

# Delta Community Area Plan



ADOPTED BY  
SACRAMENTO COUNTY  
BOARD OF SUPERVISORS  
RESOLUTION No. 83-265  
MARCH 10, 1983

APPROVED BY  
SACRAMENTO COUNTY  
POLICY PLANNING COMMISSION  
DECEMBER 15, 1982

Prepared by the Sacramento County Planning Department

# State Government of Karnataka



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The first discovery of America was made by Christopher Columbus in 1492. He sailed from Spain and reached the island of San Salvador in the West Indies. This event marked the beginning of European exploration and settlement in the Americas.

CHAPTER II  
THE EARLY YEARS  
The early years of the United States were marked by the struggle for independence from British rule. The American Revolution began in 1775 and ended in 1783. The Declaration of Independence was signed on July 4, 1776, and the Constitution was adopted in 1787.

THE HISTORY OF THE UNITED STATES

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MEMORANDUM

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DISCUSSION

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CONCLUSION

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TABLE OF CONTENTS

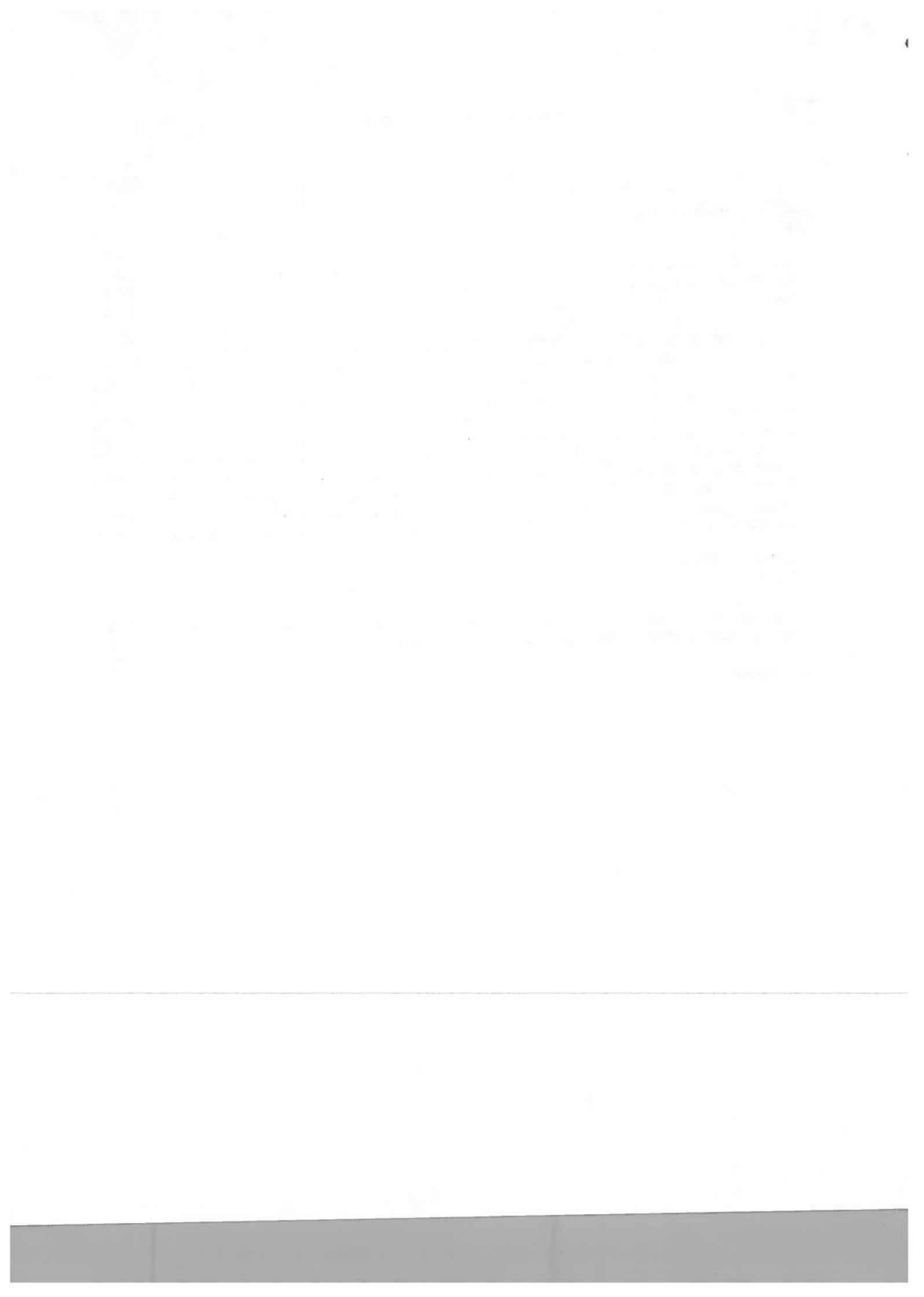
	<u>Page</u>
CHAPTER ONE	
INTRODUCTION	
Location . . . . .	1-1
Purpose of the Plan. . . . .	1-1
Policies . . . . .	1-1
Population . . . . .	1-8
CHAPTER TWO	
NATURAL HAZARDS	
Introduction . . . . .	2-1
Flood Problems . . . . .	2-1
Earthquake Hazards . . . . .	2-6
Solutions. . . . .	2-7
CHAPTER THREE	
NATURAL RESOURCES	
Introduction . . . . .	3-1
Resource Description . . . . .	3-2
Rare and Endangered Species. . . . .	3-6
Significant Natural Resource Areas . . . . .	3-9
Analysis . . . . .	3-12
CHAPTER FOUR	
AGRICULTURE	
Introduction . . . . .	4-1
Delta Crops. . . . .	4-1
Production and Value . . . . .	4-2
Issues . . . . .	4-4
CHAPTER FIVE	
RECREATION AND WATERWAYS USE	
Introduction . . . . .	5-1
Existing Conditions. . . . .	5-2
Analysis . . . . .	5-8
Waterways Use. . . . .	5-11
CHAPTER SIX	
RESIDENTIAL DEVELOPMENT	
Introduction . . . . .	6-1
Issues . . . . .	6-3
Current Policies . . . . .	6-6
Alternatives . . . . .	6-6

TABLE OF CONTENTS (Cont.)

	<u>Page</u>
CHAPTER SEVEN	
COMMERCIAL DEVELOPMENT	
Introduction . . . . .	7-1
Facts and Projections. . . . .	7-1
Issues and Problems. . . . .	7-5
Alternative Solutions. . . . .	7-6
CHAPTER EIGHT	
CIRCULATION	
Introduction . . . . .	8-1
Streets and Highways . . . . .	8-1
Pedestrian and Bicycle Trails. . . . .	8-3
Railroad . . . . .	8-5
Airports . . . . .	8-8
Transit. . . . .	8-8
CHAPTER NINE	
PUBLIC SERVICES AND FACILITIES	
Introduction . . . . .	9-1
Police Protection. . . . .	9-2
Fire Protection. . . . .	9-3
Schools. . . . .	9-7
Community Parks and Recreation . . . . .	9-9
Domestic Water . . . . .	9-13
Sewage Disposal. . . . .	9-15
Storm Drainage . . . . .	9-18
Solid Waste Disposal . . . . .	9-19
Electricity and Natural Gas. . . . .	9-20
Telephone Service. . . . .	9-20
CHAPTER TEN	
HISTORIC RESOURCES	
Introduction . . . . .	10-1
Delta History. . . . .	10-1
Significant Historic Towns and Places. . . . .	10-3
National Register of Historic Places . . . . .	10-6
Historic Preservation. . . . .	10-8
CHAPTER ELEVEN	
MINERAL RESOURCES	
Introduction . . . . .	11-1
Geologic Setting . . . . .	11-1
Natural Gas. . . . .	11-2
Soil . . . . .	11-8

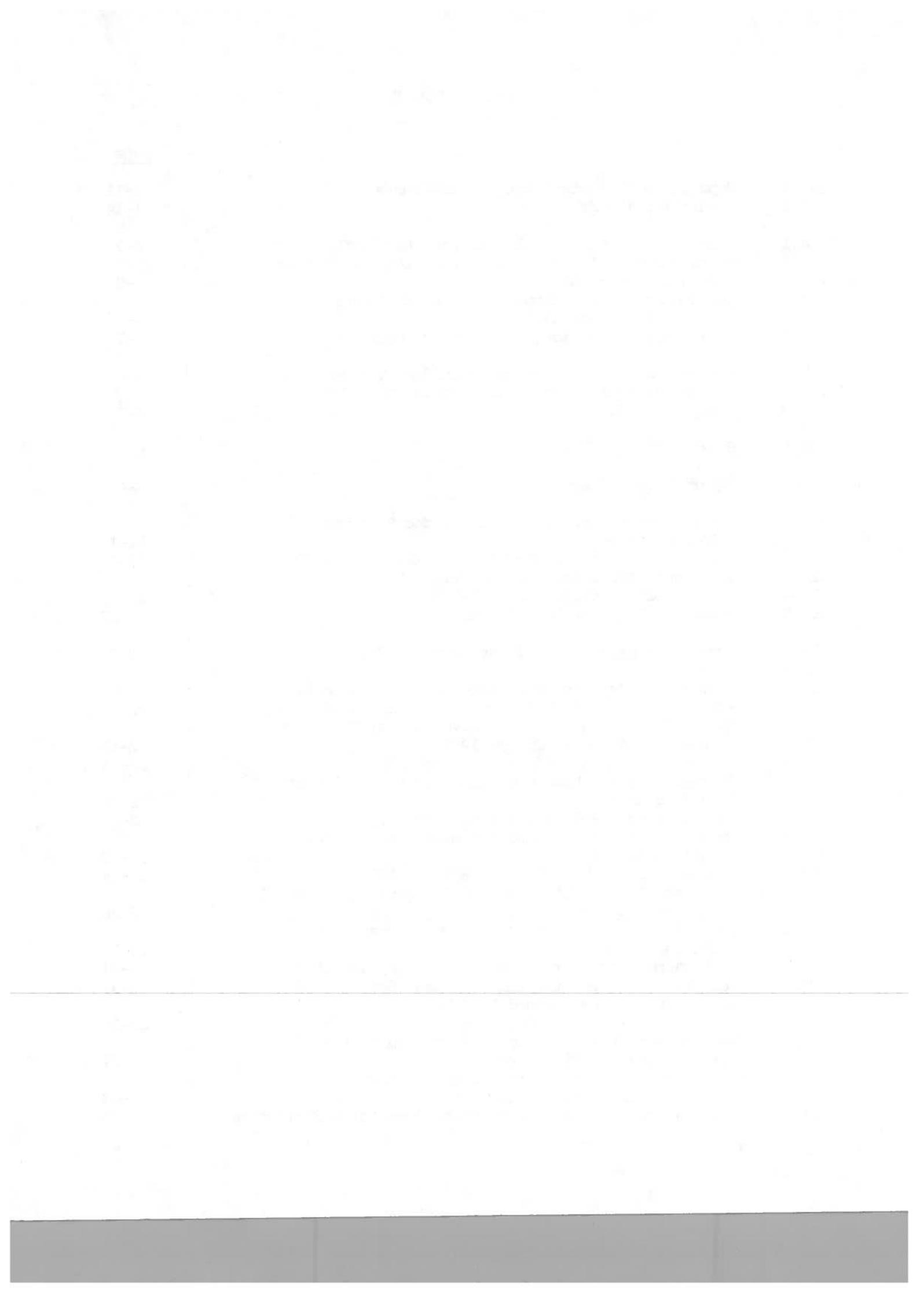
TABLE OF CONTENTS (Cont.)

	<u>Page</u>
CHAPTER TWELVE	
LAND USE	
Introduction . . . . .	12-1
Existing Land Use. . . . .	12-1
Land Use Trends. . . . .	12-3
Land Use Plan. . . . .	12-4
Estimated Residential Holding Capacities . . . . .	12-6
Specific Planning Areas. . . . .	12-11
Freeport . . . . .	12-11
Hood . . . . .	12-17
Courtland. . . . .	12-22
Locke. . . . .	12-27
Walnut Grove . . . . .	12-30
Lower Andrus Island. . . . .	12-40
Tyler Island Bridge Road . . . . .	12-47
Lelia Drive. . . . .	12-47
Isleton. . . . .	12-49
CHAPTER THIRTEEN	
IMPLEMENTATION	
Zoning Consistency . . . . .	13-1
Policy Implementation. . . . .	13-1
BIBLIOGRAPHY	



LIST OF TABLES

	<u>Page</u>	
1.1	Population Characteristics, 1975 Census	1-11
1.2	Population Trends	1-14
4.1	Sacramento Delta Agricultural Land Use, 1977	4-3
4.2	Gross Value of Agricultural Production in Sacramento County, 1971-1981	4-5
4.3	Sacramento Delta Agricultural Production and Estimated Value, 1980	4-6
4.4	Wine Grape Production in Sacramento County	4-7
5.1	Recreational Activities of Individual Visitors	5-2
5.2	Commercial Recreation Facilities in the Delta Region, 1977	5-7
6.1	Housing Units	6-1
7.1	Crayfish Fact Sheet	7-4
11.1	Penetration Chart, Gas Fields of the Sacramento County Delta	11-3
11.2	Gas and Condensate Production and Reserves, 1980	11-6
11.3	Soil Characteristics and Qualities	11-10
11.4	Storie Soil Classification System	11-12
11.5	Depletion Times of Organic Soils	11-17
12.1	Summary of Existing Land Use, Spring 1982	12-7
12.2	Deleted	
12.3	Residential Density Assumptions for Vacant Lands	12-9
12.4	Summary of Estimated Residential Holding Capacities	12-10
12.5	Specific Planning Areas and River Towns, Summary of Existing Land Use, Spring 1982	12-12
12.6	Freeport Existing Land Use, Spring 1982	12-14
12.7	Freeport Planned Land Use and Estimated Residential Holding Capacity	12-16
12.8	Hood Existing Land Use, Spring 1982	12-19
12.9	Hood Planned Land Use and Estimated Residential Holding Capacity	12-20
12.10	Courtland Existing Land Use, Spring 1982	12-24
12.11	Courtland Planned Land Use and Estimated Residential Holding Capacity	12-26
12.12	Locke Planned Land Use and Estimated Residential Holding Capacity	12-29
12.13	East Walnut Grove Existing Land Use, Spring 1982	12-34
12.14	West Walnut Grove Existing Land Use, Spring 1982	12-35
12.15	East Walnut Grove Planned Land Use and Estimated Residential Holding Capacity	12-36
12.16	West Walnut Grove Planned Land Use and Estimated Residential Holding Capacity	12-37
12.17	Lower Andrus Island Special Planning Area, Existing Land Use, Spring 1982	12-43
12.18	Lower Andrus Island Area Existing Commercial Facilities	12-46

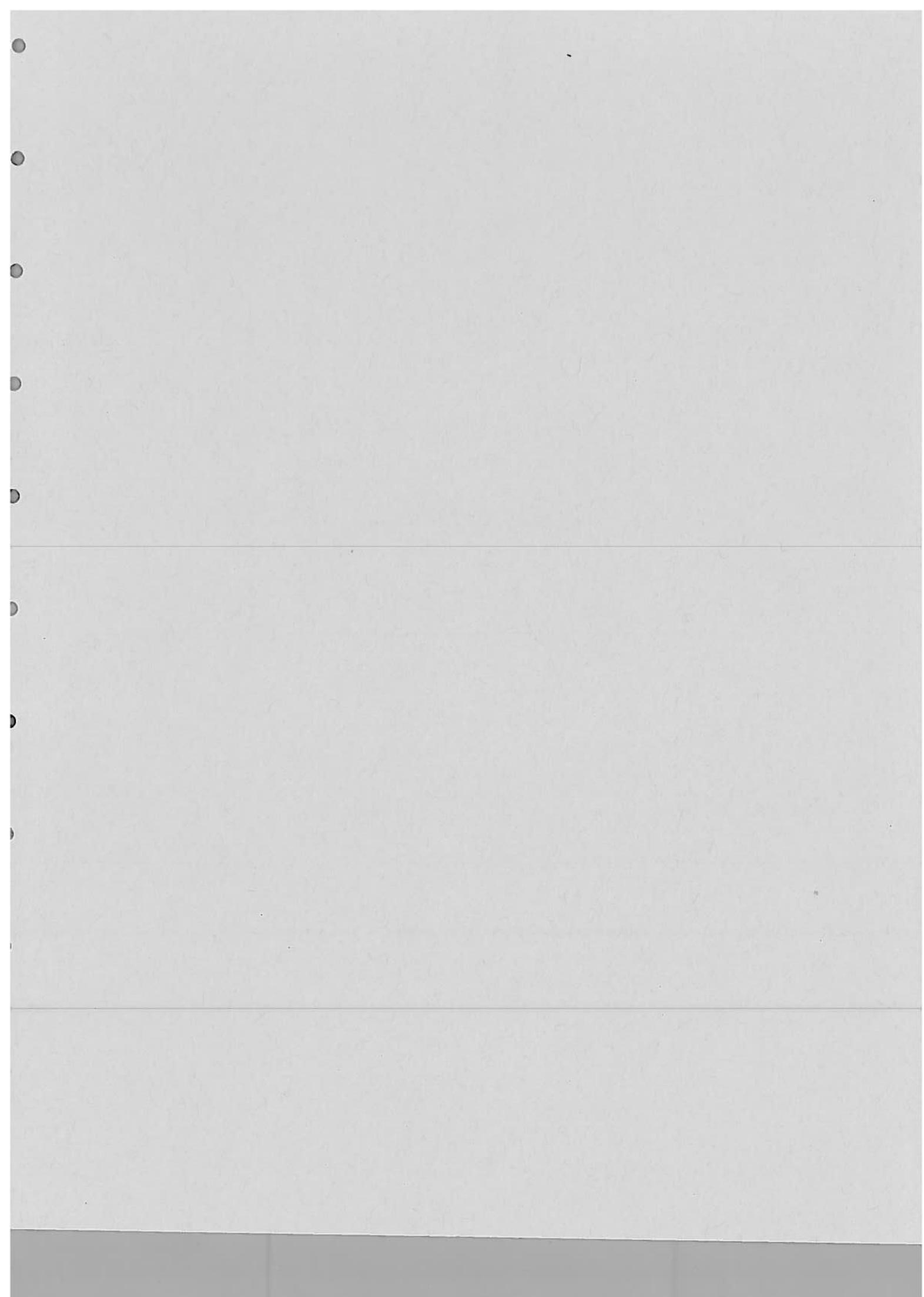


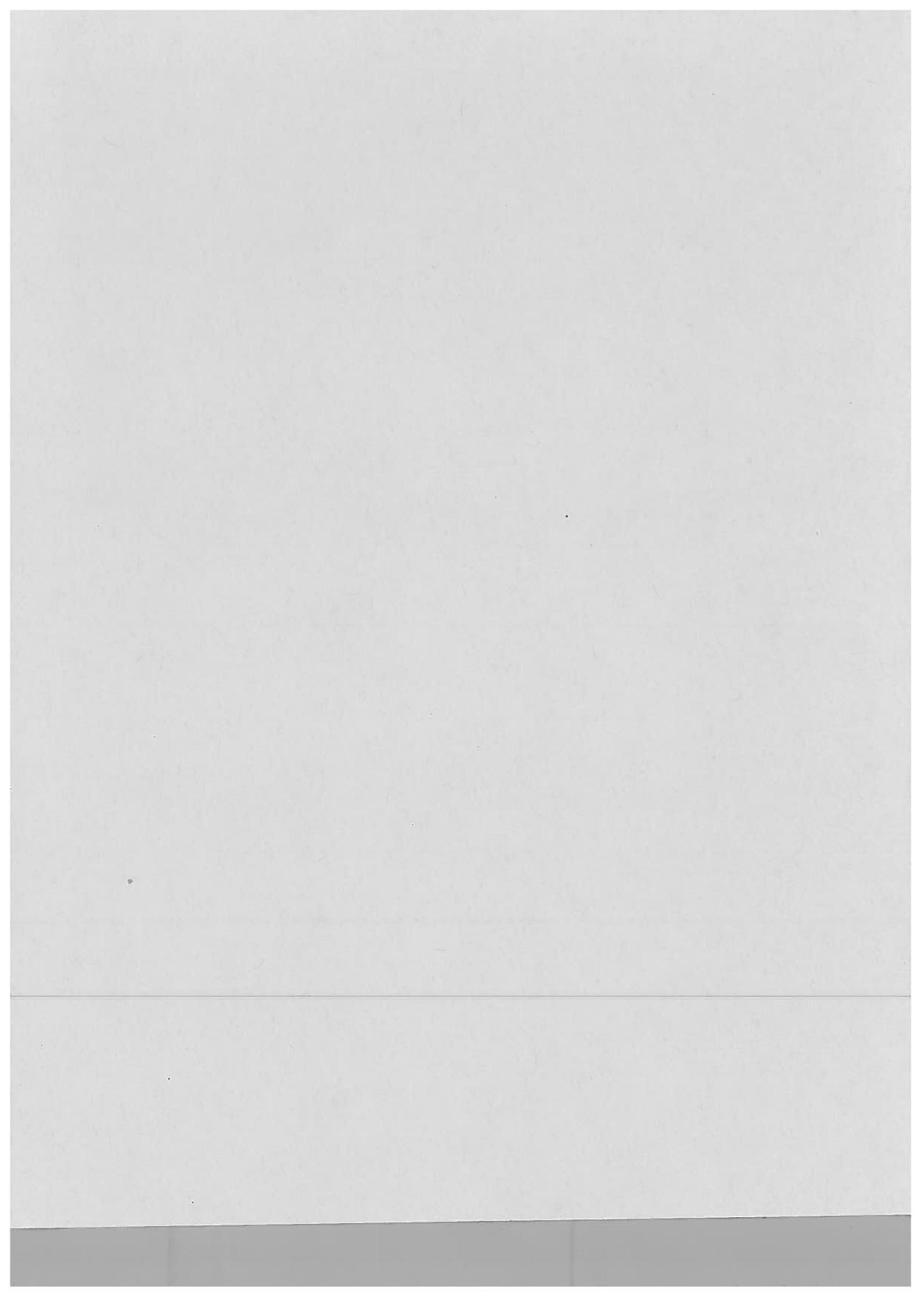
## LIST OF FIGURES

		<u>Page</u>
1.1	Population Pyramids, 1980	1-9
1.2	Statistical Areas	1-12
1.3	Delta Population Trends	1-13
2.1	Floodprone Areas	2-2
2.2	Delta Levees	2-4
2.3	Location and Rating of Levees	2-5
2.4	Plan of Improvement	2-9
2.5	Flood Insurance Area	2-11
3.1	Significant Wetlands	3-4
3.2	Rare and Endangered Plant and Animal Species	3-7
3.3	Significant Natural Resource Areas	3-10
4.1	Lands Under the Williamson Contract	4-9
5.1	Public Recreation Areas and Sites	5-4
5.2	Commercial Marina and Resorts	5-6
5.3	Recreational Areas	5-12
6.1	Delta Population and Housing Units	6-2
6.2	1980 Housing Units	6-4
6.3	Existing Lots Under Two Acres	6-5
8.1	Major Streets and Highways	8-2
8.2	Sacramento Bikeway Master Plan	8-4
8.3	Abandoned Southern Pacific Railroad-Walnut Grove Branch Line	8-6
9.1	Fire Districts	9-4
9.2	School Districts	9-8
9.3	Park Districts	9-10
10.1	Significant Delta Community Historic Resources Areas	10-7
11.1	Sacramento County Delta Natural Gas Fields	11-5
11.2	Sacramento County Delta General Soil Types	11-11
11.3	Distribution of Soils by Storie Index Grades	11-13
11.4	Sacramento County Delta Land Capability Classes	11-15
12.1	Freeport Existing Land Use	12-13
12.2	Freeport Land Use Plan	12-15
12.3	Hood Existing Land Use	12-18
12.4	Hood Land Use Plan	12-21
12.5	Courtland Existing Land Use	12-23
12.6	Courtland Land Use Plan	12-25
12.7	Locke Land Use Plan	12-28
12.8	East Walnut Grove Existing Land Use	12-32

LIST OF FIGURES (Cont.)

