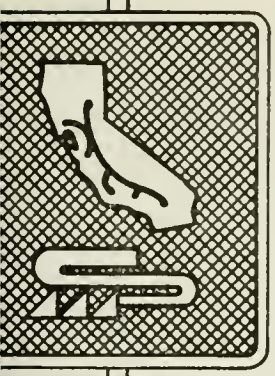

State of California

THE RESOURCES AGENCY

Department of Water Resources

BULLETIN No. 119-16

FEASIBILITY OF SERVING THE PLUMAS COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT FROM THE STATE WATER PROJECT

MAY 1965

HUGO FISHER
Administrator
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FOREWORD

In November 1960, the California Water Resources Development Bond Act was approved by the State's electorate, paving the way for the construction of the State Water Project. Since that time, many local water service agencies throughout the state have applied to the Department of Water Resources for consideration as potential contractors with the State for water service from the proposed facilities. Several water agencies have been organized and formed since November 1960 expressly for the purpose of obtaining supplemental water supplies from the State facilities for the areas they represent.

Prior to executing contracts for a water supply with public agencies, the Department of Water Resources made studies of those agencies and the areas encompassed by them to determine the propriety of entering into such contracts. These studies were made with the goal of evaluating (1) each area's future demand for supplemental water supplies, (2) the legal ability of each agency in question to enter into a water supply contract with the State, (3) the engineering feasibility of providing the proposed water service, and (4) the financial ability of each agency and its constituent area to bear the financial burden necessarily imposed upon it by a water supply contract with the State.

The results of the studies made of each agency, as described above, along with significant incidental and supporting material, have been embodied in separate reports and have or will be published by the Department of Water Resources for the benefit of interested agencies and persons. This bulletin, dealing with the Plumas County Flood Control and Water Conservation District is one of a series of such publications.

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Credit Analysis of the Plumas County Flood Control and Water Conservation District

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STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

EDMUND G. BROWN, Governor of California
HUGO FISHER, Administrator, The Resources Agency
WILLIAM E. WARNE, Director, Department of Water Resources
ALFRED R. GOLZE, Chief Engineer
JOHN M. HALEY, Acting Assistant Chief Engineer

DELTA BRANCH

Carl A. Werner . . . . . Chief, Delta Branch

This report was prepared under the direction

of

Lawrence A. Mullnix . . . . . Chief, Operations Section

by

George Deatherage . . . . . Senior Engineer, Water Resources
Robert J. Rooney . . . . . Associate Engineer, Water Resources
Jerald B. Crews . . . . . Assistant Civil Engineer
James M. Mathison . . . . . Assistant Civil Engineer

Assisted by

Shiro Tokuno . . . . . Senior Economist, Water Resources
Haruo Najima . . . . . Associate Economist, Water Resources

CALIFORNIA WATER COMMISSION

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- - - - - -O- - - - - -

WILLIAM M. CARAH
Executive Secretary

ORVILLE L. ABBOTT
Engineer

ACKNOWLEDGMENT

The cooperation of the officials of Plumas County is gratefully acknowledged. Special mention is made of the members of the Board of Supervisors, of the County of Plumas who also serve as the Board of Directors of the Plumas County Flood Control and Water Conservation District.

Mr. E. J. Humphrey, Chairman, District 2, Greenville 1/

Mr. Joe W. Crivello, Director, District 5, Quincy 2/

Mr. Clair Donnenwirth, Director, District 1, Portola

Mr. Raymond Larison, Director, District 4, Quincy

Mr. Gordon M. Purdy, Director, District 3, Chester

1/ Mr. Humphrey was replaced by Mr. Robert H. Hunter in January 1965.
2/ Mr. Crivello was elected as Chairman for 1965.

CHAPTER I. INTRODUCTION

On December 26, 1963, the Plumas County Flood Control and Water Conservation District executed a contract with the State of California for a water supply from the State Water Project. The contract calls for water service of 250 acre-feet beginning in 1967, increasing to a maximum annual entitlement of 2,700 acre-feet per year in 2015. The water will be delivered from Lake Davis, formed by Grizzly Valley Dam which is under construction on Big Grizzly Creek by the Department of Water Resources. This contract was negotiated between the District and the Department on the basis of data gathered prior to execution of the contract. These data are presented and analysed in this report.

Purpose and Scope of the Report

The purpose of this report is to present the essential data used to evaluate the feasibility of providing a specific area within the Plumas County Flood Control and Water Conservation District with a water supply from the Grizzly Valley Unit of the State Water Project. Included in this report is a review of the economic history, recent economic development, future economic potential, and geographical characteristics of the area in which the District is located, estimates of the future water needs in the service area, and a schedule of estimated costs of serving the District with water from the State Water Project. The report also includes an evaluation of the financial capability of the District to meet the obligations imposed by the water supply contract.

A portion of the information presented in this report was developed in studies conducted under the Upper Feather River Advance Planning Program of the Department. Studies pertaining to sizing of

facilities, water requirements, operation methods, recreation uses, and economic benefits were conducted for project formulation. The complete results of these studies will be presented in Bulletin 128, "Lake Davis, Advance Planning Report", which will be published in the near future.

Description of the District

The Plumas County Flood Control and Water Conservation District, hereafter referred to as the District, serves an area of about 2,600 square miles encompassing all of Plumas County with the exception of the area served by the Last Chance Creek Water District. Plate 1, "Location Map", shows the location of the District as well as the Last Chance Creek Water District, Grizzly Valley Dam, and other existing or proposed water development features in or near the District.

Plumas County is situated in the northeastern portion of California, on the western slopes of the Sierra Nevada. The county is an area of deep canyons, high mountains, and numerous valleys. Elevations range from approximately 1,000 feet in the depths of the Feather River Canyon to 8,377 feet at Mt. Ingalls Peak in the east-central section. Precipitation is extremely heavy in the western portion of the county, amounting to as much as 90 inches per season near Bucks Lake, but is as little as 10 inches per season along the eastern boundary of the county in Sierra Valley. Much of the precipitation falls in the form of snow. The winters are quite cold, and the summers have warm days and cool nights. The growing season in the valleys extends from early May to late September.

The District encompasses several existing retail water service agencies within its boundaries. It is anticipated that the District will

act only as a wholesaler of water and will assign or subcontract water to retailing agencies for distribution to the consumer.

The proposed service area for domestic water supply from the Grizzly Valley Project includes the Delleker-Portola area, the Ramelli Junction area, and a summer home development along Big Grizzly Creek. These areas are shown on Plate 2, " Grizzly Valley Project, Domestic Water Service Area". The City of Portola will retail the water in the area in and adjacent to the city. The method by which water will be retailed in the homesite development area has not yet been formulated.

Formation of the District

In 1959 the citizens of Plumas County recognized the need for a countywide agency to deal with matters concerning flood control and water supplies and requested the County Board of Supervisors to endorse the creation of a flood control and water conservation district. That same year the Plumas County Flood Control and Water Conservation Act was enacted (Calif. Stats. 1959, Ch. 2114, p. 4912). This act provides for the organization, operation, and management of the District and set forth its objectives, powers, and purposes. Section 4 of the Act provides that before the District may begin to transact business or exercise its powers, the Plumas County Board of Supervisors must adopt a resolution declaring that there is a need for the District to function. The Board of Supervisors adopted such a resolution on February 2, 1960.

Taxing Powers and Ability to Contract with the State

Included among the District's powers is the power to procure and distribute water. Section 3(q) of the enabling Act empowers the District

> "To do any and every lawful act necessary to be done that sufficient water may be available for any present or future beneficial use or uses of lands or inhabitants within the District, including but not limited to, the acquisition, storage, and distribution for irrigation, domestic, municipal, ... and all other beneficial uses".

Section 3(m) grants the District authority to contract with the State

> "... for the acquisition of property rights or the construction, maintenance, and operation in whole or in part of any or all works and improvements provided in this act".

Cooperation with the State is sanctioned by Section 3(s) for certain purposes, including the construction of works for the conservation of water, and in any works, acts, or purposes provided for in the Act.

