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SURVEY OF SANTA BARBARA BEACH USE

A PILOT STUDY

CIRCULAR 117
Sea Grant Project

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Research staff contributions were of various kinds throughout the duration of this study. John Jostes assisted in the design of the survey questionnaire, implemented the administration of the survey, and, with the assistance of Chris Jarrett, wrote the preliminary draft. Under our general direction Anthony Barkume supervised the research for this revision and, with the assistance of Lisa Trygg, Joe Samprone and Vinod Agarwal wrote the initial draft of this revised report. Lisa Trygg was responsible for machine coding the basic survey record, and did the necessary programming for the majority of the computation and cross-tabulations presented in the preliminary and revised reports.

Sharon Collins performed the heroic task of typing the revised report "down to the deadline", and assisted with the basic research conducted for the revised report.

Finally, Chris Brady provided overall editorial supervision throughout the period of the investigation, particularly in the preparation of the final form of the preliminary and revised drafts.

The study now moves past the pilot stage under the direction of Professor John Sonquist and Professor David Gold, Sociology Department, UCSB. The responsibility for this revised report rests with us.

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CONTENTS

I.	Introduction and Study Goals	1
II.	Survey Results	2
A.	Characteristics of the Respondents	2
1.	An Age Profile of the Respondents	2
2.	Sex, Race, Marital Status, and Children	4
3.	Economic Status	6
4.	Criteria for Use of a Particular Beach	7
5.	Participation in Beach Activities	9
6.	Participation in Beach Activities by Resident Status ..	16
7.	Transportation to the Beach	18
8.	Frequency of Beach Use	20
a.	Seasonal Use	21
b.	A Measure of Summer Use	22
B.	Analysis by Residential Location	26
1.	Indices of Beach Use by Residential Location	26
2.	Comparison of Residential and Beach Locations	30
3.	Analysis of Non-Resident Responses	42
4.	Analysis of Use by California Residents	45
C.	User Opinion Data	47
1.	User Preference: Beach, Mountain, or Park Areas	47
2.	Preferred Alternate Activity to Beach Use	48
3.	Beach Cleanliness	49
4.	Adequacy of Beach Facilities	53
III.	Beach Attendance Data	55
A.	City and County Counting Procedures	55
B.	User Trends	56
C.	Density	58
IV.	Cost Data	60
A.	Source of Data Collection for Costs (City/County)	60
B.	Beach Maintenance Procedures (City/County)	61
C.	Lifeguard Costs	62
D.	Definitions of City Beach Areas	63
E.	Operating Costs of City and County Beaches	63
V.	Methods of Projection of Beach Use	65

Contents continued:

VI. Methods of Estimating the Economic Benefit of Beach Use	67
A. "Willingness to Pay" for Beach Use	67
B. Multiple Use Development	71
VII. Recommendations for Future Research	71
VIII. Appendix	72
A. Survey Form	72
B. Map of Census Tracts	79
C. Survey Administration Data	81
D. Attendance	85
E. State Parks Data	87

I. INTRODUCTION AND STUDY GOALS

The use of publicly-owned and operated beaches and beachside parks is one of the major amenities in the rapidly growing southern coastal portion of Santa Barbara County. To guide the future direction of public policy for the recreational use of the coast, knowledge of the existing patterns of beach use is required. This study reports a major addition to this knowledge.

A survey of 802 beach users was implemented during a six-week period between July 23, and September 3, 1971. It was conducted on beaches owned and operated by both the City and County of Santa Barbara -- namely, the city beaches of East, West, Cabrillo and Leadbetter and the county beaches of Arroyo Burro, Goleta and Isla Vista. The results of this survey comprise the primary data base of this study, but several other secondary sources of information have been utilized to provide a more complete inventory of information. These are:

1. Data on the operating costs of beach facilities for the city, county and state operated beaches. This information is used to relate the cost of operation to the volume of beach use.
2. Beach attendance estimates made by the city, county and state computed in dimensions of daily, weekly, and monthly totals. This information is the only index of the total beach user population from which the sample in the survey was drawn; it also provides estimates of the distribution of use across the various beaches in the survey and the trend of use over time.

In addition to reporting the survey results, some preliminary analysis on the data is presented. The report also includes two self-contained sections on methods of beach use projection and estimation techniques for determining people's willingness to pay for beach use.

II. SURVEY RESULTS

A specimen of the survey form is presented in Appendix A. The survey was thoroughly comprehensive with a maximum of 60 questions asked of the respondents and 9 additional items recorded by the surveyor. The survey questions were organized to answer specific questions such as: who uses the beach areas; where do they come from; for what purposes do they use the beaches; how do they travel to the beach areas; and what are their opinions on the cleanliness and facilities of the beaches.

Virtually all the responses were machine coded, so that a tremendous variety of comparisons could be made between different individuals and their responses. For example, the total number of pair-wise comparisons that can be made from computer storage of the data would be $60 \times 59 = 3,540$ cases (e.g. a pair-wise comparison would be determining the number of students who play volleyball) while the number of three-way comparisons that could be made would be $60 \times 59 \times 58 = 20,532$ cases. In this sense the data base is relatively "untouched" in this report. However, three main criteria were used to cross-classify a great variety of response information. These are: 1.) beach at which interview was given, 2.) resident status, and 3.) resident location.

A. Characteristics of the Respondents

1. An Age Profile of the Respondents

The following two tables give a representative age profile for classification by resident status and by breakdown of respondent's age by the beach at which they were interviewed. In general, the respondent population can be characterized as "youthful", the mean age being 27 and the most frequent or modal age being 20. These profiles will not reflect the age distribution of all beach users, since children 12 years old and younger were not interviewed.

Table 1 shows representative distributions for residents and non-residents.

Table 1

Age	Resident Percentage	Non-Resident Percentage
15 and under	10.8	9.5
16-19	20.1	16.0
20-24	27.5	18.1
25-34	22.7	24.3
35-44	9.0	16.9
45-59	6.8	12.3
60 and over	3.1	2.9

Note that except for the "16 to 19" and "60 and over" groupings, the non-residents in the sample tended to be somewhat "older" as indicated by the higher percentage listed in the "35 to 44" and "45 to 59" age groupings. Another profile of the age distribution is given in Table 2 for all respondents by the location of the beach interviewed. Reading down each column, one can compare the age distribution at any beach with the distribution for the total population. The table shows whether or not different age groups use different beaches. For example, about 89% of Isla Vista beach users are in the "16-24" age group which is a significant departure from the overall pattern. This is probably due to the fact that Isla Vista Beach is adjacent to a university community.

Table 2

Age Distribution by Beach Interviewed

(Figures are in percentages)

Age	Total Respondents	Arroyo Burro	Goleta	Leadbetter	West	East	Cabrillo	Isla Vista
15 and under	10.4	14.8	10.3	12.8	11.5	5.9	7.9	0.0
16 - 19	18.9	24.3	16.8	23.3	25.0	14.7	11.7	11.1
20 - 24	24.6	16.6	21.5	20.1	29.1	27.9	24.7	77.8
25 - 34	23.2	24.3	32.7	18.9	17.7	33.9	23.4	7.4
35 - 44	11.4	8.7	12.2	13.1	7.3	8.8	14.8	3.7
45 - 59	8.5	7.8	5.6	8.3	8.4	5.9	12.9	0.0
60 and over	3.0	3.5	0.9	3.6	1.0	2.9	4.2	0.0
N =	799	115	107	222	96	68	164	27

2. Sex, Race, Marital Status, and Children

The sex and race of the respondent were determined by the interviewer; the respondent population consisted of 46% males and 54% females. Table 3 gives the percentage of respondents classified into racial identifications made by the interviewers for both residents and non-residents.

Table 3

Interviewer Classification of Race (in percentages) by Resident Status

Race	Resident	Non-Resident
"White"	94.3	94.7
"Chicano"	4.7	2.9
"Black"	0.5	1.2
"Oriental"	0.2	0.4
unidentified	0.3	0.8
proportion of total respondents and sample size	69.6 (N = 558)	30.4 (N = 244)

Caution should be used in interpreting whether one can infer the rate of participation by race or ethnic group by comparison of this table with, for example, the percentage of those of Spanish surnames for the Santa Barbara area. There are three reasons, given the administration of the survey, that warrant this caution. First, the procedure of identification of a person as "white", "black", or especially "chicano" is of course arbitrary and subject to error. But more importantly, two aspects of the survey administration may have "biased" the percentage of ethnic or racial minorities using the beach area. First, only the sandy areas, not the grassy areas, of the beaches were surveyed; this would be a biasing factor if the ethnic composition varies between these two areas of beach use. Second, although Santa Barbara has a significant Spanish-speaking population, none of the interviewers spoke Spanish.¹

When asked for their marital status, 57% indicated they were single, 37% married, and the remaining 6% were either separated or divorced. About one-third

1. A new survey was conducted during August, 1972, which corrected for both these deficiencies in survey administration.

of the respondents indicated they brought children to the beach on the day of the interview. Table 4 lists the responses of the one-third of those who did bring children to the beach and the total number brought, whether or not they were their own children.

Table 4

Number of Children Brought to the Beach by Those Who Did Bring Children

(N = 256 or 32.7% of the total sample)

Number of Children Brought	Percentage of Total
1	28.0
2	39.0
3	15.7
4	7.5
5	4.7
6 or more	5.1

The table shows the majority of children (82.7%) were brought in smaller groups of one to three.

3. Economic Status

When survey respondents were asked their employment status, 49.5% of the total considered themselves "unemployed". Relating other evidence from the survey, it is clear that the majority of these people were not in the labor force. First, as noted above, 29% of those interviewed were under 19 and, therefore, were probably not in the primary labor force. This low labor participation profile of the respondents is also reflected by the fact that 45% had been full-time students the previous spring; of all those who did consider themselves employed (50.5%), over 30% stated they worked less than full time

(34 hours or less). This latter group of "underemployed" constitutes about 15% of the total sample.

When asked if they were the head of their household or the principal wage earner in their family, slightly over 50% replied that they were not; of these, 55% indicated that one of their parents was the household head while about 40% indicating their spouse as the principal wage earner.

4. Criteria for Use of a Particular Beach

The respondents were asked in this survey to choose from a list of criteria what the "main" reason for choosing the particular beach at which they were interviewed. The criteria given were "convenient location", "beach quality", "uncrowded", or "facilities". If the person felt none of these criteria represented their main reason for the choice of that beach, they could state an alternative criteria; these responses were coded as an "other" response for preliminary analysis and are presented as such in Tables 5a and 5b.

Table 5a

Criteria Response Percentages for All Respondents in Order of Frequency

Criteria	Percent
"convenient location"	45.1
"other"	19.9
"beach quality"	17.5
"uncrowded"	11.4
"facilities"	6.0

(N = 802)

Table 5a reveals that the most frequent criteria was "convenient location" for the total population. The inadequacy of the criteria given to the respondents is reflected by the fact that almost 20% of all respondents gave a reason

for using the beach that was not represented in the given criteria. Another interesting result from Table 5a is the low priority accorded to "facilities" by the respondents as a whole.

Table 5b indicates the variation in the frequency of response for each beach surveyed. This table can be interpreted in the following manner. Reading down the column, the percentages responding to a given criteria such as "convenient location" can be compared for each beach. For example, column 5, which lists the response rate by beach for "facilities", indicates that for those interviewed at East Beach, 22% listed this criteria -- a significantly higher rate than the average response rate of 6.0. The middle value gives the proportion of those responding in this category to the total sample population. Reading the lower value in each entry gives the order of frequency the criteria were mentioned for those at each beach. Comparing those for each beach to the overall pattern of response (given by the order of the criteria in the table) indicates that choice criteria, when measured on individual beaches, does not experience major shifts in frequency.

[See following page for Table 5b]

Table 5b

Comparison of Response Rates for Individual Beaches

	"Convenient Location"	"Other"	"Beach Quality"	"Uncrowded"	"Facilities"	N=
Arroyo Burro	54.4% 7.8% 1	18.4% 2.6% 3	23.7% 3.4% 2	1.8% 0.3% 4	1.8% 0.3% 5	114
Goleta	62.0% 8.4% 1	12.0% 1.6% 2	12.0% 1.6% 3	6.5% 0.9% 5	7.4% 1.0% 4	108
Lead-better	31.4% 8.6% 1	20.5% 5.6% 3	21.4% 5.9% 2	20.5% 5.6% 4	6.4% 1.8% 5	220
West	56.7% 6.9% 1	22.7% 2.8% 2	6.2% 0.8% 4	13.4% 1.6% 3	1.0% 0.1% 5	97
East	25.0% 2.1% 2	26.5% 2.3% 1	20.6% 1.8% 4	5.9% 0.5% 5	22.1% 1.9% 3	68
Cabrillo	41.5% 8.5% 1	22.6% 4.6% 2	19.5% 4.0% 3	11.6% 2.4% 4	4.9% 1.0% 5	68
Isla Vista	81.5% 2.8% 1	11.1% 0.4% 2	3.7% 0.1% 3	3.7% 0.1% 4	0.0% 0.0% 5	27
N =	360	159	48	140	91	798

5. Participation in Beach Activities by Beach Location

The survey respondents were given two lists of specific activities -- one related to use of the water and the other to the use of the beach area -- and asked whether they participated in the activity or not. The participation rate is defined as the ratio of the number of "yes" responses to the total number of responses to the question. Although the percentage "not participating" in each activity is not given, it can be calculated by simply subtracting the corresponding participation rate from one. Note that there were no limitations on how many uses of the beach the respondents could positively respond to.

The following sets of tables summarize the results of this portion of the survey, comparing activity participation by beach location. These comparisons yielded interesting differences in participation and these patterns are discussed below.

Land Activity

Tables 6a and 6b give a breakdown of the activities the respondents reported they engaged in while at the beach, by beach location. Each activity was treated as an individual variable, so a respondent could conceivably report that he engaged in every activity listed. Looking at the percentages for each variable or activity, a strong majority of the respondents at all beaches indicated that they used the beach for sunbathing and for a change of environment. Only one-third to one-half of the respondents said they used the beach for physical activities such as volleyball and jogging or running. One-half to two-thirds of the people reported using the beach for more family-oriented activities such as picnicking and bringing their children to play. One-fourth of the respondents claimed that they used the beach for other non-specified activities or reasons.

A further breakdown of the activities by individual beaches revealed some interesting findings. These are given for the following activities.

Volleyball. Isla Vista and East Beaches were the most popular for those people playing volleyball with approximately 50% of the respondents at each of the two beaches indicating they play volleyball while at the beach. West and Cabrillo Beaches were the least popular -- having approximately 20% of the people at those beaches indicating that they use the beach area for volleyball.

Picnicking. The most popular beach for picnicking was Goleta Beach where 90% of the respondents stated that they used the beach area for picnicking. There was no outstanding difference between the rest of the beaches, with the range of usage of the beach area for picnicking between 54 and 70%, thus indicating that somewhere between 1/2 and 3/4 of the respondents picnic at the beach regardless of the location.

Jogging or running. The pattern of responses to whether the people use the beach area for jogging or running possibly suggests that certain types of people (e.g. those interested in physical exercise in addition to sunbathing) tend to cluster at certain beach areas. Jogging requires no special facilities, therefore, it could be carried out at any beach. The statistics show, however, that Isla Vista Beach was significantly more popular than any of the other beaches with 75% of the respondents there reporting that they used the beach area for jogging. East Beach was the next most popular with approximately 60% of the people using the beach for jogging. The responses at the other beaches indicate that only 40 to 48% of the people use the beach area for jogging.

Bring children to play. There was a significant difference between the beaches when the respondents were asked if they used the beach to bring their children to play. The percentages include those respondents who do not have children, thus the higher percentage for a particular beach, the higher the number of respondents at that beach, out of the total number of respondents who have children and bring them to the beach. Goleta Beach was the most popular among the respondents (62%) for bringing children to the beach, with Isla Vista and West Beaches the least popular, being 33 and 38% respectively.

"Other Reasons". In this case the adequacy of the list of activities given the respondents varied significantly between beaches. Forty-two percent of the respondents at Isla Vista Beach claimed that they use the beach for an activity other than those listed, while only 20% of the respondents at Cabrillo Beach indicated another reason for coming to the beach.

In general, the results show that Isla Vista and East Beaches are the most popular for physical activities such as volleyball and jogging while Goleta Beach is the most popular for family-oriented activities such as picnicking and bringing children to play.