	<u>Page</u>
12.9   West Walnut Grove Existing Land Use	12-33
12.10   East Walnut Grove Land Use Plan	12-37
12.11   West Walnut Grove Land Use Plan	12-38
12.12   Lower Andrus Island Area Existing Land Use	12-44
12.13   Lower Andrus Island Area Existing Commercial Recreation Facilities	12-45
12.14   Lower Andrus Island Special Planning Area	12-47





## CHAPTER ONE INTRODUCTION

### LOCATION

The Delta community area is 162 square miles of waterways and fertile land, located in the southwesterly portion of Sacramento. It is one of 17 community planning areas in unincorporated Sacramento County. The area is bounded by the Sacramento City limits on the north, the I-5 freeway on the east, and the County line on the south and west. Several small towns are situated within the community plan area: Freeport, Hood, Courtland, Locke, and Walnut Grove. Isleton, an incorporated city, is situated in the vicinity as well, but is regulated by its own general plan.

### PURPOSE OF THE PLAN

This community plan augments the Sacramento County General Plan as it relates to the Delta area. Since this community plan addresses a much smaller geographic area, it is correspondingly more specific and detailed. Although it is a complete document in its own right, the community plan is not intended to stand alone from the County General Plan and should not be considered to be independent of the General Plan.

Besides providing specific detail for the County General Plan, this document has three specific purposes. First, it is a policy document complementing the General Plan, but it also includes policies derived from other state and regional documents which address the larger Delta region. In this way, the plan coordinates these other policy documents as they relate to the Sacramento County Delta. Second, it is a land use plan, with specific land use designations for all affected properties within its boundaries. These land use designations are implemented with land use zoning districts which are adopted by ordinance by the Board of Supervisors. Third, this community plan is an informational document providing references to other more detailed sources where additional information can be found. Footnotes and references are used liberally throughout the text to steer the interested reader toward these other information sources.

### POLICIES

The Sacramento County General Plan provides the basis for general policy direction in this community plan. This community plan is, in fact, a part of the General Plan and is intended to provide specific direction for implementing the General Plan. The Goals, Objectives, and Policies of the General Plan are not reiterated in the community plan text because of the volume of information therein; and the fact that the General Plan Policy Plan relates to the County as a whole. Nevertheless, the Sacramento County General Plan must be consulted when ascertaining County policy for the Delta community. This community plan will occasionally make direct reference to the General Plan.

This community plan also draws upon several other policy documents:

Delta Action Plan, Delta Advisory Planning Council (DAPC), 1976, and Technical Supplements.

Rural Development Strategy, Sacramento Regional Area Planning Commission (SRAPC), 1979. SRAPC is now known as the Sacramento Area Council of Governments (SACOG).

Sacramento Bikeways Master Plan, Sacramento City-County Bikeways Task Force, 1977.

Regional Transportation Plan, Sacramento Area Council of Governments (SACOG), 1981.

Some of the policies of this community plan can be directly attributed to these other documents, in which case, the source is cited.

The following policies are intended to provide specific direction which will aid in implementing the County General Plan as it relates to the Delta community. The Policy Plan of the County General Plan must be used as well in ascertaining County policy for the Delta community.

#### Natural Hazards

- 1-1 Flood control protection measures should be adequate to protect the present land uses.
- 1-2 Fifty-year flood protection should be provided for islands presently utilized for agricultural purposes, and any federal- or state-sponsored levee reconstruction program which results in 100- or 333-year flood protection should provide for binding assurances between the affected federal, state or local governments, prohibiting urbanization of agricultural lands.
- 1-3 One-hundred year flood protection should be provided for islands with urban centers including Andrus and Brannan Islands and Walnut Grove Tract.
- 1-4 Seismic safety, including the potential effect of seismic activity upon protective levees, shall be considered in the review of any development proposals in the Delta community.
- 1-5 Flood zoning will be applied to all areas of the Delta subject to 100-year flooding.

#### Natural Resources

- 2-1 Encourage landowners to maintain natural vegetation along roads, fence lines, drainage and irrigation ditches, and on unused or marginal land. (DAPC)
- 2-2 Require native Delta vegetation in replanting and landscaping programs, whenever possible, as a condition of approval of development proposals (DAPC)
- 2-3 Consider oak groves as significant resource areas wherever they occur and give them the highest degree of protection (DAPC)

- 2-4 Give the highest level of protection to natural waterways and associated wildlife habitat.
- 2-5 Restrict recreation activities to passive rather than active forms in wetlands of significant natural beauty, serenity and sensitive ecology.
- 2-6 Manage the entire Stone Lakes Basin as a nonintensive wildlife and/or recreation area.
- 2-7 Give the highest level of protection to all channel islands (tidal marsh remnants), levee berms, marshes and other wetlands. These areas should be acquired wherever appropriate and managed as non-intensive use wildlife areas.
- 2-8 Encourage preservation of levee berms and riparian woodlands, as well as implementation of a levee revegetation program, as part of any proposed federal, state or local levee reconstruction program.

#### Agriculture

- 3-1 Promote and protect agriculture as the primary economic activity in the Delta.
- 3-2 Deny requests in the Delta which would facilitate urban development beyond the planned urban areas of Courtland, Hood, Walnut Grove, Isleton, Paintersville, and Ryde. (Sacramento County General Plan).
- 3-3 Prohibit noncontiguous expansion of urban land uses in agricultural areas.
- 3-4 Deny requests for lot reduction permits on agricultural parcels, unless it is demonstrated that approval of the permit will not be detrimental to the agricultural use of the property. Require, as a condition of approval of lot reduction permits and affected use permits and rezones, that a statement be placed on the recorded parcel map or other appropriate public record acknowledging the agricultural character of the parcel, and holding harmless adjacent landowners and the County of Sacramento for any nuisance inflicted upon the property or its occupants by normal agricultural activity in the area.
- 3-5 Agricultural projects such as irrigation systems, levees, drains, and pumps should be recognized in regulation and investment programs as essential to maintenance and enhancement of agriculture. (DAPC)

#### Recreation

- 4-1 Promote water-oriented recreation and tourism at appropriate locations in the Delta community.
- 4-2 Cooperate with state and federal agencies in seeking means for development of appropriate public recreation facilities in conjunction with any proposed levee improvement program.
- 4-3 Limit both public and commercial recreation facilities to those which are dependent on water orientation or are supportive of water-oriented uses.

- 4-4 Cluster future commercial recreational development thereby maintaining the present open character of the remaining Delta area and minimizing conflicts with other uses.
- 4-5 Permit the additional and logical development of the unique and valuable water-oriented recreational potential of the Lower Andrus Island area while minimizing the loss or disruption of agricultural production, environmental qualities and the hazards from flooding, and without minimizing the quality of recreation provided the public.
- 4-6 Continue to support efforts for state acquisition and preservation of the Delta Meadows as a natural area.
- 4-7 Consider commercial recreational developments outside of designated areas upon a finding that their design and operation will have minimal adverse impacts on the environment, waterways, and adjacent use. The following factors will be considered in the evaluation of each proposal:
- a. Access; including levee road condition and proximity to a major road.
  - b. Condition of levee.
  - c. Characteristics and sensitivity of the adjacent waterway; including width, depth, currents, amount of water traffic.
  - d. Proximity to other recreational facilities.
  - e. Proximity to supportive commercial facilities.
  - f. Need for and amount of supportive land-side development
  - g. Character of adjacent agricultural crops and practices.
  - h. Distance from other navigable waterways and opportunities to disperse water traffic.
- 4-8 Consider imposition of boat wake limits on segments of waterways adjacent to sensitive fish and wildlife habitats, such as channel islands, marshlands and riparian forests.

#### Residential Development

- 5-1 Permit new housing units in balance with the needs of existing Delta residents and to assure sufficient additional land to meet the needs of those whose livelihood or roots are or will be in the Delta.
- 5-2 Limit expansion of residential developments to the existing communities of Freeport, Hood, Courtland, Walnut Grove and Isleton. Within and adjacent to these areas, provide sufficient land to meet anticipated locally-based desires and needs.
- 5-3 Within the context of this planning period, limit the amount of new residential development to that which can be served by existing or presently-planned water and sewer capacities. Require adequate and appropriate public services and utilities for all new residential developments.

- 5-4 Encourage efficient residential land use development in areas which have urban services, are least subject to environmental constraints such as soil stability, drainage problems and flooding, and have the least impact on agricultural practices and potential recreational developments.
- 5-5 Provide and/or upgrade public services and facilities sufficient only to meet current and anticipated local economy-based populations. Avoid growth-inducing capital expenditures.
- 5-6 Residential developments outside the existing developed urban areas of the existing communities (Freeport, Hood, Courtland, Locke, Walnut Grove, and Isleton) are deemed to be inconsistent with the goals and policies of this plan and the County General Plan, except that new residential developments may be permitted contiguous to these communities if the following findings can be made:
- a. They can and will be served by approved water and sewer systems.
  - b. They can be serviced effectively by County and other local governmental agencies.
  - c. There will be minimal danger to residents in the event of flooding.
  - d. There will be minimal potential need for disaster relief assistance in the event of flooding.
  - e. They will not have an adverse impact on adjacent levees.
  - f. They are in reasonable proximity to a major highway providing access to the Delta.
  - g. There will be minimal adverse impact on or from adjacent recreational uses.
  - h. There will be minimal disruption to or conflict with surrounding agricultural uses.
  - i. The property is not an economically viable piece of agricultural land.
  - j. The use will have minimal adverse impact on the use of adjacent waterways.
  - k. The property is not on or adjacent to environmentally-sensitive lands.
  - l. There are extenuating circumstances unique to the property.
  - m. The applicant signs and records a statement acknowledging that he or she is aware of the flooding potential and the possible adverse affects on area residents from farming practices on adjacent agricultural lands. This statement shall be attached to the property title for the benefit of future property owners.

Commercial and Economic Development

- 6-1 Encourage the development of the commercial districts within the communities of Freeport, Hood, Courtland, Locke, and Walnut Grove with businesses that will provide needed service to Delta residents and recreationists.

- 6-2 Direct new businesses to locate in and adjacent to towns.
- 6-3 Promote design and scale of commercial districts that are in keeping with the small-town character of the Delta.
- 6-4 Prohibit the establishment of isolated commercial developments throughout the Delta, unless it is demonstrated that a particular site has unique qualities necessary for the proposed use.
- 6-5 Discourage new industrial and commercial developments that are incompatible with the existing agricultural and recreational economy.
- 6-6 Identify appropriate locations for industrial development and encourage the efficient development of parcels within those locations in order to forestall the need to convert additional agricultural land to nonagricultural use.
- 6-7 Manage industrial and commercial development to support the regional agricultural and recreation industries without degrading rural and natural qualities and significant resource areas.
- 6-8 Permit exploratory gas wells to the extent that they do not conflict with agriculture nor detract from the existing character of the Delta.
- 6-9 Prohibit water-oriented commercial recreation at locations that will impact sensitive waterways or natural areas.
- 6-10 Encourage the development of river-town waterfronts in a manner which will be used for water-dependent activities, and which will add to the waterfront's scenic attraction.
- 6-11 Promote agriculturally-related industry that will support and enhance the local agricultural economy.
- 6-12 Encourage industrial and commercial development which provides stable employment and utilizes unemployed and underemployed rural residents. (SRAPC)
- 6-13 Manpower training programs should be planned and operated to provide enrollees with the skills and training required by local employers. Strong involvement by local employers in the planning of training programs should be instituted. (SRAPC)

#### Circulation

- 7-1 Recognize the need for agricultural equipment to use public roads.
- 7-2 Utilize and maintain the existing public roads in the Delta to the extent feasible.
- 7-3 Continue to seek viable transportation alternatives to the automobile in the Delta community area.
- 7-4 Encourage the utilization of the abandoned Southern Pacific Railroad right-of-way for a bicycle trail or other similar off-street circulation mode.

- 7-5 Support the Goals, Objectives, and Planning Criteria of the Sacramento Bikeways Master Plan.

Public Services and Facilities

- 8-1 Include Sheriff's Department participation in the review of all development proposals in the Delta.
- 8-2 Require all water-oriented recreational developments to post informational signs and bulletin boards near points of water access, explaining the fragile nature of the waterways and adjoining lands, and listing applicable rules and regulations.
- 8-3 Explore methods of collecting user fees from recreationists to fund the police manpower needed to respond to the demand created by recreational use.
- 8-4 Encourage new developments to be designed and located in a manner that minimizes demand upon the Sheriff's patrol.
- 8-5 Continue to support Delta volunteer fire departments and community fire prevention programs.
- 8-6 Promote the creation of a fire protection district for the town of Freeport, the annexation of the town into an existing district, or contractual arrangements for the provision of fire protection.
- 8-7 Include fire district participation in the review of all development proposals in the Delta.
- 8-8 Continue to support existing and future recreational programs such as the summer swimming program.
- 8-9 Promote creative and innovative approaches to recreational programs and improvements to meet the community needs.
- 8-10 Encourage local communities to create and maintain "self-help" programs to meet local recreation needs.
- 8-11 Seek funds through the community Development Block Grant program or other sources for acquisition and development of new park sites in the Delta towns.
- 8-12 Encourage the consolidation of individual water supply systems in the Delta towns.
- 8-13 Require that major new developments provide water systems capable of meeting fire protection flow standards with adequate provision for fire protection connections.

Historic Resources

- 9-1 Encourage the preservation of historical buildings and features in the development and redevelopment of the Delta towns.
- 9-2 Protect all identified historical or archeological sites in the Delta.

- 9-3 Give special considerations to uses of buildings which are on the national register of historic places, in order to preserve and best utilize the historical aspects of those buildings.
- 9-4 Encourage new development to be consistent with the historic architectural character of the community.
- 9-5 Significant Delta historic resource areas should be inventoried in a uniform classification system identifying appropriate uses, values, and means of protection. (DAPC)
- 9-6 Opportunities in the Delta for historic resource preservation should be continuously sought to retain remnants of our heritage and to enhance the recreation and tourism industry of the region. (DAPC)
- 9-7 Effective methods of historic resource preservation and interpretations should be continuously sought and implemented with the greatest haste to halt irretrievable loss of our heritage. (DAPC)

#### Mineral Resources

- 10-1 Permit continued exploration of natural gas fields in the Delta.
- 10-2 Continue to cooperate with the California State Department of Conservation in developing compatible land use and mineral extraction/withdrawal policies.
- 10-3 Encourage exploratory gas wells to be located in areas of least conflict with adjacent land uses.
- 10-4 Continue to maintain high quality Delta soil for agricultural production.
- 10-5 Encourage measures to enhance organic soils and slow the rate of subsidence so that long-term agricultural productivity of the land will be maintained.
- 10-6 Discourage land use practices that will accelerate depletion of organic soils.
- 10-7 Prohibit the export of peat soils from the Delta.

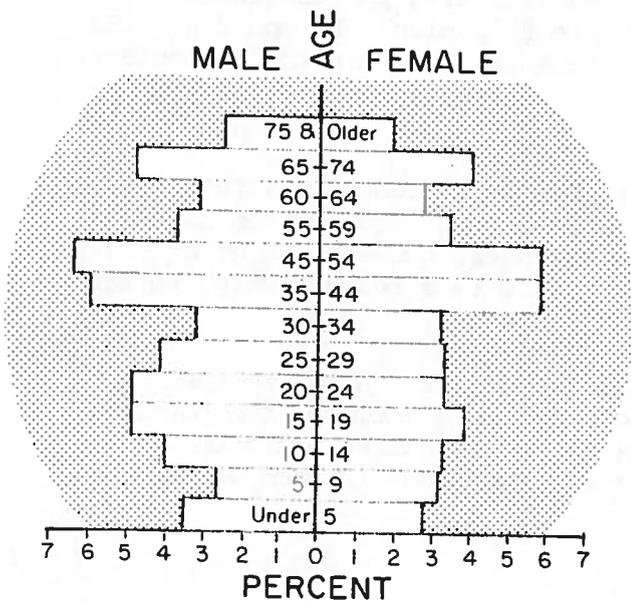
#### POPULATION

##### Characteristics

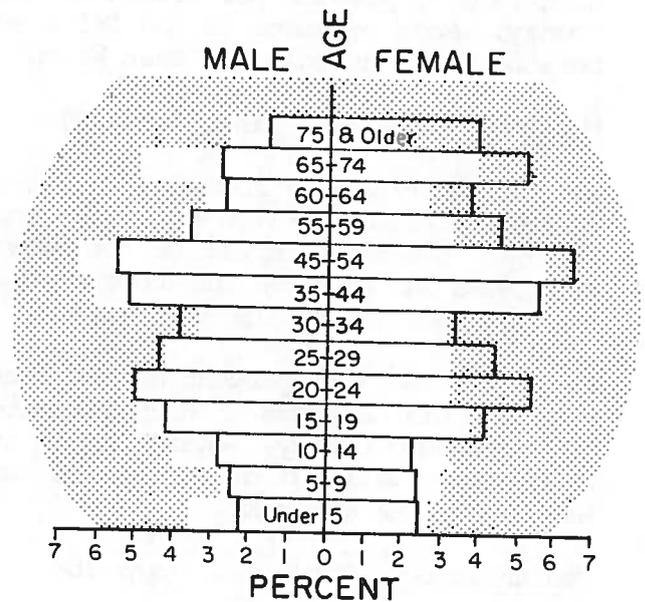
Figure 1.1 compares the population characteristics of the Delta community population to other typical population samples in the County. It is notable that the community has a lower-than-average percentage of women who are child bearing age and a somewhat higher-than-average percentage of men over the age of 55. These variations from the "normal" County distribution are indicative

FIGURE 1.1  
**POPULATION PYRAMIDS 1980**  
 (AGE AND SEX)

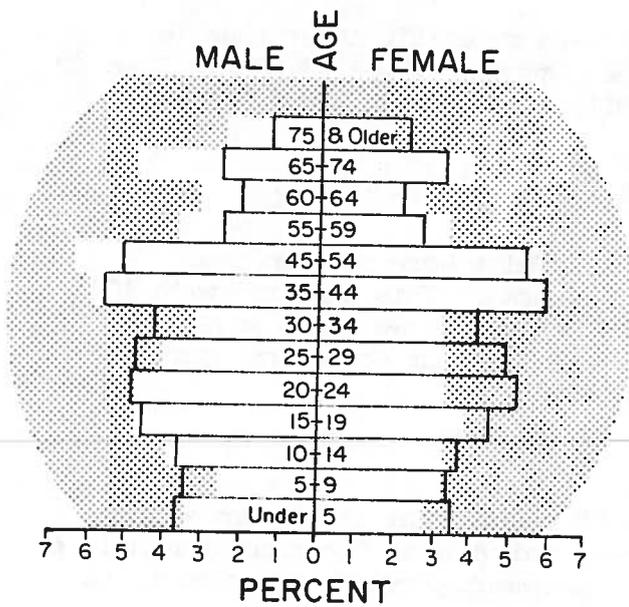
**DELTA \***



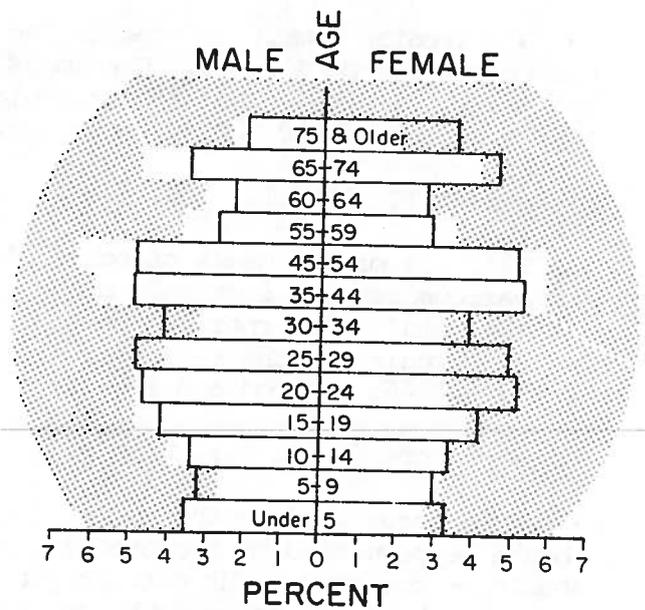
**TYPICAL URBAN NEIGHBORHOOD \*\*\***



**SACRAMENTO COUNTY TOTALS \*\***



**CITY OF SACRAMENTO**



\* INCLUDES ALL OF CENSUS TRACT 96 FOR CALCULATION PURPOSES  
 \*\* UNINCORPORATED AND INCORPORATED AREAS  
 \*\*\* CENSUS TRACT 56.01, 56.02, 57.01, 57.02, 60 AND 61 IN THE ARDEN AREA OF SACRAMENTO COUNTY

of two important phenomena in the Delta community. Older people have found the Delta an advantageous location for retirement. Many of these people are lifetime residents of the Delta who have worked in agriculture; the older male population is the result of a migrant laborer lifestyle that was once very common in the Delta. The relative lack of young adults, especially women, indicates that offspring are leaving the Delta. As a result, the population as a group is getting older.

#### Household Population (Table 1.1, Lines 2 and 3)

Most (94%) of the population in the Delta live in households. The average size is 2.72 persons per household as compared with 2.74 for the entire county. Most portions of the Delta approximate this size. Freeport at 1.92 persons per household and East Walnut Grove-Locke at 2.31 are the exceptions.

#### Housing (Table 1.1, Lines 5 and 6)

Approximately 21% of households in the Delta reside in rented quarters, as compared with an average of 35% in the total unincorporated portion of the County. The range of difference between communities, however, is great - from Hood and West Walnut Grove with 7% and 13% renters respectively, to East Walnut Grove-Locke with 32% renters.

Seventy-nine (79%) percent of the households in the Delta area own their homes. This compares with approximately 65% for the unincorporated portion of Sacramento County. Again, there is a great range between different communities with 93% of households owning their own homes in Hood vs. 68% in West Walnut Grove-Locke.

#### Median Income (Table 1.1, Line 10)

Actual median family income data from the 1975 Census are invalid today given the rapid inflation rates of the past six years. They do, however, provide an indication of relative economic levels which are useful for planning analysis.

In 1975, median family incomes in the Delta were generally lower than the County average of \$11,161. The lowest for any community was \$3,880 in East Walnut Grove-Locke. The highest median family incomes were \$10,729 in West Walnut Grove and \$10,926 in Courtland.

#### Employment (Table 1.1, Line 8)

In 1975, 31% of the heads of households in the Delta were not employed for various reasons (retired, student, out of work). This compares with 10% for the total unincorporated portion of the County. Between the several Delta communities, the range was from 19% in West Walnut Grove and Courtland to 44% and 46% in Hood and Freeport, respectively.

#### Place of Work (Table 1.1, Line 9)

A future issue will be the amount and type of residential development which should be permitted or promoted in this area, and whether "bedroom" communities should be fostered. The current place of employment provides one clue to the economic character and growth potential in the Delta.

