

MARIPOSA BASIN WATER STUDY
POPULATION AND WATER
DEMAND PROJECTIONS
JANUARY 1978



moldenhauer
bennett
and company

POPULATION PROJECTIONS

■ POPULATION PROJECTION

There are many accepted methods used for population projections. None of these are completely reliable, particularly for projections beyond 10 or 15 years. The end result is an indication of the expected trend that may occur in a given time frame if outside influences remain about the same. The projections say, if certain assumptions are accepted, then these populations can be expected in each of the given years. The projection line represents a base-line thought to be near the center of a reasonable population range. This range is shown on the first overlay on Figure 1.

The accuracy of the assumptions depend directly on economic changes and local government decision making. The population of an area generally changes in response to two factors. 1. The difference between birth rate and death rate contributes to a gain or decline in population. 2. The migration of people into or out of a small geographical area can cause significant changes in the population. For the Mariposa Basin Study, area migration is the most significant contribution to population change. Migration is affected by decisions of local government. Regulations which govern land use can limit growth in some areas while encouraging growth in others. Availability of water, sewer and other utility services may influence the growth in that particular or adjacent areas. Areas served by inexpensive public utilities are easier and usually less expensive to develop than areas not having public services. It should be emphasized that zoning regulations or limiting services doesn't permanently fix patterns of growth. Zoning may be changed and additional municipal services may be developed.

For this report a population projection for Mariposa County was developed on a linear growth rate of 325 persons per year. This corresponds to an average annual growth rate of 2.26% over the study period, (1980 to 2020). In the past few years several agencies have made population projections for Mariposa County. These projections are shown in Figure 1. The most significant of these projections was made by the Department of Finance. Their assumptions are based on a statewide estimate of migration which has been surpassed since the latest projections were made.

According to a special census by the Department of Finance in 1975, Mariposa County had 8,440 residents. The projected populations for Mariposa County during the next 42 years are listed in Table 1.

The Mariposa Basin Study area is the most densely populated area of the county. It is also the most organized area with populations of 1,000 or more. Using data from the Department of Finance 1975 special census, the estimated study area population was determined to be approximately 1,450. At that time the study area contained about 17% of the county population.

Currently there is no blanket county or state moratorium on building in the study area. A factor which probably slowed growth is the uncertainty and expense of obtaining an adequate water supply outside the Mariposa Public Utility District. Once an adequate and reliable water supply is available, it is anticipated that the population in the study area will initially increase at a faster rate than the rest of the county. A major factor affecting the ultimate resident population in the study area is the limited area of land for housing and other development and improvements. With the community of Mariposa being the commercial and government center for the county, a growth in these activities is expected. Some of the land within the study area is unsuitable for any type of building due to the steep slopes and should be preserved as open space.

Based on these considerations, a reasonable estimate of the ultimate resident population density may be approximately one person per acre. At that density a total population of 4,000 can be expected in the study area.

Within the next 50 years this ultimate resident population may be reached. As this ultimate population is approached, the annual growth can be expected to gradually decrease. During the next 40 years it is expected that the percentage of county residents residing in the study area will be between 15 and 20%.