Under Section 3(u) of its enabling Act, the District is expressly authorized to contract with the United States for a water supply for any purpose, and to carry out and perform the terms of any such contract. Specific authority to contract with the State for such purpose is not expressly set forth in the Act. However, under the provisions of the Water Code governing the Central Valley Project (Part 3 -- Sections 11100-11925 -- Division 6 of the Water Code) the District is a state agency (Section 11102) and as such is authorized to enter into contracts with the Department for the purchase of water (Sections 11625 and 11661) and to comply with the terms, provisions, and conditions of any such contract (Sections 11662-11664). Water Code Section 11652 provides that the governing body of the State agency which contracts to purchase water from the Department shall, whenever necessary, levy a tax or assessment

sufficient to provide for all payments under the contract then due to become due within the current fiscal year.

The District may issue bonds for purposes of financing projects. Section 21 of the Act provides that the project and bonds must be approved by the landowning electorate in a zone or district, depending upon the scope of the project.

The District has the power to levy ad valorem taxes, not to exceed 10 cents on each 100 dollars of assessed valuation of all property within the District, to raise revenue for the purpose of paying certain specified costs and expenses. Such tax is in addition to taxes for payment on a bonded indebtedness, or any other indebtedness to the United States. Section 5 grants the District the power to fix the boundaries of specific assessment zones, so that project costs may be apportioned to areas benefited. Sections 32 and 33 provide the tax levy may be apportioned in accordance with the project cost obligations assumed by each zone.

CHAPTER II. HISTORICAL AND FUTURE ECONOMIC DEVELOPMENT

In 1854 the Legislature created Plumas County out of a portion of Butte County. The County derived its name from the Spanish name for the Feather River, " El Rio de las Plumas ", named by Captain Louis Arguello in 1820.

Development of Plumas County began following the discovery of gold in the Gold Lake territory in 1850. The first settlements were those of the gold seekers, but as the demand for food increased, early attempts were made at agricultural pursuits in the mountain valleys. Cereals were grown, and the production of dairy products reached some importance. Flour mills were constructed in American and Indian Valleys.

The lumber industry began in the early 1850's in response to a demand for lumber for use in the mines and for flumes. Gold mining was the foundation of the County's economy, and, as hydraulic mining activities increased, many miles of ditches and several small dams were built to develop the necessary water. After the turn of the century mining activity began to wane.

Agriculture

Early settlers in the valleys of Plumas County were attracted by the favorable conditions for livestock raising. The abundant grass and the ease with which the streams could be diverted provided the resources for the agricultural activity which was to remain one of the important industries of the area. Development of the agricultural resources reached its present level prior to World War I, and has remained fairly stable since then. Water rights have been adjudicated by the courts for several

of the major mountain valleys. Distribution of the available supplies in these adjudicated areas is administered by a watermaster appointed by the State Department of Water Resources. Limited summer water supplies preclude any major expansion of the irrigated area without additional development to conserve winter and early spring runoff.

A 1954 land use survey by the Department of Water Resources showed the total irrigated area in Plumas County to be about 52,300 acres. Of this amount, 17,150 acres were in improved pasture, and 31,900 acres in meadow pasture. Irrigated grain and grain hay were grown on 2,150 acres and alfalfa on 1,000 acres. The total acreage and individual crop acreages have not changed significantly during the past ten years. The gross value of agricultural products for 1963 was reported by the County Agricultural Commissioner to be about $2,876,500. This was derived almost entirely from the sale of beef cattle and other livestock products.

Forestry

Timber production is the major industry today in Plumas County. From the beginning of sawmill activity in the early 1850's, the development of this great natural resource has continued. Approximately three-fourths of the county is covered by 1,228,000 acres of commercial forest. Of this total area, 911,000 acres are public forest land and 317,000 are privately owned. In 1963, the total timber production was 198 million board-feet. This production was conservatively estimated to be worth about 2 million dollars.

Mining

The colorful history of the gold-rich Plumas County area began in 1850 when credulous prospectors spread throughout the area in search

for a mythical lake with gold-pebbled shores. "Cities" sprang up almost overnight wherever prospectors found rich diggings. Mining claims were sometimes so fantastically rich that they were limited to ten square feet. When legal action forced the cessation of hydraulic mining, drift mining was undertaken in the richer deposits, and several famous quartz mines were opened. The peak value for gold production occurred prior to 1880. Although accurate records were not kept, it is known that many millions of dollars worth of gold were taken from the land. At present, gold mining is of little or no economic importance in the County.

Copper mining flourished from 1915 to 1931 with subsequent spurts in production until 1945. With copper reserves in producing mines depleted, and with the removal of government premiums for strategic and critical metals, the copper industry in Plumas County became dormant.

In the last few years production of barite, manganese, and chromite has been of little importance, compared to the production of sand, gravel, and crushed stone. As reported by the California State Division of Mines, the total value of mineral production in Plumas County during 1962 was $297,346. Over $281,000 of this total may be attributed to the production of sand, gravel, and crushed stone.

Recreation

The timbered mountains and lakes and streams of the primitive portions of the Plumas County offer the more venturesome vacationists unusual recreation opportunities such as remain available in only a few parts of the Sierras. The rough terrain of the Sierra Nevada is here relieved by valleys -- Sierra, Indian, American, Mohawk, and Genessee -- and by the splendid watercourse of the Feather River and its tributaries. Those portions of the County which are accessible by road or railroad

provide year-round accommodations featuring swimming, boating, hunting, and fishing in the summer, and skiing in the winter. One large summer resort provides a well landscaped golf course. Recreation and travel by vacationists and tourists contribute appreciably to the income of the County.

The State has authorized the construction of five dams and reservoirs in Plumas County. These reservoirs are shown on Plate 1. Two of these dams have been constructed. The third, Grizzly Valley Dam, forming Lake Davis, is scheduled to be completed during the latter part of 1966. Frenchman Dam and Reservoir was completed in the fall of 1961 and Antelope Valley Dam and Reservoir was completed in December 1963. The remaining two dams and reservoirs, Abbey Bridge and Dixie Refuge, are still in the project formulation stage.

It is expected that the existence of these five dams and reservoirs will result in a greatly expanded recreational industry in Plumas County. Onshore recreation facilities will be provided at each reservoir. During 1963 the initial onshore facilities at Frenchman Reservoir were completed and have since been utilized by an unprecedented number of visitors. In addition to the recreational use of the reservoirs, fishing downstream from all of the reservoirs except Frenchman will be greatly enhanced.

The Grizzly Valley Project will consist of a dam and reservoir on Big Grizzly Creek, about eight miles north of Portola, a conveyance system to deliver water to the service area below the dam, basic recreational facilities, and the necessary access roads. The reservoir will have a storage capacity of 83,000 acre-feet, a surface area of 4,000 acres at normal pool, and a shoreline of 32 miles.

The project will enhance recreational opportunities by providing a setting for camp sites, boating facilities, and summer homes. Both the area surrounding the reservoir and the area downstream are desirable for this type of development.

Population

Historically, the population of Plumas County has been supported by agriculture, timber, and other extractive industries. These resources will continue to support a substantial but declining proportion of the County's population.

The population of the County has grown slowly during the past 60 years, from 4,700 in 1900 to 11,620 in 1960. During the 50's the County population showed a decline of about 2,200.

The forecast of population of Plumas County made in this report is based on the assumption that immigration will continue to provide the bulk of population growth during the next five decades. This forecast has taken into account external and internal economic and demographic pressures.

Population studies considering these factors were made by the Department for the northeastern counties and were reported in Bulletin No. 58, " Northeastern Counties Investigation", June 1960. The projections given in Bulletin No. 58 served as the basis for the forecast of population of the County. These projections were updated after the 1960 census.

A population projection for the specific service area of the Grizzly Valley Project was also made to determine future domestic water requirements.

The population projections were predicated upon the stable economic development of agriculture, the maintenance of the current railroad work force, continuance of the lumbering industries at their present level, and considerable growth in the service and trade activities related to recreation and retirement home developments.

The population projections for the service area were based upon a permanent year-round resident basis. This procedure has taken into account short-term (summer) residents, tourists, and other transitory groups on a prorated basis to determine the water requirements. The prorated temporary population is added to the permanent residents to estimate the population equivalent.

The historical and projected populations of the County and the Grizzly Valley Project service area are shown in Table 1.