TABLE 1.1

POPULATION CHARACTERISTICS  
1975 CENSUS

	COUNTY	DELTA STUDY AREA	MAJOR AREAS				COMMUNITY AREAS				
			SOUTH C.T. 98	CENTRAL C.T. 97	NORTH	ISLETON CITY	WEST WALNUT GROVE	EAST WALNUT GROVE-LOCKE	COURTLAND	HOOD	FREEPORT
1. Population % of Delta	686,325	5,065	1,594 31%	2,890 57%	586 12%	911	482	514	521	300	100
2. Households % of Delta	245,530	1,759	583 33%	958 54%	218 13%	328	176	222	168	104	52
3. Persons/Heads of Household	2.74	2.72	2.62	2.80	2.68	2.72	2.73	2.31	2.91	2.88	1.92
4. Number Housing Units % of Delta Housing Units	244,183	2,114	674 32%	1,184 56%	256 12%	373	188	295	199	116	59
5. Single-Family Housing Units % All Housing Units	131,270 62%	1,669 79%	452 67%	1,010 85%	207 81%	261 70%	158 84%	235 80%	170 85%	93 80%	40 68%
6. Number of Renters % All Heads of Household	78,000 38%	378 21%	102 17%	242 25%	34 16%	89 27%	23 13%	70 32%	51 30%	7 7%	15 29%
7. Employed Heads of Household	NA	1,196	360	699	137	201	142	127	136	57	28
8. Unemployed Heads of Household % of All Heads of Household	NA	542	208	250	84	118	33	92	32	46	24
9. Place of Work - Heads of Household	NA	318	368	268	368	368	198	418	198	448	468
a. Rural Sacto. County % of Total		920	248	612	60	130	135	109	118	26	4
b. Outside County % of Total		778	678	888	448	658	958	868	878	468	158
c. Sacto. Urban Area % of Total		190	102	60	28	64	3	14	12	16	6
		86	10	27	49	328	28	118	78	288	218
		78	58	38	368	7	4	4	6	15	18
						38	38	38	68	268	648

-  FREEPORT
-  HOOD
-  COURTLAND
-  LOCKE & EAST WALNUT GROVE
-  WEST WALNUT GROVE
-  ISLETON

**97** CENSUS TRACT

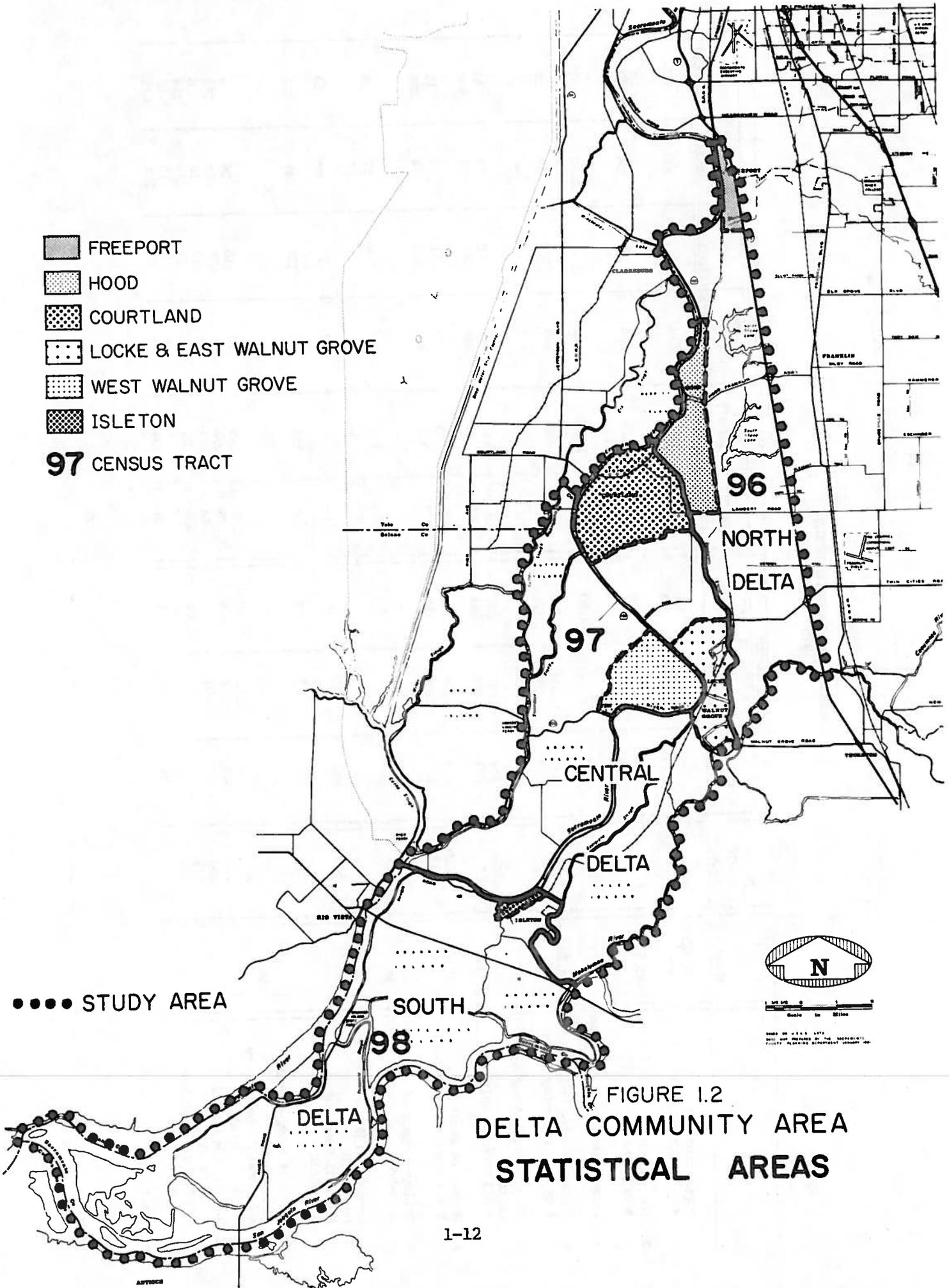
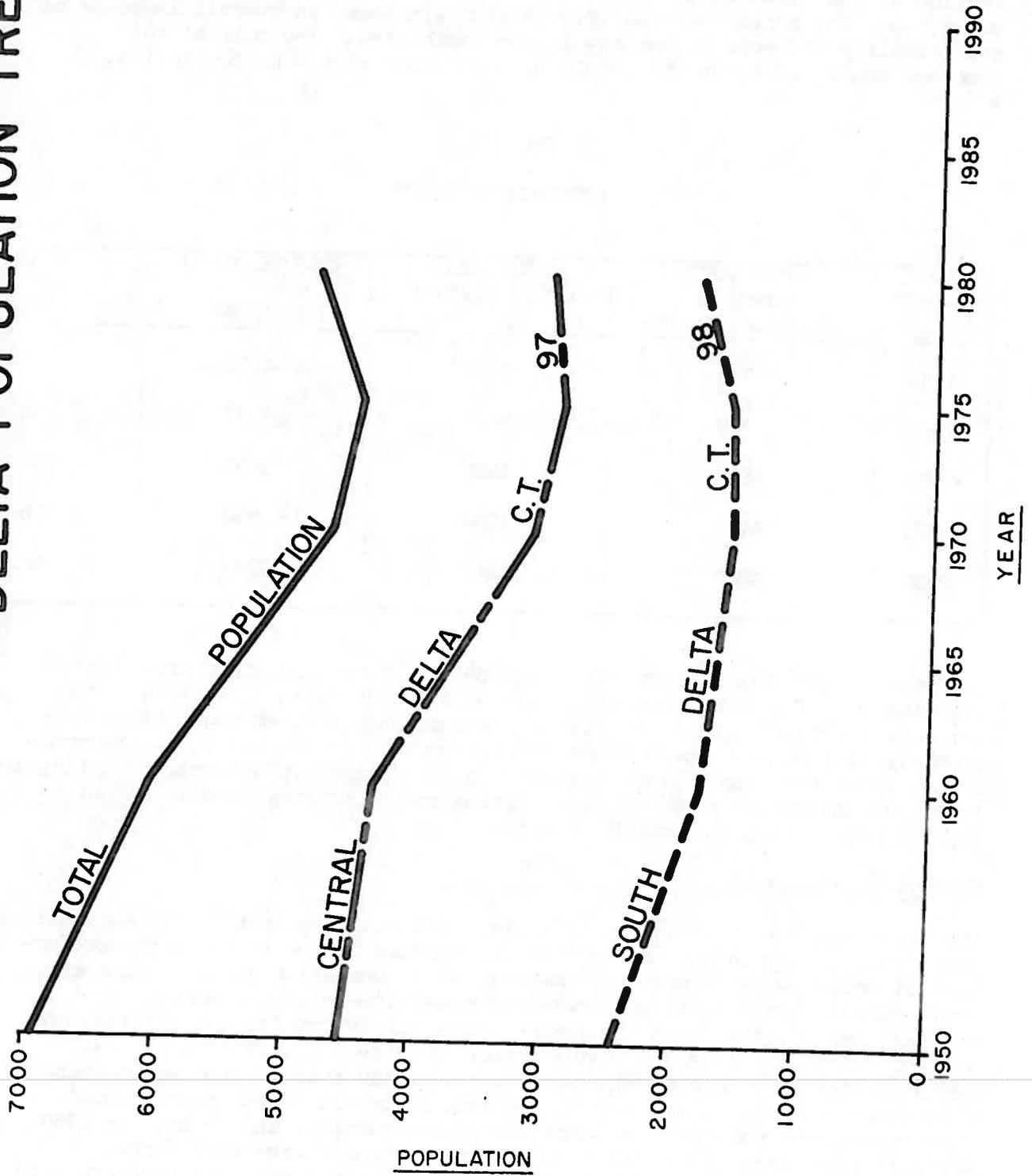


FIGURE 1.2  
DELTA COMMUNITY AREA  
STATISTICAL AREAS

FIGURE 1.3  
**DELTA POPULATION TRENDS**



Population Trends (Figure 1.3)

Table 1.2 depicts population trends for the Delta and its sub-areas.

Between 1960 and 1975, there appears to have been an overall decline of approximately 1600 persons. Most of this decline occurred in the Central section of the Delta which experienced a 33% loss in population. On the other hand, the period between 1975 to 1980 witnessed an overall increase of approximately 320 persons, mostly in the south area. The bulk of this increase could easily be the result of one subdivision - Ox Bow Marina.

TABLE 1.2  
POPULATION TRENDS

	STUDY AREA SOUTH OF SNODGRASS SLOUGH	SOUTH DELTA (INC. ISLETON) C.T. 98	CENTRAL DELTA C.T. 97	NORTH DELTA
1950	6946	2415	4531	
1960	6089	1762	4327	NA
1970	4654	1568	3085	NA
1975	4484	1594	2890	586
1980	4800	1803	2997	NA

The reasons for this pattern of generally-declining population are somewhat speculative. The 1972 flood of Brannan and Andrus Islands did have a very noticeable impact. Increased floodplain insurance program regulations have probably limited new growth since their inception in the mid 70's. Economically, there has been a gradual change in agricultural practices, resulting in less labor intensive production, a decline in the economy, and resultant fewer opportunities for younger people.

Employment and Economy

The major economic base in the Delta has, and will continue to be, agriculture. Sacramento County is one of the leading counties in the state in the production of pears, wheat and corn. However, with increasing urban development, recreational development, and concomitant service-related commerce, the economic base in the Delta has become increasingly complex and diverse. As a result of this increasing diversity and the trend toward agricultural mechanization, the employment market has actually shifted from agriculture to recreation and local support services such as retail sales, recreational development, repair services, education, construction, and so on. In 1960, agriculture accounted for 51% of the Delta community area work force, manufacturing-type industries employed 11% of the workers, and the remaining 38% were employed in recreation and service-related jobs. By 1970, agriculture had slipped to 35%, manufacturing down to 6%, and recreation and service had jumped to 59%. Census figures for 1980 are not available at this writing, but it is assumed that this trend will continue.

There are at least the following five identifiable segments to the Sacramento Delta economy:

- Agricultural Production. This category represents actual crop-related income, including farm labor and crop sales, etc.
- Recreation. This category includes marinas, recreational vehicle parks, restaurants and bars, boat repair and service, and other types of commerce which serve the recreationists. The recreation industry is primarily an import industry in that most of the money generated by recreation comes from sources (recreational) outside of the Delta area, primarily recreationists from the Sacramento, Stockton, and Bay areas. Total recreational income for the Delta region is estimated at \$70 million per year.
- Industrial. Most of this sector is the support industry for agriculture, and includes such uses as agricultural storage and packing plants, agricultural trucking operations, equipment sales, repair and service, agricultural chemical blending and distribution, and agricultural processing plants. Most commerce of this type serves the local agricultural needs, with relatively few businesses extending much beyond the Delta area in scope.
- Local Sales and Services. Local services are comprised mostly of retail sales such as grocery stores, clothing stores, and hardware stores, but also include services such as those provided by banks, doctors, construction-related businesses, lawyers, and dentists. The local services sector overlaps to some degree with other sectors of the Delta economy in that the sales and service provided to the local residents may be provided by agricultural or recreational interests as well.
- Other Export. Shipping, fishing, natural gas extraction, and the sale of water are the main components of this sector. Shipping is a major component of Delta regional economy, with facilities for ocean-going vessels at the Port of Sacramento, the Port of Stockton, and the Antioch-Pittsburg area. However, there are no facilities for ocean-going vessels in the Sacramento Delta, so that shipping has no direct impact upon the local economy.

The sale of water from the Delta is an issue of statewide significance, and its effect upon the local, regional, and state economy is extremely complex. Although its effect upon the Sacramento Delta cannot be ignored, analysis is far beyond the scope of the community plan. The proposed peripheral canal, if built, will have a major impact upon the Sacramento Delta, but this issue is addressed at the state level, and will not be discussed at length in this community plan.

Commercial fishing is all but nonexistent in the Sacramento Delta, with the exception of crayfish. Most crayfish are exported to Sweden, where a fungus disease has nearly destroyed the native population. Only a small fraction of the commercially-caught crayfish are consumed locally.

Large scale manufacturing is an important sector of the delta regional economy, but is relatively insignificant in the County portion of the Sacramento Delta. Large industrial developments are located in virtually every delta county except Sacramento County. The industrial development that does exist is small scale, and any export of locally-manufactured goods that does occur is insignificant to the local Delta economy.

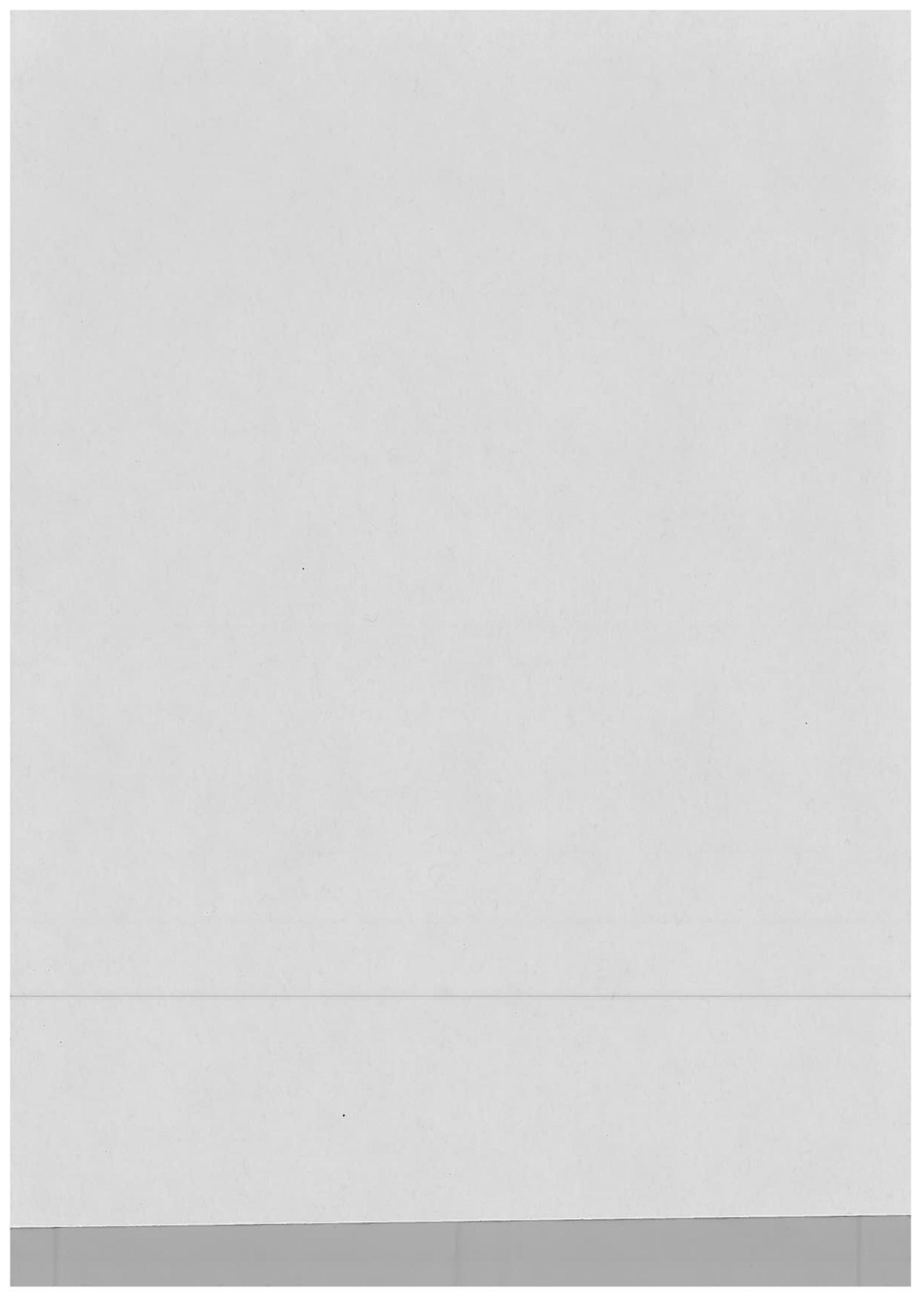
The sale of natural gas and associated by-products had an estimated market value approaching \$45 million in 1980. However, this industry has little effect upon the local economy because most mineral rights are in the possession of nonlocal corporations.

### Prospects for the Future

Projections of population in an area such as the Delta are, at best, guesses. It appears that the population may stabilize at approximately its current level, with perhaps a modest increase over the next ten years. This judgment is based upon 1) recent trends in the local economic base, 2) the current level of public facilities, 3) current policies and attitudes concerning agricultural protection, and 4) present levels of flood protection and associated flood insurance requirements. Nothing known within the planning horizon would indicate any major deviation from these trends.

Any deviation from "normal" trends would be speculative and dependent upon, as yet, unknown external forces and the County's policy response. Examples of such external forces could be a major industry which would benefit from a Delta location, a substantial increase in Commercial recreation, and proposals for large residential developments catering to the urban commuter, retirees, or vacationists. Current policies discourage such residential developments in the Delta. Whether these policies should be modified is one of the key issues addressed in this plan.





## CHAPTER TWO NATURAL HAZARDS

### INTRODUCTION

The single, most dominant constraint to any development in the Delta is its potential for flooding. This potential and the measures to minimize flood damages must be the underlying bases for any land use or economic development plan for the Delta. The basic assumption of this plan is that, although the issue is being studied, there will be no major levee improvement programs completed within the planning period (7-10 years). Consequently, land use recommendations are made within the context of the current levee system. If and when substantial improvements are completed, this plan should be reevaluated for their impacts on land use and economic development policies.

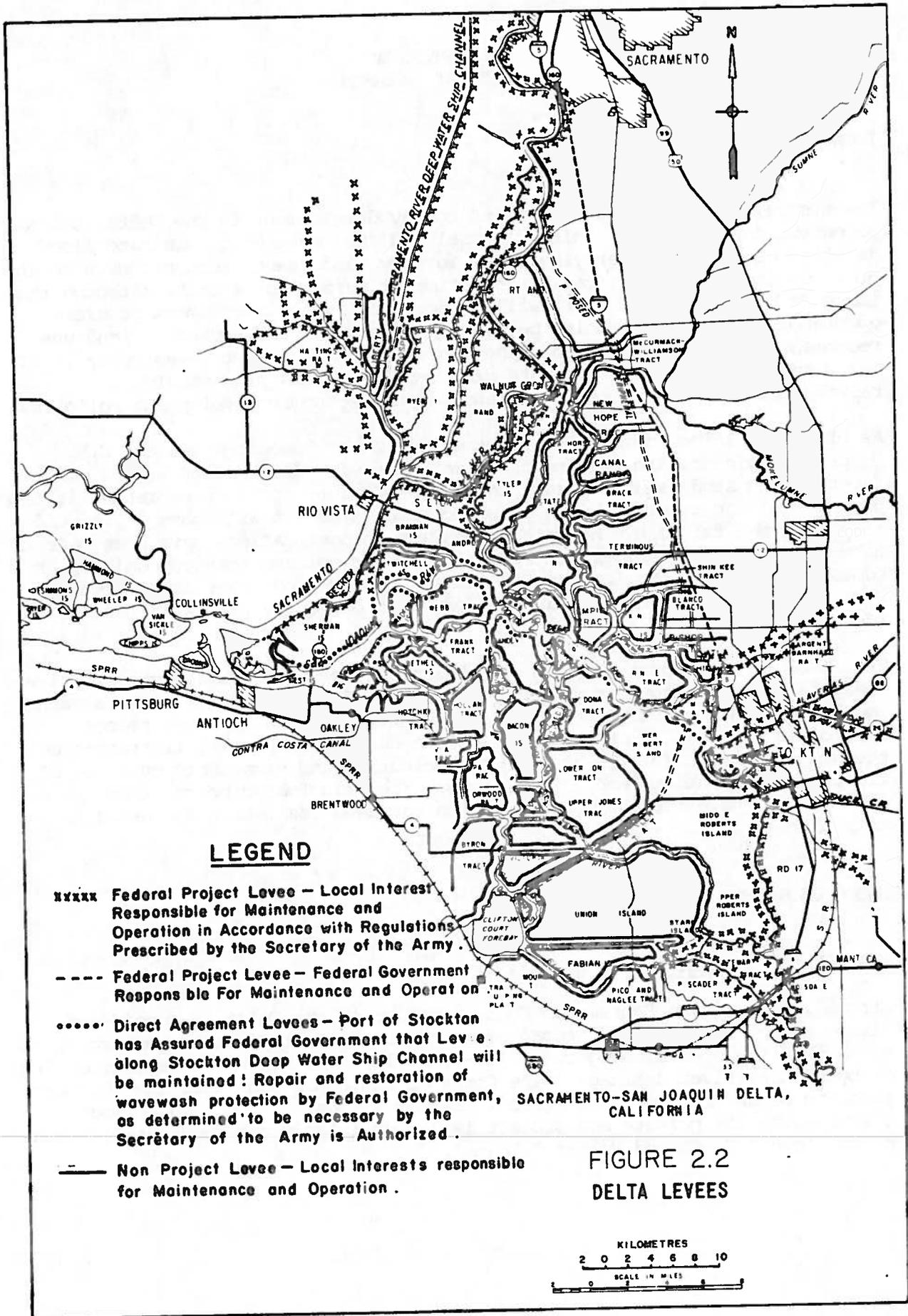
As of this writing, the State Department of Water Resources and the U.S. Corps of Engineers are nearing the completion of a joint levee study. This far-reaching study should result in recommendations for a levee rehabilitation program and for its funding. The selected alternative will have a profound effect on the future of the Delta. No firm recommendations have been made to date by the Corps or Department of Water Resources, and this community plan contains no recommendations as to a desirable level of levee improvements. When a program is authorized and funded, this community plan will need to be reevaluated.

The issue of flood protection in the Delta has been the subject of intensive analysis, with numerous studies and reports by federal, state, regional and local agencies. The bibliography for this report lists the most recent applicable reports. No attempt is made to duplicate the vast literature on the subject. What follows is a highly-selective and simplistic overview of flood control problems and alternatives. The principal concern is on those issues which have the greatest impact on the land use issues addressed in this plan.

### FLOOD PROBLEMS

#### Flood-Prone Conditions (Figure 2.1)

Virtually the entire Sacramento County portion of the Delta is considered "flood prone". This term, according to the Department of Water Resources, means that the area is subject to 100-year floods either by levee overtopping or by natural river drainage. The Corps of Engineers considers the 100-year flood to be an "intermediate" flood. Larger floods can occur which would overtop both the private and project levees on islands not considered "flood prone" (e.g., Grand and Sutter Islands).



### Historic Flooding (Figure 2.1)

Flooding of Delta islands in the five-County area occurred 34 times between 1930 and 1980. In Sacramento County, Sherman, Brannan, Andrus, Long and Deadhorse Islands have been inundated at least once during this period. Donlan Island, which flooded in 1937, was not reclaimed.

### Levees (Figure 2.2)

There are about 1100 miles of levees throughout the Delta region. These are classified into three broad categories: project levees, direct-agreement levees, and nonproject levees.