Table 6a

Beach Area Activities Participation Rates for All Beaches Combined

Activity	percent	N
Volleyball	29.2	802
Sunbathing	95.8	802
Picnicking	65.1	802
Jogging or Running	44.2	802
Bring Children to Play	50.4	802
Other Uses	26.4	802

Table 6b

Comparison of Participation Rates by Individual Beaches
(Figures are in percentages)

	Volley- ball	Sun bathing	Picnick- ing	Jogging or Running	Bring Children to Play	Other Uses
Arroyo Burro (N = 115)	35.7	98.3	60.0	45.2	56.1	24.2
Goleta (N = 109)	28.4	98.2	81.7	47.7	62.4	25.7
Lead- better (N = 222)	27.5	93.2	64.0	37.8	48.4	26.3
West (N = 97)	20.6	92.8	53.6	42.3	37.5	31.7
East (N = 68)	52.9	97.1	58.8	58.8	42.6	30.8
Cabrillo (N = 164)	19.0	96.3	69.8	40.1	54.9	20.0
Isla Vista (N = 27)	51.9	100.0	57.7	74.1	33.3	41.7

Total N = 802 (all beaches)

Water Activity

When asked if they used the ocean when they came to the beach, 90% of all the respondents reported that they did. The same 90% were asked to specifically indicate what they used the ocean for from a list of activities. They were instructed to indicate as many activities as were applicable to them. The results, in Tables 7a and 7b show that wading and swimming were indicated by 98% of the people while each of the rest of the activities was indicated by only 11 to 22% of the people, with skin or scuba diving being mentioned the least (11%). There were some notable differences when the activities were analyzed by individual beaches.

Wading or swimming. At least 96% of the people at each beach indicated they used the ocean for wading or swimming. (100% said they did at East and Isla Vista Beaches).

Board surfing. Isla Vista was the most popular beach for board surfing with 44% of the people indicating that they engaged in it there, and West Beach was the least popular with only 6%, followed by Cabrillo Beach with only 10%. The other beaches recorded an 18-26% such usage by the respondents who said they used the ocean.

Surf fishing. Approximately 10-12% of the respondents at each of the beaches said that they used the ocean for surf fishing, with one strong exception. No one at Isla Vista Beach reported that they used the ocean for surf fishing.

Skin or scuba diving. 20% of the people at West Beach who use the ocean, and 16% at Arroyo Burro, indicated that they used the ocean for skin or scuba diving. The other beaches reported between a 5 and 13% respondent usage rate of the ocean for skin or scuba diving.

Water skiing or boating. Isla Vista Beach was the most popular for water skiing or boating with 41% of the respondents giving an affirmative answer. Leadbetter and East Beaches (16%) were slightly less popular than the remaining beaches where an average of 25% of the people using the ocean, said that they used it for water skiing or boating.

The individual beach breakdown shows that there is no single beach where all of the activities are popular. Isla Vista Beach is the most popular for board surfing and water skiing or boating and the least popular for surf fishing, which is equally popular at the rest of the beaches. Skin or scuba diving is the most popular at West and Arroyo Burro Beaches. The

most frequently mentioned activity, "wading or swimming" which was mentioned by 98% of the respondents, is equally popular at all of the beaches.

Table 7a

Ocean-Related Activity Participation Rates for All Beaches Combined

Activity	percentage	<u>N</u>
Wading or Swimming	98.1	724
Board Surfing	17.5	724
Surf Fishing	11.2	724
Skin or Scuba Diving	10.5	724
Water Skiing or Boating	22.2	724

[See following page for Table 7b]

Table 7b

Comparison of Ocean-Related Participation Rates by Individual Beaches
(Figures are in percentages)

	Wading or Swimming	Board Surfing	Surf Fishing	Skin or Scuba Diving	Water Skiing or Boating
Arroyo Burro (N=115)	99.0	26.2	13.6	15.5	28.2
Goleta (N=109)	97.0	19.2	13.1	7.1	23.2
Lead- Better (N=222)	98.5	17.6	10.8	8.8	16.3
West (N=97)	97.6	6.0	11.8	20.0	23.8
East (N=68)	100.0	20.3	9.4	12.5	15.6
Cabrillo (N=164)	96.6	10.3	11.0	5.5	24.1
Isla Vista (N=27)	100.0	44.4	0.0	7.7	40.7

Total N = 724 (all beaches)

6. Participation in Beach Activities by Resident Status

The results presented in this set of tables show the differences in responses given by residents of the Santa Barbara area compared to the non-residents who were interviewed. Of the 802 persons interviewed, 558 (69.6%) were from the south coast area and the remaining 244 non-residents (30.4%) were from outside the area.

Land Activities

Table 8 shows what the beach area is usually used for by Santa Barbara residents (R) and non-residents (N/R). The statistics indicate that almost all of the respondents, both Santa Barbara residents and non-residents, use the beach for sunbathing. The next most popular activity recorded was picnicking, and the non-residents showed a slightly higher rate of participation in this activity. Approximately half of all respondents, residents and non-residents alike, said that they use the beach to bring their children to play. More strenuous activities such as volleyball and jogging or running are most frequently engaged in by the residents of Santa Barbara.

In general, there are no significant differences between the activities of the Santa Barbara residents and non-residents, except for the more strenuous activities such as volleyball and jogging or running, when the participation rates for the various activities mentioned above are compared.

Table 8

Comparison of Participation Rates for Residents (R) and Non-Residents (N/R)

	R	N/R
Volleyball	31.2%	24.6%
Sunbathing	95.3%	96.7%
Picnicking	62.7%	70.5%
Jogging or Running	47.6%	36.6%
Bring Children to Play	50.4%	50.6%
Other Uses	28.3%	22.8%

Water Activities

Table 9 shows the rate of participation in water-related activities by those respondents indicating they use the ocean (N = 724). For example, 97.8% of the Santa Barbara residents questioned said that they use the ocean for wading or swimming.

When comparing the statistics, almost all of the respondents indicating they use the ocean, use it for wading or swimming. This holds true for both residents and non-residents. About 25% of the residents report using the ocean for boating or water-skiing, while only 18% of the non-residents report this same usage. There are similar differences given for board surfing and skin or scuba diving; indicating residents have significantly higher participation rates. For both groups of respondents, about 1/10 indicated participation in surf fishing.

Table 9

Comparison of Participation Rates

(Figures are in percentages)

	R	N/R
Wading or Swimming	97.8	98.6
Board Surfing	21.4	88.6
Surf Fishing	11.5	10.4
Skin or Scuba Diving	11.7	7.7
Boating or Water Skiing	24.2	17.6

(N = 724)

7. Transportation to the Beach

One important "spillover" effect of the use of automobiles as a mode of transportation to the beach is traffic congestion. Inadequate off-street parking facilities produces an overload on street parking adjacent to the beach. This section summarizes how the beach users travelled to the beach in addition to their opinions on the use of public transportation.

All Modes

Table 10 gives the breakdown for all respondents of which mode they used to get to the beach on the particular day the survey was taken.

Table 10

Distribution of Respondents by Mode

Mode	Percent of Total
Car	76.2
Walk	17.1
Bicycle	4.7
Bus	1.5
Motorcycle	0.5

Given that over three-quarters indicated that they used a car to get to the beach, it is interesting to note that only about 25% of those who used a car (18.7% of the total sample population) said that the car was owned "by someone else". This indicates that except for family members, probably very few "economize" on transportation cost by car pooling. Since the population of Santa Barbara's south coast is distributed along a narrow corridor of land, all of which is adjacent to the coast, there appears to be little incentive to reduce these transportation costs with car pooling.

Because a significant proportion of the total respondents did report walking to the beach (17.1%), cross-tabulations of the use of mode by beach

location were made to see whether or not the "walking" segment was concentrated on a few beaches. It was found that West and Isla Vista Beaches had considerably higher proportions of those reporting walking to the beach, i.e. 70% (Isla Vista) and 43% (West). The high percentage at Isla Vista Beach may be explained by the fact that the entire adjacent university community is within six blocks of the beach; West Beach is adjacent to numerous beach-front motels.

Public Transportation

An insignificant proportion of all respondents took the bus to the beach (1.5%) which may depend both on its availability to beach users and their preference for taking the bus as compared to other available modes.

Table 11 gives the summary of responses to the question, "Is public transportation to this beach available to you?"

Table 11

Responses to Availability of Public Transportation

Available?	Percentage of Total
yes	20.6
no	36.7
"don't know"	42.7

(N = 802)

The high percentage in the third category, "don't know", reflects the fact that this distribution is for all respondents and, since about 30% of the survey population were non-residents, it is plausible that the majority of non-residents would not know the schedules and routing of the local bus system.

The 20% who indicated that public transportation was available to the beach were then asked whether or not the bus was "conveniently scheduled" and "readily accessible" to them. Table 12 gives the breakdown of responses

for this subset of the total population.

Table 12

Convenience of Public Transportation (for those indicating its availability)

(Figures are in percentages)

	Convenient Scheduling?	Readily Accessible?
yes	44.2	67.1
no	22.7	14.6
"don't know"	33.1	18.3

(N = 161)

Those who did not know of the availability of public transportation and those to whom it was not available were asked whether they would "use the beach more" if it were available and readily accessible. Of this subset of the respondents (N = 641), only 12% said they would use it more, with over three-fourths (76.2%) indicating they would not, while 11.8% "didn't know". Thus it appears from these results, given the present availability of competing modes, that public transportation was considered to be an inferior mode by the majority of respondents.

8. Frequency of Beach Use

Several aspects of beach use frequency were asked of the survey respondents, ranging from whether they used the beach in the fall to the time of day they used the beach. This section summarizes these findings, first giving an overall view of the responses to seasonal use, then more closely analyzing how a measure of summer use varies by socio-economic status and participation in beach-related activities.

a. Seasonal Use

Since the survey was conducted in the summer months, the respondents were asked a series of questions on beach use in the fall, winter and spring. When asked whether they did or did not use the beach by season, 64.8% of all respondents indicated they used the beach in the fall, 59.1% in the winter, and 68.1% in the spring. From these response rates, there appears to be a high tendency to use the beach "all year round". Although these results indicate a willingness to use the beach throughout the year, one can expect the frequency of beach use in the non-summer period to decline. This is confirmed by the results in Tables 13a and 13b which give frequency distributions of responses to the days a month and hours per day the respondents used the beach for both summer and non-summer months.

Table 13a

Comparison of Days per Month of Beach Use for Summer and Non-Summer Months

Days per Month	Summer Percentage	Non-Summer Percentage
2 or less	8.2	30.8
3 to 7	25.3	35.9
8 to 14	26.0	19.1
15 to 20	21.3	10.0
21 to 25	7.1	1.4
26 to 31	11.7	2.7

(N = 804)

[See following page for Table 13b]

Table 13b

Comparison of Hours per Day for Summer and Non-Summer Months

Hours per Day	Summer Percentage	Non-Summer Percentage
1 hour or less	2.6	20.1
2 to 3 hours	36.5	59.3
4 to 5 hours	47.0	17.6
6 to 7 hours	9.7	3.0
8 or more hours	4.1	0.0

b. A Measure of Summer Use

It would be desirable to obtain a quantified measure of beach use that would be instrumental in answering such questions as: "How does beach use vary with age or socioeconomic status?" or, "How does participation in beach-related activities affect the frequency of beach use?" Two of the survey questions provide a basis for such a measure. The respondents were asked both how many hours they usually spent at the beach in a given day and how many days they usually went to the beach per month. Responses were elicited for summer and non-summer use. Taking the responses as averages, the following variable can be defined:

$$\frac{H}{M} = \frac{D}{M} \times \frac{H}{D}$$

where:

$$\frac{H}{M} = \text{hours per month}$$

$$\frac{D}{M} = \text{days per month}$$

$$\frac{H}{D} = \text{hours per day}$$

"Hours per month" combines two dimensions of beach use into a single measure. For each survey record in the data file, the responses to "usual hours per day"

and "usual days per month" were multiplied together, yielding "hours per month" spent for each respondent.

Two qualifications were made in this computation of this measure of monthly consumption use. The first restriction was that the measure be confined to residents of Santa Barbara since it was not considered likely that non-residents would use the Santa Barbara beaches for a period of a month or more. The second restriction was that the computation be restricted to responses on summer use as opposed to non-summer use, since the survey was conducted in the summer. Thus the resulting measure represents an estimate of monthly hours spent by the residents in summer.

Monthly Summer Hours by Measures of Socio-Economic Status

For the total resident population ($N = 556$), the average or mean monthly summer hours (MSH) was 59.1 with the distribution of the MSH having a standard deviation of 48.9. To get an idea of how high this estimated average is, consider how many hours this would be daily if a person went only on weekends to the beach. Given 8 weekend days per month, the person would have to spend over 7 hours per day to meet the population average of 59 hours per month. Therefore, there may be subpopulations in the sample with either significantly higher or lower mean MSH's.

Table 14 gives the list of mean hours for several dichotomous classifications of social status for which the total population has been classified.

[See following page for Table 14]

Table 14

Comparison of MSH by Socio-Economic Classifications

Classification	MSH for each group	
	Yes	No
Married?	42.5 (34.4) N=184	67.2 (52.8) N=372
Employed?	54.2 (44.7) N=269	63.6 (52.1) N=287
Student?	67.3 (51.5) N=267	51.8 (45.2) N=287
Head of Household?	54.6 (45.9) N=272	63.3 (51.2) N=285

[NOTE: The first figure in each entry gives the mean hours and the second, in parentheses, gives the standard deviation, a measure of the variability of the individual values within the group.]

The results summarized in Table 14 indicated what one would expect -- a high variability in hours of beach use between distinct subgroups of the population. More fundamentally, these classifications reflect differences in age and availability of leisure time. To explore this relation, both the age and "hours worked" for each respondent (who did work) were correlated with their respective monthly summer hours. Table 15 gives the values for this correlation.

[See following page for Table 15]

Table 15

Correlations Between Age, Hours Worked and Monthly Summer Hours

Correlation Between	Coefficient Value
age and monthly summer hours	-0.2227
hours worked and monthly summer hours	-0.2347
age and hours worked	+0.3048

(N = 397)

Note the weak, but statistically significant, inverse relationship between one's age and use of the beach, and also the positive relationship between leisure (taking "hours worked" as a negative index of leisure) and beach use.

Monthly Summer Hours by Activity Participation

The variability of monthly summer hours of Santa Barbara residents is also evident when the population is partitioned by whether or not they participated in beach-related activities. Table 16 gives the mean, standard deviations, and sizes of subpopulations for selected activities.

Table 16

Comparison of MSH by Activity Participation

Activity	MSH for Each Group	
	Yes	No
Board Surfing	91.4 (60.9) 108	53.5 (41.8) 396
Volleyball	72.2 (52.4) 174	53.2 (46.0) 383
Bring Children to Play	53.2 (41.9) 279	65.3 (54.5) 275

Although it can be seen that the "use-rate" of the beach will vary with the subpopulation involved, it must be remembered that participation in activities and one's socio-economic status are actually highly correlated (i.e. one who is a student frequently surfs). Therefore, the populations "created" for this analysis are not mutually exclusive.

B. Analysis by Residential Location

This chapter focuses on the origins of respondent beach users. One of the outstanding aspects of the survey administration was the identification of the respondent's residential location. Each was asked if he was a South Coast resident and, if so, was given a map (see Appendix B) to indicate in which of thirty numbered sections his residence was located. The boundaries of these maps were aligned to the 1970 census tract boundaries so that statistics for the population from the 1970 census could be compared to the survey results. If the person was not a resident, he was asked to state the place name of his city of residence. These responses were machine coded by "out of state", "California South of Santa Barbara", or "California North of Santa Barbara" and handcoded for the county of origin.

This section presents the basic tract statistics, computation of "representation" and "participation" indices for each tract, and reports preliminary analysis of a comparison of census data with the survey results. A comparison of residential location and beach used by the respondents provides the foundation for an "origin-destination" matrix for residential beach use. The final segment focuses on the user characteristics of the non-resident respondents and reports on the use of a statistical method to "explain" the use of Santa Barbara beaches by non-residents.

1. Indices of Beach Use by Residential Location

Of those questioned in the survey, 558 (almost 70%) of the total respondents lived in the South Coast area of Santa Barbara and each indicated in which census area his tract was located. For every tract, two standardized measures of beach

use were constructed. The first is termed the representation index (R_i) and

$$R_i \equiv B_i \div T_i$$

where:

R_i is the representation index for tract i ;

B_i is the proportion of the total resident respondents reported living in tract i ; and

T_i is the proportion of the reported 1970 census population of the South Coast area included in the map living in tract i .

To interpret this measure, assume that the proportion of those in the survey who reported living in a certain tract was equal to the share of the total South Coast population in that tract. Then the index would have a value of 100 and, if a larger proportion from that tract were interviewed, the index would be greater than 100. This index is needed to weight the number of those interviewed in the survey by the relative size of the population of each tract since the larger the population of the tract, the greater the probability that a person interviewed lives in a particular tract.

The second index is termed the participation index and is constructed by applying the "monthly summer hours of beach use" concept described in the previous section. For every resident, the estimate of his monthly summer hours of beach use was computed and then totalled with all respondents from the same tract. Thus, a "mean summer hours" for each tract was obtained. Dividing each value by the population mean of 59 hours yields the participation index; an index value of 100 signifies that the mean hours of beach use in the particular tract population equal the average for the entire population.

Table 17 lists these indices for every tract along with N_i , the number of respondents from each tract.