TABLE 1

HISTORICAL AND PROJECTED
POPULATION OF PLUMAS COUNTY AND
GRIZZLY VALLEY PROJECT SERVICE AREA

Year	Plumas County	Grizzly Valley Project Service Area	
		Permanent Residents	Population Equivalent
		Historical	
1930	7,913	1,700	1,700
1940	11,548	2,300	2,300
1950	13,519	2,500	2,500
1960	11,620	2,000	2,000
1964	12,000	2,000	2,000
		Projected	
1970	14,300	2,300	2,360
1980	18,200	3,000	3,420
1990	23,900	3,900	4,660
2000	33,500	5,300	6,400
2010	45,000	7,200	8,790
2015	51,400	8,320	10,430

Future Development of Economy

Trade and service industries are expected to increase more rapidly than other economic activities. These activities will be predominantly in services to tourists and to persons residing in the area. In 1940 the percentage of persons employed in service employment was about 48 percent. By 1960 this percentage had increased to about 68 percent. Studies presented in Bulletin No. 58 project further increases in recreation and service employment. A summary of the historical data from Bulletin No. 58, and projections to 1990 are shown in Table 2.

TABLE 2

HISTORICAL AND PROJECTED EMPLOYMENT
PLUMAS COUNTY

Year	Percent of Total Employment by Industry Groups		
	Extractive	Manufacturing	All Others
1940	26.3	26.1	47.6
1950	6.4	31.8	61.8
1960	8.0	24.0	68.0
1970	5.2	13.0	81.8
1980	4.1	9.3	86.6
1990	3.5	7.3	89.2

CHAPTER III. DEMAND FOR PROJECT WATER

This chapter discusses and evaluates the future water requirements of the Grizzly Valley Project service area, the yield of local supplies and the difference between these two, the demand for supplemental water. Water requirements were projected for domestic use only. It is anticipated that use will be limited to serving homes or summer cabins, with only minor amounts of water being used for industrial use.

Present and Projected Water Requirements

Present and future water requirements in the service area were estimated by applying a per capita water use to the projected population equivalent. Historically, the per capita domestic water use in Portola has varied considerably, depending on the availability of water. The Superintendent of Public Works of Portola has reported that the average per capita consumption during 1963 was about 215 gallons per day (0.240 acre-feet per year). Studies presented in the Department's Bulletin No. 59-2, "Investigation of Upper Feather River Basin Development", and Bulletin No. 58, "Northeastern Counties Investigation", determined that the per capita use for domestic purposes in the mountain areas would approach 250 gallons per day, or 0.280 acre-feet per year and would remain relatively constant in the future. This value was selected and used as it was based on water user factors very similar to the conditions expected to occur in the service area.

Future domestic water requirements, shown in Table 3, were determined by applying the unit water use value to the projected population equivalent presented in Table 1, Chapter II.

TABLE 3

PRESENT AND PROJECTED
DOMESTIC WATER REQUIREMENTS
GRIZZLY VALLEY SERVICE AREA

Year	Per Capita Water Use (acre-feet per year)	Population Equivalent	Total Water Requirements (acre-feet)
1964	0.240	2,000	480
1970	0.280	2,360	660
1980	0.280	3,420	960
1990	0.280	4,660	1,300
2000	0.280	6,400	1,790
2010	0.280	8,790	2,460
2015	0.280	10,430	2,920

Local Water Supplies

Existing water supplies in the service area consist of the municipal supply development by the City of Portola, domestic wells and springs serving the Delleker Area. Portola presently obtains its water supply from two small springs and a surface water diversion from Willow Creek. The Willow Creek system was constructed by the City of Portola in 1958, and consists of a concrete diversion dam, a buried pipeline four and one-half miles in length, and a small terminal reservoir. The location of these facilities is shown on Plate 2.

The City of Portola holds water right Permit No. 12282 which entitles it to divert up to 1.80 cubic feet per second (cfs) from a point on Willow Creek about five miles west and one and one-half miles north of the City. This permit is for direct diversion only, with no provision

for storage. Willow Creek is typical of the streams in this region, characterized by high flows in the spring months, decreasing rapidly to low flows during the late summer and early fall months.

Article 12(b) of the Department's standard provisions for water supply contracts limits peak deliveries of project water for municipal uses in any one month to not more than 11 percent of a contractor's annual entitlement for the year. To enable the City of Portola to integrate use of its own limited supply of water with project water in meeting steadily increasing municipal demands during the summer season to somewhat better advantage than appeared possible under Article 12(b), a special provision was included in the District's contract as Article 45(i). That article provides as follows:

> "Notwithstanding the provisions of Article 12, project water supplied to the Agency pursuant to this contract shall be supplied on a delivery schedule which will ensure that the ratio of project water delivered each year to the Agency's total supply of water for such year equals or exceeds the average of the ratios that project water bore to the Agency's total water supply during June, July, August and September of the three preceding years: Provided, that the provisions of this subdivision shall not apply to the Agency's delivery schedule for the three years of initial project water delivery under this contract."

The firm yield of the Willow Creek facilities was estimated to increase from the present use of 180 acre-feet per year to about 200 in 1970 and remain constant thereafter.

The present use of ground water in the service area from wells and springs amounts to about 300 acre-feet per year. When project water becomes available in the Portola area, ground water use is expected to decline to 150 acre-feet by 1970 and to about 50 acre-feet by 1980. After 1980, ground water use is estimated to remain constant at about 50 acre-feet per year. This decline in ground water use will result from the availability of project water with its relative low cost and high quality.

Supplemental Water Requirements

Supplemental water requirements were determined by subtracting the local water supplies from the total water requirements of the service area. Table 4 shows the projected supplemental water requirements.

TABLE 4

SUPPLEMENTAL WATER REQUIREMENTS
(acre-feet)

Year	Total Water Requirements	Local Supplies		Supplemental Water Requirements
		Willow Creek	Springs and Wells	
1964	480	180	300	--
1970	660	200	150	310
1980	960	200	50	710
1990	1,300	200	50	1,050
2000	1,790	200	50	1,540
2010	2,460	200	50	2,210
2015	2,920	200	50	2,670

Buildup of Demand for Project Water

From the supplemental water requirements shown in Table 4, which were available to the signators at the time of contract execution, a schedule of the demand for project water for the District was constructed and incorporated into the District's water supply contract with the State.

The contract calls for water service to begin with an annual entitlement of 250 acre-feet in 1967, increasing to a maximum annual entitlement of 2,700 acre-feet in 2015. The contract also requires that water must be stored in the reservoir for one year prior to the initiation of

project water deliveries. Present construction schedules of Grizzly Valley Dam will preclude storage prior to late 1966. Therefore, the District has been advised that project water deliveries will not be available until 1968. All data in this report relating to the timing of project water deliveries are based on 1968 as the year of initial deliveries.

TABLE 5

ANNUAL ENTITLEMENTS TO WATER
(acre-feet)

Year	Year Number	Annual Delivery	Year	Year Number	Annual Delivery
1968	1	250	1993	26	1160
1969	2	270	1994	27	1200
1970	3	300	1995	28	1250
1971	4	440	1996	29	1300
1972	5	470	1997	30	1350
1973	6	500	1998	31	1400
1974	7	530	1999	32	1450
1975	8	560	2000	33	1510
1976	9	590	2001	34	1570
1977	10	620	2002	35	1630
1978	11	650	2003	36	1690
1979	12	680	2004	37	1750
1980	13	710	2005	38	1810
1981	14	740	2006	39	1880
1982	15	770	2007	40	1950
1983	16	800	2008	41	2020
1984	17	830	2009	42	2090
1985	18	860	2010	43	2160
1986	19	890	2011	44	2240
1987	20	920	2012	45	2320
1988	21	960	2013	46	2410
1989	22	1000	2014	47	2500
1990	23	1040	2015	48	2600
1991	24	1080	2016	49	2700
1992	25	1120			

CHAPTER IV. COST OF WATER SERVICE FROM THE STATE WATER PROJECT

Under the standard water supply contract, each contracting agency undertakes an obligation to repay the State for its share of costs associated with water deliveries from the State Water Project. These costs include the Delta Water Charge, the costs incurred for the construction of any transportation facilities required to deliver water, and the operation and maintenance costs of these facilities.

Local distribution systems will be constructed and paid for by the District or by the water users. Construction of the State Water Project, on the other hand, will be done by the State and will be financed principally with moneys from the California Water Fund and from the sale by the State of general obligation bonds authorized under the California Water Resources Development Bond Act. 1/

Delta Water Charge

The payments to be made by each contractor for project water will include an annual charge designated as the Delta Water Charge. This charge, together with the total revenues derived during the project repayment period from the sale or other disposal of electrical energy generated in connection with operation of project conservation facilities, will return to the State during the project repayment period all costs of the project conservation facilities including capital, operation, maintenance, power, and replacement costs, which are allocated to the purpose of water conservation in, above, and below the Delta.