1. Project Levees. Approximately 15 percent of the levees in the Delta region are project levees. Many of these levees were constructed or rebuilt by the U.S. Army Corps of Engineers as parts of authorized projects and all are maintained to federal standards by or under the supervision of the State of California.
2. Direct-Agreement Levees. Direct-agreement levees comprise about 10 percent of the levees, in the Delta region. These levees are maintained to federal standards by the local interests in direct agreement with and under the supervision of the Corps of Engineers. Levees along the Stockton Deep-Water Channel and those repaired by the Corps of Engineers following major breaks, are direct-agreement levees.
3. Nonproject Levees. The remaining 75 percent of the levees in the Delta are nonproject levees, or levees which were privately constructed and are maintained by landowners or local districts. These levees are not required by law to be maintained to any particular standard. In some cases, however, the standards set for project levees serve as a guide to the owners or local agencies.

### Levee Maintenance (Figure 2.3)

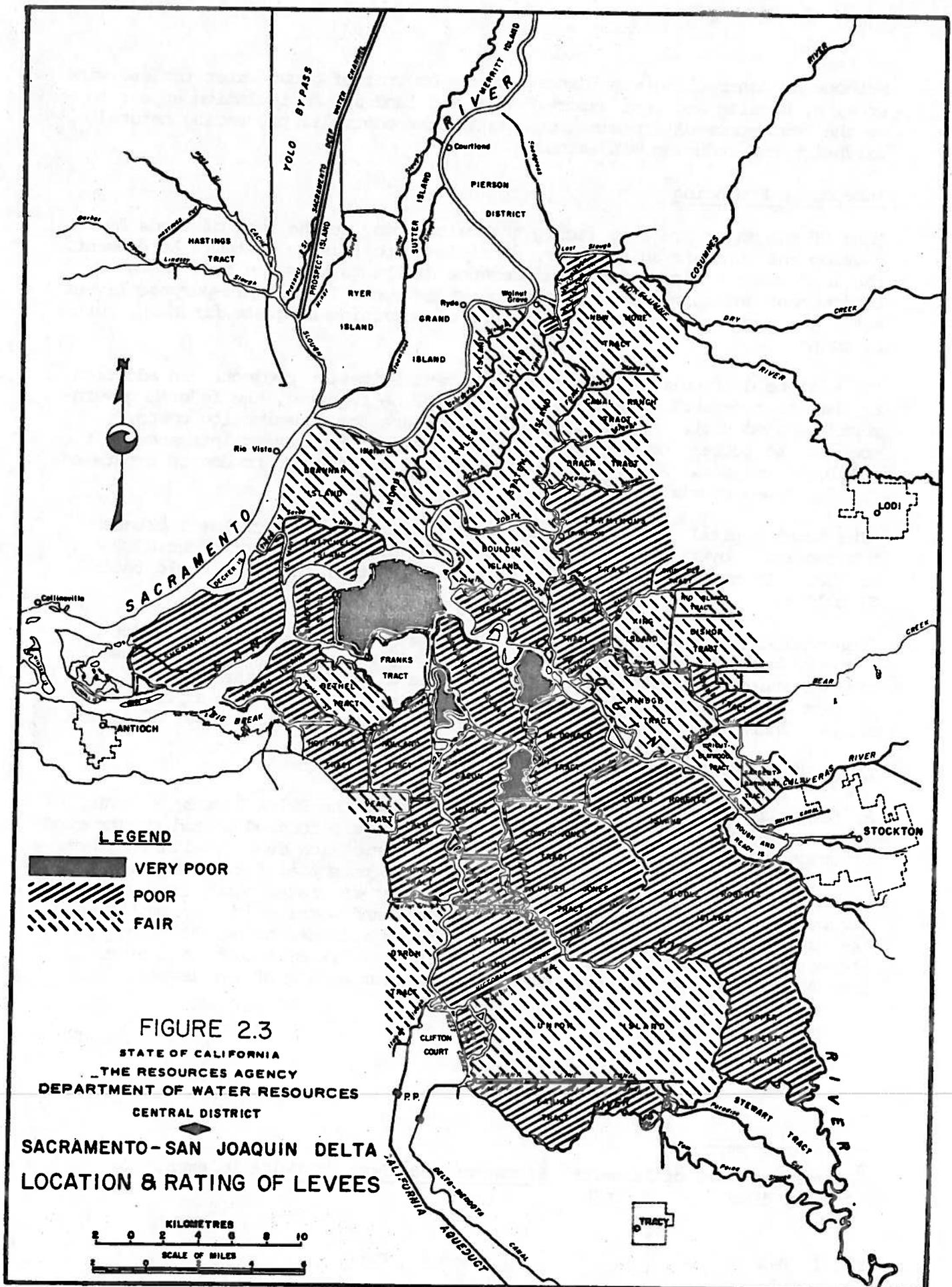
In 1980, the Department of Water Resources conducted a special inspection of Delta levees and made a general assessment of their condition. Of the fifty-two islands and tracts inspected, the levees surrounding twenty of them were rated in fair condition, 28 were poor, and 4 were very poor.

In the judgement of Department of Water Resources, the maintenance of levees depended on the attitude and financial capability of the maintaining agency. Maintenance of most project levees is considered very good. On the other hand, maintenance of most nonproject levees varies from good to poor. The latter receive no federal assistance, except during flood emergencies, and local maintenance districts have to deal with the increasing costs of maintenance on their own.

### Subsidence

The elevations of islands in the Sacramento County portion of the Delta range generally from sea level to as much as twenty feet below sea level. Due to a number of physical factors, principally oxidation, these levels are being steadily lowered. It has been estimated that a number of islands are subsiding at a rate approaching three inches a year.





Methods of controlling subsidence include control of groundwater tables, wind erosion, burning and peat export. Crop and land use manipulation appear to be the best means of implementing groundwater controls, preventing natural oxidation and reducing wind erosion.

#### Inadequate Financing<sup>\*</sup>

"One of the major problems facing the Delta today is the lack of funds to develop and maintain an adequate, multiple-purpose levee system. At present, the landowners or local levee maintenance districts bear the full costs of improvement and maintenance of nonproject levees. If multiple-purpose levees are to be developed, an equitable means of obtaining adequate financing must be found.

"It will be difficult to fund a massive rehabilitation project. In addition to the large federal expenditures which will be required, the federal government looks to state and local agencies to share the construction costs, to sponsor the recreation component, and assure operation and maintenance of the completed project. Also, local entities will be expected to donate rights-of-way for levee construction.

"The total capital cost of protecting all islands and tracts has increased substantially over the last few years and is now estimated at about \$800 million. By the time such a project is implemented, this cost could reach \$1 billion.

"Conventional flood control project analyses have not yielded sufficient economic benefit values to justify such a project. The Delta is an unusual area of statewide importance, however, and a different, unconventional project analysis may be justified. Nevertheless, with such an expensive project, hard questions must be asked as to the appropriate course of action."

#### EARTHQUAKE HAZARDS

As far as is known, earthquakes have not damaged the Delta levees; however, because the levees in the lowlands of the Delta are founded on and constructed of unconsolidated peat and silt soils which are of low density with low shear strength and high-moisture content, there is a potential for earthquake damage. During a major earthquake, these water-saturated materials may be subjected to liquefaction, a reaction of soil and water which is similar to the movement of quicksand. Earthquake-induced seiches, or oscillations of the water surface, also could develop in the network of sloughs and river channels during a major earthquake, causing overtopping of the levees.

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\* Assembly Office of Research, Sacramento/San Joaquin Delta Dilemma, January 1982.

## SOLUTIONS

The range of solutions was succinctly stated by the State Department of Water Resources in Bulletin 199:

"Whatever type of flood threatens, there are two basic ways to prevent or limit flood damage: by keeping the water away from people (with structural facilities) or keeping the people away from the water (with floodplain management)."

Structural facilities to prevent flooding include: a) flood control reservoir storage; b) levees to contain floodflows within a defined area; c) bypass channels; and d) channel modifications to increase the flow capacity of a stream channel. Although all four types of structural facilities have been constructed and/or are proposed within the Sacramento-San Joaquin Rivers' basins, only levees will be addressed in this plan.

Floodplain management programs involve limiting flood-prone lands to those uses which are compatible with periodic inundation (e.g., agriculture and recreation). Techniques applicable to the Delta include floodplain zoning, flood insurance, and floodproofing of structures.

In practice, the approach used seldom involves an either-or decision. Both structural facilities and management programs must be utilized as parts of a comprehensive and coordinated approach to minimizing flood damage.

### Levee Improvements (Figure 2.4)

The most recent comprehensive proposal for levee improvements is contained in the State Department of Water Resources' Bulletin No. 192 - Plan for Improvement of the Delta Levees, May, 1975. The recommendations in this document are the basis for current studies by the U.S. Corps of Engineers. Because of the importance of this document, its summary is reproduced below.

"The Sacramento-San Joaquin Delta is a major resource that provides a significant contribution to the economy of California. There are many Delta problems including flood control, levee maintenance, earthquake hazards, destruction of levee vegetation, shortage of public access and recreation facilities, lack of adequate land use control and inadequate funds for levee improvement and maintenance.

"Following the Sherman Island levee failure in 1969, the California Legislature, under Senate Concurrent Resolution No. 151, directed the Department of Water Resources to study the problems relating to Delta levees and recommend a course of action to implement feasible solutions to the problems. Four alternative courses of action were developed and presented in an interim report in September 1973. These four courses of action were: (A) no improvement, (B) extensive levee improvement, (C) moderate levee improvement, and (D) polders (master levee systems around groups of islands).

"Following the publication of the interim report, the Department of Water Resources conducted five public meetings. Hearings were held at Sacramento, Isleton, Los Angeles, Stockton and Oakland. Approximately 300 pages of testimony were recorded. The predominant comments made at the hearings and also in numerous letters were: (1) The Delta should be maintained essentially as it is today; (2) Levee improvements are needed at the earliest possible date; and (3) Federal and state funds are needed for the program.

"Based on the comments on the interim report, and further studies conducted by the Department, a plan for improving the Delta levees has been developed. The recommended plan is a compromise between Alternative (B) presented in the interim report, extensive levee improvement and Alternative (C), moderate levee improvement. The plan involves improvement of 310 miles of levees that surround portions of 55 islands or tracts in the Delta (Map 4). Slightly more than 45 miles of levee would be improved to 100-year protection which is considered adequate protection for some urban uses (a flood that can be expected to be equalled or exceeded on the average of once in 100 years). The remaining 265 miles of levee would be improved to provide 50-year protection which would be adequate only for agricultural land use. The plan also provides for recreation facilities, improved roads and enhancement of the environment. There would be 50 recreation access sites, of which 40 would be for fishing access. The remaining 10 would include launching ramps, parking areas, picnic facilities, fresh water supply and sanitary facilities. The preliminary estimated capital cost of the project of \$128 million is to be shared by federal, state, and local governments.

"After project completion, any future levee breaks would be repaired by the owners through coverage of flood insurance or through disaster relief.

"The plan of improvement has strong public support, would provide substantial socioeconomic benefits, and is economically justified."

The joint study by the Corps of Engineers and State Department of Water Resources is expected to be completed by the end of 1982. The product will be a series of alternative plans and financing programs. The key issues will be a) the level of levee improvements and b) who should pay the bill. The resolution of these highly-interrelated issues is not expected for several years, and only after all alternatives have been subjected to considerable public debate.

#### Floodplain Management

1. Cobey-Alquist Floodplain Management Act. This act declares that:
  - a. The public interest necessitates that floodplains be developed in a manner which, in conjunction with economically-justified structural measures for flood control, will result in the prevention of loss of life and of economic loss caused by excessive flooding;
  - b. The primary responsibility for establishing and enforcing floodplain regulations rests with the local levels of government; and
  - c. It is the policy of the state to encourage local levels of government to plan land use regulations to accomplish floodplain management.



The act also establishes criteria which must be met by appropriate local agencies in regulating portions of the floodplain as a condition to receiving state financial assistance for flood control project rights-of-way costs (emphasis added). Specifically, the act states that "The state shall not pay any of the cost of land easements, and rights-of-way associated with the flood control project . . . unless floodplain regulations for the designated floodway are adopted in accordance with the requirements of this chapter." Examples of acceptable regulations are:

- a. Floodplain zoning ordinances
- b. Grading or setback ordinances
- c. Ordinances controlling subdivision development.

2. National Flood Insurance and Floodplain Management Program (Figure 2.5)

The National Flood Insurance Program was enacted by Congress in 1968 as a means of making flood insurance, which was previously unavailable from the private insurance industry, available at reasonable rates within communities that meet certain floodplain management measures.

The program is highly subsidized and seeks in its early stages to assure wiser future floodplain management rather than to obtain adequate premiums for the coverage provided. However, flood insurance for new construction is subject to actuarial rather than the subsidized premium rates. Such actuarial rates can be prohibitively expensive unless the buildings are properly elevated or flood proofed to lessen flood damage.

The Federal Disaster Protection Act requires the purchase of flood insurance as a condition of receiving any form of federal or federally-related assistance for the acquisition or construction of buildings. This includes mortgage loans from federally-regulated lenders. No such federal financial assistance will be provided in an area unless the community is participating in the National Flood Insurance Program.

To qualify its residents for the purchase of federally-subsidized flood insurance, a community must adopt and submit floodplain management regulations designed to reduce or avoid future flood damage. To meet the criteria for the Delta portion of unincorporated Sacramento County (Zone A), the County must:

- a. Require permits for all proposed construction, including the placement of mobilehomes.
- b. Review proposed developments to assure that all necessary permits have been received.
- c. Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding. All new construction shall:
  - 1) be designed to prevent flotation, collapse, or lateral movement,
  - 2) be designed with materials resistant to flood damage,
  - 3) be constructed by methods and practices to minimize flood damage.

 UNNUMBERED "A" ZONE  
 ISLETON-NUMBERED "A" ZONE

 STUDY AREA

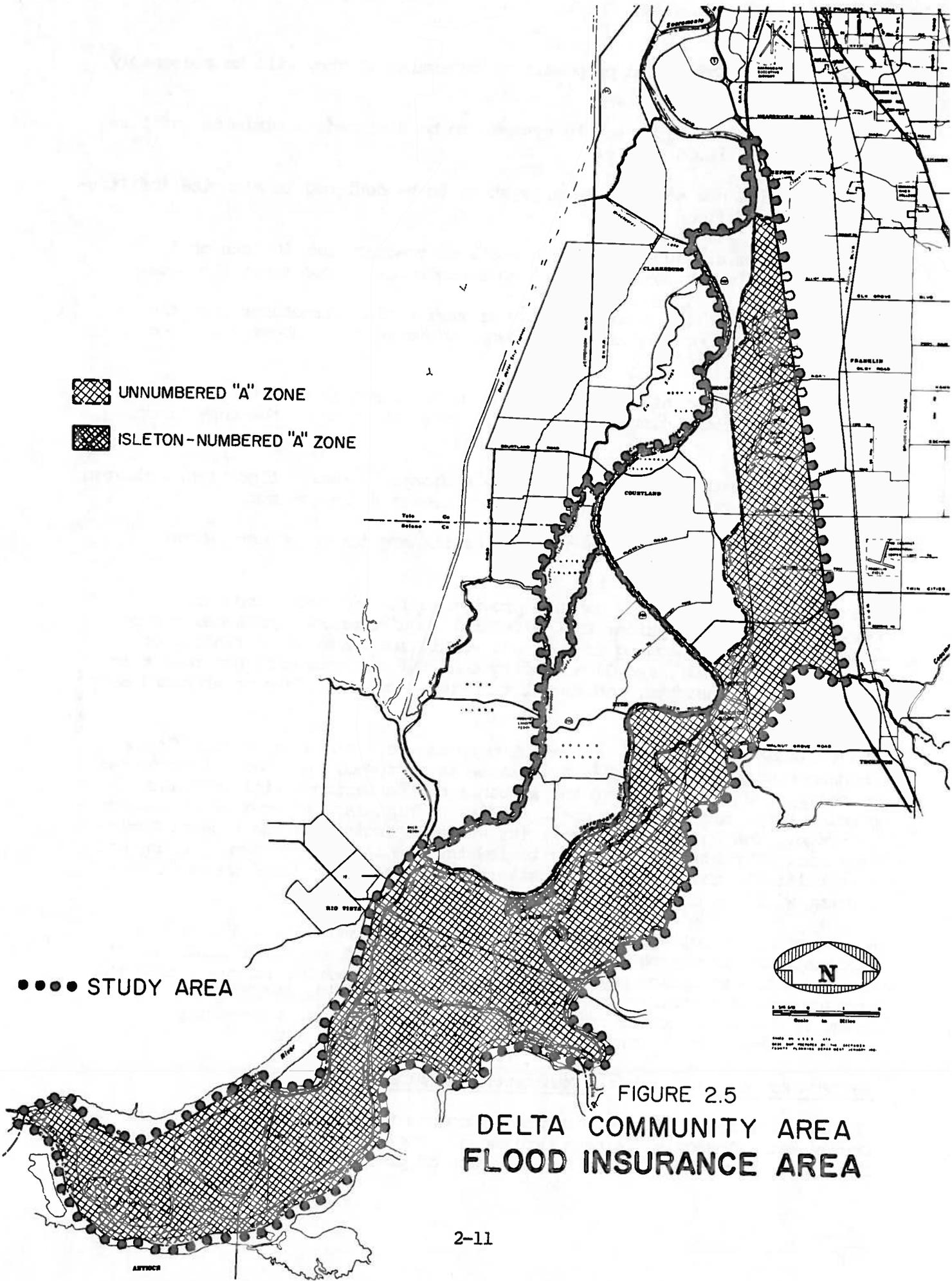


FIGURE 2.5  
 DELTA COMMUNITY AREA  
 FLOOD INSURANCE AREA

- d. Review subdivision proposals to determine if they will be reasonably safe.
- e. Require new water supply systems to be designed to minimize infiltration of flood waters.
- f. Require new sanitary sewer systems to be designed to minimize infiltration of flood waters.
- g. Require all subdivision proposals of greater than 50 lots or 5 acres (whichever is lesser) to include base flood elevation data.
- h. Require that all construction of residential structures have the lowest floor (including basement) elevated to or above the flood level.
- i. Require that all construction of nonresidential structures have the lowest floor elevated or flood proofed to or above the base flood level.
- j. Require that all mobilehomes be anchored to resist flotation, collapse or lateral movement by providing ties to ground anchor.
- k. Require an evacuation plan for mobilehome parks and mobilehome subdivision.

The federal regulations do contain provisions for variances from local requirements and exceptions to the federal requirements. Variances may be issued upon: 1) a showing of good and sufficient cause, 2) a finding of exceptional hardship, and 3) a finding that the variance will not result in increased flood heights, additional threats to public safety or extraordinary public expense.

The variance is for flood management purposes only and does not modify the insurance premium rate. When a variance is approved, the County is required to notify the applicant that the issuance of the variance will increase premium rates for insurance up to amounts as high as \$25 per \$100 of insurance coverage. The County must report its variance actions to the Federal Administrator. The administrator can review the findings and suspend the community's eligibility in the program if a pattern of variances is found to be "inconsistent with the objectives of sound floodplain management."

An exception is relief which may be granted to a community by the Federal Administrator from some of the floodplain management standards contained in the act. The exception may be granted where local conditions may render the application of certain standards the cause for severe hardship and gross inequity for a particular community. With an exception, a community may adopt standards which vary from those contained in the act.

#### Sacramento County Floodplain Management Measures

The County's response to the National Program is contained in the Sacramento County Water Agency's Drainage Ordinance. The ordinance requires a permit from the Water Agency" . . . to construct or place any building, or other

improvements, or place any trailer, mobilehome or similar vehicle on any land subject to flooding." Land subject to flooding is defined as "any area determined by the agency to be subject to inundation by storm or surface waters and shall include . . . areas within the 100-year floodplain as shown on the Federal Flood Insurance Rate Map."

The permit cannot be issued if the activity is inconsistent with the County General Plan. The following are the conditions of approval:

1. Construction of the building pad for flood levels shall be at an elevation which will protect the structure from frequent flooding as follows:
  - a. One foot above the 100-year flood elevation for any habitable floor (working, sleeping, recreation, etc.) space.
  - b. At or above the 100-year flood elevation for single-family and duplex garages.
  - c. One foot below the floodplain for nonenclosed parking areas for apartments and commercial uses.
2. Other conditions calculated to protect the property from damage may be required, including the use of flood-resistant materials and utility equipment.
3. The owner may be required to enter into a written agreement with the County holding it free from liability for any harm that may occur as a result of flooding.
4. A variance from the above may be granted pursuant to Federal Flood Insurance regulations and the County Code.

#### Flood Zoning

Flood zoning is one means for achieving the floodplain management requirements of the National Flood Insurance Program. The County Zoning Code contains an (F) Flood Combining zone which is intended to be applied to all lands covered by rivers, creeks, streams, and land subject to flooding. As of this time, the combining designation has not been applied to much of the Delta Study area.

In adopting the regulations of the (F) Flood zone, the Board of Supervisors recognized that:

1. The promotion of the orderly development and beneficial use of lands subject to recurrent flooding is necessary if the potential property damage which results from improper development is to be minimized.
2. There is a need to protect current and future occupants of land subject to flooding from the physical damage of flooding.
3. The health, general welfare and safety of the public of the County as a whole requires that lands subject to flooding be strictly regulated as to the uses permitted on the land and the amount of open space which separates buildings and structures.
4. Inundation frequently causes extensive property damage.

5. Strict regulation of flood lands is necessary to protect prospective buyers of land from deception as to the utility of land in the land within flood zones.

The (F) Flood combining zone does not alter the permitted uses of the underlying zone. It does require that the first floor of any structure designed for human habitation be at an elevation as high or higher than that required by the Sacramento County Water Agency Drainage Ordinance. The (F) combining zone and the Drainage Ordinance, then, work hand-in-glove to achieve floodplain management objectives.

### Flood Proofing

"A flood-proofing program consists of measures which render buildings and their contents less vulnerable to flood damage. Flood proofing is not a panacea for flood problems. It is, however, an important device available to reduce flood damage."