[See following page for Table 17]

Table 17

"Representation" and "Participation" Indices
by Residential Location, Classified by Census Tract

Census Tract Identification Number	Mean Summer Hours per Month	Participation Index	N_i	Representation Index
15.00	64.67	109	6	59
14.00	79.85	135	13	100
7.00	46.14	78	14	68
8.00	45.57	77	21	72
6.00	61.00	103	15	82
5.01	45.38	76	21	181
4.00	50.77	86	22	125
9.00	47.00	79	16	121
10.00	62.25	105	12	64
12.01	51.59	87	32	181
12.02	67.88	115	24	165
11.00	74.67	126	15	69
3.00	57.57	97	14	65
13.02	64.24	108	38	135
2.00	80.93	137	15	108
5.02	63.41	107	22	100
1.02	46.58	78	12	84
13.01	100.85	170	26	247
30.02	51.92	88	13	135
1.03	57.80	97	15	128
1.01	47.71	80	7	46
30.03	83.22	141	9	26
30.01	51.14	86	7	63
29.05	58.55	99	33	135
29.07	39.11	66	19	155
29.06	34.00	57	13	62
29.03	39.60	67	5	41
29.01	60.32	102	54	172
29.02	51.80	87	15	135
29.04	32.83	55	12	75
29.08	88.00	149	6	23

Table 18 classifies the tracts listed in Table 17 by their scores on each index; "high" signifies an index value of greater than 100 and "low" signifies an index value of less than or equal to 100.

Table 18
Classification of Census Tracts by Index Scores

		<u>REPRESENTATION</u>			
		<u>INDEX</u>			
<u>PARTICIPATION</u> <u>INDEX</u>		LOW	HIGH	LOW	HIGH
		LOW			
				1.03	
				4.00	
				5.00	
	10.00			9.00	
	11.00			12.01	
	15.00			29.02	
	29.08			29.05	
	30.03			29.07	
HIGH				1.01	2.00
		1.02	5.02		
		3.00	12.02		
		7.00	13.01		
		8.00	13.02		
		29.03	14.00		
		39.04	29.02		
		30.01			
			LOW	HIGH	

A caution must be made to researchers on the comparison of these indices to census data. First, since the samples of respondents partitioned by tract area are small, a high sampling variability of both indices for each tract can be expected. One correction for this variability is to group tract data by regions for analysis. Another precaution is to note that the distribution of interviews by beach may not correspond to the actual distribution of attendance; however, as will be seen below in the section on attendance data, comparable counts of attendance for city

and county beaches are not made, so that an estimate of the actual distribution is difficult.

2. Comparison of Residential and Beach Locations

An examination of where users of particular beaches reside is basic for providing evidence for the "convenience motivation" for beach choice and on the transportation patterns created by beach use. This section compares the distribution of respondents by census tract for each beach surveyed. From the data presented below, beach choice appears to be determined by convenience from place of residence with use of a particular beach declining with the increase in residence. Two strong exceptions to this rule are provided by the distribution of residential locations of those interviewed at Isla Vista and East Beaches.

The various census tracts were combined into larger geographical areas in order to obtain a clearer picture of where beach users come from. Table 19 defines each of these geographical areas by which census tracts are contained in their boundaries. These areas are outlined on the map series (pages 33 through 39). One map for each beach depicts the relative proportions of those from each area for each beach. The depiction is made by a shading legend given in Figure 1 (page 32).

Finally, two tables were constructed which statistically represent the information illustrated by the maps. Table 20 shows the area percentages of respondents going to each particular beach. Table 21 ranks the percentages of people from a geographical area from the highest to the lowest proportion for each particular beach.

[See following page for Table 19]

Table 19

Definition of Area by Tracts
(General Geographical Boundaries)

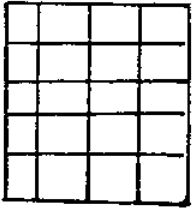
Area I:	"Eastern Foothills" - Montecito area (tracts: 5.01, 7.00, 15.00, 14.00)
Area II:	Downtown central area (tracts: 4.00, 6.00, 3.00, 10.00, 9.00, 8.00, 11.00, 12.01, 12.02)
Area III:	Mesa - Hope Ranch area (tracts: 1.02, 5.02, 2.00, 30.02, 13.01, 13.02)
Area IV:	Goleta area (tracts: 29.08, 29.06, 29.05, 30.01, 1.01, 30.03)
Area V:	Isla Vista - University area (tracts: 29.04, 29.03, 29.02, 29.01)
Area VI:	"Western Foothills" (tracts: 29.07, 1.03)

Figure 1

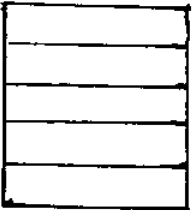
MAP SERIES LEGEND



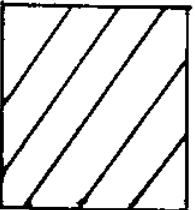
1. The area shaded with this pattern has the highest percentage going to that beach.



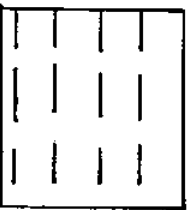
2. The area shaded with this pattern has the second highest percentage going to that beach.



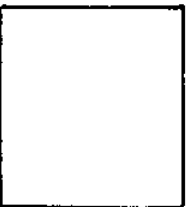
3. The area shaded with this pattern has the third highest percentage going to that beach.



4. The area shaded with this pattern has the fourth highest percentage going to that beach.



5. The area shaded with this pattern has the fifth highest percentage going to that beach.



6. The area shaded with this pattern has the lowest percentage going to that beach.

ARROYO BURRO BEACH (NE1005)

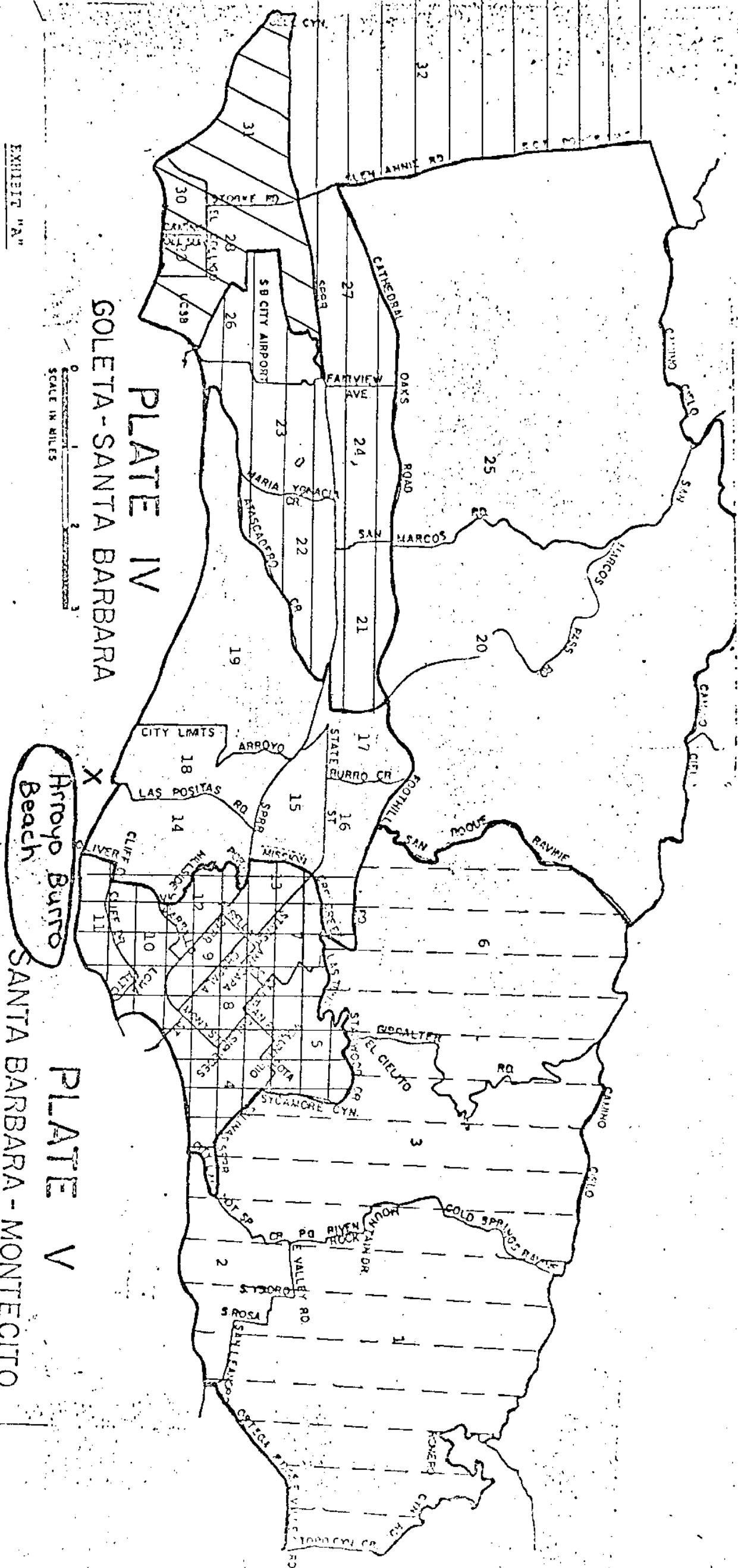


PLATE IV
GOLETA-SANTA BARBARA

Arroyo Burro Beach

PLATE V
SANTA BARBARA-MONTECITO

EXHIBIT "A"

SCALE IN MILES

SCALE IN MILES

ISLA VISTA BEACH (N=23)

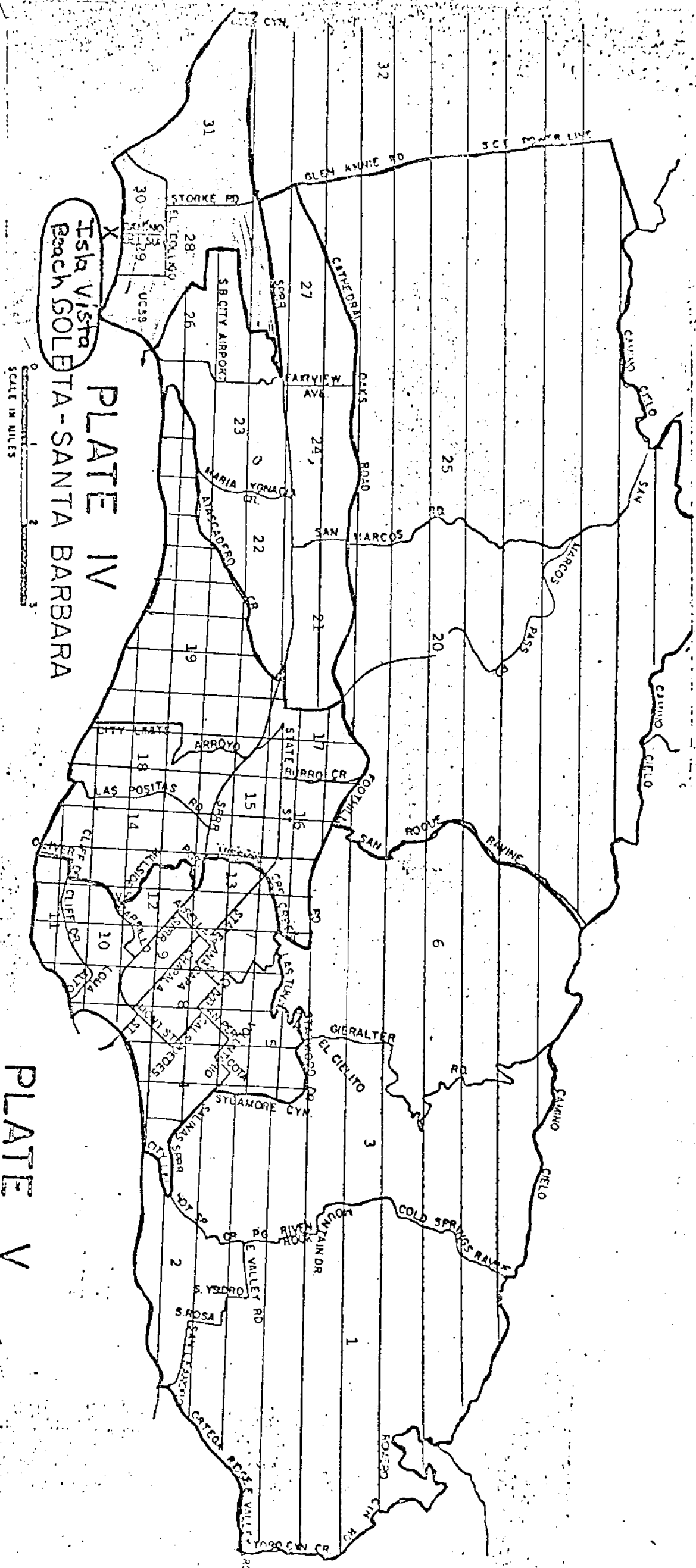


EXHIBIT "A"

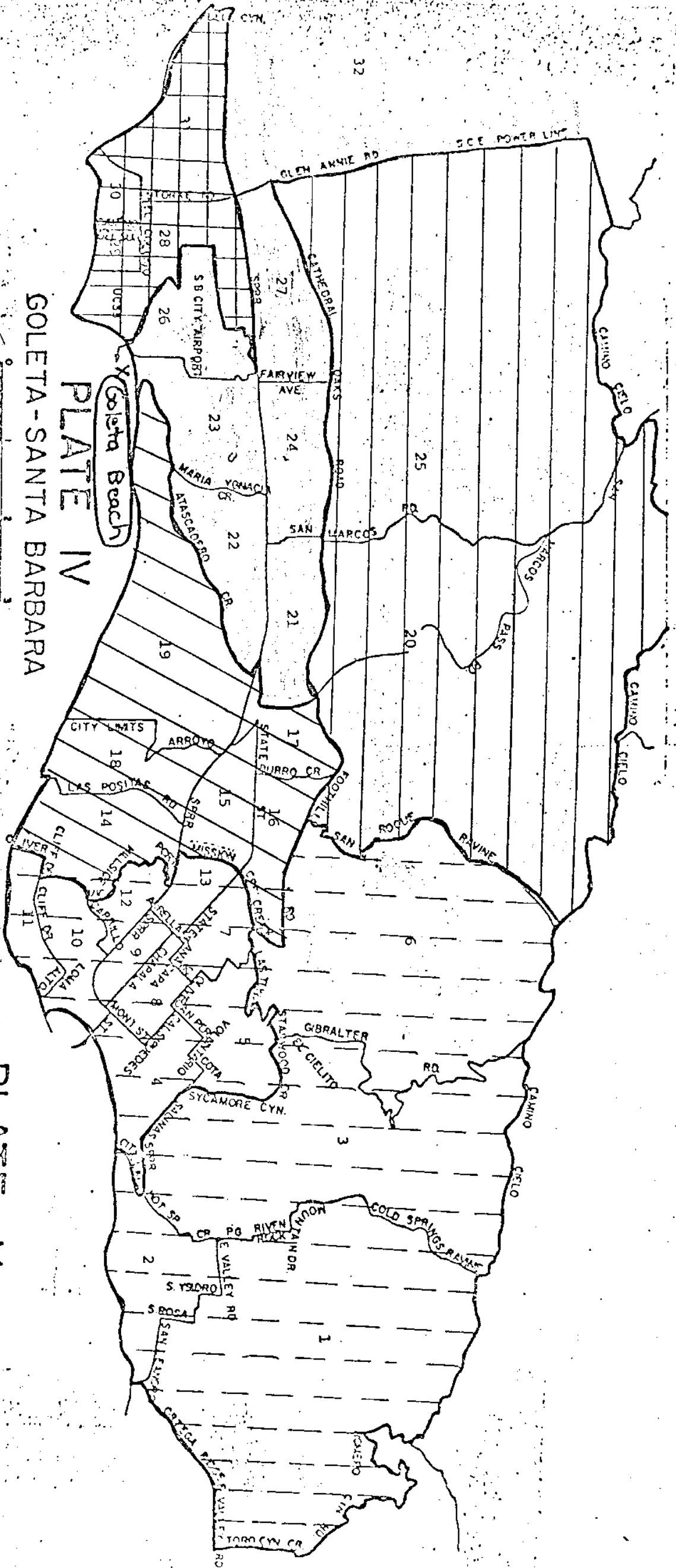
PLATE IV
Isla Vista
Beach SOLETA - SANTA BARBARA



PLATE V
SANTA BARBARA - MONTECITO



GOLETA BEACH (N=98)



GOLETA - SANTA BARBARA

SCALE IN MILES

EXHIBIT "A"

SANTA BARBARA - MONTECITO

SCALE IN MILES

SCALE IN MILES

WEST BEACH (NH45)