1/ Chapter 8 (commencing with Section 12930) of Part 6, Division 6, of the Water Code.

For each contractor receiving project water in any year through December 31, 1969, the Delta Water Charge will be the product of $3.50 times the contractor's annual entitlement to project water for the respective year. After that date, the Delta Water Charge will be computed on the basis of a rate which will consist of and be the sum of the following components: (1) a capital cost component; (2) a minimum operation, maintenance, power, and replacement component; and (3) a variable operation, maintenance, power, and replacement component. This rate will be computed on a yearly basis as specified in Article 22 of the Department's water supply contracts. The Delta Water Charge is estimated to be $5.46 from 1970 through 1977 and $7.34 thereafter until supplemental project conservation facilities, as defined in Article 1(n) of the standard water supply contract provisions, are constructed. The estimated annual Delta Water Charge to the District is shown in Table 6.

Transportation Facility

The District's water supply contract with the State includes provision for construction of a pipeline extending from Grizzly Valley Dam to the vicinity of Portola as a project transportation facility. The pipeline is necessary for delivery of project water to the District without contamination from the natural stream channel. An incidental benefit will be the conservation of hydraulic head for transmission and distribution of the water. Under the terms of the water supply contract the State will design and construct the pipeline unless the District exercises its contractual option to do so.

For purposes of this report it was assumed that the pipeline would be designed and built by the State. An investigation was made by the Department to determine the approximate alignment and profile and to prepare a cost estimate. As specified in the water supply contract, the pipeline was divided into two reaches for cost estimating purposes. The upper reach of the proposed pipeline would parallel Big Grizzly Creek down to the summer homesite area. The lower reach of the pipeline extends from the homesite area over a ridge into the Portola area, terminating at the City's reservoir. The proposed alignment is shown on Plate 2. The cost estimate determined that the capital cost would be about $490,000 to meet the projected water demands in 2015.

The payments to be made by the contractor for delivery of project water will include an annual charge designated as the Transportation Charge. This charge will return to the State, during the project repayment period, those costs of all project transportation facilities necessary to deliver project water to the contractor. This charge will include a capital cost component; a minimum operation, maintenance, and replacement component; and a variable operation, maintenance, and replacement component, as defined in and determined under Articles 24, 25, and 26, respectively, of the contract executed between the State and the District.

The estimate of the annual capital cost component of the transportation charge shown in Table 6, was based on the assumption that all capital expenditures for the transportation facilities would be made in 1967. However, the District has been billed by the Department for $726 as an annual payment on $17,000, the estimated cost of the preliminary design and cost estimate. For purposes of this report, the annual payments on this $17,000 for 1965, 1966, and 1967 were assumed to be

included in the annual payments beginning in 1968, as shown in Table 6. The preliminary design and cost estimate allowed 20 percent for engineering which will adequately cover these preliminary costs. Assuming the project interest rate is 4 percent, the capital recovery payments for 50 equal annual installments on the $490,000 is about $22,800 per year.

Minimum operation, maintenance, and replacement charges were estimated to be about 0.5 percent of the initial capital cost. Variable operation, maintenance, and replacement costs were estimated using a sliding scale unit cost varying between $1.00 to $0.50 per acre-foot applied to the annual entitlement. The components of the Transportation Charge, the Delta Water Charge, and the total annual payment to the State are shown in Table 6.

Local Distribution Facilities

It is expected that necessary local distribution facilities will be financed and constructed by the local retailing subcontractors as development takes place.

TABLE 6

ANNUAL COMPONENT CHARGES FOR WATER SERVICE
FROM THE STATE WATER PROJECT

Year	Annual Water Entitlement (acre-feet)	Transportation Charge: Capital Cost Component	Transportation Charge: Minimum 1/ Operation & Maintenance	Transportation Charge: Variable 2/ Operation & Maintenance	Delta Water Charge	Total Annual Payment to the State
1968	250	$22,800	$2,300	$ 250	$ 875	$26,225
1970	300	22,800	2,300	300	1,640	27,040
1980	710	22,800	2,300	640	5,210	30,950
1990	1,040	22,800	2,300	880	7,630	33,610
2000	1,510	22,800	2,300	1,130	11,080	37,310
2010	2,160	22,800	2,300	1,300	15,850	42,250
2015	2,600	22,800	2,300	1,350	19,080	45,530

1/ Minimum operation, maintenance and replacement charges are those necessary to maintain the system even though there is no water delivery to the District.

2/ Variable operation, maintenance and replacement charges are those associated with delivering water to the District.

CHAPTER V. FINANCIAL CAPABILITY

One of the most important and basic elements relative to the execution of a water supply contract between the State and the Plumas County Flood Control and Water Conservation District is the financial capability of the District to repay all the costs of obtaining a supply from the State Water Project. Stated another way, financial capability is a showing that the public credit of the water agency contracting with the State is strong enough to reasonably support and repay the annual payments which will become due as a result of the water supply contract.

In analyzing the financial position of the District it was necessary to consider the entire County, including the Last Chance Creek Water District which is not in the Plumas County Flood Control and Water Conservation District. The inclusion of financial data concerning the Last Chance Creek Water District will not materially affect the analysis present herein.

Present and Projected Assessed Valuations

The assessed valuation of property within Plumas County, for fiscal year 1964-65, was about 79 million dollars. This valuation represents an estimated market value of over 230 million dollars. Table 7 shows the assessed valuation of Plumas County from 1954-55 to 1964-65.

Assessed valuation of property in the County will undoubtedly continue to increase in the future, as it has in the past. For purposes of analyzing the financial capability of the County to pay for a water supply from the State Water Project, it was necessary to make projections of future assessed valuations of property in the County. These projections were based on the average annual rate of growth of 3.5 percent which is slightly less than the 10 year mean of 3.83 percent. The projected assessed valuations are shown in Table 8.

TABLE 7

HISTORICAL ASSESSED VALUATIONS
PLUMAS COUNTY

Fiscal Year	Assessed Valuation Thousands of Dollars	Percent Increase over Previous Year
1954-55	$54,441	--
1955-56	55,654	2.23
1956-57	58,249	4.66
1957-58	60,130	3.23
1958-59	65,451	8.85
1959-60	72,300	10.46
1960-61	72,958	0.91
1961-62	75,520	3.51
1962-63	75,592	0.10
1963-64	77,055	1.93
1964-65	78,930	2.40
10 year mean	--	3.83

TABLE 8

PRESENT AND PROJECTED ASSESSED VALUATIONS
PLUMAS COUNTY

Year	Assessed Vaulation (millions of dollars)
1964	79
1970	98
1980	138
1990	195
2000	275
2010	388

Present and Projected Bonded Indebtedness

The Plumas County Flood Control and Water Conservation District, as a political entity, had no bonded indebtedness as of June 30, 1964. However, within the County as a whole, the unified school, hospital and sanitary districts, and the City of Portola, the total bonded indebtedness amounted to $646,000. Table 9 indicates the historical bonded indebtedness of Plumas County.

TABLE 9

HISTORICAL BONDED INDEBTEDNESS
PLUMAS COUNTY
(in thousands of dollars)

Fiscal Year	Bonded Indebtedness by Entity at End of Fiscal Year: City of Portola G.O. Bonds	Districts: Sanitary	Districts: Hospital	Districts: Unified School	Districts: Total	Bonded Debt as a Percent of Assessed Valuation
1957-58	$110.0	$210.0	$353.0	$538.0	$1,211.0	2.0%
1958-59	105.0	199.0	343.0	416.3	1,063.3	1.6
1959-60	90.0	308.0	333.0	301.0	1,032.0	1.4
1960-61	80.0	296.0	323.0	188.5	887.5	1.2
1961-62	70.0	284.0	302.0	154.0	810.0	1.1
1962-63	60.0	271.0	271.0	119.5	721.5	1.0
1963-64	50.0	256.0	250.0	90.0	646.0	0.8

It is virtually impossible to estimate to what extent the County will incur bonded indebtedness in the future; therefore, it was assumed that the ratio of bonded debt to assessed valuation would remain at its present level, about one percent. Table 10 shows the projected bonded indebtedness for public works determined pursuant to such assumption.