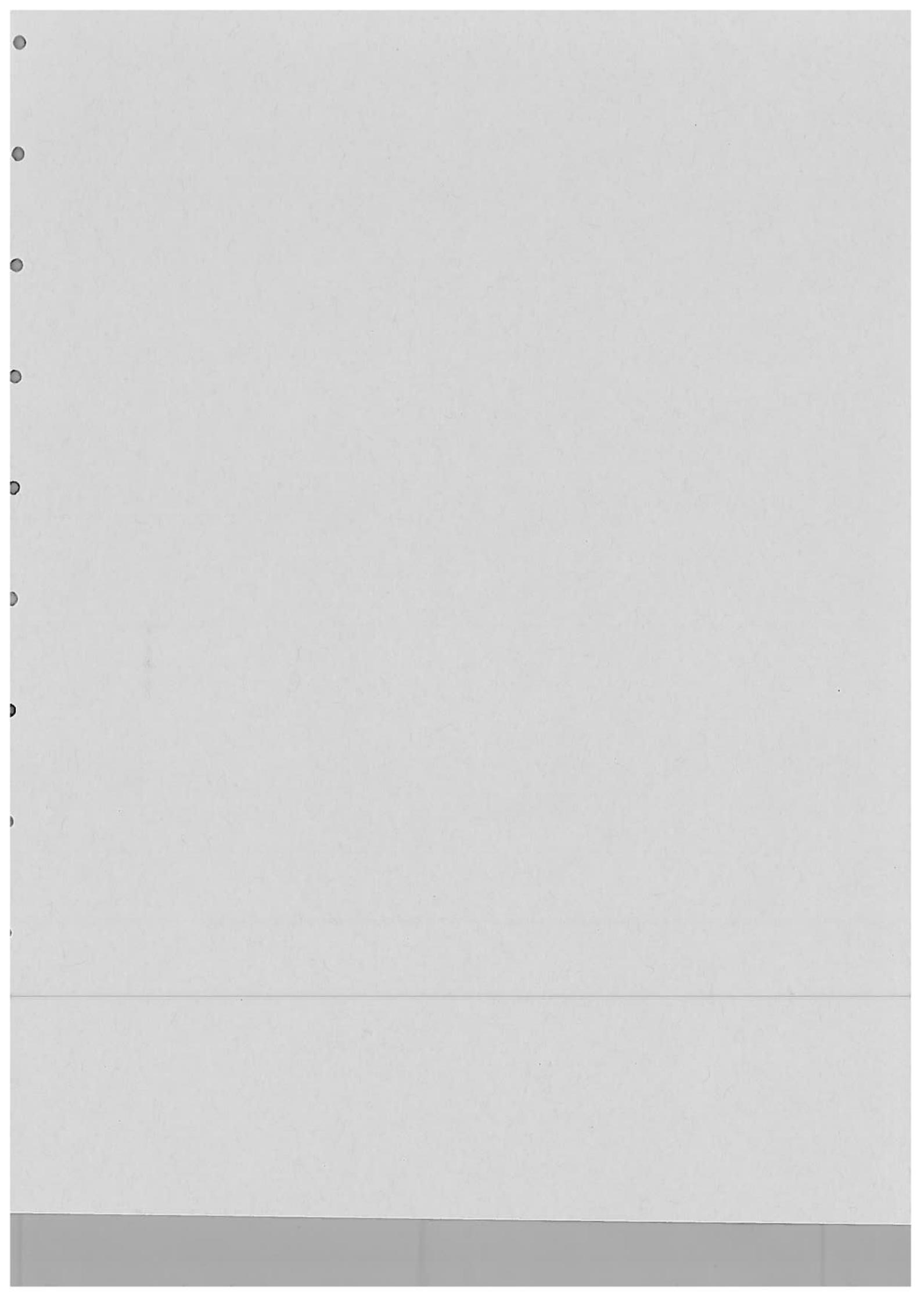
Floodproofing measures can include:

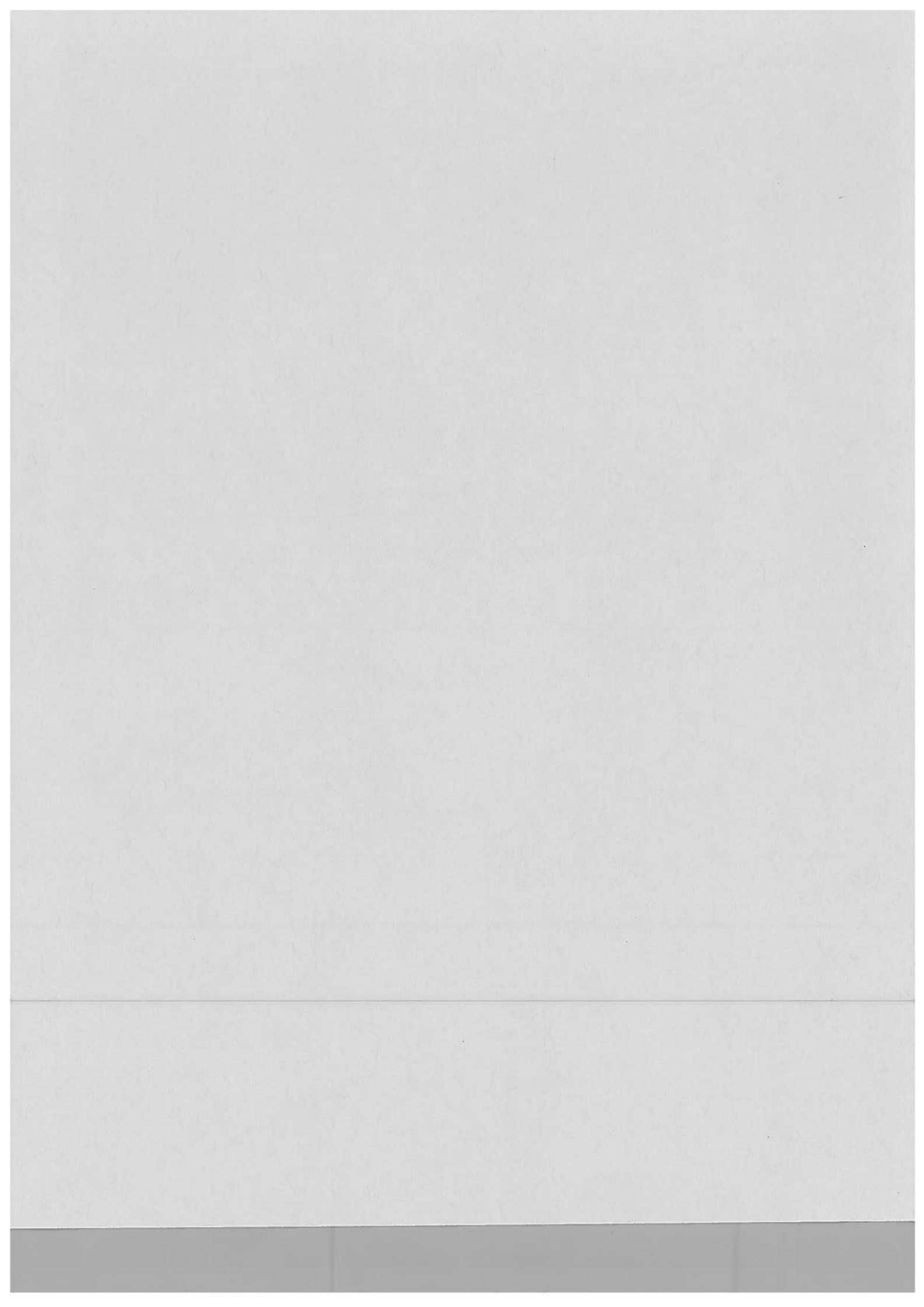
- Elevating the structure on stilts (depending on soil foundation conditions, which are poor in the Delta flood-prone area) above the flood level.
- Elevating the structure on a soil embankment above the flood level.
- Constructing a "100-year flood" levee around the structure.
- Water-proofing machinery (or removal of machines).
- Disconnecting or raising of electrical circuits.
- Permanently reorganizing the use of space in the building.
- Flood shields to restrain water entrance at windows and doors.
- Cutoff valves for sewers to halt backup.
- Providing permanent or temporary watertight covers for all openings.
- Raising existing buildings.
- Providing individual dikes around existing or future structures.
- Protecting roads and utilities.
- Anchoring floatable structures and facilities.
- Construction design which will not add dangerous flotsam to floodwater.
- Sewage system linkups which will not be affected by floods (no septic tanks).
- Providing evacuation transportation.
- Providing independent energy sources.

"Flood proofing, like other methods of preventing flood damage, has limitations. It can generate a false sense of security and discourage the development of needed flood control or other action."(1)

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(1) Center for Urban Studies, Introduction to Flood Proofing. The University of Chicago, April 1967.





CHAPTER THREE  
NATURAL RESOURCES

INTRODUCTION

Relatively few totally-natural resources remain in the Delta of today. Virtually the entire area has been altered by man to meet his agricultural, urban, and recreational needs. A 1980 study by the California Department of Fish & Game and the U.S. Fish & Wildlife Service\* provides the following description of the "natural" Delta:

"The pristine Delta prior to 1850 was largely a tidal marshland of about 400,000 acres, surrounded by 200,000 to 300,000 acres of slightly higher lands and shallow backswamps behind natural alluvial levees (Thompson, 1957). Most of the land was close to mean sea level, with the highest points of land no more than 10 or 15 feet above that level. Flooding of the backswamps was frequent; in the spring, virtually all of the Delta became a vast inland lake, covered by high tides and runoff from the great watershed of the Sacramento and San Joaquin Rivers.

"Floodwaters deposited nutrient-rich sediments and detritus on Delta lowlands, contributing to their high biological productivity. Often described as the "Everglades of the West," this rich area was covered with dense tules, willows, and cottonwoods which, along with adjacent higher vegetation, teemed with more than 250 species of birds and mammals. The Delta was one of the most significant areas of waterfowl concentration in the state, supporting ducks, geese, swans, and other waterfowl in great numbers during winter migration. In addition to many furbearers, such as river otter, bobcat, and grizzly bear, great herds of antelope, tule elk, and deer were present in and around the Delta.

"Levee building and reclamation of Delta lands altered irreversibly the physical appearance and function of the area. The first levee is believed to have been built in 1852 on Merritt Island.

"By 1880, approximately 100,000 acres of land had been reclaimed. Higher and more substantial levees were built in the 1890's by clamshell dredges, which formed an important chapter of their own in the history of the Delta to the present time. These levees were set back from the riverbank with wide berms between the riverbank and the levee toe. By 1900, half the Delta (250,000+ acres) had been reclaimed and by 1930, Delta reclamation was essentially complete, with the formation of 60 major islands covering about 450,000 acres."

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\* Calif. Department of Fish & Game/U.S. Fish & Wildlife Service, Delta Wildlife Habitat Protection and Restoration Plan, 1980.

In its broadest sense, the term "Natural resources" includes soils and agriculture, open space, water, air, recreational environments, minerals, vegetation, fish and wildlife (and their habitats). For convenience, most of these subject materials are included in other elements of this plan. The focus in this element, then, is on fish, wildlife and their habitats, which perhaps are the only remaining "natural" features of the Delta.

Much of the material included in this element has been extracted almost verbatim from the following two documents. These definitive reports are recommended for those who wish to study the subject further.

- Delta Advisory Planning Council, Delta Plan Technical Supplement - Delta Natural Resources, August, 1975.
- California Department of Fish & Game/U.S. Fish & Wildlife Service, Delta Wildlife Habitat Protection and Restoration Plan, December 1980.

## RESOURCE DESCRIPTION

### Vegetation

Little of the original vegetation remains in the Delta. The Delta is an area totally transformed by reclamation and agriculture. Levee maintenance policies have generally resulted in devegetated levees. Other areas, while maintained in a more natural state, have been artificially influenced in content and growth pattern by weeds introduced through agriculture, by destruction of old habitats and creation of new. Today, the nonleveed islets such as at Delta Meadows are the only areas with almost entirely native flora.

Despite past practices which have eliminated such areas, a considerable amount of "natural" vegetation remains, principally in thin strips along levees, drainage ditches, fences and as clusters in the few remaining unleveed areas.

Delta plants have a great many values for the community.

1. They have great scenic value.
2. Their shade and transpiration produce a cooling effect for residents, recreationists, and wildlife.
3. They can serve as a buffer between agriculture and recreation, thereby somewhat mitigating reciprocal adverse impacts.
4. Decomposing plant materials and phytoplankton are the first links in the aquatic food chain.
5. The Delta marshes provide habitat for great numbers of waterfowl on the Pacific flyway.

6. Farmland crop areas and border vegetation are very important to some wildlife.
7. Riparian growth shelters and feeds a great variety of wildlife and increases the productivity of water by providing shade, shelter and nutrients.
8. It has been estimated that the Delta riparian habitat sustains over 150 bird species and 25-30 animal species.

#### Wetlands

The U.S. Fish & Wildlife Service defines the term "Wetlands" as lowlands covered with shallow and sometimes temporary or intermittent water. They are referred to by such names as marshes, swamps, bogs, wetmeadows, potholes, sloughs, and river-overflow lands. Also generally included in the wetland category is the tidal zone between high and low water in rivers and channels (islands and berms included).

Wetlands, in general, are the "Mother Lode of Ecology" where the interrelated chain of nature begins. Here is found the necessary denning, nesting, roosting and escape cover essential to a multitude of wildlife species. The overhanging boughs of trees and shrubs and the tidal-washed vegetation on islands, berms, and marshes provide a continuing supply of decomposing plant material, or detritus, which is one of the major first links of a food chain for fish and other aquatic life.

Figure 3.1 identifies the most significant wetlands areas in the Delta. Those in Sacramento County include: Beach and Stone Lakes Basin, the Consumnes-Delta Meadows-Lost Slough area and Lower Sherman Island.

#### Migratory and Resident Birds

1. Migratory Waterfowl. Waterfowl which visit the Delta are swans (Whistling and Trumpeter), geese (Snow and Canada), and ducks (Pintail, Mallard and Widgeon). The Delta and Suisun Marsh areas are perhaps the key areas in the Pacific Flyway between Canada and the Gulf of Mexico. Each fall, about ten million ducks, geese, and swans pass over the Delta, with most stopping to rest and feed in the marshlands and on the corn and milo fields.

State aerial surveys have recorded well over one million ducks and 250,000 geese in the Delta at one time. Whistling Swan populations often exceed 50,000, and, at times, nearly 90% of all the state's wintering swans have been observed in the Delta.

2. Aquatic and Semi-Aquatic Birds. Included in this category are cranes and shorebirds. The crane family is one of the large wading birds with long legs and neck, and a long, straight bill. Those found in the Delta are Great Blue Herons, Green Herons, Black Crowned Night Herons, Great Egrets, and both Greater and Lesser Sandhill Cranes. Shorebirds found in the Delta include the California Black Rail (a "rare" species), Tern, Seagull and Gallenules.

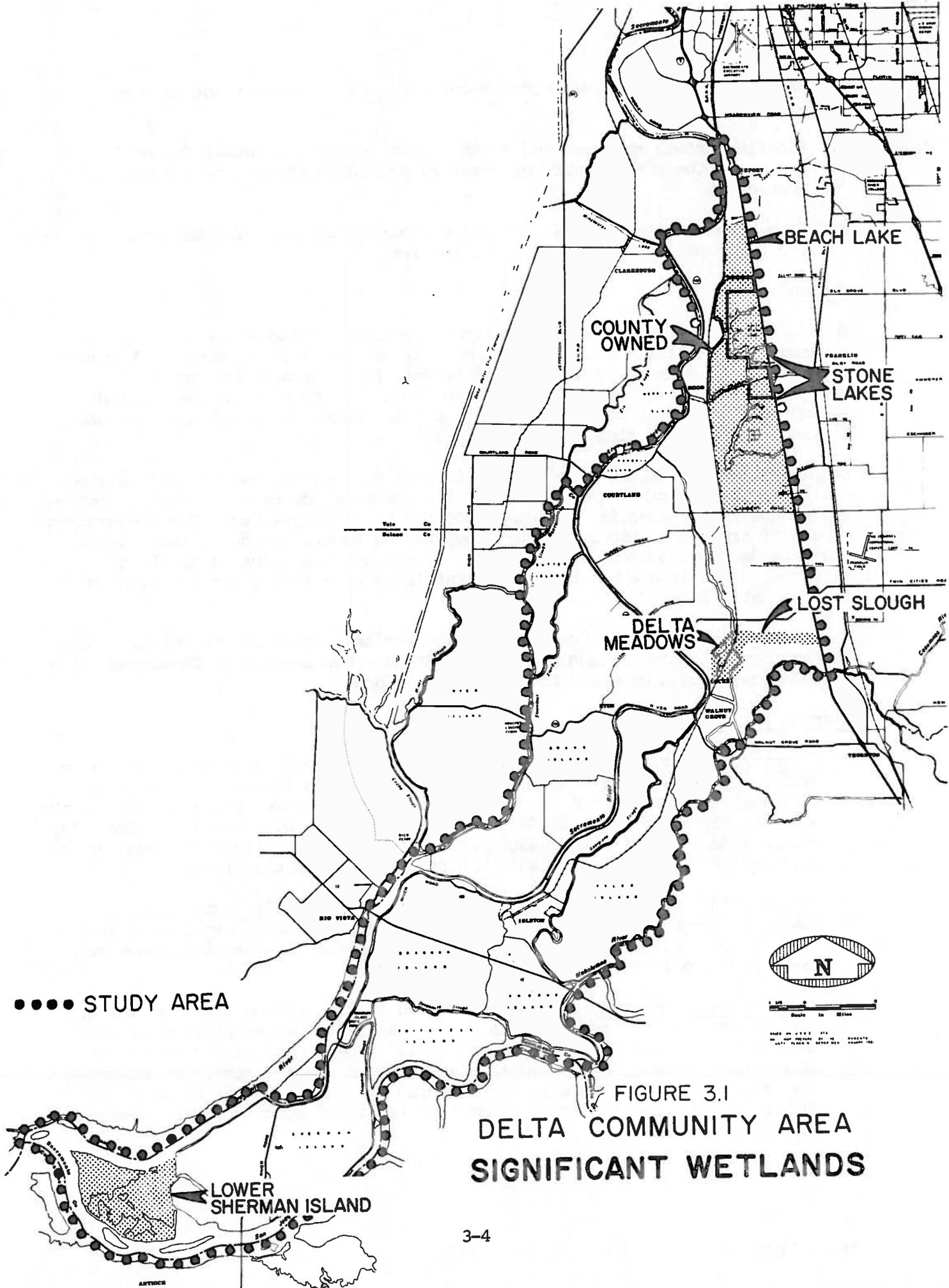


FIGURE 3.1  
 DELTA COMMUNITY AREA  
 SIGNIFICANT WETLANDS

3. Raptors. Raptors are birds of prey, capable of capturing prey with their talons. Seventeen raptor species in the United States are recognized as rare or endangered. The following raptors are found in the Delta:

- Eagles (Southern Bald and Golden)
- Hawks (Kites, Accipiters, Falcons, Buteos, Harriers, Osprey)
- Owls
- Vultures

4. Mammals. The following mammals have been reported in the Delta:

Beaver	Ground Squirrels	Bobcat
River Otter	Rats	Coyote
Grey Fox	Cottontail Rabbits	Mule Deer
San Joaquin Kit Fox	Spotted Skunk	Mice
Mink	Opossum	Gophers
Raccoon	Long Tailed Weasel	Jackrabbits
Striped Skunk	Muskrat	

5. Reptiles and Amphibians. The following are found in the Delta:

Giant Garter Snake	Gopher Snake
Alameda Striped Racer	King Snake
Common Garter Snake	Aquatic Garter Snake
Western Fence Lizard	Bullfrog
Southern Alligator Lizard	Pacific treefrog
California Legless Lizard	Terrapin

6. Fish. The Delta is one of the largest and most important fisheries in California, vital to a large population of resident fish, but even more important as a saline gradient and access for spawning runs of anadromous fish\* to the upper Sacramento, Mokelumne, Stanislaus, Calaveras and San Joaquin River systems. The following fish are found in the Delta today:

a. Anadromous

- King Salmon - Indigenous; perhaps 500,000 enter the Delta yearly
- Steelhead and Rainbow Trout - Indigenous; perhaps 100,000 enter the Delta yearly
- White and Green Sturgeon - Indigenous; perhaps 115,000 populate the Delta
- Striped Bass - Introduced; perhaps two million game size are in the Delta
- American Shad - Introduced; perhaps two million enter the Delta yearly.

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\* "Anadromous fish" are those which, by a long evolution process, have adapted to fresh and salt water. Some species (salmon and steelhead) spawn only in gravel areas of fresh water mountain streams. All anadromous young migrate to the sea where they live until returning to the spawning area.

b. Resident Freshwater Fish

- White Catfish - Introduced
- Channel Catfish - Indigenous
- Brown Bullhead - Introduced
- Black Crappie - Introduced
- Bluegill - Introduced
- Smallmouth Bass - Introduced
- Largemouth Bass - Introduced.

An important conclusion regarding the anadromous fishery is stated in the memorandum of agreement among the California Departments of Fish and Game and Water, and the U.S. Bureau of Reclamation and the Fish & Wildlife Service: "Protection of present anadromous fishery resource depends on maintaining suitable environmental conditions both in the Sacramento-San Joaquin Estuary and in rivers above the estuary or, in other words, in the whole Central Valley."

RARE AND ENDANGERED SPECIES

In 1979, the U.S. Army Corps of Engineers published the Sacramento-San Joaquin Delta Environmental Atlas. The Atlas lists 13 rare and endangered plant species which may be found in the Delta region and five rare and endangered fish and wildlife species which inhabit the Delta region. Two of the plant species, *Lilaeopsis masonii* (*Lilaeopsis*) and *Oenothera deltoides* var. *howellii* (Antioch Dunes evening primrose), and two animal species, the Giant garter snake (*Thamnophis couchi gigas*) and the Salt Marsh Harvest mouse (*Reithrodontomys rivarensis*) are thought to exist in Sacramento County (See Figure 3.2). One species of fish, the Thicktail Chub (*Gila crassicauda*) is now thought to be extinct. The Thicktail Chub was formerly common in lowland waters of the Central Valley from Redding to Bakersfield, but flood control measures have eliminated habitat, and introduced game fishes may have fed on the species. The last known specimen was collected in 1957 from Steamboat Slough.\*

The *Lilaeopsis* is a white flowered perennial which occurs within the zone of tidal fluctuation of the lower Delta region and specifically in the lower Sherman Island marsh area. The small plant is easily overlooked, but recent sightings have placed the species as far upstream as Rio Vista. The California Department of Fish and Game lists the *Lilaeopsis* as a rare species.

The Antioch Dunes evening primrose is an annual which occurs in the sand dunes near Antioch in Contra Costa County. The flowers range in color from white to aging pink. In the 1970's, a group of botanists, concerned over the declining habitat, transplanted some specimens to Brannan Island State Park in Sacramento County. The species can still be found within the park. This plant has been placed on the state endangered list by the California Department of Fish and Game in recognition that its prospects for survival are in immediate jeopardy due to environmental pollution and loss of habitat.

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\* At the Crossroads, 1978: A Report on California Endangered and Rare Fish and Wildlife, California Department of Fish and Game, 1978, p. 32



The Giant garter snake has a known distribution extending from near Lodi to near Modesto. This species is one of the largest garter snakes, ranging in length up to 4-1/2 feet. Its habitat is confined to areas around permanent freshwaters. The California Department of Fish and Game lists the species as rare, as land use changes and filling or draining of marshy areas have eliminated habitat. The reptile is known to inhabit the water fringe areas around lower Sherman Island, and confirmed sightings have been made in the Stone Lake area.

The Salt Marsh harvest mouse is presumed to inhabit Montezuma Island and Chain Island, based upon a series of sightings. This species was once found throughout the marsh area bordering the San Francisco Bay, but is now confined to scattered colonies because of loss of habitat due to destruction of salt marshes. The animal is considered by the California Department of Fish and Game to be an endangered species.

The Golden Eagle, not officially listed as a rare or endangered species, is also being monitored in the Delta region. This bird is a predator which feeds primarily on large rodents. Sightings have been made in Sacramento County, notably in the Stone Lake area.

The first legislation in California addressing rare and endangered species was adopted in 1970. In 1971, the California Fish and Game Commission declared 43 species as rare, and the following year a report was published describing these species and recommending actions for their protection. This list is continually expanding. The California Department of Fish and Game now identifies a species as "endangered" if its prospects for survival and reproduction are in immediate jeopardy, and as "rare" if, although not presently threatened with extinction, it exists in such small numbers throughout its range that it may become endangered if its environment worsens.

In 1979, the California Natural Diversity Data Base was created as a section of California Department of Fish and Game Planning Branch. The Data Base collects information on rare and endangered species from throughout the state and compiles it by geographic areas. The Data Base is being converted to computer operation, and the system is continually updated as new information is received. The system will be able to prepare computerized maps of rare and endangered species throughout California.

The California Native Plant Society (CNPS), a nonprofit organization, works closely with the California Natural Diversity Data Base as it relates to rare and endangered plant species. Currently, the CNPS has 1300 identified rare or endangered species in California. Approximately 170 of these are presently recognized by the California Department of Fish and Game, and about 15 are on the U.S. Department of Fish and Wildlife list of rare and threatened species.

At the federal level, Congress passed endangered species legislation in 1966, 1969, and 1973 which led to U.S. Department of Fish and Wildlife identification of "threatened" and "endangered" species. These terms are similar to the "rare" and "endangered" terms used by the State of California.

## SIGNIFICANT NATURAL RESOURCE AREAS

The Delta Area Planning Council planning program identified a number of "Significant Natural Resource Areas," (Figure 3.3). These are land or water areas which deserve special regulation because of intrinsic environmental characteristics. The following criteria were offered to help define "Significant Natural Resource Areas:"

- Offers scenic views of a natural area or an area demonstrating open space qualities.
- Provides wildlife habitat of important usage.
- Has vegetation of commonly-cited value.
- Lacks major man-made alterations or at least demonstrates minimal intrusions.
- Is an area where nonintensive, quiet, nonconsumptive, low-impact human visitation or observation is the most appropriate kind of use.
- Is an area which would qualify as a "preserve," "reserve," or a "wildlife management area."

