. Principal water source for the valley is an alluvial aquifer covering the 400 acre valley floor, with average thickness of 80 feet. The aquifer is subject to seasonal fluctuation of the water table reflecting both recharge and discharge into Squaw Creek. The District is currently served by five vertical wells, outlined below:

### WELL SOURCE SUPPLY Squaw Valley County Water District

| Well No. | HP/GPM | Description                 |
|----------|--------|-----------------------------|
| 1        | 50/390 | Pit well - submersible pump |
| 2        | 40/340 | DWT                         |
| 3        | 15/110 | Pit well - submersible pump |
| 4        | -----  | DWT - not yet in operation  |
| 5        | 25/125 | DWT - electric generator    |

Wells No. 1, No. 2, No. 3, and No. 5 are presently used to supply the existing system demand.

**Primary Transmission and Distribution:** Much of the existing distribution system was constructed in the early 60's. The system is composed primarily of steel, galvanized, and PVC pipeline. Approximately 25% of the distribution system has been replaced within the last 10 years. Although an actual main replacement program does not exist, the District maintains an active maintenance program, replacing old worn-out pipeline when necessary. Overall condition of the distribution system is good.

**Storage:** Three storage tanks provide a combined storage capacity of 1.78 million gallons. Storage is outlined in the following table.

**STORAGE TANK FACILITIES\***  
**Squaw Valley County Water District**

| Tank Identification | Storage Material | Capacity (gal) |
|---------------------|------------------|----------------|
| State Tank          | Steel            | 1.15 M         |
| East Tank           | Steel            | 500,000        |
| Zone 3              | Steel            | 135,000        |

\*Two redwood tanks were abandoned in 1991.

**Treatment:** Treatment is currently not provided on a daily basis, however, chlorination is provided throughout the system for disinfection purposes whenever necessary (usually two or three times each year). Additionally, a corrosion control effort is planned for the near future.

**1990 System Production:** According to the 1991 DOHS annual report, Squaw Valley CWD serves a total permanent population of about 800, rising to 20,000 during seasonal peak days. The District observes 550 general/residential metered connections and about 59 commercial connections. The following table outlines yearly service.

**ANNUAL SYSTEM SERVICE**  
**Squaw Valley County Water District**

|                                      |                         |
|--------------------------------------|-------------------------|
| Maximum Day Production by the system | 1.472 million gallons   |
| Month of Maximum Water Use           | December                |
| Total Annual Water Produced          | 126.398 million gallons |

**Deficiencies and Limitations:** The only significant deficiency existing within the Squaw Valley CWD is its inability to meet peak water consumption demands during a power outage. Current status provides for about 16 to 20 hours of use for half of the source supply. The other half is reserved for fire demand. This supply issue is currently being rectified by purchasing a large diesel-powered standby generator to run the pumps during peak demand situations.

**Existing Planned Improvements:** Each year a report on water and sewer is prepared for the DOHS by the operations and maintenance supervisor. The report reflects improvements made in the previous year and includes a tentative list of upcoming improvements. The report prepared in 1991 lists tentative water improvements through 1994. Such improvements include:

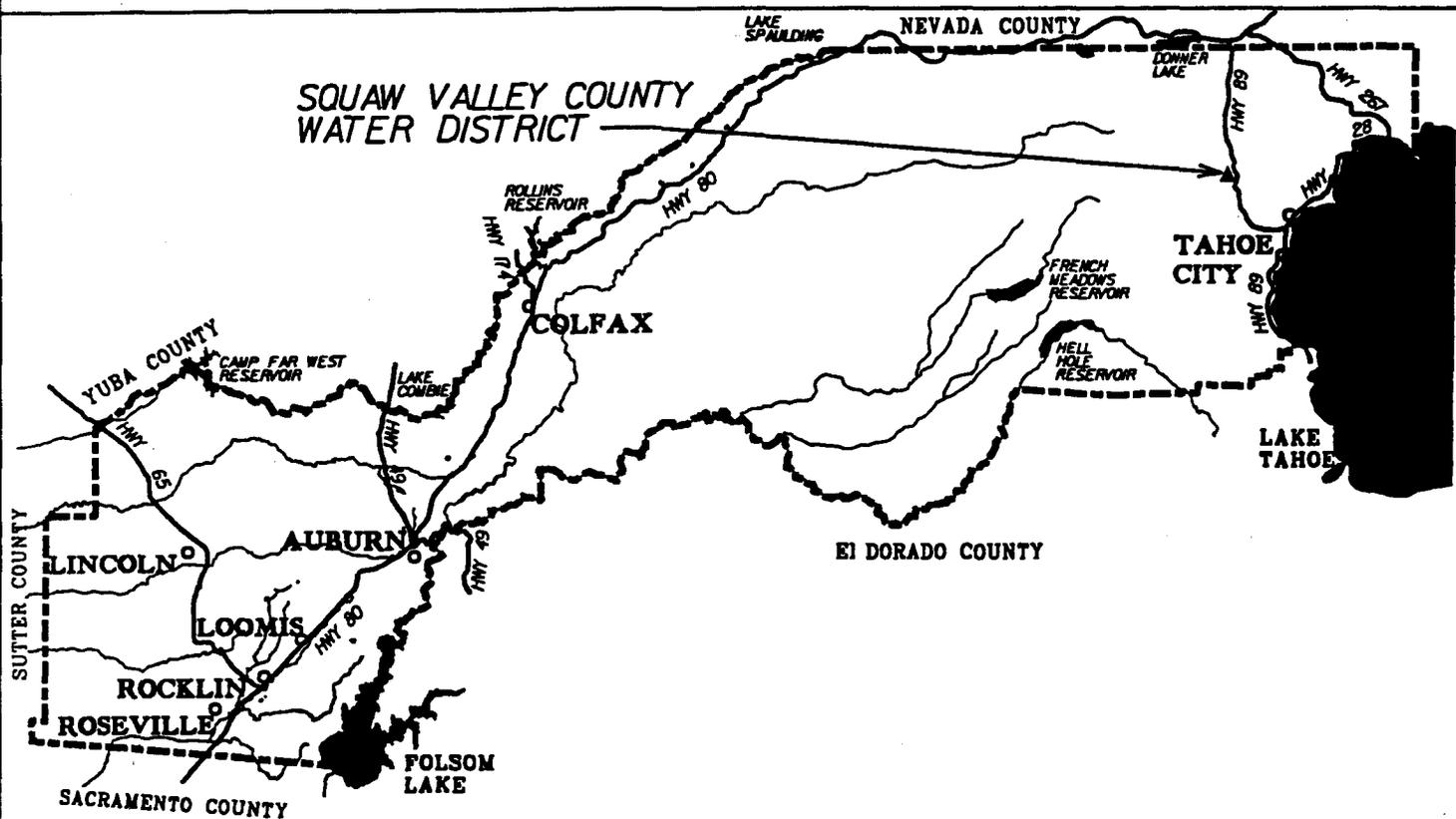
- development of a new horizontal well
- some 6 inch main line replacement
- completion of a new telemetry system
- storage tank abandonment
- water main extension, 6 inch
- maintenance equipment replacement
- completion of a water and sewer master plan
- development of a computerized maintenance program

**System Appraisal:** The Squaw Valley CWD is in excellent overall condition. Water supply is evidently the major potential limiting factor regulating development within the district boundaries. Agreements

established between Perini Resorts, Squaw Valley Ski Corporation, other primary users of the source aquifer, and Squaw Valley CWD are designed to protect the Olympic Valley Aquifer from overdraft (Squaw Valley Water Management Action Plan). Planned projects include intensifying the telemetry and other associated projects in order to learn as much about the aquifer as possible.



# PLACER COUNTY WATER SYSTEMS



System Name: SQUAW VALLEY COUNTY WATER DISTRICT

Address: P.O. BOX 2026, OLYMPIC VALLEY, CA 95730

Contact Name: RICHARD L. LIERMAN Phone: (916) 583-4692

Service Area Size: 15 sqmi No. Connections: 609 Population Served: 750-20K

Services Provided: RESIDENTIAL AND COMMERCIAL WATER AND WASTEWATER MANAGEMENT

## Summary System Description

Source: THE DISTRICT RELIES ENTIRELY UPON GROUNDWATER FOR SOURCE SUPPLY.

PRINCIPAL WATER SOURCE FOR THE VALLEY IS AN ALLUVIAL AQUIFER COVERING THE 400 AC. VALLEY FLOOR. 4 WELLS PROVIDE 885 GPM.

Transmission: DISTRIBUTION SYSTEM IS IN GOOD SHAPE - 25% REPLACED OVER LAST DECADE.

Treatment: NO TREATMENT PROVIDED ON A DAILY BASIS. CHLORINATION OF SYSTEM 2 - 3 TIMES PER YEAR.

Storage: HAVE 3 STORAGE TANKS PROVIDING 178 MILLION GALLONS OF STORAGE.

Capacity Limitations: LACK OF PAST KNOWLEDGE OF THE AQUIFER AND ITS CAPABILITIES IS A MAJOR CONCERN. BACK UP POWER FOR PUMPS DURING POWER OUTAGE IS ALSO A PROBLEM. NEW DATA IS BEING GATHERED ON THE AQUIFER WITH NEW TELEMETRY AT WELLS.