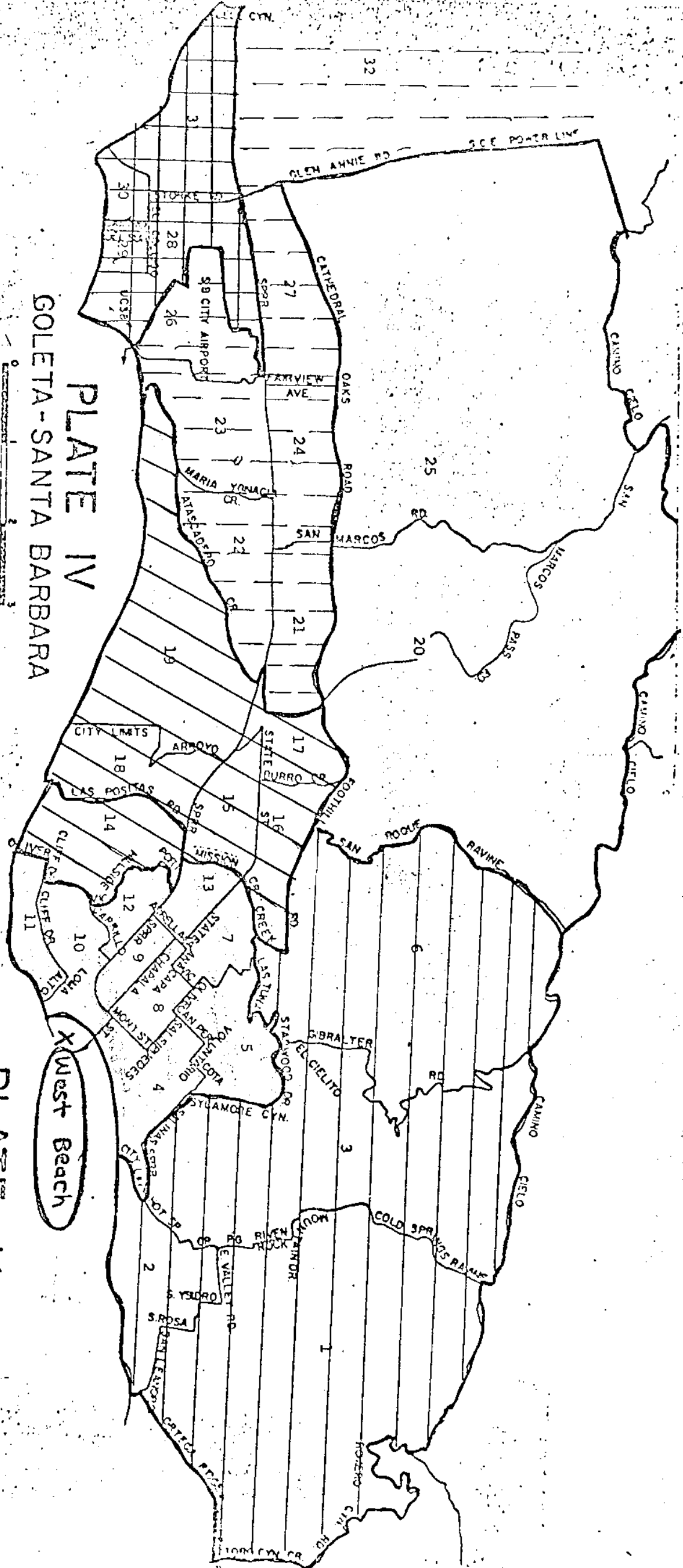
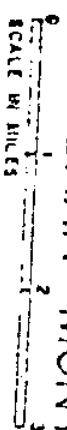


PLATE IV
GOLETA-SANTA BARBARA



EXHIBIT "A"

PLATE V
SANTA BARBARA - MONTECITO



X West Beach

EAST BEACH (N=56)

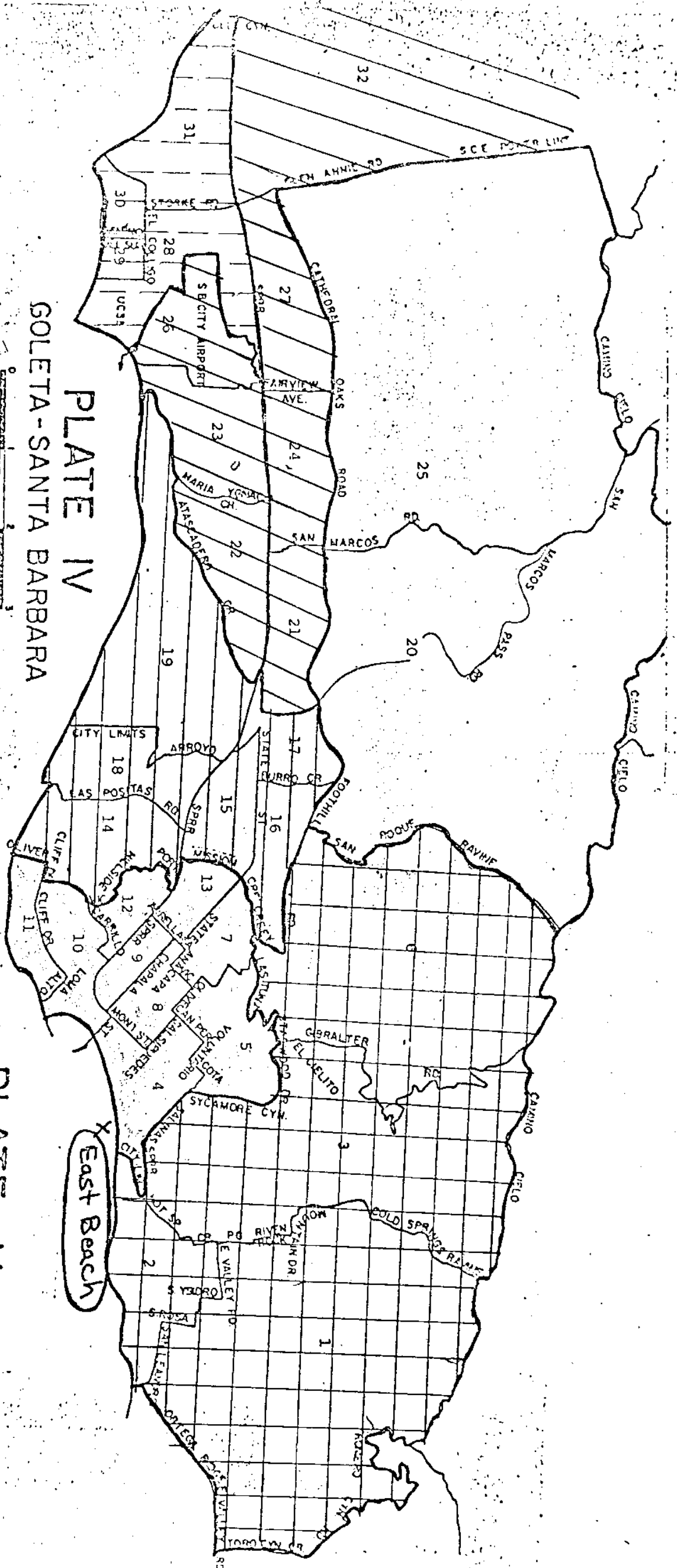


PLATE IV
GOLETA - SANTA BARBARA



PLATE V
SANTA BARBARA - MONTECITO

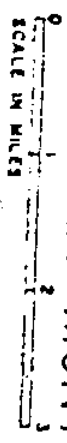


EXHIBIT "A"

CABRILLO BEACH (N=80)

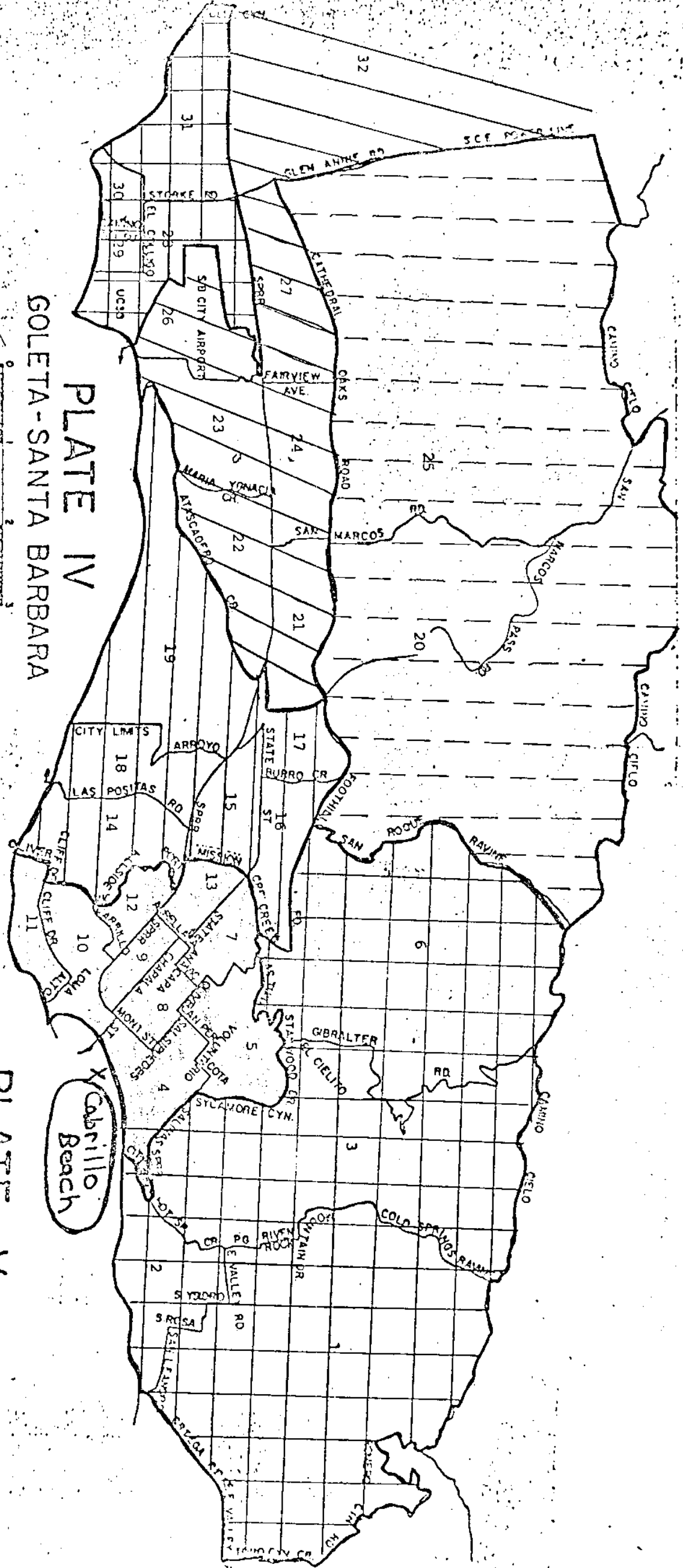


PLATE IV
GOLETA - SANTA BARBARA

SCALE IN MILES
0 1 2 3

PLATE V
SANTA BARBARA - MONTECITO

SCALE IN MILES
0 1 2 3

EXHIBIT "A"

Cabrillo Beach

Table 20

Region Percentages

Beaches

<u>Area</u>	<u>East</u>	<u>West</u>	<u>Lead- better</u>	<u>Goleta</u>	<u>Cabrillo</u>	<u>Isla Vista</u>	<u>Arroyo Burro</u>
1	19.7	15.5	9.7	3.4	15.0	0.0	6.0
2	32.2	44.3	46.6	3.4	46.4	4.3	19.0
3	16.2	11.0	23.9	9.0	13.8	4.3	55.0
4	10.8	8.8	8.9	40.9	7.6	0.0	9.0
5	10.7	17.8	4.7	28.4	15.0	91.3	7.0
6	10.0	2.2	5.8	14.8	2.5	0.0	4.0
N	56	45	154	88	80	23	100

(the percentages indicate the proportion of those who went to a particular beach from a particular area out of the total respondents interviewed at that beach)

Table 21

Ranked Areas for Beach Use by Percentages

<u>Rank</u>	<u>Beach</u>						
	<u>East</u>	<u>West</u>	<u>Lead- better</u>	<u>Goleta</u>	<u>Cabrillo</u>	<u>Isla Vista</u>	<u>Arroyo Burro</u>
highest	Area 2 (32.2)	Area 2 (44.3)	Area 2 (46.6)	Area 4 (40.9)	Area 2 (46.4)	Area 5 (91.3)	Area 3 (55.0)
second highest	Area 1 (19.7)	Area 5 (17.8)	Area 3 (23.9)	Area 5 (28.4)	Area 1 (15.0)	Area 2 (4.3)	Area 2 (19.0)
third highest	Area 3 (16.2)	Area 1 (15.5)	Area 1 (9.7)	Area 6 (14.8)	Area 5 (15.0)	Area 2 (4.3)	Area 4 (9.0)
fourth highest	Area 4 (10.8)	Area 3 (11.0)	Area 4 (8.9)	Area 3 (9.0)	Area 3 (13.8)	Area 1 (0.0)	Area 5 (7.0)
fifth highest	Area 5 (10.7)	Area 4 (8.8)	Area 6 (5.8)	Area 1 (3.4)	Area 4 (7.6)	Area 4 (0.0)	Area 1 (6.0)
lowest	Area 6 (10.0)	Area 6 (2.2)	Area 5 (4.7)	Area 2 (3.4)	Area 6 (2.5)	Area 6 (0.0)	Area 6 (4.0)
N	56	45	154	88	80	23	100

(the areas are ranked from the highest to the lowest percentage of those who went to a particular beach from a particular area out of the total respondents interviewed at that beach)

3. Analysis of Non-Resident Responses

In contrast to the locational identification of residents, the place name of non-residents was not machine coded; this information was, however, recorded on the survey form. This section consists of several summary tables for all non-residents, irrespective of their origin; these are followed with a brief analysis of the distribution of non-resident origins from the limited data available. Non-residents constituted 30.4% of the total sample population. Table 22 gives the basic origin classifications machine coded.

Table 22

Non-Resident Basic Origins

Origin	percent
California, south of Santa Barbara	52.6
California, north of Santa Barbara	24.8
Out of State	22.6

Table 23 shows why the non-resident respondents came to Santa Barbara. Non-residents were asked to state, specifically, what brought them to Santa Barbara the time during which the interview was conducted. The reasons were grouped and coded. For example, 3.3% of the non-residents said they came to Santa Barbara because of a special event of some sort.

[See following page for Table 23]

Table 23

Non-Resident Reasons for Coming to Santa Barbara

Reason	Percent
Relatives	19.6
Beauty of Santa Barbara	14.2
Friends	13.7
Beach Quality	10.4
Passing Through	9.6
On Business	6.3
Weather/Climate	4.6
On Recommendation	3.3
Special Event	3.3
Convenient Location	2.9
With Group or Tour	1.7
Clean Air	1.2
Get Out of Los Angeles	1.2
No Special Reason	0.8
Change of Environment	0.8
Other	6.3

Table 24 shows both the non-residents' usual length of Santa Barbara visits and the length of the visit during which the survey was taken. The statistics for the "length of usual Santa Barbara visit" do not include the 32.2% of the tourists who said the current visit was their first. The statistics for the "length of this Santa Barbara visit" include all tourist respondents. For example, 15.2% of the tourists interviewed who said that this was not their first visit to Santa Barbara said that their usual length of stay in Santa Barbara was three days. Only 11.1% of all the tourists interviewed were staying in Santa Barbara three

days on this visit.

Table 24

Non-Resident Length of Visit Data

Length of Visit Days	Usual Visit Percent	This Visit Percent
1 - at most	29.9	28.2
2	25.0	20.9
3	15.2	11.1
4	3.7	3.3
5	3.0	5.3
6	1.2	2.5
7	7.9	10.7
8 - 14	10.4	11.4
15 or more	3.6	6.4

Table 25 shows the breakdown of non-resident respondents' accommodations while visiting Santa Barbara. For example, 35.7% of the tourists interviewed were staying in a hotel or motel.

Table 25

Non-Resident Accomodations in Santa Barbara

Accomodations	Percent
Hotel or Motel	35.7
Private Residence	33.2
Renting	2.1
Other	29.0

4. Analysis of Use by California Residents

A manual classification of the survey records for grouping the non-residents of California by county of origin was made. This was done with the expectation that, with other available statistical data on counties, a "pilot" statistical model of visitation could be estimated. Table 26 gives a breakdown of the California residents by County of origin.

Table 26

California Residents by County of Origin

County	N	Percent of of Total
Orange	10	5.91
Los Angeles	92	54.40
Contra Costa	2	1.18
Fresno	3	1.77
Alameda	4	2.36
Marin	4	2.36
San Mateo	5	2.95
Stanislaus	1	0.59
Santa Clara	6	3.55
Ventura	12	7.10
San Luis Obispo	1	0.59
Riverside	1	0.59
San Bernardino	4	2.36
San Diego	4	2.36
Santa Cruz	2	1.18
San Joaquin	5	2.95
San Francisco	9	5.32
Sacramento	2	1.18
Tulare	1	0.59
Kern	1	0.59

With this data, the relationship between visitation rates and several measurable variables available for each county were explored. The variables chosen were:

Population. Visitation rates from a county would be expected to vary positively with that county's population, ceteris paribus. For estimation purposes, 1970 Census statistics were obtained for the counties in the sample.

Travel Time. Visitation rates from a county would expect to vary inversely with its travel time to Santa Barbara ceteris paribus. For estimation purposes, the travel time was computed from the population center of each county to Santa Barbara, using the Automobile Club of America estimates.