TABLE 10

PRESENT AND PROJECTED BONDED INDEBTEDNESS
PLUMAS COUNTY

Year	Assessed Valuations (Millions)	Debt as a Percentage of Assessed Valuation	Bonded Indebtedness (Thousands)
1964 1/	$ 77	0.8%	$ 646
1970	98	1.0	980
1980	138	1.0	1,380
1990	195	1.0	1,950
2000	275	1.0	2,750
2010	388	1.0	3,880

1/ Fiscal year 1963-64

Levels of Ad Valorem Taxation

Property tax rates in Plumas County vary widely from place to place. Considering the total assessed valuation of the area and its total tax levies, however, the weighted average tax rate for fiscal year 1962-63 was about $3.77 per $100 assessed valuation. Tax rates have remained reasonably stable during the past several years. Table 11 shows the weighted average tax components in the County for the past five years.

TABLE 11

AD VALOREM TAX RATE COMPONENTS
PLUMAS COUNTY
(per $100 assessed valuation)

Year	County Rate	City of Portola	Unified School District	Special Districts	Total
1958-59	$1.58	$0.07	$1.70	$0.30	$3.65
1959-60	1.52	0.06	1.95	0.24	3.77
1960-61	1.67	0.06	1.76	0.29	3.78
1961-62	1.56	0.04	1.76	0.25	3.61
1962-63	1.70	0.05	1.76	0.26	3.77

Source: California State Board of Equalization Annual Reports, Table 10E

Comparison of Aggregate Obligations with Assessed Valuation

The present bonded indebtedness of Plumas County, now approximately one percent of its assessed valuation, is expected to increase in the future more or less commensurately with the increase in assessed valuation. For purposes of comparison, the aggregate unpaid amount outstanding in future years on the capital costs of transportation facilities necessary to deliver project water to the District was determined and calculated as a percentage of assessed valuation. These computations are shown in Table 12.

TABLE 12

SUMMARY OF CAPITAL REPAYMENT OBLIGATIONS
RESULTING FROM WATER SERVICE

Year	Assessed Valuation (millions)	Transportation Facilities Aggregate Unpaid Capital Costs	
		Amount	Percent of Assessed Valuation
1968	$ 92	$490,000	0.53 %
1970	98	483,500	0.49
1980	138	441,800	0.32
1990	195	380,100	0.20
2000	275	288,800	0.10
2010	388	153,600	0.04

In 1968 the ratio of aggregate unpaid capital costs to assessed valuation is about 0.5 percent. Assuming that in 1968 the bonded indebtedness ratio is one percent, the aggregate unpaid capital costs of project transportation facilities and bonded indebtedness would be about 1.5 percent of assessed valuation. Thus, even at a maximum, the area's ratio of total aggregate obligations to assessed valuation would appear to be reasonable. The ratio would decline each year after 1968.

The annual repayment required for capital costs of project transportation facilities was compared with projections of assessed valuation of property in Plumas County so that tax rates to made such payments could be determined. This was done in order to see if the necessary rate of taxation, should all such capital repayment obligations be met through ad valorem taxation, would place an unreasonable burden on the taxpayers of the County.

Using the projected assessed valuations given in Table 7 of this chapter, the tax rate necessary to pay the annual capital cost component of the Transportation Charge was computed. The maximum rate would be about $.03 per $100 assessed valuation in 1968. The necessary tax rate would decline after 1968. This would be due to the fact that while the assessed valuation of the County is increasing, the capital cost component remains constant.

It is concluded that the Plumas County Flood Control and Water Conservation District has the financial capability to successfully fulfill its obligations under its water supply contract with the State. Neither the maximum aggregate unpaid capital costs of construction of project transportation facilities, nor the ad valorem tax that might be required to make the annual payments on such costs as they come due would cause an unreasonable burden on the District.

CHAPTER VI. CONCLUSIONS

Analysis of the data gathered and presented in this report leads to the following conclusions:

1. The Plumas County Flood Control and Water Conservation District is empowered by enabling legislation to enter into contracts with the State for the purchase of water from the State Water Project.

2. The Grizzly Valley Project service area has the potential for population and economic growth due to increased development of the area's recreational resources.

3. The local water supplies available to the service area are not sufficient to satisfy future requirements. Future growth will be restricted unless a supplemental supply of water is made available.

4. The Portola-Delleker area and homesite development area near Grizzly Valley Dam will have an effective demand for water from the State Water Project of about 2,700 acre-feet per year by the year 2015.

5. The financial position of the Plumas County Flood Control and Water Conservation District is such that any increased taxation needed to meet payments due under the water supply contract with the State would not impose an unreasonable financial burden on the District.

APPENDIX A

CREDIT ANALYSIS

OF THE

PLUMAS COUNTY FLOOD CONTROL

AND WATER CONSERVATION DISTRICT

CREDIT ANALYSIS OF THE
PLUMAS COUNTY FLOOD CONTROL
AND WATER CONSERVATION DISTRICT 1/

A. Statement of Debt of Plumas County Flood Control and Water Conservation District

1. Net Direct Debt (full faith and credit)

   a. Bonds: None

   b. Floating Debt: None

2. Special Obligation (not full faith and credit)

   a. Bonds: None

   b. Floating Debt: None

3. Limitations on Debt

   a. Bonds: Bonds must be approved in bond elections and are limited to a 5 percent annual interest rate and a maturity of 50 years. The bonds may not exceed 15 percent of the assessed value of all the real and personal property of the zone or zones involved.

   b. Applicable Statutes: Plumas County Flood Control and Water Conservation District Act, Stats. 1959, Ch. 2114, Sect. 24.

4. Amount of Bonds Authorized but Unissued: None

5. Utilities Operated by the District (other than water service): None

1/ The data provided herein are for the entire area in Plumas County and include statistics for Last Chance Creek Water District.

B. Debt of Other Political Units in Plumas County

Character of Units Bearing Bonded Indebtedness	Net Debt as of June 30, 1964	Percent of Total
City of Portola	$ 50,000	7%
Unified School District	90,000	14
Sanitary Districts	256,000	40
Hospital Districts	250,000	39
TOTAL	$646,000	100%

C. Summary of Full Faith and Credit Debt in Plumas County

Type of Debt	Debt as of June 30 1960	1961	1962	1963	1964
Net Bonded Debt of District	0	0	0	0	0
Net Floating Debt of District	0	0	0	0	0
Other County Debt	$1,032,000	$887,500	$810,000	$721,500	$646,000
TOTAL DEBT	$1,032,000	$887,500	$810,000	$721,500	$646,000

D. Default Record of the District: There has been no default record by the District.

E. Assessed Valuation of Property in Plumas County

1. Assessed Valuation by Type of Property:

Type of Property	1959-60	1960-61	1961-62	1962-63	1963-64
Land & Improvements	$13,082	$13,942	$14,473	$16,013	$16,958
Personal Property	2,725	2,937	3,062	2,645	3,052
Public Utilities	57,556	57,395	59,407	58,407	58,522
Less Exemptions	1,063	1,315	1,421	1,473	1,477
TOTAL	$72,300	$72,959	$75,521	$75,592	$77,055
Estimated Market Value 1/	$192,000	$209,479	$209,941	$231,230	$232,106

1/ Assessment ratio for utilities assumed to be 40 percent

2. Assessment Ratio (proportion of market value)

	1959-60	1960-61	1961-62	1962-63	1963-64
Secured and Unsecured Property	24.1%	25.4%	21.2%	21.2%	21.6%

3. Important Tax Exempt Property in the County: The largest tax exempt property in the County is the Plumas National Forest, which occupies 1,128,000 acres or about 75 percent of the County's area.

4. Concentration of Valuable Property Just Outside of the County: There are no concentrations of valuable property just outside the County.

5. Largest Taxpayers in the County: The Pacific Gas and Electric Company is the largest taxpayer in the County, paying about 65 percent of the total County taxes.