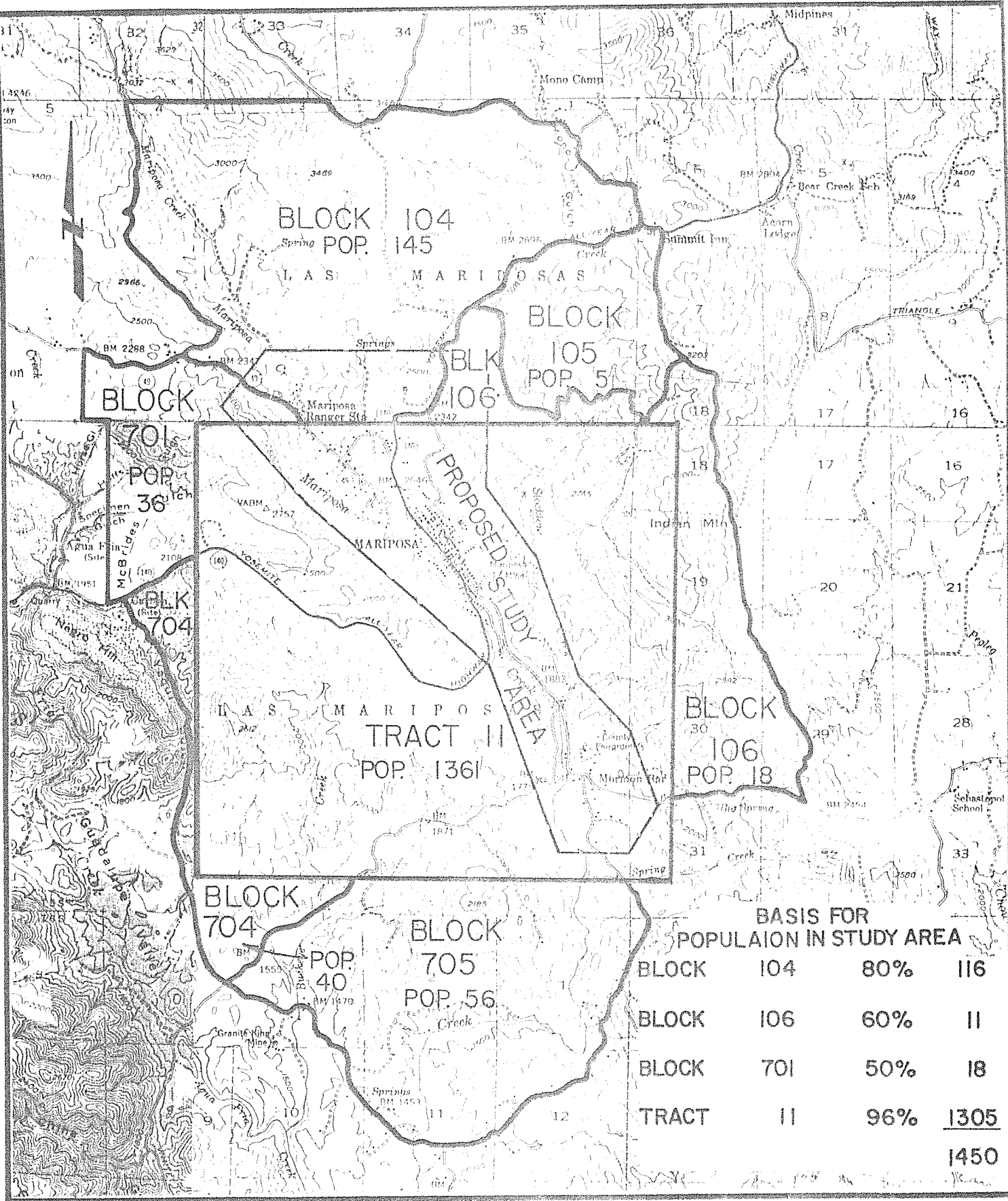
MARIPOSA COUNTY POPULATION PROJECTION

TABLE 1

YEAR	POPULATION
1975	8440
1980	10065
1985	11690
1990	13315
1995	14940
2000	16565
2005	18190
2010	19815
2015	21440
2020	23065

MARIPOSA BASIN WATER STUDY DECEMBER 1977

POPULATION BASED ON 1975 SPECIAL CENSUS



BASIS FOR POPULATION IN STUDY AREA			
BLOCK	104	80%	116
BLOCK	106	60%	11
BLOCK	701	50%	18
TRACT	II	96%	<u>1305</u>
			1450