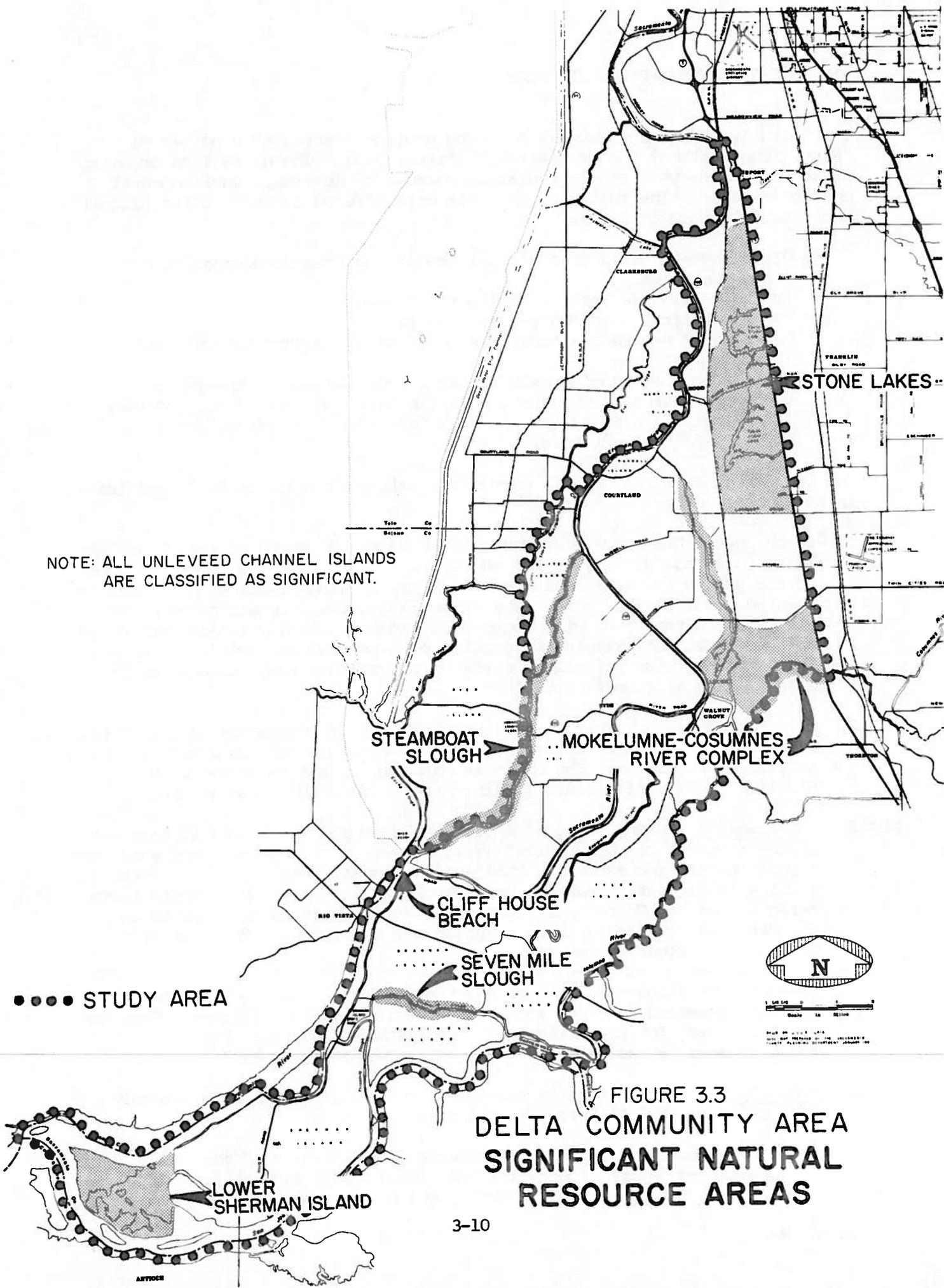
The Delta Area Planning Council deemed the following areas to be "significant" in Sacramento County:

1. Beach Lake. This area just south of Freeport and north of the Stone Lake Basin (but ecologically linked to it) is a privately-owned preserve open to the public for an annual fee. Hunting, fishing, camping, and wildlife viewing occur in this area. The owners emphasize maintenance of maximum wildlife habitat, even with successful farming. DAPC planners considered this an excellent example of creative private land use and ". . . a case lesson in how wise private stewardship can enhance land and develop it into an area of significance."
2. Cliff House Beach. This area is probably the largest beach in the Delta. Being on the inside of a river curve, the water current is slower and sand particles accumulate. The beach is adjacent to and connected with a Wildlife Conservation Board fishing site, with toilets and parking.
3. Lower Sherman Island. The land area of Lower Sherman Island is composed of the remnants of the original levee system, a tidal marsh, and some spoil deposition sand dunes built by adjacent channel dredging. These areas and their wild vegetation support good populations of waterfowl, shore birds, marsh birds, and Cottontail rabbits. The intertidal zone supports an abundance of Crayfish. These Crayfish are an important food for fish, birds, and furbearing mammals.

Present recreation use of Lower Sherman Island is heavy, with a rapidly-increasing demand and need for similar recreational facilities. This has created a need for preserving fish and wildlife habitat. The area is being managed by the state as a "Wildlife Management Area."

4. Stone Lakes. The best short statement on this unique area is Assembly Resolution No. 103 (Z'Berg), as follows:

"The Stone Lakes Basin in Sacramento County is one of the last remaining natural freshwater lake habitats in the California Central Valley, with its complexly interrelated water, marsh, and



NOTE: ALL UNLEVEED CHANNEL ISLANDS ARE CLASSIFIED AS SIGNIFICANT.

●●●● STUDY AREA

FIGURE 3.3  
 DELTA COMMUNITY AREA  
 SIGNIFICANT NATURAL  
 RESOURCE AREAS

grassland ecosystem providing food and cover for one of the most unique and diverse populations of birds, fish, and animal life in the state. The basin contains the largest collection of bird species in the Central Valley, with some 100 different types identified, including such . . . nongame birds as Great Blue Herons, White-Tailed Kites, Coots, and Egrets. The basin serves as a major component of the international Pacific Flyway by providing a seasonal home for many species of migratory waterfowl, including Sandhill Cranes, Teal, Widgeon, Woodducks, Mallards, Pintails, and Snow, Canada, and White-Fronted Geese. The basin is home to a wide variety of fish and furbearing animals, including . . . river otters and mink, wildlife which were once prevalent in the Central Valley but have largely disappeared as the result of urban and industrial development. The Stone Lakes Basin has only recently been granted a reprieve from massive urban development, which if allowed to proceed would ultimately destroy the fragile, complex ecosystem of the area. The U.S. Army Corps of Engineers, in its November 1971 Environmental Working Paper on the Morrison Creek Stream Group, recommended that the Stone Lakes Basin be acquired as a permanent flood retardation basin, a greenbelt and open-space area, a fish and wildlife preserve, and a public recreation area. The riparian habitat of the Stone Lakes Basin would not be significantly harmed by appropriate recreational uses, and if preserved and made available to the public, would provide an extraordinary range of recreational and educational experiences to the large adjacent metropolitan population, including observation and study of the unique and varied flora and fauna of the area, and enjoyment of riding, hiking, and bicycling trails and picnic areas, thereby making a major contribution to future Sacramento regional recreation needs."

In the mid-seventies, there was strong pressure for urban development of the basin, contingent upon adequate flood control. After many public hearings and considerable controversy, the Board of Supervisors denied the application for a subdivision permit and agreed to commence negotiations for purchase of a portion of the basin land. To date, the County has purchased approximately 1000 acres.

5. Mokelumne-Cosumnes River Complex. This interdependent ecological unit is probably the most important natural area in the Delta. It should be maintained as a conservation area with nonintensive usage. The complex includes:
  - The proposed Delta Meadows State Park (described in the Recreation Element of this Plan)
  - Snodgrass and Lost Sloughs
  - The Cosumnes River and its marsh
  - The Mokelumne River
6. Steamboat Slough. This is a scenic riparian habitat and archeological area. It has been designated a scenic area in the County's Waterways Use Plan.
7. Sevenmile Slough. This scenic area is deemed by the DAPC to have high recreation potential

## ANALYSIS

### "Uses" of Fish and Wildlife

Human benefit from the fish and wildlife of the Delta includes food, economic gain, recreation, science, education and an environment for living. For many of these uses, no dollar value can be assigned.

The Delta supports about 5,700,000 visitor days of recreational activity each year, of which approximately 66% is fishing and another 10% is hunting. Many other recreation days are spent "bird watching."

The State Department of Fish and Game estimates that about 25% of all warm water and anadromous sport fishing in California is dependent in one way or another on the Delta.

Until 1957, the Delta supported a substantial commercial fishery. Due to an apparent decline in the resources and a long-standing conflict between sport and commercial interests, the commercial fisheries were legislated out of existence. The commercial harvesting of Crayfish is the exception. Nevertheless, the Department of Fish & Game has estimated that 80% of the California commercial catch of salmon is in one way or another dependent on the Delta.

### Impacts of Land and Water Uses on Delta Habitat.

Some of the principal impacts on the natural resources of the Delta are summarized below:

1. Water Development. "While we have limited understanding of some of the complexities of the Bay-Delta ecosystem, we do know from observation that major fish and wildlife losses in the Delta have resulted from changes in hydrology by impounding and diversions, some of them long before pumping and export began; and from changes brought about specifically by pumping and export."\*
2. Urban Development. The most significant direct impacts of urban development have been those associated with conversion of open habitat lands to developed uses, and change to natural vegetation through its deliberate removal or abuse. Indirect impacts are the result of many minor and major actions as human activities intensify in growing urban areas.
3. Industrial Development. The relationships between industrial activity and quality of fish and wildlife habitat are many and diverse. The most obvious include encroachment on shoreline areas, accidental discharge of contaminants, changes of local hydrology, etc.
4. Navigation and Dredging. Commercial navigation carries with it the risk of accidental discharge of toxic materials or other contaminants. The impacts of dredging include destruction of mud dwelling communities for varying periods of time, land disposal and storage of fluid hydraulic suction dredge spoils, removal of small channel islands and changes in salinity due to increased channel depths.

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\* California Department of Fish & Game and U.S. Fish & Wildlife Service, Delta Wildlife Habitat Protection and Restoration Plan, December 1980.

5. Recreation Activities and Facilities. Ironically, recreation activities and facilities, which are enhanced by the presence of vegetation are also responsible for much of its damage or destruction. In part, losses are due to encroachment of many individually minor but cumulatively major structures into waterways and shorelines, the spread of facilities associated with marinas over levees, conversion of biologically-productive wetland habitat to open water marina basins, levee-eroding boat wakes which require replacement of vegetation by rock, trampling of vegetation, vandalism, litter, etc.
6. Agriculture. The maintenance of agriculture is significant in the protection of certain kinds of wildlife. On the other hand, certain practices such as clean farming and use of crops with less wildlife food value than corn or milo may affect some waterfowl and other wildlife population.

#### Protection and Enhancement of Fish and Wildlife

Delta fish and wildlife are not just a resource for hunters and fishermen, they are an aesthetic resource for everyone. Protection, enhancement and preservation of nongame species as well as game species should rank high in considering protection of habitat.

The Fish and Game Code declares that it is state policy to maintain sufficient population of all species of wildlife and the habitat necessary to insure their continued existence at the highest levels possible. To provide for the beneficial use and enjoyment of wildlife by the people of the state, to perpetuate all species of wildlife for their ecological values as well as their direct benefits to man, and to provide for aesthetic, educational and unappropriative uses of the various wildlife species. County efforts, as well, should be directed to implementation of this policy and should be generally supportive of state programs to achieve these ends.

It is not fishing and hunting that, as a rule, threatens fish and wildlife, but rather the loss of habitat and spawning areas. Today, in California, new attention is being given to restoration of destroyed resource areas, but the expense is great. It is more important, both environmentally and economically, to reduce, and ultimately stop, the destruction of remaining habitat. Vegetation is too important for its support of living resources and aesthetic values to surrender to random stripping, clearing or unguided urban development. Proposals for land and water use should be monitored for their impact on fish and wildlife and preserving critical habitat.

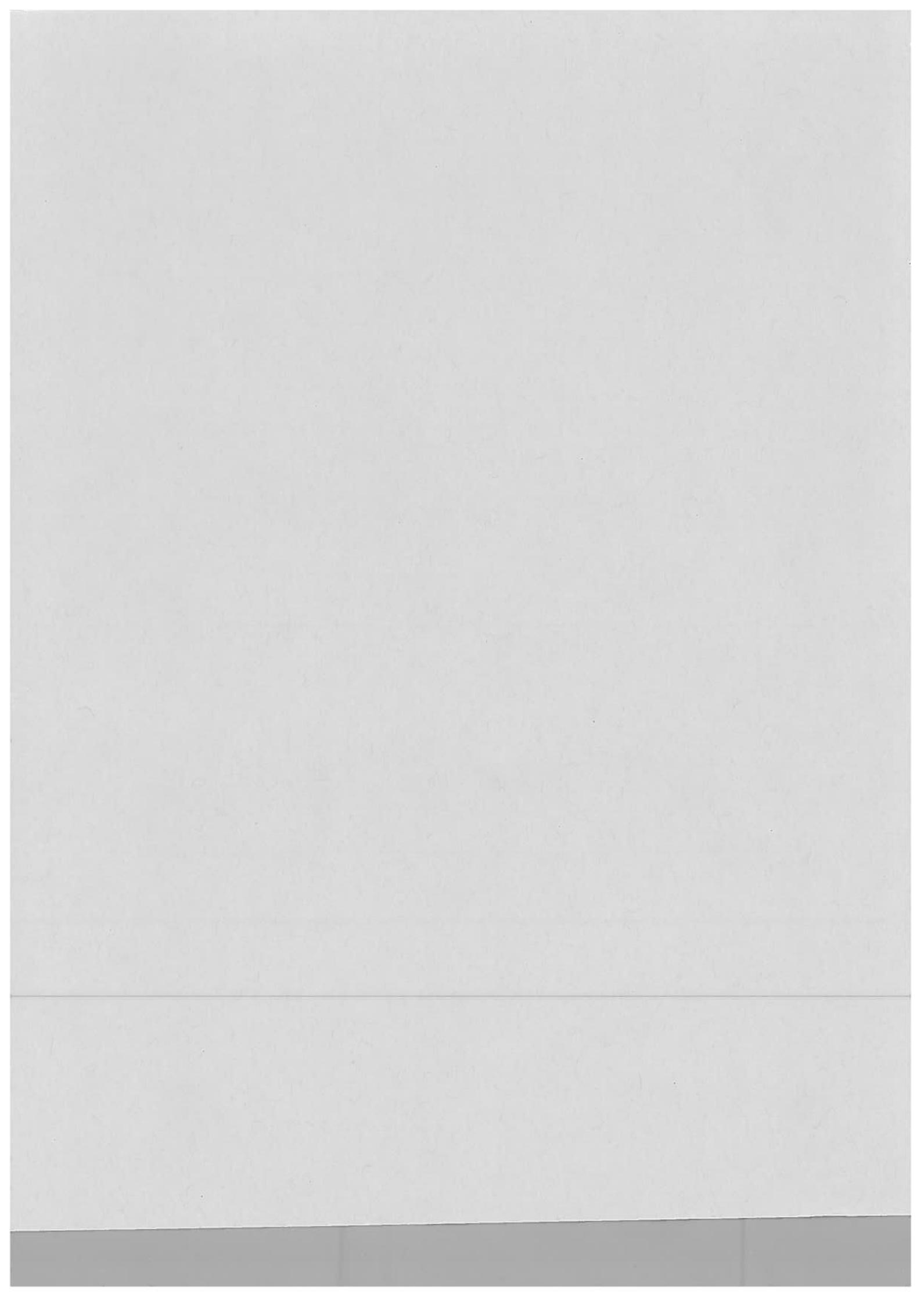
1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that proper record-keeping is essential for the integrity of the financial system and for the ability to detect and prevent fraud. The text also mentions the need for regular audits and the role of independent auditors in ensuring the reliability of financial statements.

2. The second part of the document focuses on the role of the accounting profession. It highlights the need for accountants to adhere to high standards of ethical conduct and to maintain their professional competence through continuous education. The text also discusses the importance of transparency and the need for accountants to provide clear and concise information to their clients and the public.

3. The third part of the document addresses the challenges faced by the accounting profession in the digital age. It discusses the impact of automation and artificial intelligence on the industry and the need for accountants to adapt to these changes. The text also mentions the importance of data security and the need for accountants to implement robust cybersecurity measures to protect sensitive financial information.

4. The fourth part of the document discusses the role of the accounting profession in promoting sustainable development. It highlights the need for accountants to consider the environmental and social impacts of their clients' activities and to provide information on these issues to investors and other stakeholders. The text also mentions the importance of transparency and the need for accountants to provide clear and concise information on these issues.





## CHAPTER FOUR AGRICULTURE

### INTRODUCTION

Agriculture is by far the predominant land use in the Delta area, occupying over 80,000 acres. This acreage is about 21% of the agricultural land in Sacramento County. Agricultural land use has historically been the basis for most of the activity that occurs in the Delta, as the Delta islands and tracts were originally reclaimed from swampland for agricultural purposes. The Delta towns were located along the Sacramento River to serve the agricultural population and to take advantage of water-borne transportation of crops. Despite the many changes that have taken place in and around the Delta area over the last 100 years, agriculture continues to maintain a strong influence over the lifestyles of the area residents.

Agricultural practices have changed dramatically over the years. Originally a labor intensive industry comprised of many small farms, agriculture has followed a trend toward mechanization and large corporate landholdings. Labor camps which once housed seasonal workers are now vacant, partly due to decreased demand for laborers and partly due to changing attitudes of the laborers toward the migrant lifestyle. The Delta towns, which had contained a somewhat homogenous group of residents, now hold mixed populations of businesspersons, commuters, retirees, recreationists, and agricultural land holders, as well as agriculturally-related workers.

Today, agriculture is under constant threat by conflicting land uses, conversion of agricultural land to urban uses, erosion of protective flood control levees, regulation of agricultural practices, depletion of soils, and fluctuating agricultural markets. Despite these conflicts, Delta agriculture maintains its important status. According to the Sacramento County Agricultural Commissioner's office, the market value of agricultural crops produced in the Delta reporting area (including the I-5/Franklin Boulevard corridor) was about 90 million dollars in 1980, representing about 43% of total agricultural crop value in Sacramento County.

### DELTA CROPS

Within the general classification of agriculture, there are seven distinguishable subclasses of crop types that are grown throughout the Delta. The following delineation is provided in descending order of approximate total acres under cultivation for each subclass. Further detail is given for particular crops if they are significant.

Field Crops. Corn is the major crop, followed by safflower, sugar beets and sorghum. Together, these crops account for approximately 30,000 acres, and are major crops on Lower Andrus, Grand, Sherman, Sutter, Tyler, and Twitchell Islands plus the Pierson District, the Upland Stone Lake Area, and the Scribner bend area.

Grain and Hay Crops. This subclass includes barley, wheat, oats, mixed hay and grain. Thirty-two percent of the total crop production in the Delta is found within this category. While not confined to only specific areas of the Delta, grain crops predominate on Grand and Sherman Islands, in the Pierson District and in the Walnut Grove Area.

Pasture. Alfalfa is the predominant planting in this subclass and is found throughout the entire Delta Area. Pasture land accounts for approximately one quarter of the cultivated land in the Upland Stone Lake Area and in the Pierson District.

Deciduous Fruits and Nuts. This agricultural subclass ranks fourth in Delta acreage under cultivation. Approximately 90% of the 400 acres of crop land on Randall Island is devoted to orchards, and about 45% of Sutter Island's agricultural land is devoted to growing deciduous fruits and nuts. On the remaining lands throughout the Delta, this subclass is of much less importance.

Vegetable Crops. Approximately 5,400 acres of Delta land is devoted to truck crops. While tomato cultivation exceeds other crops such as asparagus, green beans and melons, overall truck farming is less significant than other agricultural subclasses.

Vineyards. Approximately 1,000 acres are grape bearing and are mostly found in the Pierson District.

Rice. The largest rice-growing area in the Delta is found between Lambert Roads and Twin Cities Road, west of Highway 5. In addition, a portion of land on Brannan Island is devoted to rice growing.

#### PRODUCTION AND VALUE

The California State Department of Water Resources conducted a detailed land use study of the Delta region, including Sacramento County, in 1977. This study used the combined resources of aerial photography and field inspections, and is the most accurate land use inventory available for the Sacramento Delta. Table 4.1 shows agricultural land use in 1977. It can be seen that wheat and corn were the predominant crops, occupying 25,508+ acres, and 21,494 acres, respectively. Pears were also a major crop, occupying 6,528+ acres of fertile peat soil along the Sacramento River. Wheat, corn and pears were also the highest value crops in the Delta; wheat and corn were valued at about seven million dollars each, while pears were valued at about nine million dollars. The significantly-higher value of the pear crop can be attributed to higher yields per acre and somewhat higher value per ton. Wheat, corn and pears have continued to be the leading crops in the Delta, although the market value of pears has dropped somewhat due to changing consumer preferences.



Not surprisingly, the gross value of agricultural production in Sacramento County has increased greatly over the last ten years. In 1971, the County total was about 81 million dollars; by 1981, it had grown to over 213 million dollars, (see Table 4.2.) The harvested acreage did not change significantly during that 10-year period and, in fact, dropped slightly; inflation and changing agricultural practices have been responsible for this increase. The gross value of agricultural production in the Delta has followed this same trend, capturing roughly 40% of the total gross value for the County. Table 4.3 shows Delta agricultural production and value in 1980. The indicated harvested acreage on the table is higher than the actual agricultural acreage in the Delta because some acreage produced more than one crop during the year and is counted more than once. The table also includes 8,000 to 12,000 acres which are outside the Delta boundaries, between the I-5 freeway and Franklin Boulevard. This acreage is primarily field crops and range.

Vineyards have shown a growing trend in recent years, in response to the nations growing consumption of wines. In 1974, there were 257 reported acres of wine grapes grown in Sacramento County, with an estimated value of \$345,000. In 1981, there were 3,350 acres of wine grapes, which produced 23,400 tons, with a total market value of \$5,242,000. Approximately one-third of the acreage devoted to vineyards in Sacramento County is located in the Delta. These vineyards have a somewhat higher yield than in other parts of the County, and the grapes command a higher market price, so that the Delta vineyards are capturing about half the total market value of wine grapes grown in Sacramento County, (see Table 4.4.)

## ISSUES

Land use is the critical component of agriculture that can be addressed in the community plan. A great number of the problems relate to this single issue. A major impediment to small farmers is the cost of land, which is affected by the available supply of agricultural land. The availability of the land is affected by urban encroachment and conflicting adjacent land uses. The division of agricultural land into increasingly smaller parcels further drives up the cost of land to the point where agriculture becomes a marginal activity. Growing populations in agricultural areas increase the impacts of pesticide use, dust, noise and odor upon these populations, leading to restrictions on normal agricultural activities. Vandalism and theft of agricultural properties increase with the influx of people in agricultural areas. The availability of services to agricultural areas is affected by land use restrictions. The land use plan for any agricultural area must be carefully balanced so that it neither stifles agricultural land use by overly restrictive regulations, nor unduly impacts agriculture by permitting conflicting land uses in the area. The purpose of this community plan is to provide that balance.

This issue is a concern at all levels of government, but the task of addressing this concern ultimately falls upon local government. Sacramento County now has two major programs to preserve agricultural lands, the "Williamson Act" land conservation contract and the General Plan Policies/Zoning Consistency

TABLE 4.2  
GROSS VALUE OF AGRICULTURAL PRODUCTION  
SACRAMENTO COUNTY 1971-1981 (1)

<u>YEAR</u>	<u>AMOUNT</u>
1981. . . . .	\$ 213,069,000
1980. . . . .	221,600,400
1979. . . . .	182,800,000
1978. . . . .	141,368,600
1977. . . . .	128,058,000
1976. . . . .	131,630,300
1975. . . . .	133,072,600
1974. . . . .	155,365,600
1973. . . . .	121,391,100
1972. . . . .	92,547,400
1971. . . . .	81,033,750

(1) Sacramento County Agricultural Crop and Livestock Report, 1981.