F. Property Tax Rates in Plumas County

1. Tax Rated by Components:

Tax Rate Components	Weighted Average Tax Rates in Dollars Per $100 Assessed Valuation					
	1957-58	1958-59	1959-60	1960-61	1961-62	1962-63
County Rate	$1.53	$1.53	$1.52	$1.67	$1.56	$1.70
Cities	0.07	0.07	0.06	0.06	0.04	0.05
Schools	1.88	1.70	1.95	1.76	1.76	1.76
Special Districts	0.29	0.30	0.24	0.29	0.25	0.26
Flood Control & Water Conservation District	-	-	-	-	-	-
TOTAL RATE	$3.77	$3.60	$3.77	$3.78	$3.61	$3.77

2. Assessment Roll: Taxes for all districts are levied from the same assessment roll.

3. Legal Limit on Tax Rates: The Plumas County Flood Control and Water Conservation District can levy ad valorem taxes, not to exceed $0.10 per $100 of assessed valuation of all property within the District, to raise revenue for the purpose of paying certain specified costs and expenses. Such tax is in addition to taxes for payments of a bonded indebtedness, or any other indebtedness to the United States.

4. Taxes by Classification of Property: With few exceptions, tax rates apply to all classes of taxable property, whether real or personal, secured or unsecured.

G. Record of Property Tax Collections in Plumas County

1. Tax Collections:

Fiscal Year	Taxes Levied	Taxes Collected: Amount	Taxes Collected: Percent	Delinquency: Amount	Delinquency: Percent
1959-60	$2,713,649	$2,692,220	99.1%	$21,429	0.9%
1960-61	2,738,988	2,715,149	99.1	23,839	0.9
1961-62	2,761,583	2,746,310	99.4	15,273	0.6
1962-63	2,872,393	2,857,647	99.4	14,746	0.6
1963-64	3,378,308	3,360,600	99.4	17,708	0.6
5 year mean	-	-	99.2	-	0.8

2. When Taxes are Due:

a. Due Date: Secured taxes may be paid in a single installment which is due on November 1 or may be paid in two installments due on November 1 and February 1 of the succeeding year. Unsecured taxes are due at the time the tax rolls are made by the assessor.

b. Delinquent Date: Secured taxes paid by installments are considered delinquent if not paid by December 10 (for the November 1 payment) and April 10 (for the February 1 payment). All unsecured taxes become delinquent if payment is not made by August 1.

c. Penalties: If secured taxes become delinquent, interest at six (6) percent is charged on the unpaid balance for that period the taxes remain delinquent. If unsecured taxes become delinquent, interest at the rate of eight (8) percent is charged against the unpaid portion through December 31 of the same year. If the taxes are not paid by January 1, the interest rate of 1/2 of 1 percent per month for the period the taxes remain unpaid or until the property is sold to recover the unpaid taxes.

3. Tax Sales: Tax sales of delinquent property are made at regular intervals by the County if the need arises.

4. Estimated Tax Delinquency: Each year, the county auditor estimates a tax payment delinquency which is used for budget purposes and for computing necessary tax levies and rates for the ensuing year. The past records indicate the delinquent taxes to be less than 1/2 of 1 percent. This remarkably low figure is attributable to the fact that the largest tax payers are large utility companies and landowners.

5. Collection of Taxes: The county tax collector collects taxes for all taxing agencies except the Last Chance Creek Water District, which collects its own revenue.

H. Receipts and Disbursements of the District: None

I. Sinking Fund Operation by the District: None

J. Future Debt Service Requirements of the District: None

K. Economic Background:

1. Land Area: The total land area within the boundaries of the Plumas County Flood Control and Water Conservation District is 1,636,000 acres, and makes up 98 percent of the total area of Plumas County.

2. Population:

Year	Population
1930	7,900
1940	11,500
1950	13,500
1960	11,620

3. Average Monthly Employment in Plumas County - 1958:

	Number of Employees	Percent of Total
Manufacturing	1,136	49.6%
Transportation, Communications, and other Public Utilities	214	9.3
Wholesale and Retail Trade	479	20.9
Finance, Insurance and, Real Estate	107	4.7
Services	287	12.5
Agriculture, Forestry, Fisheries, Mining, and Construction	69	3.0
TOTAL	2,292	100.0

4. Industry: In 1958, there were 37 manufacturing concerns in Plumas County of which 12 employed 20 or more employees. The total amount of the payroll amounted to $6,240,000 and the adjusted value added by manufacturing was $13,073,000. The new capital expenditures was valued at $563,000.

5. Trade: Tourist trade is becoming increasingly important to Plumas County. The County has many fine recreational attractions, including a number of mountain streams, vast areas of forest lands and other public area. There are plans for five recreational dams to be located within the County.

6. Transportation: The main line of the Western Pacific Railroad traverses the county with division headquarters located in Portola. U.S. Highway 40A is the major east-west highway with State Highway 89 the major north-south connecting route.

7. Natural Resources: Timber is the major natural resource.

L. Financial Data

1. General Data:

a. Population:

Year	Population
1930	7,900
1940	11,500
1950	13,500
1960	11,620
1963	11,600 (est.)

b. Assessed Valuation:

1. Amount, 1964-65	$ 78,929,725
2. Basis of Assessment	25.0%
3. Estimated Market Value	$230,027,000

c. Total Overlapping, Bonded Debt:

As of June 30, 1964	$ 646,000

d. County Tax Collected:

Fiscal year 1963-64	$ 3,360,000

2. Per Capita Data (1963-64):

a. Assessed Valuation:	$ 6,643
b. Estimated Market Value:	$ 2,000
c. Bonded Debt:	$ 90
d. Tax Collections:	$ 290

3. Ratios:

a. Tax Supported Bonded Debt as Percentage Of:

1. Assessed valuation	0.84%
2. Estimated Full Valuation	0.28
3. Tax Collections	19.2

b. Percentage Change:

1. Population, 1950 to 1960	-14.1%
2. Assessed Valuation, 1960-61 to 1964-65	8.9
3. Bonded Debt, 1959-60 to 1963-64	-60.0
4. Tax Collections, 1959-60 to 1963-64	19.8