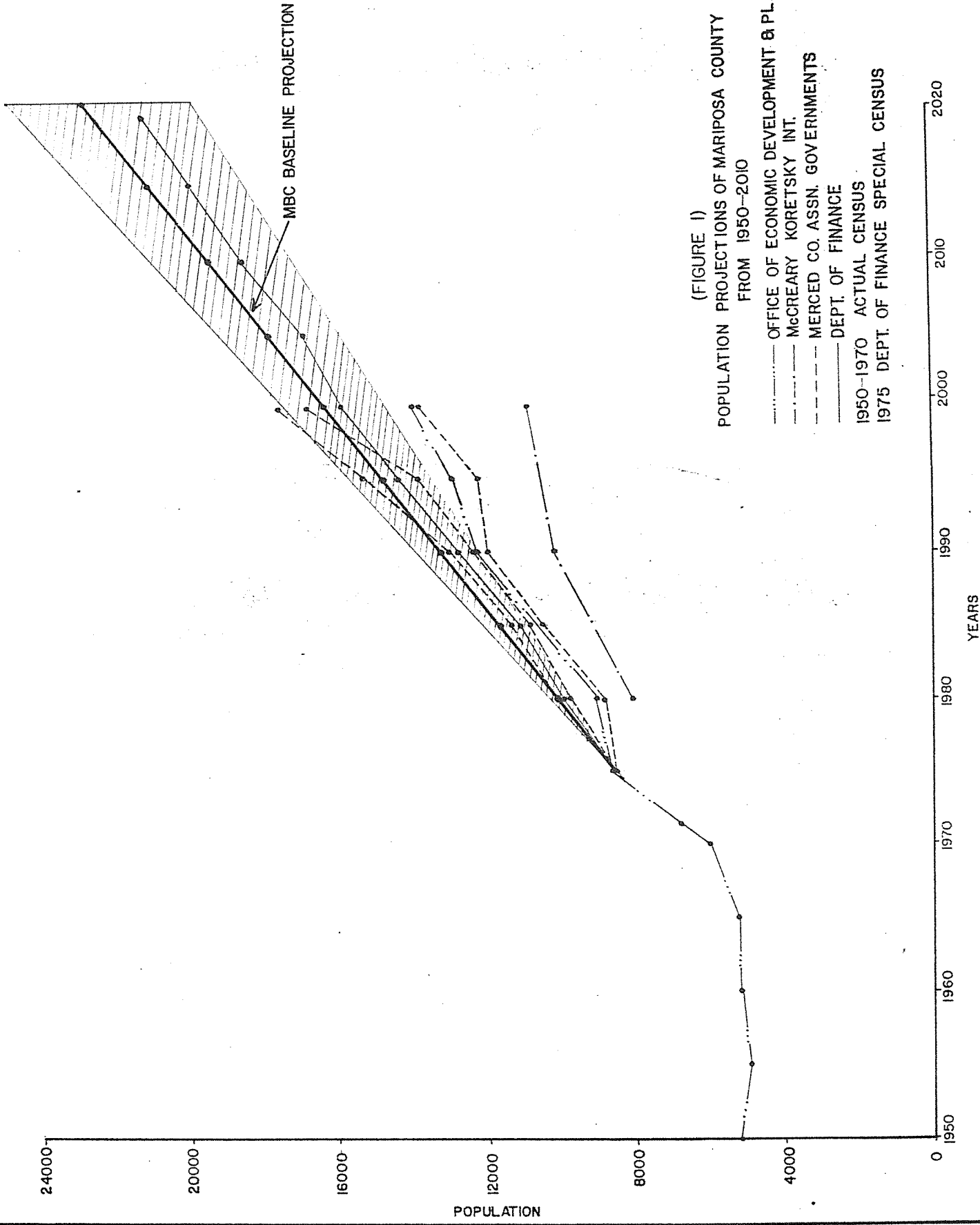
POPULATION PROJECTIONS FOR MARIPOSA BASIN STUDY