Income. With higher disposable income, a higher visitation would be expected ceteris paribus. For estimation purposes, California Department of Finance estimates of mean income in 1971 were obtained.

The statistical model that was estimated is of the form:

$$B_i = Y_i^{\alpha_1} \cdot T_i^{\alpha_2} \cdot P_i^{\alpha_3}$$

where:

B_i is a simulated "beach population" from county i based on the sample distribution in Table 26; Y_i is mean income in county i and the exponent α_1 is expected to have a positive sign; T_i is the travel time from Santa Barbara to the i th county with $\alpha_2 < 0$; and P_i is the population of the i th county with $\alpha_3 > 0$.

The log linear form of the functional relationship allows greater interpretation of the estimated coefficients, α_1 , α_2 , α_3 , than a linear model would allow. The coefficients express what percentage the dependent variable changes (in this case B_i) with a one percent change in one of the independent variables (in this case Y_i , T_i , or P_i). For example, if α_2 is greater than 1, then a percentage change in the income will "cause" an even greater percentage change in beach use (i.e. there is an elastic relation between income and visitation. The equation was statistically "fitted" to the data using the ordinary least squares method of regression. The following data gives a summary of the results.

[See following page for Table 27]

Table 27

Statistics on the Visitation Model

$\hat{\sigma}_1$	= 2.92 (coefficient on income)
	(2.495)
$\hat{\sigma}_2$	= -0.63 (coefficient on travel time)
	(-2.228)
$\hat{\sigma}_3$	= 0.51 (coefficient on population)
	(2.495)
R^2	= 0.55 (adjusted for degrees of freedom)
	degrees of freedom = 16

NOTE: Numbers in parentheses are the value of the t statistics.

The first result to note is that 55% of the variance of the beach-use rate between counties is explained by this model which omits any consideration of the non-quantifiable factor of Santa Barbara's scenic beauty. Another factor omitted, but quantifiable, is the intervening opportunities of non-resident beach users for use of beaches between their county and Santa Barbara beaches. Because of this high proportion of the variation explained, recognition of these "basic" factors in predicting future visitation of Santa Barbara seems warranted.

C. User Opinion Data

This section summarizes various responses to "opinion" questions. Beach users were questioned as to their preference among beach areas, mountain areas, and park areas, and as to preferred activities to beach use. Respondents were asked how they perceive the cleanliness of the beaches. In addition, questions on the adequacy of beach facilities were asked. The results are presented in tabular form with brief descriptions and summaries for each table.

1. User Preference: Beach, Mountain, or Park Areas

Table 28 shows the respondent's choice of beach, park, or mountains for his

leisure time if the dollar cost, travel time, and weather were the same for each. Choices were paired and the respondent could rate one in a pair as higher, lower, or rate the two equally. For example, when given the choices between the beach and the mountains, 21.7% of the respondents said they had no preference; their desire to go to the beach was no less and no greater than their desire to go to the mountains.

Table 28

User Preference: Beach, Park or Mountain Areas

	Prefer Beach or Mountains	Prefer Beach or Park	Prefer Park or Mountains
Beach	60.1	95.1	
Public Park		2.2	10.6
Mountains	18.3		86.2
About the Same	21.7	2.6	3.1

The responses indicate that the beach is preferred overall to both the public parks and the mountains. When "going to the beach" is not considered, "going to the mountains" is preferred to the use of public parks.

2. Preferred Alternate Activity to Beach Use

Table 29 gives a condensed classification of the responses to what activity the respondent felt was equivalent in enjoyment to a trip to the beach. Mountain-related activities were suggested most often followed by strenuous non-water outdoor activities. These two items accounted for half of the total responses to the question. Two of the least suggested activities specified were non-beach related ocean use and passive outdoor activities. The responses also seem to indicate that in comparing "enjoyment" between activities, people usually restrict

themselves to comparison with other recreational activities.

Table 29

Alternate Activity to Beach Use

Activity	Percent of Total
Entertainment/indoor activities	8.4
Passive outdoor activities	6.8
Mountain-related activities	26.5
Water-related activities (Non-ocean)	11.8
Strenuous outdoor activities (Non-water)	22.1
Non-beach related ocean use	1.9
Other	5.6
Nothing, don't know	16.9

Code for the Grouping of Individual Responses

Entertainment/indoor activities: Indoor activity, going to the movies, dining out.
Passive outdoor activities: Non-strenuous outdoor activity, going to the movies.
Mountain-related activities: Going to the mountains, hiking, camping.
Water-related activities (non-ocean): Swimming, inland water activity.
Strenuous outdoor activities (non-water): Tennis or golf, bicycling, horseback riding, motorcycling.

3. Beach Cleanliness

The respondents were asked to rate the cleanliness of the beach where they were interviewed on a five point scale ranging from "very dirty" to "very clean". Table 30 indicates that almost three-fourths of the people perceived their beach as "fairly clean" to "very clean". Two interesting results can be noted when the respondents' answers are classified by the beach at which the interview was given. Over 65% of the people at Isla Vista Beach rated this beach as "very dirty". The cleanliness of Arroyo Burro and Goleta Beaches was rated somewhat lower than the remaining beaches.

Table 30

Beach Cleanliness Rating

Cleanliness Rating	Percent of Total
"very dirty"	11.8
"dirty"	17.9
"fairly clean"	28.3
"clean"	30.0
"very clean"	12.0

Those respondents who said that the beach was at best, "fairly clean" (58%) were given a list of problems and asked to rank them from 1 ("greatest problem") to 4 ("least problem". The results in Table 31 indicate that kelp is generally considered the greatest problem affecting beach cleanliness. Tar is seen as next most severe, followed by litter and then oil. When the problems are analyzed according to the individual beaches, some distinct patterns are clear. Kelp is considered the greatest problem at all beaches with the exception of Isla Vista. Tar is considered a somewhat lesser problem at all beaches except for Isla Vista where it is considered as the greatest problem by three-fourths of the respondents there. The respondents generally perceive litter as the least problem at all beaches with the exception of Arroyo Burro. In general, oil is seen as the least problem in relation to the cleanliness of the beach except at Isla Vista Beach where it tends to be seen as somewhat more severe. Table 31 shows which specific problems most/least affect the cleanliness of the beach. Those respondents who said that the beach was, at best, "fairly clean" (57.9%) were given a list of problems and asked to rank them from 1 (greatest problem) to 4 (least problem). For example, 64.5% (of the 57.9% who thought the beach anywhere from very dirty to fairly clean) perceived kelp as being the greatest problem affecting beach cleanliness.

Table 31

Specific Problems Affecting Beach Cleanliness

Rating	Kelp (%)	Tar (%)	Litter (%)	Oil (%)
1 - Greatest	64.5	15.2	12.0	9.2
2	19.2	40.8	22.4	17.1
3	9.2	38.5	24.6	28.6
4 - Least	7.1	5.6	41.0	45.1

The respondents were asked how many miles they would be willing to travel to reach a clean, uncrowded beach. For comparison purposes, the results were divided by resident and non-resident in Table 32. Almost half of the residents were willing to travel only ten miles or less, while approximately the same number of non-residents were willing to travel up to 50 miles. Only one percent of the residents, compared to twenty-one percent of the non-residents, indicated that they would be willing to travel over one-hundred miles. The results in Table 32 suggest that the non-residents are willing to travel a much greater distance to reach a clean, uncrowded beach.

[See following page for Table 32]

Table 32

Distance Respondents are Willing to Travel
to a Clean, Uncrowded Beach

Number of Miles	Residents	Non-Residents
1 mile or less	4.1	0.9
2 - 10 miles	40.6	8.2
11 - 20 miles	25.2	8.7
21 - 30 miles	13.0	15.2
31 - 50 miles	8.8	22.2
51 - 75 miles	4.3	6.0
76 - 100 miles	4.3	17.0
100 or more miles	1.4	21.3

Table 33 shows how often the respondents thought the beach should be cleaned each week. The number was left open; any number could have been given. For example, 23.8% thought the beach should be cleaned 7 times per week.

Table 33

Frequency with Which Beach Should Be Cleaned

#/Week	Percent
0	1.7
1	11.8
2	20.4
3	30.2
4	7.4
5	2.9
6	0.2
7	23.8

The large discrepancy between the two groups may be a reflection of the beach at which they were interviewed (i.e. those answering "seven days a week" may all have come from the same beach or beaches which were very dirty compared to the other beaches).

4. Adequacy of Beach Facilities

A comparison of the adequacy of facilities at the county and city beaches is provided in Table 34. Such a comparison is useful because it classifies the beaches by which agency is responsible for the installation and maintenance of facilities. Opinion information of this kind may help the allocation of funds between the types of facilities the agencies are responsible for.

An examination of Table 34 indicates that concessions, picnic tables, lifeguards, and parking facilities are considered "good" or "very good" by over one-half of the respondents at the county beaches. Only lifeguards and parking facilities were rated as high as the same proportions of respondents interviewed at the city beaches. About one-fourth of the people at city beaches said that the adequacy of restrooms and playground equipment was "poor". Note, however, the sampling size of those interviewed at the city beaches was over twice that of the county beaches (551 versus 251); therefore, the sampling variability of these statistics will be higher for county beaches given equal attendance on each group of beaches.

[See following page for Table 34]

TABLE 34

COMPARISON OF FACILITY RATINGS FOR CITY AND COUNTY BEACHES

Facility	Beach	Rating				
		"very poor" 1(%)	2(%)	3(%)	4(%)	"very good" 5(%)
Restrooms	City	11.8	16.8	45.4	20.0	6.0
	County	13.1	15.5	44.2	17.9	9.2
Concessions	City	6.7	11.5	45.3	23.1	13.5
	County	4.0	5.2	36.8	32.0	22.0
Playground Equipment	City	11.1	12.4	47.7	17.1	11.7
	County	12.4	10.0	39.2	14.4	24.0
Firepits	City	9.3	9.1	43.5	18.9	19.1
	County	14.5	5.2	36.5	22.9	21.3
Picnic Tables	City	8.2	10.7	41.3	21.5	18.2
	County	5.2	7.2	30.4	29.6	27.6
Rental Equipment	City	7.5	5.8	66.1	8.9	11.7
	County	6.0	4.8	63.3	12.0	13.9
Lifeguard	City	6.7	7.5	39.7	22.2	23.7
	County	7.2	10.0	30.7	27.1	25.1
Parking	City	2.2	5.8	20.0	29.7	42.3
	County	3.6	6.8	22.3	31.9	35.5

III. BEACH ATTENDANCE DATA

The attendance section of this report was compiled for the purpose of analyzing trends of beach use. The first question we wanted to answer was, based on annual attendance records, whether beach use is increasing or decreasing over a long time span. Then, given this trend, the related question concerns changes in seasonal use (i.e., whether or not the proportion of summer use also changes over time). User density will also be examined in this section because it is desirable that recreational sites such as beaches be spacious enough to maintain their attractiveness as places where privacy and relaxation can be enjoyed. Finally, a weekly breakdown of attendance for the six weeks the survey was being conducted will be analyzed. Before going on to examine the above mentioned questions, a short explanation of city and county procedures for estimating total beach attendance will be presented.

A. City and County Counting Procedures

The City and the County employ different counting procedures. The city count is made by the beach supervisor. According to the supervisor, the rough count for beach attendance is taken around one o'clock and multiplied by three to account for people leaving and reaching the beaches; thus, an index of beach attendance for the day is obtained.

The County, although it has no set policy for estimating attendance, will generally use one of the following two procedures: (1) to count the number of cars in the parking lot around 2:00 p.m. and multiply the number by four, this factor being an estimate of the number of people coming in one car and (2) (if people start coming early in the morning) the number of cars is counted in the morning and again in the afternoon and the average

number is then obtained. This average is then multiplied by four to obtain the index.

The City count is an aggregate of the attendance on all the city beaches (East, Cabrillo, Leadbetter, and West). According to the 1972 survey in which a detailed beach-by-beach count was made by the research staff, it was found that the attendance distribution for the individual beach is:

<u>Beach</u>	<u>Percent of total attendance (August 1 - 22, 1972)</u>
East	37.6
Cabrillo	32.2
Leadbetter	24.5
West	5.7

The County does provide a count for each of its beaches separately as is shown in Appendix D.

B. User Trends

There has been a trend of increasing beach use for the county beaches. However, there have been many reversals in this trend. For example, in 1965 the attendance at Arroyo Burro was 212,394 and in 1966 it increased to 378,852; then it declined to 208,266 in 1969 and again increased to 285,690 in 1970 as shown in Table 35. This decline in 1969 can be attributed to the Santa Barbara oil spill.

Table 35
Yearly Attendance for County Beaches

Year	Arroyo Burro	Goleta
1960	211,026	187,050
1961	180,390	249,516
1962	188,076	324,307
1963	212,394	377,232
1964	218,220	310,213
1965	329,766	236,611
1966	378,852	264,074
1967	292,506	183,483
1968	277,578	201,956
1969	208,266	388,832
1970	285,690	452,266

It is interesting to note that for this same ten-year period for Goleta and Arroyo Burro Beaches, the attendance during the summer has been decreasing relative to the annual attendance on the beaches. For example, in 1963 the percent of summer use at Arroyo Burro was .679 and it declined to .449 in 1970 as shown in Table 36. Summer use is defined as the total attendance for the months of June, July, August, and September divided by the total annual attendance.

Table 36
Percentage of Summer Use at County Beaches

Year	Arroyo Burro	Goleta
1960	.583	.566
1961	.536	.623
1962	.569	.568
1963	.679	.643
1964	.529	.554
1965	.406	.455
1966	.458	.496
1967	.421	.457
1968	.463	.472
1969	.478	.430
1970	.449	.578

From the daily attendance on the city beaches, Arroyo Burro, and Goleta Beaches as depicted in Appendix D, a total of the attendance on these beaches for each day was obtained and weekly percentages were calculated as shown in Table 37.

Table 37
Weekly Attendance for City and County Beaches

Weeks	Total Attendance	Weekly Percent of Total Attendance
July 1-7	35,310	8.04
July 8-14	54,900	12.46
July 15-21	39,430	8.95
July 22-28	27,470	6.23
July 29 - Aug. 4	52,730	11.99
Aug. 5-11	67,360	15.29
Aug. 12-18	40,600	9.24
Aug. 19-25	34,300	7.78
Aug. 26 - Sept. 1	56,200	12.76
Sept. 2-7	32,010	7.26

It is clear that the highest percentage weekly attendance (i.e., 15.29) was during the week August 5-11. It is interesting to note that the percentages during the weeks July 8-14 and August 26 - September 1 were 12.46 and 12.76 respectively. It is expected that this variation in the percentage attendance is due to the change in the temperature during the summer, which may be worth noting for further studies on beach attendance.

Looking at the trend of attendance on the beaches, the figure shows that there is a clear tendency for the beach attendance to increase as the summer starts and again decrease as the summer ends, as one would expect.

C. Density

The density calculations listed in the column headed "Average Density" in Table 38 were made by dividing total annual attendance by the number of acres of the particular beach (for City Beaches, an aggregate of the four

beach acreage was used) times 365 (number of days in a year). The peak day density was obtained by dividing the largest daily attendance by the acreage of the beach.

Table 38
Per Day Density for City and County Beaches: 1970

Beach	Average Density	Peak Day Density
Arroyo Burro	131	1,167
Goleta	43	182
City Beaches	9	64

Note: Figures are estimated number of persons per acre.

Beach density can be treated as one index of beach quality; however, while interpreting the density, it must be noted that the density values are averages and certain areas of the beach might be quite "crowded" while other areas may be quite "empty". According to the information available, it appears that Arroyo Burro Beach is the most popular beach of those under study. The rather low density values for the city beaches is somewhat biased by the fact that the combined city beaches have three times the acreage of Goleta Beach and twelve times the acreage of Arroyo Burro (see Tables 39 and 40 in section IV, "Cost Data").

Using the density standard given by the California Public Outdoor Recreation Plan, the capacity density standard for beaches is 75 people per acre. The estimates shown in the above table indicate that the density at Arroyo Burro exceeds the standard capacity in the California Recreation Plan.

One attempt to explain the reason for the popularity of Arroyo Burro in spite of its apparent overcrowdedness is to consider the other qualities of the beach relative to the other beaches in the area. Surf quality and

cleanliness may be better than that at the other beaches. Also, the fact that Arroyo Burro is more secluded increases the relative attractiveness of this beach. Therefore, we conclude that beach users assign a sort of trade-off to overcrowdedness and other attributes of the beach.

IV. COST DATA

Since all the beaches in our study area are financed through general tax revenues, it is appropriate that we look at their costs of operation. If we know the costs related to a particular pattern of beach use and if we know the projected population growth patterns, we can determine (1) the increase in beach use and (2) future costs of beach operations.

Collecting data on the operating costs of the beaches in our study was difficult. Although both the city and the county beaches are maintained by the appropriate Department of Parks, often the beaches are not separated from the parks when it comes time to distribute certain administrative and clerical costs. Nevertheless, the data is available, though we are somewhat wary of its accuracy.