TABLE 4.3  
SACRAMENTO DELTA AREA  
AGRICULTURAL PRODUCTION AND ESTIMATED VALUE, 1980 (1)

Class	Item	Harvested Acres	PRODUCTION (tons)		VALUE (\$)	
			Per Acre	Total	Per Ton	Total
Field	Corn, Field	45,000	4.5	202,500	143	28,957,500
	Corn Silage	1,930	24.0	46,320	19	880,080
	Safflower	8,427	1.2	101,124	250	2,528,100
	Sorghum	330	2.75	891	130	115,830
	Subtotal	55,687				32,481,510
Grain	Rice	685	3.1	2,124	225	477,900
	Barley	996	2.3	2,291	110	252,010
	Wheat	42,500	3.1	131,750	140	18,445,000
	Oats, Silage	600	9.0	5,400	13	70,200
	Subtotal	44,781				19,245,110
Pasture	Alfalfa Hay	5,200	7.4	38,480	100	3,848,000
	Grain Hay	600	2.0	1,200	60	72,000
	Other Hay	1,600	2.0	3,200	60	192,000
	Irrigated Pasture	8,200	—		—	
	Range	2,100	—		—	
Subtotal	17,700				4,112,000	
Seed Crops	Oats	300	1.7	510	240	122,400
	Wheat	772	3.1	2,393	145	346,985
	Subtotal	1,072				469,385
Fruits and Nuts	Pears	6,700	18.9	126,630	147	18,614,610
	Grapes	1,078	10.5	11,319	225	2,546,775
	Subtotal	7,778				21,161,385
Vegetables	Asparagus	631	1.2	757	820	620,740
	Tomatoes	8,560	29.5	252,520	48	12,120,960
	Subtotal	9,191				12,741,700
	TOTAL	136,209				90,211,090

(1) Unpublished notes, Sacramento County Agricultural Commissioner. Includes the I-5/Franklin Boulevard Corridor, outside the community plan area.

TABLE 4.4  
WINE GRAPE PRODUCTION IN SACRAMENTO COUNTY

YEAR	PRODUCTION (tons)			VALUE (\$)	
	Acreage	Per Acre	Total	Per Ton	Total
1974	257	9.26	2,380	145	345,000
1975	1,160	3.0	3,480	101	351,000
1976	1,800	3.0	5,400	133	718,000
1977	1,860	6.0	11,200	180	2,016,000
1977 (Delta)	968	6.1	5,905	180	1,062,900
1978	3,300	6.1	20,180	211	4,258,000
1979	3,200	7.0	22,400	220	4,928,000
1980	3,350	8.0	26,800	210	5,628,000
1980 (Delta)	1,078	10.5	11,319	225	2,546,775
1981	3,350	7.0	23,400	224	5,242,000

programs. The purpose of the Williamson Act is to encourage the continued agricultural use of lands by changing tax assessments to allow the assessed valuation of agricultural land to be based upon the use value for agriculture rather than the market value of the land. Unfortunately, changes in tax assessments resulting from Proposition 13 have lessened the advantage to farmers entering into a Williamson Act Contract. Over 250 agricultural parcels are under the contract (see Figure 4.1 ), but it will remain to be seen whether or not these contracts will be renewed as the terms of the initial contracts expire.

The General Plan identifies the agricultural portions of the Delta as "Agricultural Cropland" (intensive agriculture). This land use category denotes areas which are actively cultivated, such as row crops and orchards. The General Plan restricts land division to 40 acres or greater in areas of Class I or II soils, as determined by the Soil Conservation Service (see discussion of soils in the mineral resources element), or 80 acres in areas of Class III or IV soils. Since state law mandates that zoning be consistent with the General Plan, the AG-40 and AG-80 zones apply correspondingly. The purpose of these restrictions is to maintain agricultural land in viable farmable units and avoid piecemeal creation of parcels that would erode the agricultural productivity of the area.

Land use on properties adjacent to farmland also affects agricultural productivity. Residential and recreational land uses are the major conflicts with agriculture in the Delta. The land use plan must carefully address the locations and amount of land dedicated to these land uses. The County General Plan specifically restricts urban development outside the planned urban boundaries of Courtland, Hood, Walnut Grove, Isleton, Paintersville and Ryde. Policies in this community plan relating to recreational land use encourage clustering of appropriate locations throughout the community area.

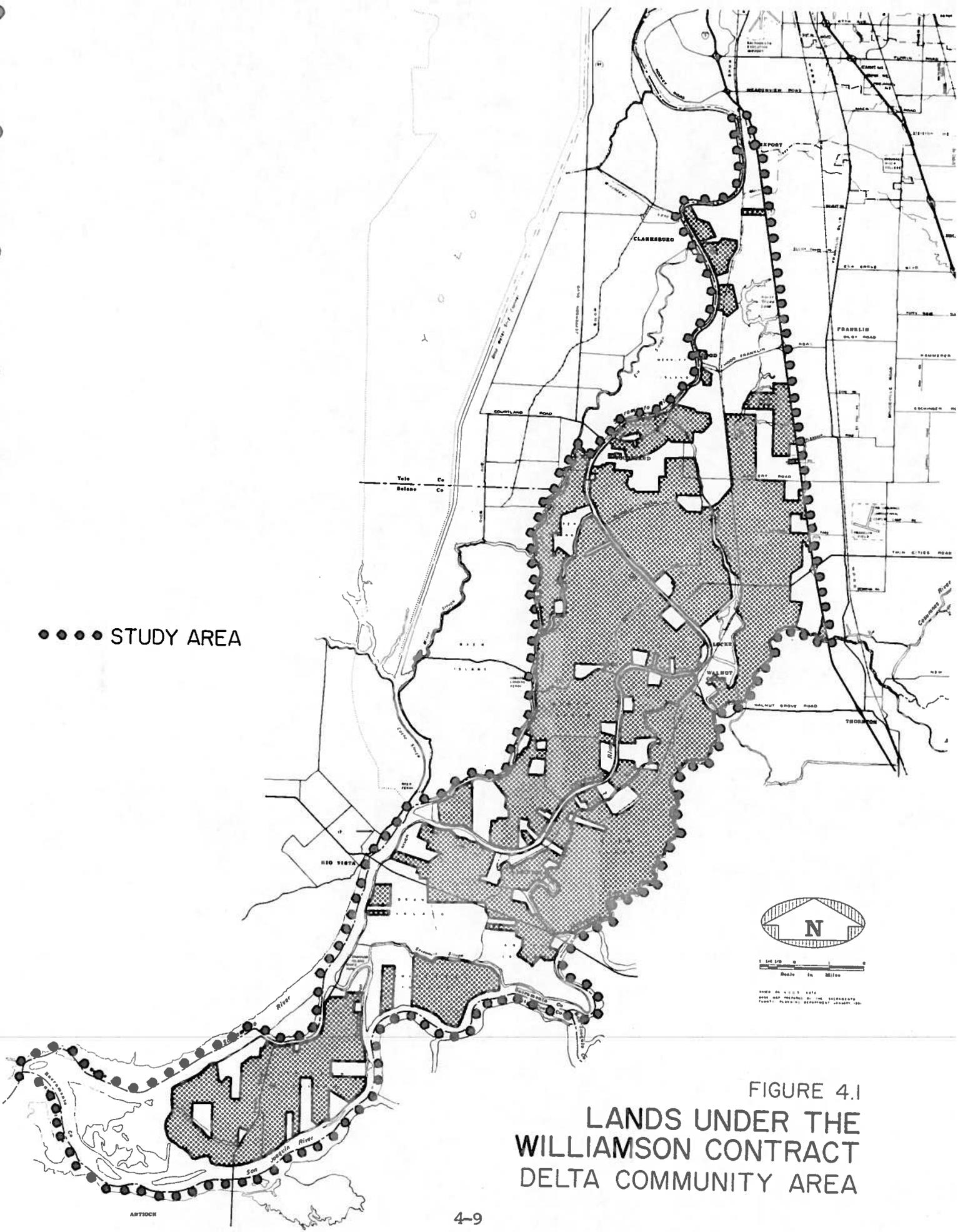
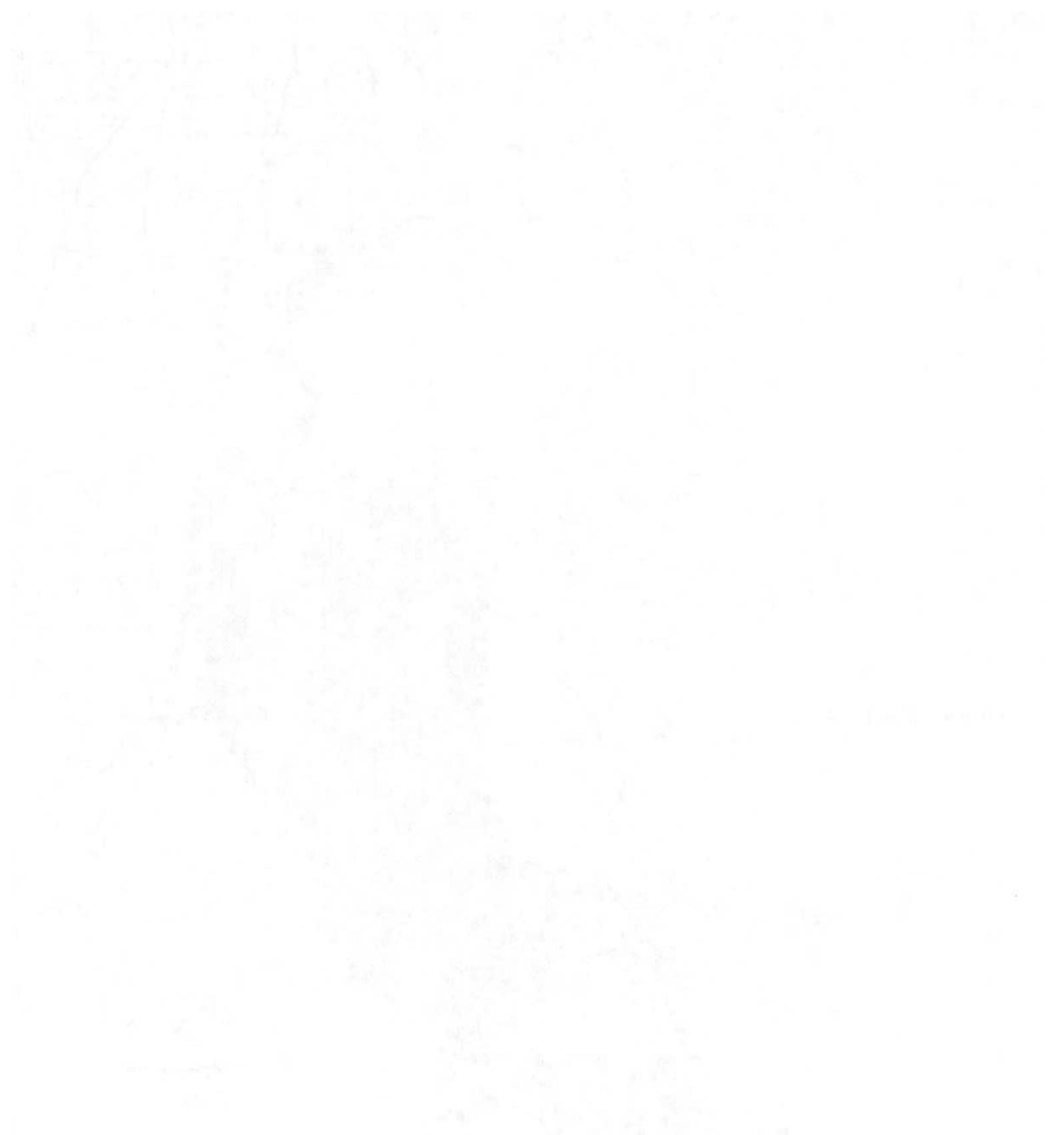
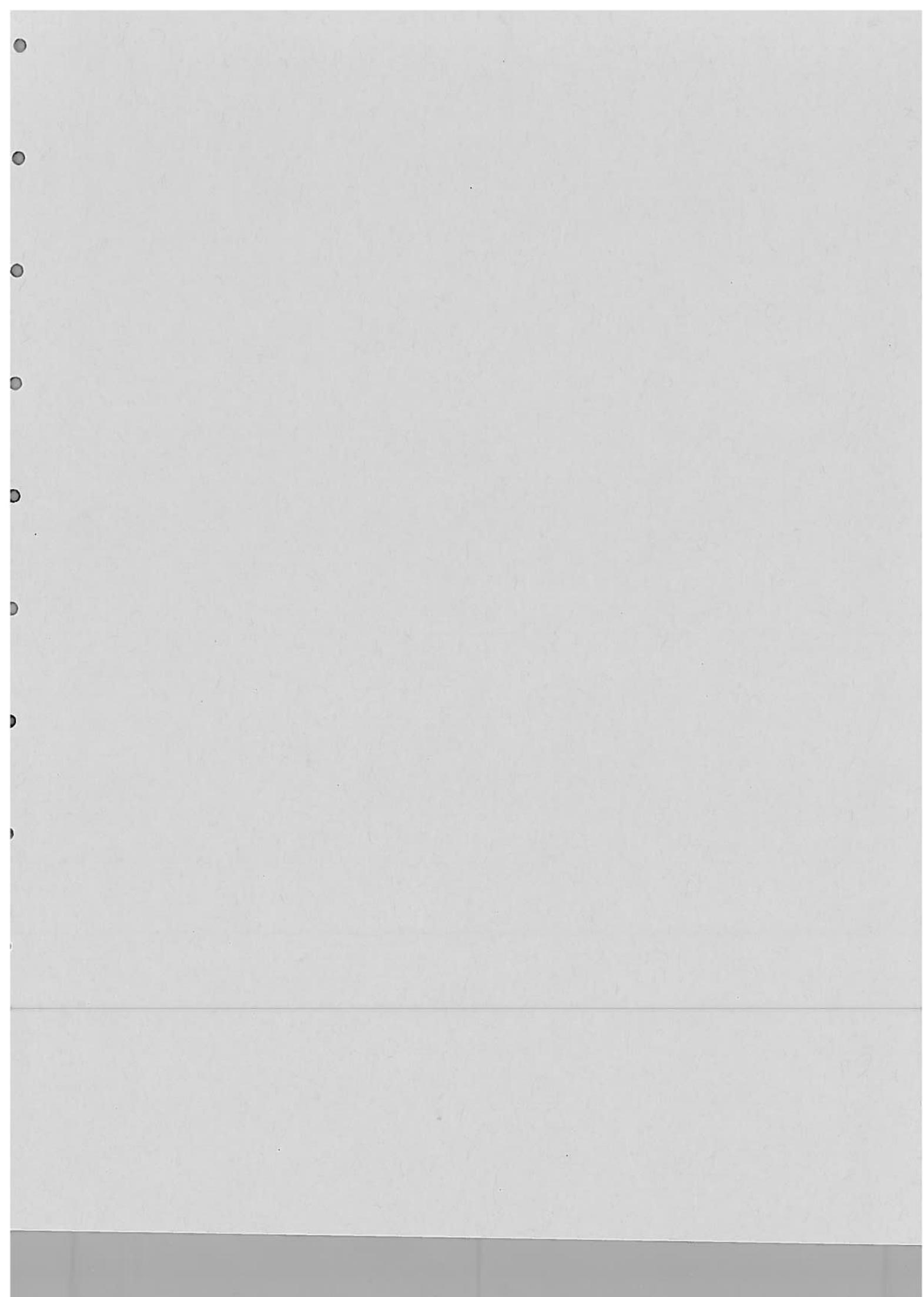


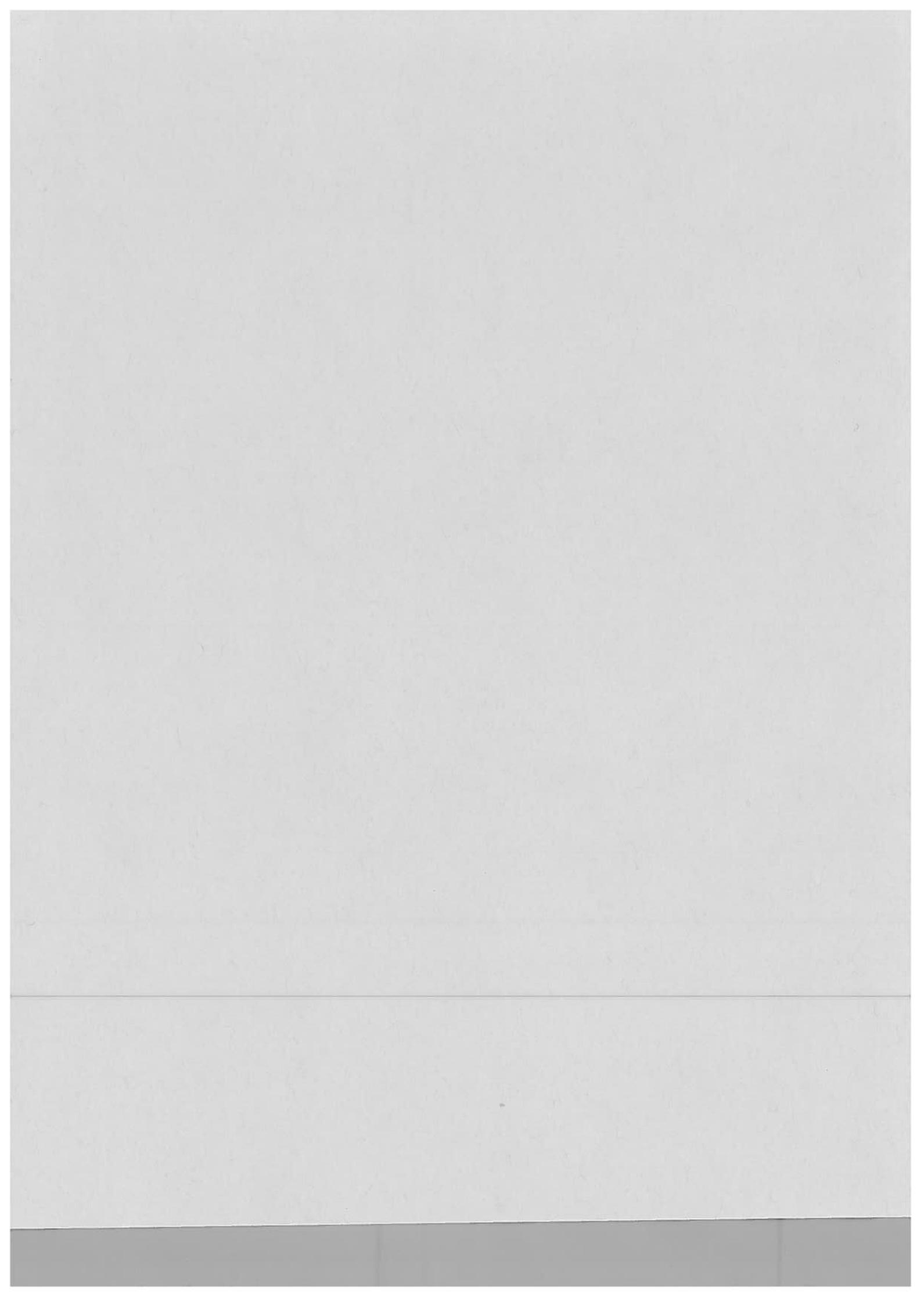
FIGURE 4.1  
 LANDS UNDER THE  
 WILLIAMSON CONTRACT  
 DELTA COMMUNITY AREA



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CHAPTER FIVE  
RECREATION AND WATERWAYS USE

INTRODUCTION

The Delta is one of California's major outdoor recreation areas, due to its abundant natural resources and close proximity to densely populated urban centers. Visitors to the Delta enjoy opportunities for a wide variety of water-oriented recreation activities, including boating, camping, fishing, hunting, picnicking and sightseeing. As a reflection of the varied opportunities, it has been estimated that over seven million visitors spent approximately 11,900,000 recreation days within the five-county Delta Region in 1977-78.\* An estimated \$70,000,000 was spent on recreation within the region for that year, and steady increases are forecast with or without increased development of recreation facilities.

Historically, Delta recreation has been water oriented, except for some hunting on private agricultural property. The facilities have been provided by both public agencies (state and local) and by commercial enterprises, with the latter providing for the bulk of user needs. This water orientation is expected to continue. It is also anticipated that demands will increase for both public and commercial facilities. Towards the accommodation of these demands, this Recreation Element addresses three parallel needs:

1. The need for additional public access to the Delta's waterways;
2. The need for guidelines to permit further expansion of commercial facilities; and
3. The need to manage recreation facilities and usage to mitigate adverse impacts on agriculture, waterways, significant natural resources, and environmental quality.

Most of the recent research on recreation in the Delta has been done on a regional scale under the auspices of the State Department of Water Resources. A Delta Outdoor Recreation Survey (DORS) was completed in 1980. This study surveyed the recreation use and the characteristics of those using the Delta for recreation purposes. A second study, the Sacramento-San Joaquin Delta Recreation Concept Plan, January 1981, was based on the DORS's results and identified existing, proposed, and potential recreation sites. A third study, Delta Outdoor Recreation Implementation Plan, June 1981, made a detailed cost-benefit analysis of the development of sites and areas previously identified.

This Recreation Element of the Delta Community Plan draws heavily from these reports, applying them locally in an effort to further the concept of a regionally-coordinated Delta Plan.

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\* Geidel, Marcia & Moore, Susan, Delta Recreation Concept Plan, Department of Water Resources, January, 1981.

## EXISTING CONDITIONS

Based on a sample survey conducted in 1977-78, the Delta Outdoor Recreation Survey (DORS) estimated that residents and visitors spent approximately 11,900,000 recreation days in the five-county Delta region. Approximately 10,700,000 of these days were contributed by visitors and 1,200,000 by residents of the Delta. A total of 12,900,000 recreation days is forecast for 1985 and 13,600,000 by 1990.

The following is a summary of some of the most significant findings of the survey.

- The majority of visitors stayed one day or less in the Delta.
- 93% of the visitors come from the Northern California metropolitan areas.
- 68% of the visitors come from the five Delta counties.
- Most visitors traveled an average of less than 50 miles one way to the Delta.
- Group expenditures averaged \$50 per trip.
- The average recreation group size was 5.23 persons.
- Approximately 50% of the recreation activity use was in the summer, 25% in spring, 15% in fall, and 10% in winter.

Table 5.1 summarizes the recreation activities of visitors to the Delta. Typically, an individual or group will engage in more than one activity in a given day, therefore, the numbers do not add up to 100%.

TABLE 5.1

### RECREATIONAL ACTIVITIES OF INDIVIDUAL VISITORS

<u>Recreational Activities</u>	<u>%</u>
Boating	47.6
Fishing	47.5
Relaxing	38.6
Driving for Pleasure	36.2
Sightseeing	33.1
Overnight Camping	26.2
Picnicking	22.9
Swimming	21.1
Water Skiing	14.7
Photography	10.1
Sailing	4.2
Bicycling	3.6
Canoe-Kayak-Rowing	2.5
Dirt Biking	2.5
Hunting	2.0
Snorkling or Scuba	0.9
Flying	0.9

## Public Recreation Facilities

1. Existing Facilities. Given the magnitude of the existing and projected recreation usage in the Delta, there are relatively few public recreation facilities. Public access to the waterways is extremely limited. Most of the levees, islands, and tracts are privately owned; consequently, recreationists using the levees often are trespassing.

Excluding community (local recreation) facilities,\* there are 22 public recreation areas and sites in the Delta region (Figure 5.1). Nine of these are fishing access sites, eleven are relatively large parks and recreation areas, and two are boat launch ramps/parks. Five of the noncommunity level public facilities are located in Sacramento County.

- Hogback Island fishing access.
- Cliff House fishing access.
- Georgiana Slough fishing access.
- Lower Sherman Island fishing access.
- Brannan Island state recreation area.