TABLE 2

YEAR	RESIDENT	% INCREASE <u>2</u>	RESIDENT EQUIVALENT	TOTAL
1975	1450 ¹			
1978	1600	3.3	290	1890
1980	1725	3.8	320	2045
1985	2100	4.0	385	2485
1990	2475	3.3	450	2925
1995	2750	2.1	520	3270
2000	3025	1.9	605	3630
2005	3250	1.4	685	3935
2010	3475	1.3	780	4255
2015	3695	1.2	875	4570
2020	3900	1.1	1000	4900

NOTES: 1 FROM CALIF. DEPT. OF FINANCE 1975 SPECIAL CENSUS

2 2.1% AVERAGE ANNUAL GROWTH, 1978-2020

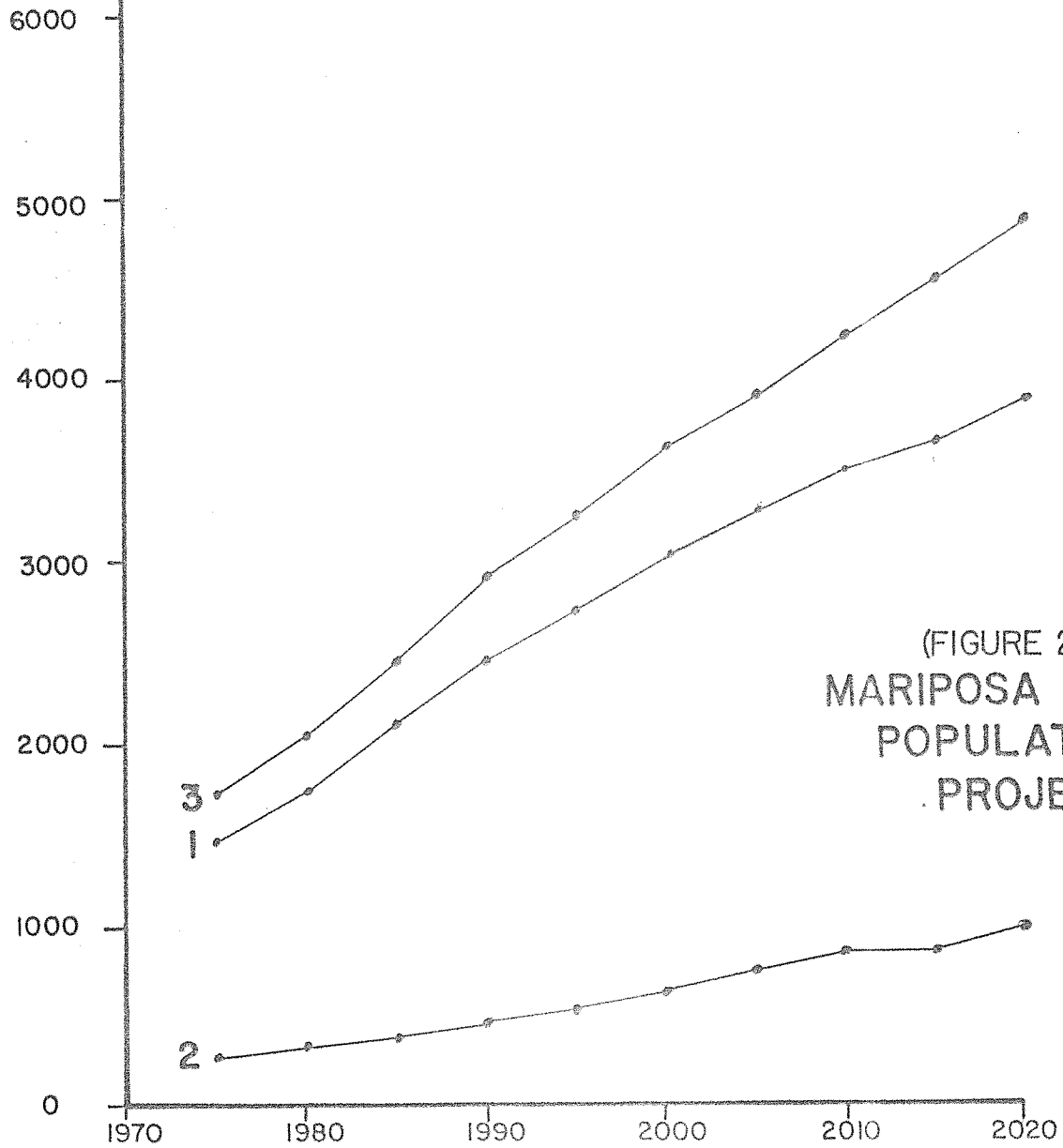


(FIGURE 1)
 POPULATION PROJECTIONS OF MARIPOSA COUNTY
 FROM 1950-2010

- OFFICE OF ECONOMIC DEVELOPMENT & PLAN.
- McCREARY KORETSKY INT.
- MERCED CO. ASSN. GOVERNMENTS
- DEPT. OF FINANCE
- 1950-1970 ACTUAL CENSUS
- 1975 DEPT. OF FINANCE SPECIAL CENSUS

POPULATION DATA

- (1) RESIDENT
- (2) RESIDENT EQUIVALENT
- (3) TOTAL OF 1 & 2



(FIGURE 2)
MARIPOSA BASIN
POPULATION
PROJECTION

WATER DEMAND PROJECTIONS

■ WATER DEMAND

In this report water demand is broken down into two categories, resident and non-resident. Definitions of these demands are given below:

- Residential demand includes water use by residents of the community, plus water used in commercial and government establishments in the community.
- Non-residential demand consists of water use by tourists, commuting workers and students, and other visitors to the community.

The community of Mariposa has a small resident population and a large non-resident daytime population. Therefore, a significant portion of the daily water demand is provided by non-resident students, tourists, shoppers, etc.

Non-resident water users require varying amounts of water for their activity. This total non-resident demand could be said to equal the demand of a certain resident population. For example, consider a case where the non-resident demand is said to equal the demand of 100 residents. The effect on water demand is the same as increasing the resident population by 100. For this report the non-resident demand has been given in terms of a resident equivalent population. Summing the resident and resident equivalent populations gives a total population. From this total population total, demand is established.