A. Source of Data Collection for Costs (City/County)

City Beaches: The city of Santa Barbara has a cost-accounting division in its Department of Finance which provides current, monthly, and cumulative costs for any task of city government. In particular, a computer print-out is available each month which lists the costs (labor, equipment use, and overhead) of every task performed by the City according to the location at which it is performed. The most common tasks of city government are numerically coded and appear on the print-out in ascending order. After the last task, the totals of labor, equipment use, and overhead appear with

a grand total for all three. Examples of relevant tasks to beach operation costs that appear frequently are: (1) trash hauling, (2) kelp hauling, and (3) beach sifting. Data on the cost of providing lifeguard service on the city beaches is not included in the print-out. This data must be obtained from the Director of Beaches and Pools for the City of Santa Barbara.

County Beaches: The data collection for county beaches is not as elaborate as it is for the city beaches. The only source of data is the County Parks Department. This department divides operating expenses into three classifications: (1) Maintenance and Development, (2) Salaries and Benefits, and (3) Administrative and Miscellaneous. The Parks Department seems to have available good records of even the most minor expenses for each of their beaches if one wants to search for specific costs at the department office.

B. Beach Maintenance Procedures (City/County)

Beach Maintenance operations include cleaning the beaches of litter and kelp. The city schedule for beach maintenance is adjusted for seasonal changes in beach use while the county schedule is not.

City Beaches: From the Easter vacation period until October 1, there are two full-time tractor operators assigned to beach maintenance. One operator cleans the beach of litter by means of a tractor drawn sifter which picks up all objects in excess of one-half inch in diameter. The other operator rototills the kelp under the sand. A beach foreman decides which beaches are in need of maintenance and assigns the two operators accordingly.

During the off-season from October 1 to Easter Vacation, the kelp is tilled under the sand about four days a month. If the weather becomes

consistently warm such that the Director of Parks or his assistant believe the beaches will be used, then they clean the beaches as they would during the summer season.

County Beaches: The county employs one full-time tractor operator for kelp control on Goleta, Arroyo Burro, and Isla Vista Beaches. The operator has a fixed weekly schedule all year round.

Monday:	Goleta
Tuesday:	Isla Vista
Wednesday:	Free
Thursday:	Arroyo Burro
Friday:	Goleta

This operator pushes the kelp to one end of the beach and allows the tide to take it back out to sea. The county also employs a full-time park ranger at both Goleta and Arroyo Burro Beaches. The park ranger is the grounds-keeper for the park.

C. Lifeguard Costs

The calculation of lifeguard service costs can only be considered marginally accurate. An average of six to seven lifeguards occupy the city beaches from the hours of 10:00 a.m. to 6:00 p.m. every day of the summer season. The summer season extends from June 15 to September 15. Most guards are paid a salary of \$2.86 per hour. Assuming that seven guards each work eight hours per day for the 90-day summer season, the total cost of lifeguard services amounts to $720 \times 7 \times \$2.86 = \$14,414.40$. According to the Director of Beaches and Pools, this figure can also be used as an annual one since any additional lifeguard service required throughout the rest of the year is performed by a pool supervisor or some other member of the recreational department.

The Director of Beaches and Pools for the City of Santa Barbara also coordinates the lifeguards for the county beaches. The county beaches require

one supervisor (\$4.00/hour) and four guards (\$3.00/hour). Accordingly, the total cost for lifeguard service at these beaches is \$11,520.00.

D. Definitions of City Beach Areas

The maintenance and operating costs shown in the following tables were based on the following definitions of city beach areas (listed from east to west).

<u>East Beach:</u>	From the easterly property line of Clark Estate westerly to Milpas Street extended southerly and westerly to the ocean.
<u>Cabrillo Beach:</u>	From Milpas Street extended southerly and westerly to State Street (not including Palm Park).
<u>West Beach:</u>	From State Street to Sea Wall of the harbor.
<u>Leadbetter Beach:</u>	From the Sea Wall of the harbor to the base of the cliff at Shoreline Park.
<u>Shoreline Park:</u>	From the base of the cliff at Shoreline Park to east line of Fair Acres on Mesa tract. (Not included in costs since it has minimal beach area.)

E. Operating Costs of City and County Beaches

Since data collection on lifeguard service was too sketchy for us to make good estimates of the cost of lifeguard service for particular city beaches, the costs for each beach area do not include the cost of lifeguard service. The cost of lifeguard service is included in the total maintenance and operating cost of all city beaches. The operating costs of the city beaches are shown in Table 39.

Table 39
Operating Costs of City Beaches*

BEACH	FEET OF SHORELINE	ACRES	OPERATING COST/YEAR	\$/FOOT OF SHORELINE	\$/ACRE OF BEACH
East	2,800	17.15	12,896	4.61	751.95
Cabrillo	4,300	9.87	8,969	2.09	908.71
West	2,250	13.57	4,766	2.12	351.22
Leadbetter	3,000	32.80	12,327	4.11	375.82
SUBTOTALS	12,350	73.39	38,958	3.15 ²	530.84 ³
TOTALS	12,350	73.39	53,372 ¹	4.32 ⁴	727.24 ⁵

* Source Of Data: City, Department of Property Management, Department of Finance, Director of Beaches and Pools, Santa Barbara.

Table 40
Operating Costs of County Beaches*

BEACH	FEET OF SHORELINE	ACRES	OPERATING COST/YEAR	\$/FOOT OF SHORELINE	\$/ACRE OF BEACH
Goleta	3,004	29	44,374	14.78	1,530.14
Arroyo Burro	601	6	27,060	45.02	4,510.00
SUBTOTALS	3,605	35	71,343	19.82 ²	2,038.37 ³
TOTALS	3,605	35	84,954 ¹	23.01 ⁴	2,427.26 ⁵

* Source of Data: County, Department of Parks.

The figures noted by exponents (1,2,3,4 and 5) in Tables 39 and 40 above are defined as follows:

1. The total operating cost per year includes the cost of lifeguard services whereas the subtotal excludes the cost of these services.
2. Subtotal operating cost per year divided by subtotal feet of shoreline.
3. Subtotal operating cost per year divided by subtotal acres.
4. Total operating cost per year divided by total feet of shoreline.
5. Total operating cost per year divided by total acres.

V. METHODS OF PROJECTION OF BEACH USE

Estimates of the magnitude of future beach use must be made as one guideline for public policy on the recreational use of the coastal area. However, the quality of such a projection depends on what assumptions can be made to make the estimate more precise than a linear extrapolation of beach attendance figures.

This study cannot provide estimates of future demands on the public beaches of Santa Barbara, but from generalizations inferred from the survey results, a methodological basis for fairly precise projections is provided.

Instead of relating one quantity, such as time or population, to the volume of beach use, it is useful to first separate all those who could potentially use Santa Barbara's beaches into distinct groups. In this way, if distinct beach-using "propensities" can be inferred for each group, then the projection can be more accurate. The first realistic partition is to separate the population into three categories: non-resident student, non-resident tourists, and residents.

It will be remembered that 45% of the survey population classified themselves as "students" and, as a group, used the beach more than the total population. Particularly in the Santa Barbara area, the size of non-resident students (i.e., those enrolled at Westmont College and the University of California) is considerable in relation to the resident population and their future size is, in general, unrelated to the growth of the resident population. While a host of factors may contribute to the change of this student population, the enrollment policies and planning of the school administrations themselves are major determinants; hence, enrollment projections themselves would be useful in an overall forecast of beach use.

"Non-residents" also constituted an appreciable segment of the survey population (30%). Providing an estimate of future beach use by non-residents first requires estimates of population growth in non-resident origins over time, particularly with respect to their classification into travel time zones. Travel time has been shown to be the basic "distance gradient" of recreational use independent of population size. One consideration that must be made is the probable changes in travel-time zones either through construction of new roads (e.g., U.S. 101 between Ventura and Rincon) or more fundamental changes in the modes of transport available to non-resident populations.

Even in projection of the resident population, at least two of its dimensions must be considered: its demographic and aerial aspects. We have seen from the results of this study that age (or, more fundamentally, hours worked) varies inversely with estimated beach use. Thus, the future age "profile" should be known as well as the population size. Given an inverse relation between age and beach use (while holding the distribution of leisure constant), it is easily demonstrated that an increase in population may be accompanied by a reduction in the use of the beach over time if there was a significant shift in the age distribution of the community.

The second aspect of population is its present and future spatial distribution in the community. We have seen from the survey results the choice of a particular beach usually is heavily influenced by the convenience of its location from one's residence; hence, to ask what particular beaches will be used more heavily over time depends on corresponding development over time.

In summary, the components of a comprehensive examination of future beach use would require assumptions for:

1. the change in non-resident student enrollment;
2. the future age and leisure distribution of the resident population;
3. the growth in population in areas of large potentials for visitation in Santa Barbara; and
4. the residential development pattern over time on the South Coast.

IV. METHODS OF ESTIMATING THE ECONOMIC BENEFIT OF BEACH USE

This section has two purposes: first, to review standard techniques for estimating a demand schedule and hence the "willingness to pay" for beach use (such estimates are useful for providing a yardstick for the economic welfare derived from the recreational use of the sea coast) and, second, to discuss the concept of "multiple markets" in examining competing recreational activities on the sea coast.

A. "Willingness to Pay" for Beach Use

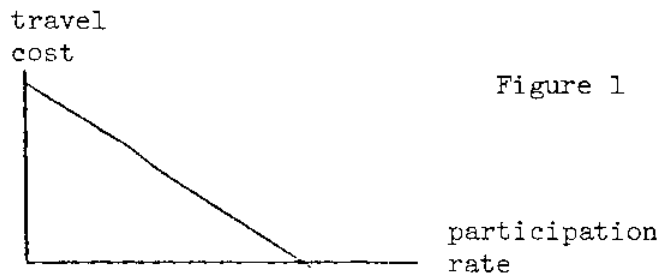
It is at once evident that beach use, in expending leisure time and utilizing public land, can be considered as a commodity consumed by members of the community. But unlike commodities in the private sector, there is no price or admission fee charged that balances the demand and supply of the use of the seacoast; therefore, there is no dollar value that can be directly compared to evaluate the satisfaction received with provision of the beach area for this use.² However, estimates of such a value are useful to implementing a "cost-benefit" framework to assess the competing uses of the

2. The use is, of course, "paid for" indirectly by the direct taxation of the community for maintenance and operation and by foregone reduction in taxes by withholding the seacoast from alternative private uses such as for housing or commercial siting. This is the concept of the "cost" approach to evaluating the economic benefit derived from public operation of beaches.

sea coast.^{3,4}

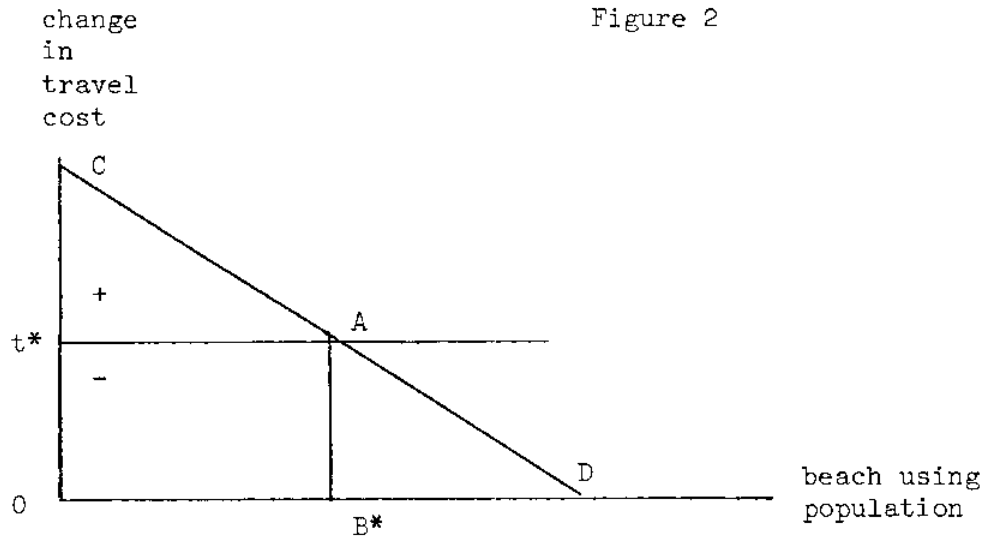
To provide a monetary estimate, two standard approaches are used, both of which require a fairly accurate estimate of beach attendance.

The first method, developed by Harold Hotelling and extended by Marion Clawson⁵ prices the use of a recreation site by how much consumers pay in terms of travel cost to reach that site. In application to the use of the beach, the user population would be divided into zones classified by different travel times or travel costs to the beach, thus requiring the knowledge of the residence location of beach users. Then a participation rate is defined as the ratio of the beach users to the total population in each travel cost zone. From this information a schedule of travel costs and participation rates can be derived as in figure 1.



3. A typical problem for such an application of cost-benefit analysis would be the following: if a privately owned site adjacent to a public beach were to be acquired and developed as a beach-front park, how would the value of the additional recreation area be compared to the corresponding reduction of the community's land available for housing and property tax revenues foregone with the acquisition of the land?
4. Cost-benefit analysis has had a wide variety of applications in "pricing" public enterprises. For example, see Measuring Benefits of Government Investments, Robert Dorfman, editor, Brookings Institute, 1965.
5. The logic and details of estimation are fully discussed in:
Hotelling, H., "An Economic Study of the Monetary Evaluation of Recreation", The Economics of Public Recreation, N. Prescott, Editor, 1949.
Clawson, M., Methods of Measuring the Demand for and Value of Outdoor Recreation, Resources for the Future, Inc. Monograph #10, 1959.

Thus, the slope of the demand curve for the recreational site is established in addition to one point on the demand curve. In Figure 2, the demand curve is estimated by calculating what change in visitation would occur with a change in travel costs.



B^* is the present user population; t^* is the present average travel cost.

This method has several applications. First, the rectangle ($0t^*AB^*$) gives an estimate of the total present travel costs associated with beach use and therefore represents a measure of present expenditures associated with beach use. Second, with changes in the overall travel cost to the beach, the schedule estimates how the total beach using population will vary with travel cost.

This method was originally devised for the analysis of recreational sites which were remote from urban centers for which travel the cost or distance gradient would be quite extensive. In application to Santa Barbara beach use, the analysis is more applicable to non-resident users since the population of residents is distributed along a narrow corridor of land none

of which is more than seven miles distant from the beach. Hence, there is very little variation in travel costs between residents.

An alternative method is termed the "market-proxy" approach. This involves having beach users compare the enjoyment of market-priced commodities to that of beach use. That is, they are asked to estimate the relative amount of satisfaction received (e.g., "just as much", "more than twice as much") between beach use and the market price commodity. The logic of this procedure is that if an individual receives "about twice as much" enjoyment from the beach as from that of another good (e.g., a movie), then he would be willing to pay twice the price of the good compared to use of the beach (e.g., for a movie ticket of \$1.50, a "beach price" of \$3.00).

This technique was employed by Walter Mead and associates⁶ as a part of an attempt to measure the social costs and benefits of the 1969 Santa Barbara oil spill. The study estimated that the reduction in beach use by respondents during the oil spill could be valued at about two million dollars. This estimate was derived by conducting a survey of Santa Barbara residents and determining a ratio of satisfaction between "going to the movies" and beach use at about \$1.75.⁷

Another "market-proxy" approach is to compare the volume of expenditures received at beach sites where a fee is charged as are the State Parks which charge \$1.00 for peak summer day use. This is not a market price, however, because the revenue is generally less than the operating costs. Hence, using this figure would be a very conservative estimate of market price.

6. "The Economic Cost of the Santa Barbara Oil Spill", Walter J. Mead, prepared for the Santa Barbara Oil Symposium, U.C.S.B., December 1970.

7. ibid., pp. 32-38.

B. Multiple Use Development

From the survey results it is clear that beach users engage in a variety of activities. With future population growth and the attendant competition of these activities for the fixed beach areas, it will be important to attempt to identify who engages in these competing activities.

This is the technique of market segmentation; considering the commodity consumed by beach users as an activity, and then deciding how to best allocate the beach area between these distinct demands on the use of the beach area, thus avoiding the beach using population as one homogenous group, is the basis of this technique.

VII. RECOMMENDATIONS FOR FUTURE RESEARCH

This report has presented the results of a comprehensive investigation of beach users or, in economic terminology, data on the demand for beach use. Two directions for future research are evident from the shortcomings of this study's scope. First, the dimensions of the survey could be extended in several directions to incorporate a study of non-modal use - that is, a study of those using the beach in non-summer months or of those users visiting the beach in the early morning or evening. This approach would entail a refinement of the survey coverage.

An alternative direction of the study of beach use would be to focus on the objective characteristics of the beaches: a physical inventory of types of land area, facilities, parking space, and other identifiable components of beach quality. If an inventory were correlated with this study's results, the concepts of "adequacy of facilities", beach "density", and "activity specialization" by beach could be more clearly defined. Coupled with opinion data, a "metering" system of public opinions on beach quality and intensity of use could also be readily developed.