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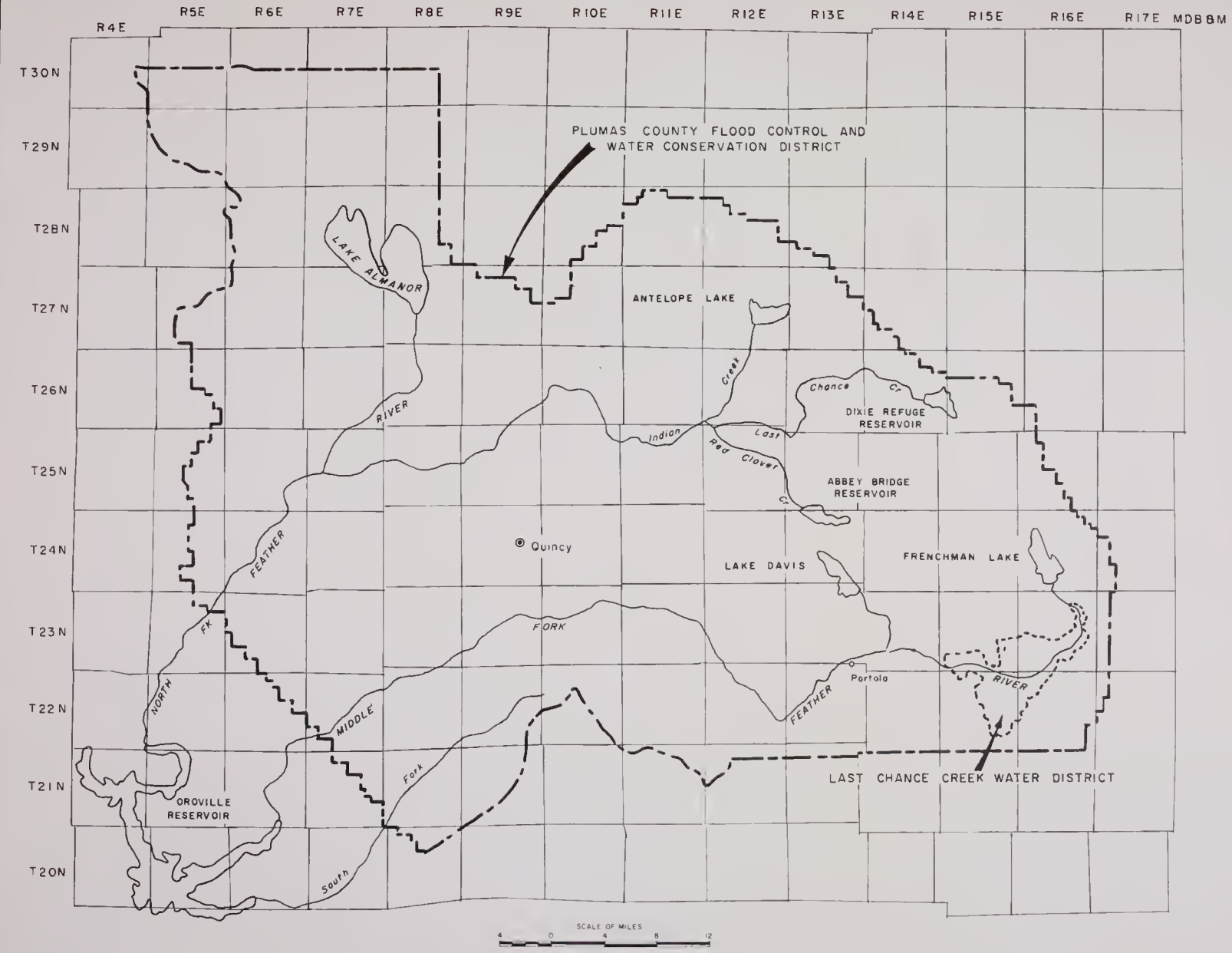
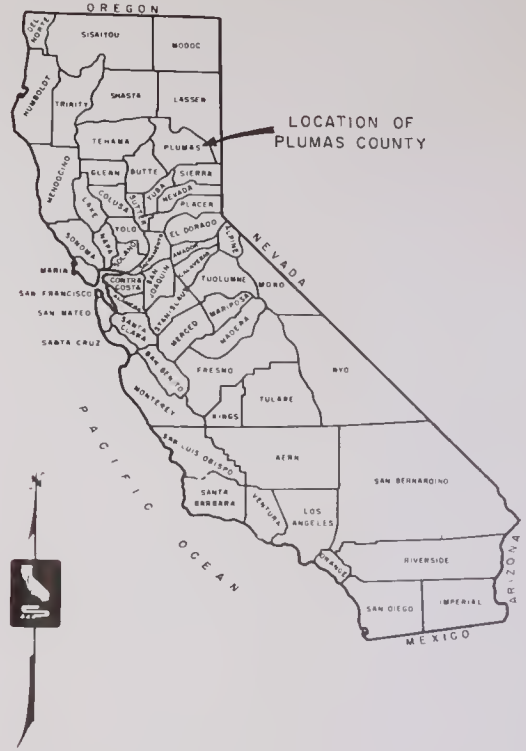
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DELTA BRANCH

FEASIBILITY OF SERVING THE PLUMAS COUNTY
FLOOD CONTROL AND WATER CONSERVATION DISTRICT
FROM THE STATE WATER PROJECT

LOCATION MAP





STATE OF CALIFORNIA
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DEPARTMENT OF WATER RESOURCES
DELTA BRANCH

FEASIBILITY OF SERVING THE PLUMAS COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT FROM THE STATE WATER PROJECT

LOCATION MAP

PLATE 2

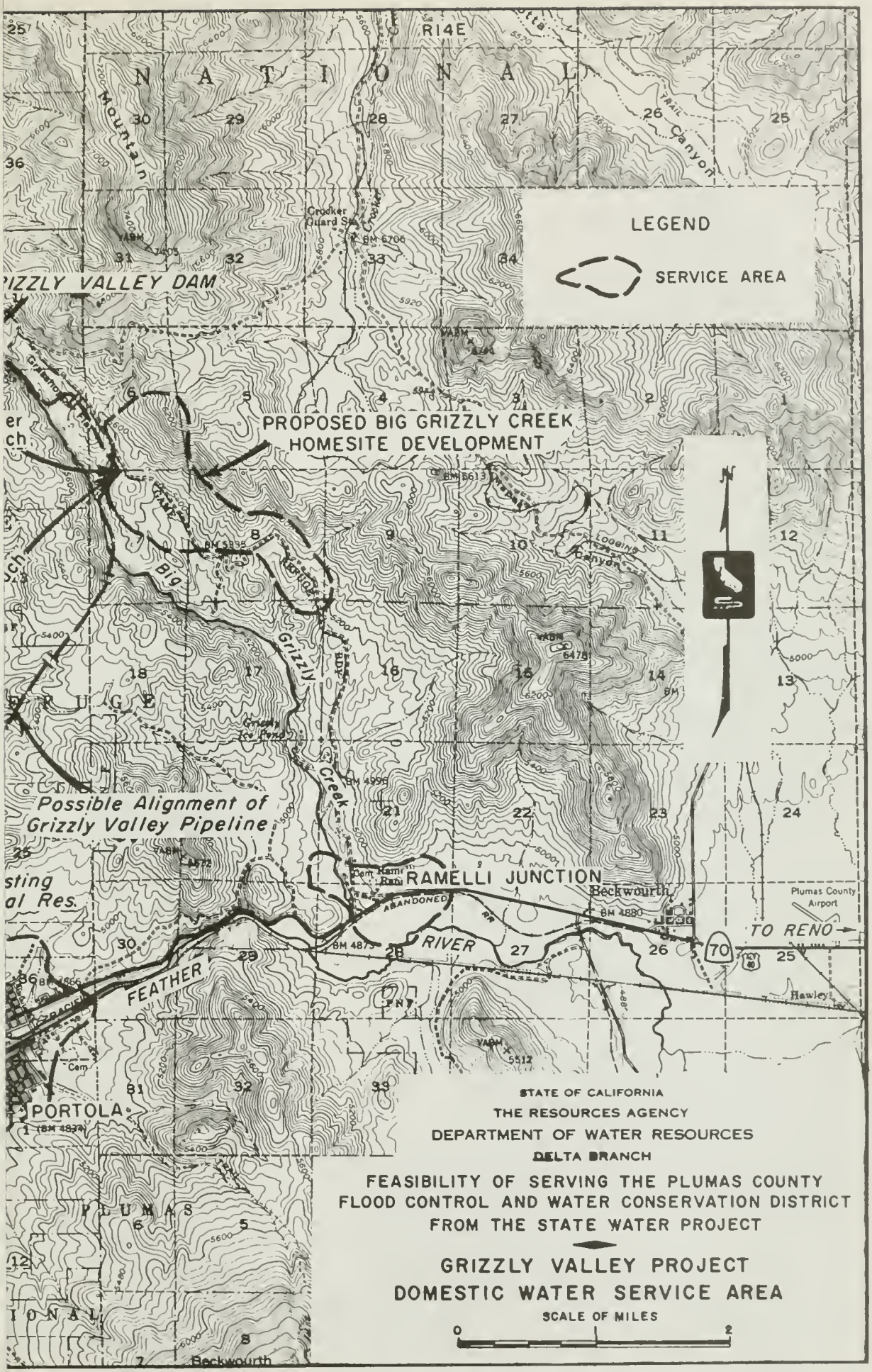
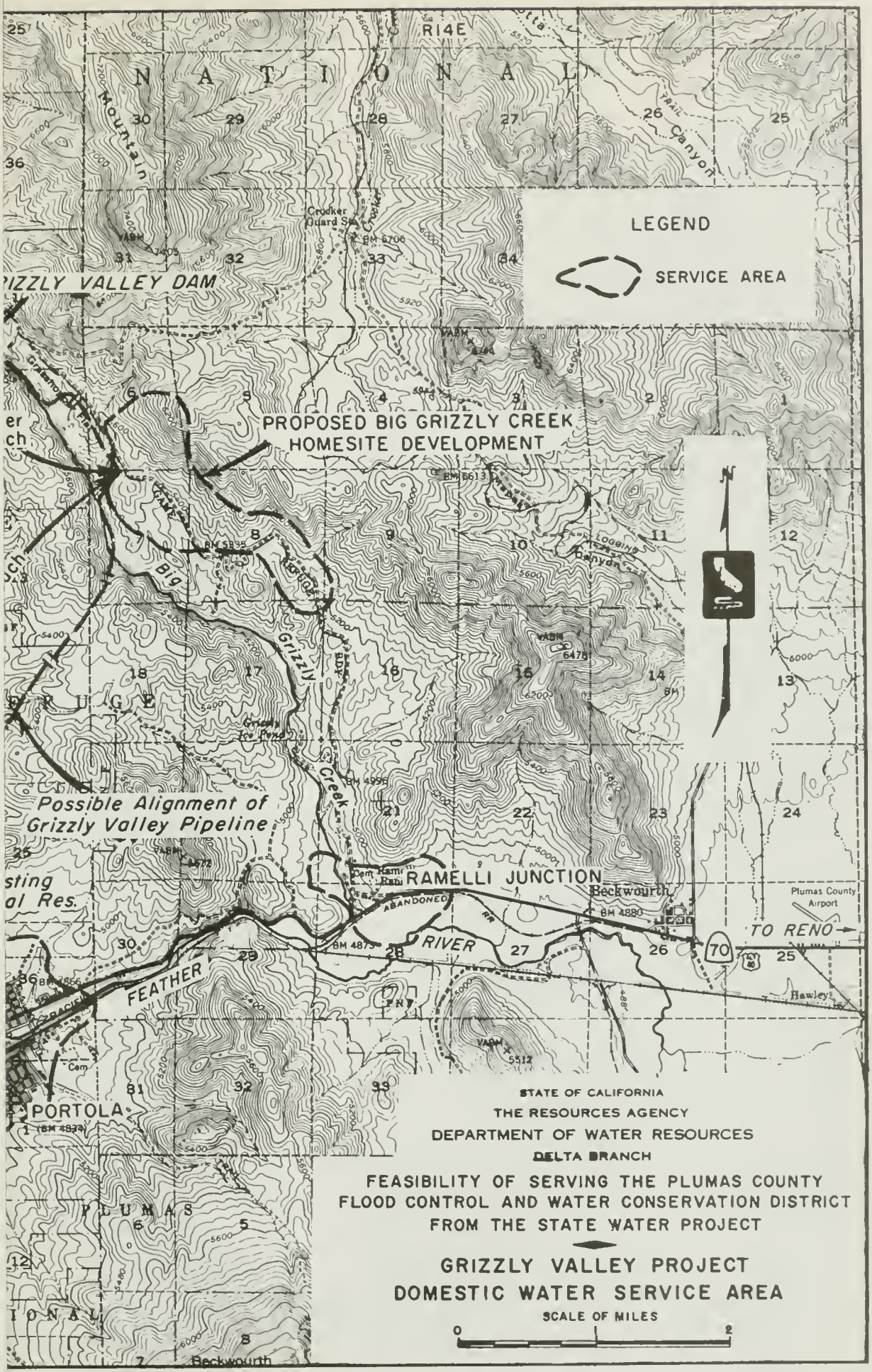