Basing residential demand on 200 gallons per capita day, projections of future water demand were made. A summary of these projections can be found in Table 3. The demand projections assume that there will be no change in the current per capita rate of water demand. However, many water saving opportunities exist in the public and private sectors.

Several inexpensive retrofit items are available which conserve water used in household and commercial establishments. Indoor water use has been reduced 15% to 30% where these conservation methods are followed. In new construction the potential savings are even greater.

Water meters usually promote water conservation. The city of Denver, Colorado installed water meters in 1962. At that time indoor water consumption decreased by 36%, outdoor consumption decreased by 50%, and consumption has remained low ever since. Water meters give customers a quantitative measure of how much water is used, creating a water conservation consciousness in communities that have limited water supplies and/or costly water sources.

WATER DEMAND PROJECTIONS

TABLE 3

YEAR	TOTAL POPULATION	WATER CONSUMPTION ¹			
		AVERAGE DAILY X10 ⁻³ (GAL.)	PEAK DAY ² X10 ⁻³ (GAL.)	PEAK HOUR ³ X10 ⁻³ (GAL.)	ANNUAL X10 ⁻⁶ (ACRE-FEET)
1978	1890	378	756	1512	423
1980	2045	409	818	1636	458
1985	2485	497	994	1988	557
1990	2925	585	1170	2340	655
1995	3270	654	1308	2616	733
2000	3630	726	1452	2904	813
2005	3935	787	1574	3148	881
2010	4255	851	1702	3404	953
2015	4570	914	1828	3656	1024
2020	4900	980	1960	3920	1098

NOTES: ¹ BASED ON 200 GALLONS PER. CAPITA DAY.

² PEAK DAY IS 2 TIMES AVERAGE DAILY.

³ PEAK HOUR IS 4 TIMES AVERAGE DAILY.