APPENDIX A

SURVEY FORM

INSTRUCTIONS

(SURVEYOR INSTRUCTIONS: ALL TEXTUAL MATERIAL IN CAPITAL LETTERS AND CONTAINED IN PARENTHESES ARE INSTRUCTIONS AND SHOULD NOT BE READ TO THE INTERVIEWEE. ASK ALL QUESTIONS AS WRITTEN. ANY FURTHER INSTRUCTIONS ARE ON A SEPARATE HANDOUT.)

<p>I. (<u>WHY DO PEOPLE USE THE BEACH?</u>) I am going to ask you some questions about why you use the beach.</p>				
<p>1. Do you use the ocean?</p>	5	Yes 1()	No 2()	
<p>2. (IF YES), please indicate from the list I will read to you what are your <u>main reasons</u> for using the water (SLOWLY READ THIS LIST)</p> <p style="margin-left: 40px;">wading or swimming</p> <p style="margin-left: 40px;">board surfing</p> <p style="margin-left: 40px;">surf fishing</p> <p style="margin-left: 40px;">skin or scuba diving</p> <p style="margin-left: 40px;">water skiing or boating</p> <p style="margin-left: 40px;">or what (SPECIFY) _____</p>	6 7 8 9 10	Yes 1()	No 2()	
<p>3. From the list I will read to you, please tell me what you usually use the beach area for. (SLOWLY READ THIS LIST)</p> <p style="margin-left: 40px;">volleyball</p> <p style="margin-left: 40px;">sunbathing</p> <p style="margin-left: 40px;">picnicing</p> <p style="margin-left: 40px;">jogging/running</p> <p style="margin-left: 40px;">change of environment</p> <p style="margin-left: 40px;">bring children to play</p> <p style="margin-left: 40px;">or what (SPECIFY) _____</p>	11 12 13 14 15 16 17	Yes 1()	No 2()	
<p>4. From the list I will read to you, please indicate what is the <u>main reason</u> why you usually come to <u>this particular</u> beach. (SLOWLY READ THIS LIST)</p> <p style="margin-left: 40px;">1. convenient location 2. facilities</p> <p style="margin-left: 40px;">3. beach quality 4. uncrowded</p> <p style="margin-left: 40px;">5. or what (SPECIFY) _____</p>	18	()	(ENTER THE NUMBER OF THE PERSON'S RESPONSE)	
<p>I. (<u>WHEN DO THE PEOPLE USE THE BEACH?</u>) Now I am going to ask you some questions about when you use the beach.</p>				
<p>5. Do you use the beach in the:</p> <p style="margin-left: 40px;">summer</p> <p style="margin-left: 40px;">fall</p> <p style="margin-left: 40px;">winter</p> <p style="margin-left: 40px;">or spring</p>	19 20 21 22	Yes 1()	No 2()	
<p>(ASK EVERYBODY QUESTIONS 6-9)</p>				
<p>6. About how many days a month do you go to the beach in the summer?</p>	23-24	(_)	(ENTER NUMBER)	
<p>7. Do you use the beach more on weekdays or weekends in the summer?</p> <p style="margin-left: 40px;">1. weekdays 2. weekends 3. about the same</p>	25	()		
<p>8. How many hours a day do you <u>usually</u> stay at the beach in the summer?</p>	26	()		
<p>9. In the summer do you <u>usually</u> use the beach</p> <p style="margin-left: 40px;">(1) before noon, (2) noon-4:00,</p> <p style="margin-left: 40px;">(3) 4:00-7:00, (4) after 7:00, or</p> <p style="margin-left: 40px;">(5) all day?</p>	27	()		

SURVEY OF BEACH AREA USE

I.D. No.

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(SEA COAST PLANNING PROJECT - UCSB - SEA GRANT PROGRAM)

(column) 1 2 3 4

INSTRUCTIONS

(SURVEYOR INSTRUCTIONS: ALL TEXTUAL MATERIAL IN CAPITAL LETTERS AND CONTAINED IN PARENTHESSES ARE INSTRUCTIONS AND SHOULD NOT BE READ TO THE INTERVIEWEE. ASK ALL QUESTIONS AS WRITTEN. ANY FURTHER INSTRUCTIONS ARE ON A SEPARATE HANDOUT.)

<p>I. (WHY DO PEOPLE USE THE BEACH?) I am going to ask you some questions about why you use the beach.</p>				
1. Do you use the ocean?	5	Yes 1()	No 2()	
2. (IF YES), please indicate from the list I will read to you what are your main reasons for using the water (SLOWLY READ THIS LIST)		Yes	No	
wading or swimming	6	1()	2()	
board surfing	7	1()	2()	
surf fishing	8	1()	2()	
skin or scuba diving	9	1()	2()	
water skiing or boating	10	1()	2()	
or what (SPECIFY) _____				
3. From the list I will read to you, please tell me what you usually use the beach area for. (SLOWLY READ THIS LIST)		Yes	No	
volleyball	11	1()	2()	
sunbathing	12	1()	2()	
picnicing	13	1()	2()	
jogging/running	14	1()	2()	
change of environment	15	1()	2()	
bring children to play	16	1()	2()	
or what (SPECIFY) _____	17	1()	2()	
4. From the list I will read to you, please indicate what is the main reason why you usually come to this particular beach. (SLOWLY READ THIS LIST)	18	()	(ENTER THE NUMBER OF THE PERSON'S RESPONSE)	
1. convenient location				
2. facilities				
3. beach quality				
4. uncrowded				
5. or what (SPECIFY) _____				
<p>I. (WHEN DO THE PEOPLE USE THE BEACH?) Now I am going to ask you some questions about when you use the beach.</p>				
5. Do you use the beach in the:		Yes	No	
summer	19	1()	2()	
fall	20	1()	2()	
winter	21	1()	2()	
or spring	22	1()	2()	
<p>(ASK EVERYBODY QUESTIONS 6-9)</p>				
6. About how many days a month do you go to the beach in the summer?	23-24	(_)	(ENTER NUMBER)	
7. Do you use the beach more on weekdays or weekends in the summer?				
1. weekdays				
2. weekends				
3. about the same	25	()		
8. How many hours a day do you usually stay at the beach in the summer?	26	()		
9. In the summer do you usually use the beach	27	()		
(1) before noon,				
(2) noon-4:00,				
(3) 4:00-7:00,				
(4) after 7:00, or				
(5) all day?				

I. (WHEN DO THE PEOPLE USE THE BEACH?) - continued

(ASK QUESTIONS 10-13 OF JUST THOSE PERSONS WHO INDICATE USE AT TIMES OTHER THAN SUMMER. IF THEY DO NOT USE THE BEACH AT TIMES OTHER THAN SUMMER, SKIP TO QUESTION 14.)

10. About how many days a month do you go to the beach at times other than summer months?	28-29	(_)
11. Do you use the beach more on weekdays or weekends at times other than summer months? 1. weekdays 2. weekends 3. about the same	30	()
12. How many hours a day do you usually stay at the beach at times other than summer months?	31	()
13. At times other than summer months do you usually use the beach. (1) before noon, (2) noon-4:00, (3) 4:00-7:00, (4) after 7:00, or (5) all day?	32	()
<p>II. (HOW DID THE PEOPLE GET TO THE BEACH?) I am going to ask you some questions about travel to and from the beach.</p>		
14. How did you get to <u>this</u> beach today? 1. car 2. walk 3. bicycle 4. bus 5. motorcycle	33	()
15. (IF BY CAR), is it your own car?	34	Yes No 1() 2()
16. Would you pay a 25 cent daily parking fee to use this beach area?	35	Yes No No Op. 1() 2() Y()
17. Is public transportation to this beach available to you?	36	1() 2() Y()
18. (IF YES) Does it go to and from the beach when you want to go to and from the beach?	37	1() 2() Y()
19. Is the public transportation easy for you to get to?	38	1() 2() Y()
20. (IF NO OR DON'T KNOW) Would you use this beach more often if public transportation were available when you want to go to the beach?	39	1() 2() Y()
21. If the public transportation were easy to get to, would you use this beach more often?	40	1() 2() Y()

I. (WHEN DO THE PEOPLE USE THE BEACH?) - continued

(ASK QUESTIONS 10-13 OF JUST THOSE PERSONS WHO INDICATE USE AT TIMES OTHER THAN SUMMER. IF THEY DO NOT USE THE BEACH AT TIMES OTHER THAN SUMMER, SKIP TO QUESTION 14.)

10. About how many days a month do you go to the beach at times other than summer months?	28-29	(_)
11. Do you use the beach more on weekdays or weekends at times other than summer months? 1. weekdays 2. weekends 3. about the same	30	()
12. How many hours a day do you usually stay at the beach at times other than summer months?	31	()
13. At times other than summer months do you usually use the beach. (1) before noon, (2) noon-4:00, (3) 4:00-7:00, (4) after 7:00, or (5) all day?	32	()
I. (HOW DID THE PEOPLE GET TO THE BEACH?) I am going to ask you some questions about travel to and from the beach.		
14. How did you get to this beach today? 1. car 2. walk 3. bicycle 4. bus 5. motorcycle	33	()
15. (IF BY CAR), is it your own car?	34	Yes No 1() 2()
16. Would you pay a 25 cent daily parking fee to use this beach area?	35	Yes No No Op. 1() 2() Y()
17. Is public transportation to this beach available to you?	36	1() 2() Y()
18. (IF YES) Does it go to and from the beach when you want to go to and from the beach?	37	1() 2() Y()
19. Is the public transportation easy for you to get to?	38	1() 2() Y()
20. (IF NO OR DON'T KNOW) Would you use this beach more often if public transportation were available when you want to go to the beach?	39	1() 2() Y()
21. If the public transportation were easy to get to, would you use this beach more often?	40	1() 2() Y()

V. (OPINION QUESTIONS) I would like to get your opinion on several items.

<p>22. Now, I am going to read to you a list of beach area facilities. Please tell me how adequate you feel the facilities on <u>this particular beach</u> are. Rate them on a scale of one to five, where 5 is (very good), 4 (good), 3 (fair), 2 (poor), and 1 (very poor). (SLOWLY READ THE LIST)</p> <p style="margin-left: 400px;">concessions restrooms playground equipment fire pits/barbeque tables equipment rental lifeguard</p>	<p>41 42 43 44 45 46 47</p>	<p>(ENTER NUMBER)</p> <p>() () () () () () () (IF THE PERSON RESPONDS WITH A DON'T KNOW ENTER A Y)</p>
<p>23. I would like you to tell me how you feel about the available parking at this beach. Please tell me how adequate you feel the parking is on a scale from 1 to 5, where 5 is (very good), 4 (good), 3 (fair), 2 (poor), and 1 (very poor).</p>	<p>48</p>	<p>()</p>
<p>24. If <u>this</u> beach were closed, would you go to another one?</p>	<p>49</p>	<p>Yes No No Op. 1() 2() Y()</p>
<p>25. (IF YES), which one?</p> <p>1. Goleta 2. Arroyo Burro (Henry's) 3. Shoreline 4. Leadbetter 5. West 6. Cabrillo 7. East 8. Isla Vista 9. other (<u>specify</u>)</p>	<p>50</p>	<p>(ENTER NUMBER) ()</p>
<p>26. Please tell me how clean you feel this beach <u>usually</u> is by rating it on a scale of 1 to 5, where 5 is (very clean), 4 (clean), 3 (fairly clean), 2 (dirty), or 1 (very dirty).</p>	<p>51</p>	<p>()</p>
<p>27. (IF THE RESPONSE TO QUESTION 26 WAS 1-3), from the list I will read you, rank in order from most problem (1) to least problem (4), how the items on the list <u>usually</u> affect the cleanliness of this beach.</p> <p style="margin-left: 400px;">litter kelp tar oil</p>	<p>52 53 54 55</p>	<p>() () () ()</p>
<p>28. How many times a week do you think this beach should be cleaned?</p>	<p>56</p>	<p>()</p>
<p>29. If the dollar cost, travel time and weather were the same for each, would you prefer to go to:</p> <p>a) the beach or the mountains 1. beach 2. mountains 3. about same</p>	<p>57</p>	<p>()</p>
<p>30. b) the beach or a public park? 1. beach 2. public park 3. about same</p>	<p>58</p>	<p>()</p>
<p>31. c) the mountains or a public park? 1. mountains 2. public park 3. about same</p>	<p>59</p>	<p>()</p>

. (OPINION QUESTIONS) I would like to get your opinion on several items.		(ENTER NUMBER)						
22. Now, I am going to read to you a list of beach area facilities. Please tell me how adequate you feel the facilities on <u>this particular</u> beach are. Rate them on a scale of one to five, where 5 is (very good), 4 (good), 3 (fair), 2 (poor), and 1 (very poor). (SLOWLY READ THE LIST)								
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>concessions</p> <p>restrooms</p> <p>playground equipment</p> <p>fire pits/barbeque</p> <p>tables</p> <p>equipment rental</p> <p>lifeguard</p> </div> <div style="width: 15%;"> <p>41</p> <p>42</p> <p>43</p> <p>44</p> <p>45</p> <p>46</p> <p>47</p> </div> <div style="width: 40%;"> <p>()</p> <p>()</p> <p>()</p> <p>()</p> <p>()</p> <p>()</p> <p>()</p> </div> </div>		(IF THE PERSON RESPONDS WITH A DON'T KNOW ENTER A Y)						
23. I would like you to tell me how you feel about the available parking at this beach. Please tell me how adequate you feel the parking is on a scale from 1 to 5, where 5 is (very good), 4 (good), 3 (fair), 2 (poor), and 1 (very poor).	48	()						
24. If <u>this</u> beach were closed, would you go to another one?	49	<table style="width: 100%; border: none;"> <tr> <td style="text-align: center;">Yes</td> <td style="text-align: center;">No</td> <td style="text-align: center;">No Op.</td> </tr> <tr> <td style="text-align: center;">1()</td> <td style="text-align: center;">2()</td> <td style="text-align: center;">Y()</td> </tr> </table>	Yes	No	No Op.	1()	2()	Y()
Yes	No	No Op.						
1()	2()	Y()						
25. (IF YES), which one? 1. Goleta 2. Arroyo Burro (Henry's) 3. Shoreline 4. Leadbetter 5. West 6. Cabrillo 7. East 8. Isla Vista 9. other (specify)	50	(ENTER NUMBER) ()						
26. Please tell me how clean you feel this beach <u>usually</u> is by rating it on a scale of 1 to 5, where 5 is (very clean), 4 (clean), 3 (fairly clean), 2 (dirty), or 1 (very dirty).	51	()						
27. (IF THE RESPONSE TO QUESTION 26 WAS 1-3), from the list I will read you, rank in order from most problem (1) to least problem (4), how the items on the list <u>usually</u> affect the cleanliness of this beach.								
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>litter</p> <p>kelp</p> <p>tar</p> <p>oil</p> </div> <div style="width: 15%;"> <p>52</p> <p>53</p> <p>54</p> <p>55</p> </div> <div style="width: 40%;"> <p>()</p> <p>()</p> <p>()</p> <p>()</p> </div> </div>								
28. How many times a week do you think this beach should be cleaned?	56	()						
29. If the dollar cost, travel time and weather were the same for each, would you prefer to go to: a) the beach or the mountains 1. beach 2. mountains 3. about same	57	()						
30. b) the beach or a public park? 1. beach 2. public park 3. about same	58	()						
31. c) the mountains or a public park? 1. mountains 2. public park 3. about same	59	()						

V. (OPINION QUESTIONS): I would like to get your opinions on several items.

(ASK THIS QUESTION BEFORE QUESTION #22)

A. What activity gives you the same amount of enjoyment as a trip to the beach?

(SPECIFY) _____

(IF THE INTERVIEW IS AT THE BEACH SKIP TO QUESTION #22)

B. (IF THE INTERVIEW IS AT A PARK OR IN THE MOUNTAINS): What is the beach of your choice?

(CIRCLE THE APPROPRIATE NUMBER)

1. Goleta 2. Arroyo Burro (Henry's)
3. Shoreline 4. Leadbetter 5. West
6. Cabrillo 7. East 8. Isla Vista
9. Other (SPECIFY) _____

(CONTINUE WITH QUESTION #22)