R14E
NATIONAL
Mountain
Crocker Guard Sta.
Crocker Creek
Trail Canyon
LEGEND
SERVICE AREA
IZZLY VALLEY DAM
PROPOSED BIG GRIZZLY CREEK HOMESITE DEVELOPMENT
Logging Canyon
Big Grizzly Creek
Possible Alignment of Grizzly Valley Pipeline
RAMELLI JUNCTION
Beckwourth
ABANDONED
RIVER
FEATHER
Plumas County Airport
TO RENO
Hawley
PORTOLA
PLUMAS
STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DELTA BRANCH
FEASIBILITY OF SERVING THE PLUMAS COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT FROM THE STATE WATER PROJECT
GRIZZLY VALLEY PROJECT
DOMESTIC WATER SERVICE AREA
SCALE OF MILES
0
2

PLATE 2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Crocker Guard Sta.
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IZZLY VALLEY DAM
LEGEND
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PROPOSED BIG GRIZZLY CREEK HOMESITE DEVELOPMENT
Logging Trail Canyon
Big Grizzly Creek
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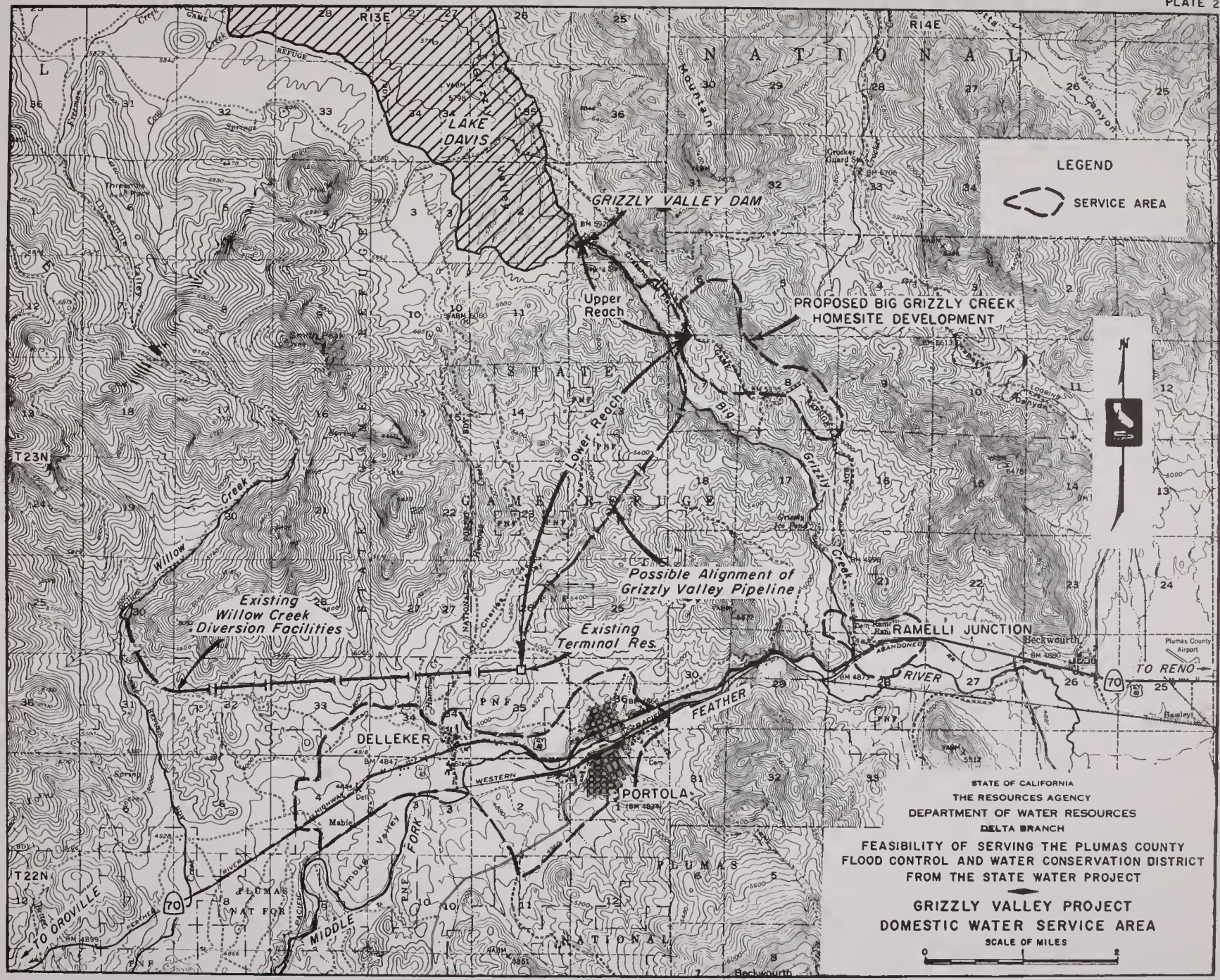
GRIZZLY VALLEY PROJECT
DOMESTIC WATER SERVICE AREA
SCALE OF MILES
0
2

PLATE 2


LEGEND
SERVICE AREA
GRIZZLY VALLEY DAM
LAKE DAVIS
PROPOSED BIG GRIZZLY CREEK HOMESITE DEVELOPMENT
Upper Reach
Lower Reach
Possible Alignment of Grizzly Valley Pipeline
Existing Willow Creek Diversion Facilities
Existing Terminal Res.
RAMELLI JUNCTION
DELLEKER
PORTOLA
TO RENO
TO OROVILLE
R13E
R14E
T23N
T22N
STATE
NATIONAL
PLUMAS
FEATHER RIVER
Willow Creek
Big Grizzly Creek
Mountain Canyon
Logging Canyon
Mabie
Jamison Valley
Middle Fork
Western Pacific
Plumas County Airport
Beckwourth
Hawleyville
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