7. OPINION QUESTIONS- continued -

32. How far are you willing to travel to use a clean, uncrowded beach?	60-62	(_ _)
<u>7. (WHO USES THE BEACH?)</u> I am now going to ask you some questions about where you live and so on.		
34. Do you live in the Santa Barbara area?	63	Yes 1() No 2()
35. (IF YES), from Exhibit A please indicate where you live. (SKIP TO QUESTION 4.).	64-65	(_)
36. (IF NO), where are you from? (SPECIFY) _____ (AT THE RIGHT ENTER NUMBER OF RESPONSE) 1. Calif. (south of Santa Barbara) 2. Calif. (north of Santa Barbara) 3. out of state	66	(ENTER NUMBER) ()
<u>(ASK ONLY TOURISTS QUESTIONS 37 TO 43)</u>		
37. Is this the first time that you have come to Santa Barbara?	67	Yes 1() No 2()
38. (IF NO): How many times have you been here before?	68-69	(ENTER NUMBER) (_)
39. How many times do you come to Santa Barbara in a year?	70-71	(_)
40. How many <u>days</u> do you <u>usually</u> stay on your visits to Santa Barbara?	72-73	(_)
41. How many <u>days</u> are you staying in the Santa Barbara area on <u>this</u> visit?	74-75	(_)
42. Are you staying in a (1) hotel/motel (2) private residence (3) renting or (4) what (SPECIFY) _____?	76	()
43. Why did you come to Santa Barbara rather than going some place else? (SPECIFY) _____		
<u>(ASK ALL PERSONS THE FOLLOWING QUESTIONS)</u>		
Now to complete the survey I have just a few more questions that I would like you to answer.		
44. What is your age?	77-78	(_)
45. Are you (1) single, (2) married, (3) divorced, or (4) separated	79	()

v. (OPINION QUESTIONS)- continued -

32. How far are you willing to travel to use a clean, uncrowded beach?	60-62	(_ _)
7. (WHO USES THE BEACH?) I am now going to ask you some questions about where you live and so on.		
34. Do you live in the Santa Barbara area?	63	Yes 1() No 2()
35. (IF YES), from Exhibit A please indicate where you live. (SKIP TO QUESTION 44).	64-65	(_)
36. (IF NO), where are you from? (SPECIFY) _____ (AT THE RIGHT ENTER NUMBER OF RESPONSE) 1. Calif. (south of Santa Barbara) 2. Calif. (north of Santa Barbara) 3. out of state	66	(ENTER NUMBER) ()
(ASK ONLY TOURISTS QUESTIONS 37 TO 43)		
37. Is this the first time that you have come to Santa Barbara?	67	Yes 1() No 2()
38. (IF NO): How many times have you been here before?	68-69	(ENTER NUMBER) (_)
39. How many times do you come to Santa Barbara in a year?	70-71	(_)
40. How many days do you usually stay on your visits to Santa Barbara?	72-73	(_)
41. How many days are you staying in the Santa Barbara area on this visit?	74-75	(_)
42. Are you staying in a (1) hotel/motel (2) private residence (3) renting or (4) what (SPECIFY) _____ ?	76	()
43. Why did you come to Santa Barbara rather than going some place else? (SPECIFY) _____		
(ASK ALL PERSONS THE FOLLOWING QUESTIONS)		
Now to complete the survey I have just a few more questions that I would like you to answer.		
44. What is your age?	77-78	(_)
45. Are you (1) single, (2) married, (3) divorced, or (4) separated	79	()

7. (WHO USES THE BEACH?) continued -

46. If you have children of your own, how many children live with you?	80	()
47. Did you bring children to the beach today?	81	Yes No 1() 2()
48. (IF YES), how many?	82	()
49. Are you employed?	83	Yes No 1() 2()
50. (IF YES), what is your occupation? (SPECIFY)		
51. How many hours a week do you usually work at this occupation?	84-85	() (ENTER NUMBER)
52. Were you a full-time registered student last spring?	86	Yes No 1() 2()
53. In what type of housing do you live? (1) Apartment (2) house (3) trailer or (4) what (SPECIFY)	87	() (ENTER NUMBER)
54. Do you (1) own or (2) rent your housing?	88	()
55. Are you the head of the household (main wage earner)?	89	Yes No 1() 2()
(IF NO):		
56. Who is? 1. spouse 2. mother 3. father 4. sister 5. brother 6. other relative 7. non-related person 8. other (SPECIFY)	90	() (ENTER NUMBER)
57. What is his (or her) occupation? (SPECIFY)		
58. How many hours a week does he (or she) usually work at this occupation?	91-92	()
59. How many people are living in your household including yourself?	93-94	()
60. About how much money do you usually spend during a day at this beach?	95-98	()

THANK YOU

7: (WHO USES THE BEACH?) continued -

46.	If you have children of your own, how many children live with you?	80	()
47.	Did you bring children to the beach today?	81	Yes 1() No 2()
48.	(IF YES), how many?	82	()
49.	Are you employed?	83	Yes 1() No 2()
50.	(IF YES), what is your occupation? (SPECIFY)		
51.	How many hours a week do you usually work at this occupation?	84-85	(_) (ENTER NUMBER)
52.	Were you a full-time registered student last spring?	86	Yes 1() No 2()
53.	In what type of housing do you live? (1) Apartment (2) house (3) trailer or (4) what (SPECIFY)	87	() (ENTER NUMBER)
54.	Do you (1) own or (2) rent your housing?	88	()
55.	Are you the head of the household (main wage earner)?	89	Yes 1() No 2()
56.	(IF NO): Who is? 1. spouse 2. mother 3. father 4. sister 5. brother 6. other relative 7. non-related person 8. other (SPECIFY)	90	() (ENTER NUMBER)
57.	What is his (or her) occupation? (SPECIFY)		
58.	How many hours a week does he (or she) usually work at this occupation?	91-92	(_)
59.	How many people are living in your household including yourself?	93-94	(_)
60.	About how much money do you usually spend during a day at this beach?	95-98	(_ _ _)

THANK YOU

(THE FOLLOWING IS TO BE FILLED OUT BY THE SURVEYOR AFTER EACH INTERVIEW)

61. Sex of person interviewed	99	male female 1() 2()
62. Race of person interviewed 1. white 2. black 3. Chicano 4. Oriental	100	() (ENTER NUMBER)
63. Time of day interview ended	101-104	(_ _ _)
64. Day of Week (1) Sun (2) Mon (3) Tu (4) Wed (5) Thur (6) Fri (7) Sat	105	()
65. Date (EXAMPLE: July 24 - 724)	106-109	(_ _ _)
66. Weather at the beach (1) clear (2) partly cloudy (3) cloudy (4) fog	110	()
67. (1) light wind (2) medium wind (3) strong wind	111	()
68. (1) warm (2) cool	112	()
69. Beach: (1) Arroyo Burro (Henry's) (2) Goleta (3) Shoreline (4) Leadbetter (5) West (6) East (7) Cabrillo #1 (8) Cabrillo #2	113	()
70. Initials of Surveyor (EXAMPLE: JCJ)	114-116	(_ _)
71. Sex of Surveyor:	117	male female 1() 2()

72. List any special comments

(THE FOLLOWING IS TO BE FILLED OUT BY THE SURVEYOR AFTER EACH INTERVIEW)

61. Sex of person interviewed	99	male 1()	female 2()
62. Race of person interviewed 1. white 2. black 3. Chicano 4. Oriental	100	() (ENTER NUMBER)	
63. Time of day interview <u>ended</u>	101-104	(_ _ _ _)	
64. Day of Week (1) Sun (2) Mon (3) Tu (4) Wed (5) Thur (6) Fri (7) Sat	105	()	
65. Date (EXAMPLE: July 24 - 724)	106-109	(_ _ _ _)	
66. Weather at the beach (1) clear (2) partly cloudy (3) cloudy (4) fog	110	()	
67. (1) light wind (2) medium wind (3) strong wind	111	()	
68. (1) warm (2) cool	112	()	
69. Beach: (1) Arroyo Burro (Henry's) (2) Goleta (3) Shoreline (4) Leadbetter (5) West (6) East (7) Cabrillo #1 (8) Cabrillo #2	113	()	
70. Initials of Surveyor (EXAMPLE: JCJ)	114-116	(_ _ _)	
71. Sex of Surveyor:	117	male 1()	female 2()
72. List any special comments			

APPENDIX B

MAP OF CENSUS TRACTS

EXHIBIT "A"

SCALE IN MILES

SCALE IN MILES

T.V.

GOLETA-SANTA BARBARA

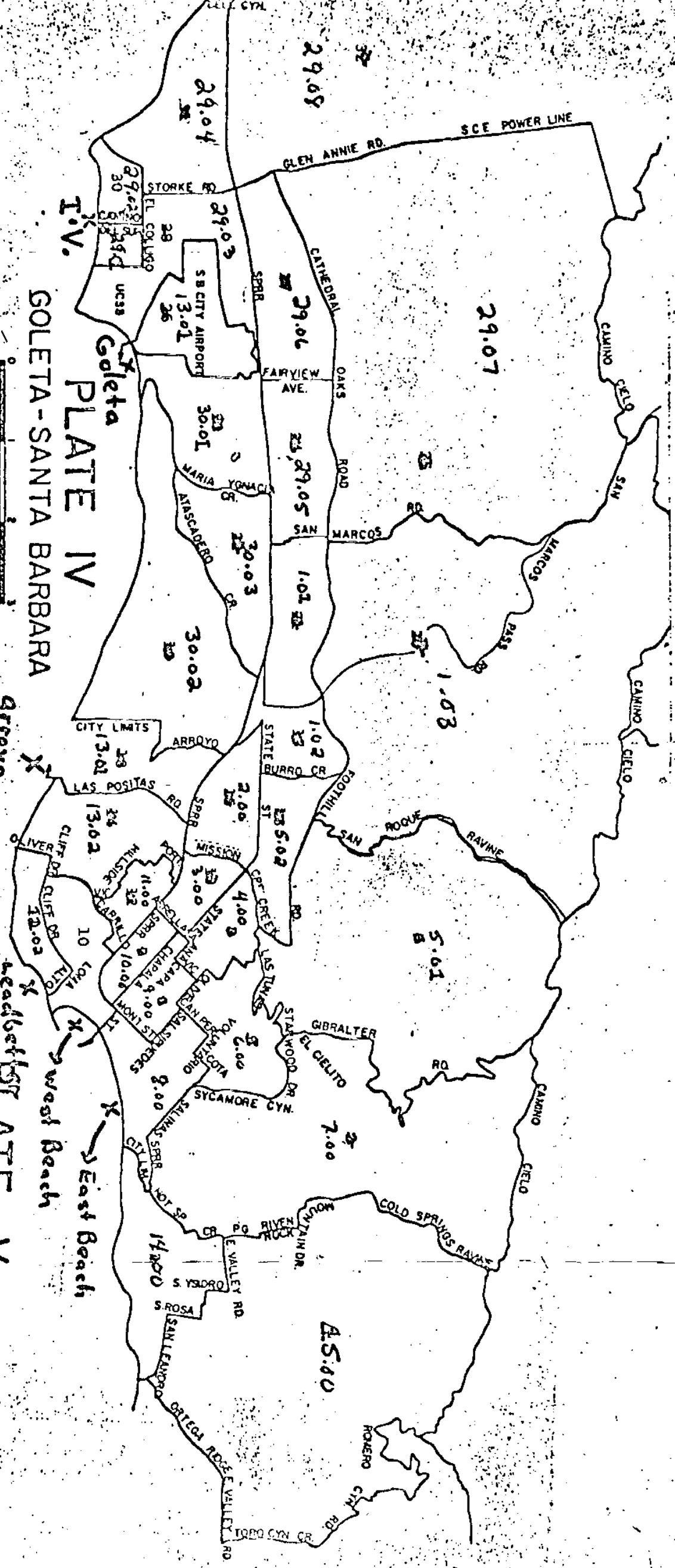
PLATE IV

SANTA BARBARA - MONTECITO

PLATE V

East Beach
West Beach

Arroyo
Bueno



APPENDIX C

SURVEY ADMINISTRATIVE DATA

SURVEY ADMINISTRATIVE DATA

The following set of tables shows in percentage form:

1. The time of day the interview ended (Table 1)
2. The day of the week on which the survey was taken (Table 2)
3. The approximate date on which the survey was taken (Table 3)
4. The beach at which the survey was taken (Table 4) and
5. A geographic description of the beach area.

Table 1

Time of Day	Percent
10:00 - 10:00 AM	0.2
10:31 - 11:00 AM	0.6
11:31 - 12:00 PM	1.4
12:01 - 12:30 PM	9.3
12:31 - 1:00 PM	5.6
1:01 - 1:30 PM	16.5
1:31 - 2:00 PM	12.8
2:01 - 2:30 PM	11.7
2:31 - 3:00 PM	11.5
3:01 - 3:30 PM	10.7
3:31 - 4:00 PM	9.1
4:01 - 4:30 PM	3.1
4:31 - 5:00 PM	2.0
5:01 - 5:30 PM	1.7
5:31 - 6:00 PM	0.9
After 6:00 PM	0.6

Table 2

Day of the Week	Percent
Sunday	15.1
Monday	5.9
Tuesday	11.3
Wednesday	14.8
Thursday	23.2
Friday	13.1
Saturday	16.6

Table 3

Date	Percent
July 23 - 31	16.8
August 1 - 7	15.2
August 8 - 15	30.5
August 16 - 23	11.2
August 24 - 31	19.5
September 1 - 3	6.8

Table 4

Beach	Percent
Leadbetter	27.7
Cabrillo	20.4
Arroyo Burro	14.3
Goleta	13.6
West	12.1
East	8.5
Isla Vista	3.4

GEOGRAPHIC BOUNDARIES OF THE BEACHES SURVEYED

- Isla Vista Beach: From the stairway at the end fo Camino Pescadero to the University property line.
- Goleta Beach: 100 yards east of the pier and 250 yards west of the pier.
- Arroyo Burro Beach: That area under jurisdiction as a Santa Barbara County park.
- Shoreline Beach: From Santa Barbara Point to the concession stand at the intersection of Shoreline Drive and Loma Alta Drive.
- Leadbetter Beach: From the concession stand at the intersection of Shoreline Drive and Loma Alta Drive to Point Castillo.
- West Beach: From Stern's Wharf west to Los Banos Del Mar.
- Cabrillo Beach #1: From Stern's Wharf east to the restrooms located in Palm Park.
- Cabrillo Beach #2: From the restrooms located in Palm Park east to the swimming pool.
- East Beach: From the swimming pool east to the storm drain.

APPENDIX D

BEACH ATTENDANCE DURING SURVEY PERIOD JULY 1 - SEPT. 7, 1971

BEACH ATTENDANCE DURING SURVEY PERIOD JULY 1 - SEPT. 7, 1971

	<u>City</u>	<u>Goleta</u>	<u>Arroyo Burro</u>		<u>City</u>	<u>Goleta</u>	<u>Arroyo Burro</u>
July 1	1650	2000	750	Aug. 5	3450	2000	3000
2	730	2000	1200	6	1860	2100	2800
3	2300	1500	1400	7	1500	3400	5000
4	7500	2200	1000	8	2900	5100	6700
5	900	2400	1650	9	4500	1000	5400
6	430	1500	900	10	4700	1000	4800
7	950	1500	850	11	2350	1200	2600
8	1550	1500	1300	12	1450	1000	2000
9	1600	1200	2900	13	1850	1000	2300
10	2000	3200	6000	14	2000	1100	3700
11	1700	4000	7000	15	4250	1300	3100
12	2150	1500	4500	16	1350	1200	2500
13	1550	2100	3000	17	2000	1000	2100
14	1450	2000	2700	18	2100	1000	2300
15	1250	2000	2200	19	950	1000	1700
16	1550	1200	1400	20	1000	1000	2300
17	1200	2100	1500	21	1300	1500	2500
18	1280	3200	4900	22	1900	3100	2800
19	1900	2000	1400	23	1200	1000	2400
20	1950	1500	700	24	1100	1000	1500
21	3350	2000	850	25	2250	1000	1800
22	1850	1200	750	26	1300	1200	2600
23	1550	800	600	27	2750	2800	2900
24	970	1100	800	28	2400	2500	4500
25	850	1300	1200	29	3450	5100	6000
26	1350	1000	1300	30	1450	2100	3900
27	1350	1500	1800	31	1700	2000	2800
28	3050	1000	2300	Sept. 1	650	1000	3100
29	1350	1000	1450	2	230	1000	1700
30	4250	1000	2600	3	1400	1000	2400
31	1380	2000	3250	4	880	1500	3300
Aug. 1	1800	4000	6500	5	900	3100	4600
2	1850	2000	3700	6	400	2200	3500
3	2850	1000	3200	7	2500	1000	400
4	3200	1000	3400				

APPENDIX E

STATE PARKS DATA

STATE PARKS DATA

The following table is a listing of information obtained for State Parks from The Fiscal Statistical Report of the Department of Parks and Recreation. Since this project was concerned only with City and County beaches, this table was included only as an additional source of information. It should be noted, however, that State Parks are quite popular regardless of the fact that an admission fee is charged; this admission fee is used for partial coverage of operating costs.

Year	Beach	Gross Operating Costs	Total Revenue	Attendance	% Revenue to Direct Operating Cost ¹
1962-63	Carpinteria	108,599	47,320	610,468	N.A.
	El Capitan	43,257	14,379	125,782	N.A.
1963-64	Carpinteria	107,678	56,772	330,831	N.A.
	El Capitan	44,471	21,960	140,700	N.A.
1964-65	Carpinteria	123,620	67,390	352,222	55
	El Capitan	46,174	30,040	149,768	65
1965-66	Carpinteria	114,419	74,832	524,241	65
	El Capitan	54,209	38,872	179,562	72
1966-67	Carpinteria	127,836	73,366	510,025	57
	El Capitan	51,426	45,504	213,829	88

NOTE: The acreage of Carpinteria is reported as 45 acres and that of El Capital, 111 acres; these values measure the total acreage of the State Park, not just the beach area.

1. "N.A." means not available.