2. Planned Facilities. There are an additional four public recreation facilities in some phase of planning, acquisition, or development in the Delta. These are:

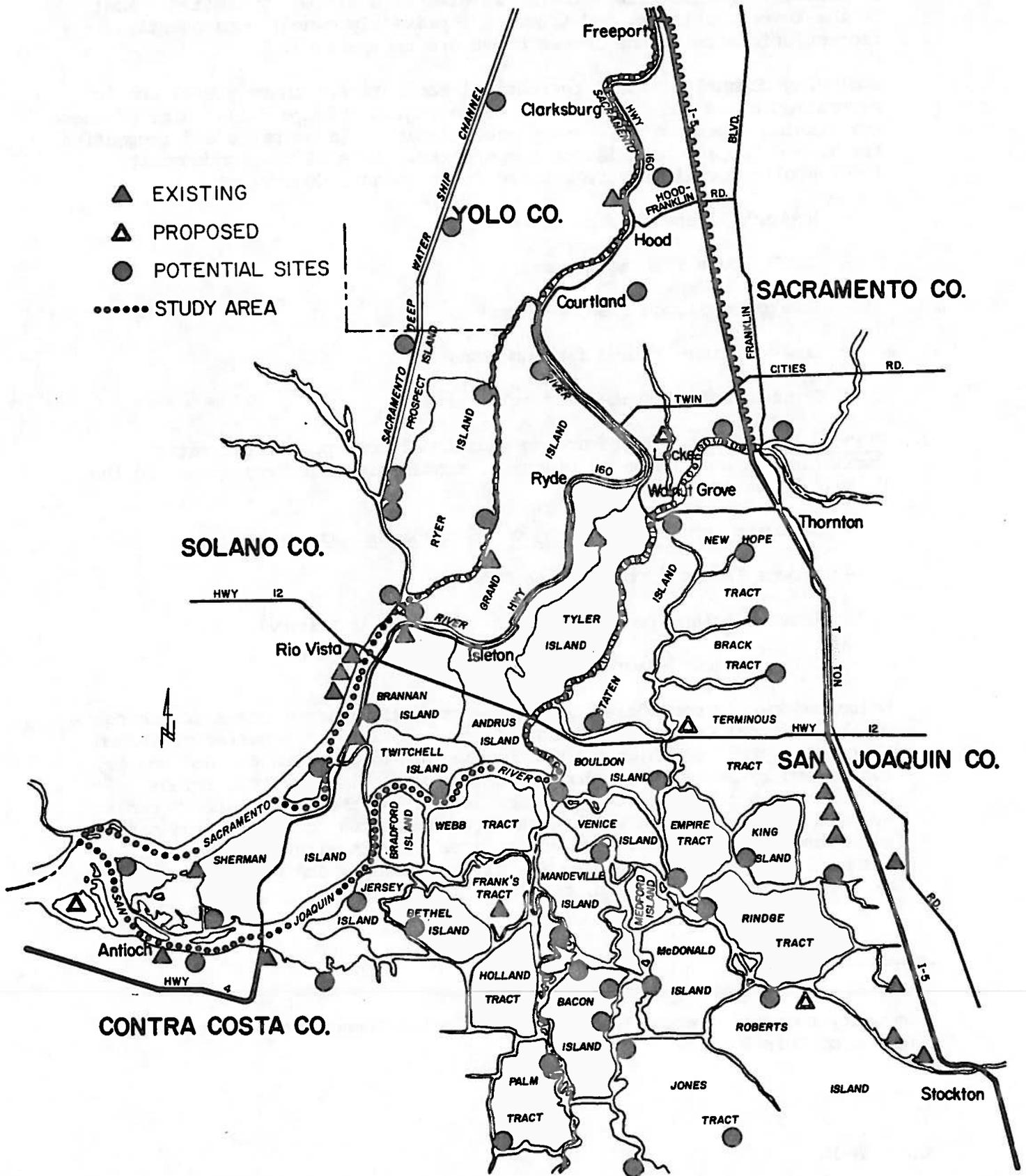
- Westgate Landing park project (San Joaquin County).
- Browns Island (Contra Costa County).
- Roberts Island recreation area (San Joaquin County).
- Delta Meadows (Sacramento County).

Delta Meadows is considered one of the most significant areas remaining of the original Delta wilderness. It is comprised of a series of islands that is several feet higher than the average level of Delta land and is surrounded by several interlocking waterways. Flood control levees buffer the entire project area. The levees and their waterside berms support lush vegetation which screens and protects the scenic and natural environment of the area. The entire area abounds with plant and small animal life. Most of the area is privately owned, and yet, the public is allowed to boat, swim, camp, or picnic in the area.

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\* Community recreation areas are considered in the Community Facilities Element of this Plan.

FIGURE 5.1  
 DELTA COMMUNITY AREA  
 PUBLIC RECREATION AREAS & SITES



The 1980 Project Status Report for State Park Acquisition and Development indicates that \$970,000 had been appropriated to acquire 9 parcels (662 acres). Over the years, Delta Meadows was not purchased due to difficulties in determining the state's ownership of tidelands. The state's intent in acquiring Delta Meadows is to preserve the natural environment. Any development would be of a low-intensity nature.

3. Potential Sites and Facilities. The Delta Recreation Concept Plan of the Department of Water Resources identifies 56 sites and areas in the Delta with potential for recreational development. Ten of these, including five recreation areas, four fishing access sites, and one boater destination site are in Sacramento County (Figure 5.1).

Funding for any of these facilities will be a major stumbling block in implementation. Such funding is heavily tied to a levee improvement program, and it is doubtful that these recreational facilities could occur independent of other major Delta improvements.

A cost-benefit analysis was performed on the potential sites. The overall conclusion of the study is that ". . . Delta recreation development is cost-effective, but that conventional strategies will be hard pressed to support the development. A concerted and cooperative effort by government at all levels, the private sector, and individual citizen groups, in conjunction with a willingness to explore new funding methods, will be required to develop the selected recreation sites."\*

#### Commercial Recreation

In the 1977-78 survey for the State Department of Water Resources, 116 commercial marinas and resorts were identified in the five-county Delta region (Figure 5.2)). Thirty-two percent of these were in Sacramento County. The results of this survey are summarized in Table 2 for the region and Sacramento County.

Virtually all the commercial recreation operations in the Delta are water oriented and include some combination of berths, docks, dry storage, and launch ramps. Many also include support facilities and services such as campsites (RV or tent), picnic grounds, restaurants, bars, and grocery stores, (Table 5.2).

The growth in marina facilities in this County has been substantial over the past 20 years. A 1963 survey by the County Planning Department contains the basis for some comparative analysis of the area south of Walnut Grove. Although there are now fewer operating marinas (23 in 1977 vs. 26 in 1963), the number of berths in this portion of the County has increased from 882 to 1637.

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\* Applied Research Consultants, Inc., Delta Outdoor Recreation Implementation Plan, Department of Water Resources, June 1981.

FIGURE 5.2  
 DELTA COMMUNITY AREA  
 COMMERCIAL MARINAS & RESORTS

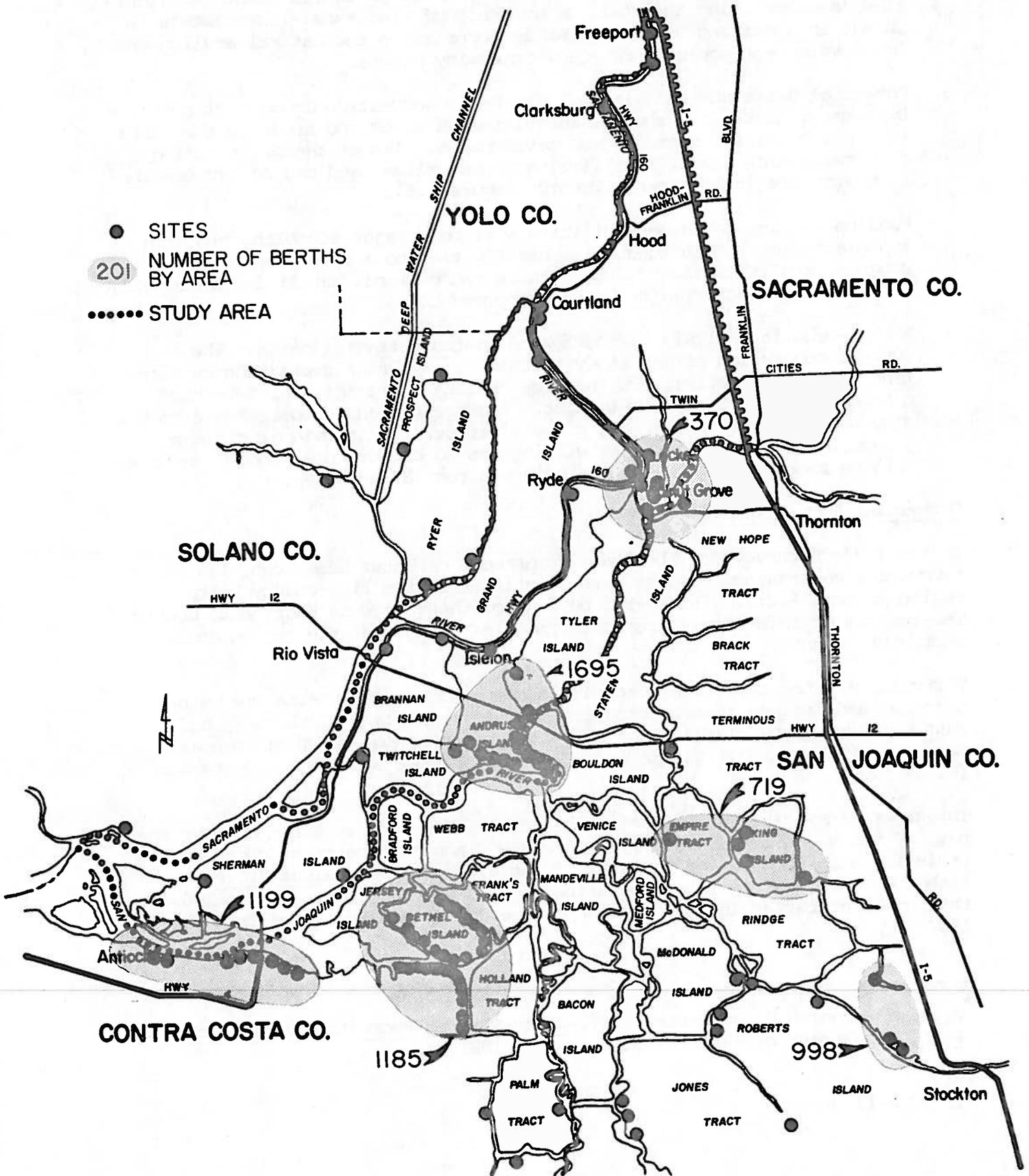


TABLE 5.2  
1977  
COMMERCIAL RECREATION FACILITIES  
IN THE DELTA REGION

	<u>SACRAMENTO COUNTY TOTAL</u>	<u>TOTAL DELTA</u>	<u>SACRAMENTO COUNTY % OF DELTA</u>
Number of commercial facilities	37	116	32%
Number of Berths Covered Open	2,763	8,534	32%
Number of Docks	42	119	35%
Number of Dry Storage Spaces	276	2,153	13%
Number of Launch Ramps	7	27	26%
Number of Mechanical Launches	4	18	22%
Number of Dry Docks	4	13	31%
Number of Facilities with Engine and/or Hull Maintenance	11	31	35%
Campsites (Car/RV/Tent)	490	2,713	18%
Number of Picnic Tables	59	298	20%
Number of House Boat Rentals	26	140	19%
Number of Other Boat Rentals	52	180	29%
Number Selling Gas/Oil	21	70	30%
Number Selling Marine Supplies	11	32	34%
Number Having Boat Sales	5	19	26%
Number with Restaurant	14	36	39%
Number of Pumpout Stations	8	19	42%
Number of Vehicle Parking Spaces	3,434	7,803	40%
Average Parking Spaces/Berth	1.24	.91	

Although seemingly dispersed throughout the Delta, commercial recreation operations are, in reality, highly concentrated in a few, most advantageous areas (Figure 5.2). Sixty-two percent of the resorts encompassing seventy-two percent of all berths are located in six relatively-small areas. In general, these areas appear to have the attributes of good highway access from population centers, favorable waterways conditions, protection from adverse elements, and proximity to the maze of channels comprising the heart of the Delta.

Bethel and Lower Andrus Islands contain the two largest concentrations of boating activities. Lower Andrus Island (including Ox Bow Marina), with 14 commercial operations, has almost 1,700 berths. This is the largest single concentration of berths in the Delta.

Bethel Island, considered to be the most congested recreational area in the Delta, has 33 marinas and resorts but only 1,178 berths. What distinguishes Bethel from Lower Andrus Island is its complex of commercial support facilities (e.g., restaurants, retail businesses, garages, etc.), the larger number of boat support facilities (e.g., dry docks, sales, repairs), and the over 600 residences, many of which are permanently occupied. By comparison, Lower Andrus Island is relatively unimpacted and still maintains an essentially-rural character.

Despite the hundreds of miles of waterways frontage in the Delta, there apparently are relatively few sites or areas that would be considered ideal by the recreation developer. This seems to be reflected in the current pattern. Criteria for desirable marina locations include:

- Water access.
- Water depth and shoals, channel width, currents and waves.
- Proximity to a number of waterways for alternative boating experiences.
- Wind direction and shelter.
- Proximity to urban centers and highway access via state routes and levee roads.
- Availability of berms or other means of wake protection.
- Sufficient land for parking and accessory structures.

## ANALYSIS

### Problems

The following is a summary of areas of concern that must be recognized when dealing with proposed recreational developments in the Delta:

1. Recreation Access. Public access to land and water is limited since virtually all of the land is privately owned. There are very few places where the public can get to the water without trespassing.
2. Recreation Deficiencies. Existing facilities are overtaxed. Considering the volume of demand, there are relatively few public facilities. Principal deficiencies include numbers of launch ramps, picnic sites, mooring/berthing facilities, swimming beaches, boater destination areas, bank fishing areas, campsites, and sanitation facilities. Commercial facilities, although seemingly adequate at present will need to expand to meet projected demand.

3. Ownership of Land. Individuals have claimed private ownership of many unleveed islands that could legally belong to the state. Delta Meadows is one instance where disputed claims may impede public recreation development.
4. Conflicting Water Use. The extensive waterways attract a wide variety of uses (e.g., fishing, waterskiing, sailboating, powerboating). These are often in conflict with each other, often causing unpleasant and dangerous recreation experiences.
5. Funding. Funds for public recreation facilities are very limited. Even if their construction is considered a part of an overall levee improvement program, and therefore eligible for federal and state expenditures, local governments would find it difficult to assume maintenance and operational responsibilities.
6. Agricultural Conflicts. Virtually all existing or proposed commercial and public recreation facilities are adjacent to productive agricultural lands. A conflict situation is created when large numbers of "outsiders" are introduced into this scene. Conflicts are both physical and economic. Physically, there are problems of trespassing, vandalism, litter, and damage to crops. Economic problems are reflective of the different goals of agricultural and recreational interests. Included are demands for higher levels of services than necessary for agriculturalists; pressures for increased levee protection, increased traffic, and possible constraints on agricultural practices (e.g., spraying, discing) which might have an adverse affect on recreational pursuits.
7. Suitable Sites for Facilities. Although the Delta is laced with waterways, there are relatively few sites which would be considered prime from the perspective of the recreation facility developer, particularly those involving marinas. Ideal locational criteria include direct highway access, proximity to urban centers, proximity to a number of alternative waterways, and favorable physical conditions such as width and depth of waterways, tides, prevailing wind direction, and protection. Few sites fully satisfy these criteria.
8. Congestion. Although commercial recreation facilities are somewhat scattered throughout the Delta, a high percentage are concentrated in several relatively small areas which have the most favorable locational and physical conditions. Lower Andrus Island is the most impacted area in Sacramento County. Since it does meet the desirable site criteria, additional proposals can be expected in this area. Careful design will be necessary to insure that such developments will not have further adverse affect on agriculture, the natural environment, or the quality of the recreation experience.

### Solutions

1. Public Recreation. The state has proposed a number of sites for public recreational development. Implementation, however, will depend upon the overall levee improvement program and the interrelated financial aspects. The DOR implementation plan stresses that "a public recreation improvement plan cannot occur independently of the other major Delta concerns and, in fact, is completely dependent on decisions related to levee rehabilitation, general land use, water supply and quality, and ecological problems."

The results of the state's benefit-cost study indicated that ". . . in every instance, it is beneficial to develop the recreational opportunities offered by the Delta. The questions are the mix of private-public operations and who pays. These issues are and will need to be discussed as part of the larger Delta levee study."

2. Commercial Recreation. Any development which attracts additional large numbers of persons to an area is going to have some impact on adjacent uses, agricultural practices, waterways, the overall quality of the environment, and quality of the recreational experience. Further, there will be additional demands on existing public services and facilities (e.g., fire, police, health, roads, etc.). The key issue is whether, in balance, these impacts and demands should be concentrated in a relatively few places (thereby leaving the remainder of the Delta relatively free), or dispersed (thereby avoiding potentially-intense pressures on any given location. In balance, some combination of these two extreme alternatives seems preferable and feasible.

Although there are literally hundreds of miles of water frontage potentially available for recreational facilities, in actuality, relatively few sites can meet both the "ideal" locational requirements of the industry and the public purposes to be served by this Plan. Many waterways are sensitive, designated either DWS or DWN on the Waterways Use Plan.\* Others are adjacent to islands, or portions of islands that, to date, have had few intrusions of nonagricultural activities. Still, other waterways have limited access via state or county maintained roads.

From a recreational point of view, Lower Andrus Island is one of the finest areas of the Delta. It meets most of the locational criteria for marinas (e.g., good protected waterways, access from urban centers, proximity to a number of waterways for alternative boating experiences, etc.). Further, if properly controlled, the area can accommodate a number of additional developments without substantial increased impacts on adjacent uses. The County General Plan has designated this area for commercial recreation. This designation should continue, with special design provisions built into the zoning ordinance to limit the intensity of development and mitigate adverse impacts.

The County General Plan also designates lands along certain waterways as appropriate for a limited amount of recreation development. This general opportunity for a number of dispersed facilities should be continued, with proposals considered on a case-by-case basis against a specific set of locational and design standards.

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\* DWS is a "scenic" designation, with very limited potential for development; DWN is a "natural" designation, with the intent that the waterways be kept undeveloped.

## WATERWAYS USE

In 1977, Sacramento County developed a Waterways Use Program to regulate activities in and around the County rivers, sloughs, and natural streams. The program was intended to reflect the major elements of four other multiple-jurisdictional plans and provide a single source for pertinent information and regulations affecting those activities. The following documents provided the basis for the County Waterways Use Program:

Delta Master Recreation Plan and Waterways Use Program, State of California, Resources Agency, 1976.

Delta Action Plan and Waterways Use Program, Delta Advisory Planning Council, 1976.

American River Parkway Plan, Sacramento County, 1976 (adopted as an element of the 1973 General Plan.

Natural Streams Plan, Sacramento County (not finally adopted at the drafting of the Waterway Use Program).

The program contains specific provisions for safety on the waterways; pollution, obstructions, encroachments, and attention of the waterways; waterside projects on levees; development standards along natural streams; and procedures for administration of the program. The plan also proposes special planning districts for the Garden Highway, the Delta river towns, Lower Andrus Island, and several isolated residential tracks along waterways in the Delta.

The Sacramento County Waterways Use Program was not adopted as a regulatory document as had been originally intended, but was approved in concept as a guide for preparing other specific regulatory documents. Subsequently, the Delta Waterways Land Use Zone and the Garden Highway Special Planning Area Land Use Zone were adopted in 1978. These County ordinances address most of the content of the Waterways Use Program, and adoption of this community plan will address the proposed Special Planning Areas in the Delta. The only portion of the program not addressed by these documents is the Waterways safety portion.

 NATURAL RECREATION AREA

 RIVER ACCESS

 COMMERCIAL RECREATION

 RECREATION AREA

 AGRICULTURE-RECREATION RESERVE

 SCENIC DRIVE

NOTE: THIS MAP IS INTENDED TO INDICATE THE CONCEPTUAL FRAMEWORK OF MAJOR RECREATIONAL AREAS. WITHIN THIS FRAMEWORK, BUT NOT SHOWN, ARE MANY NEIGHBORHOOD PARKS AND FACILITIES, PRIVATE CLUB OR SPECIAL PURPOSE FACILITIES AND COMPLEMENTARY TRAIL LINKAGES. SEE LAND USE ELEMENT OF THE GENERAL PLAN FOR DEFINITIONS OF THE RECREATIONAL AREAS CATEGORIES.

 STUDY AREA

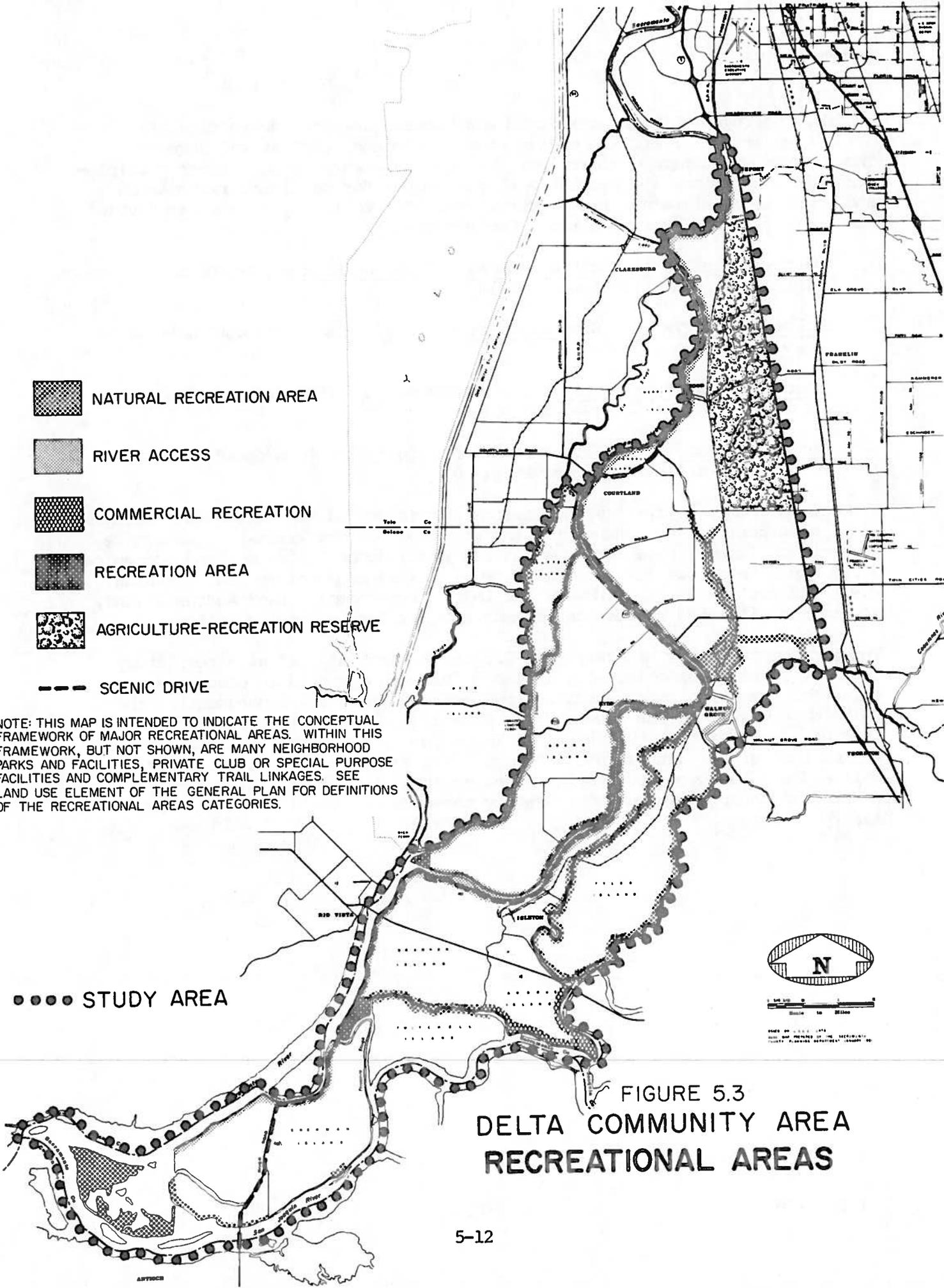
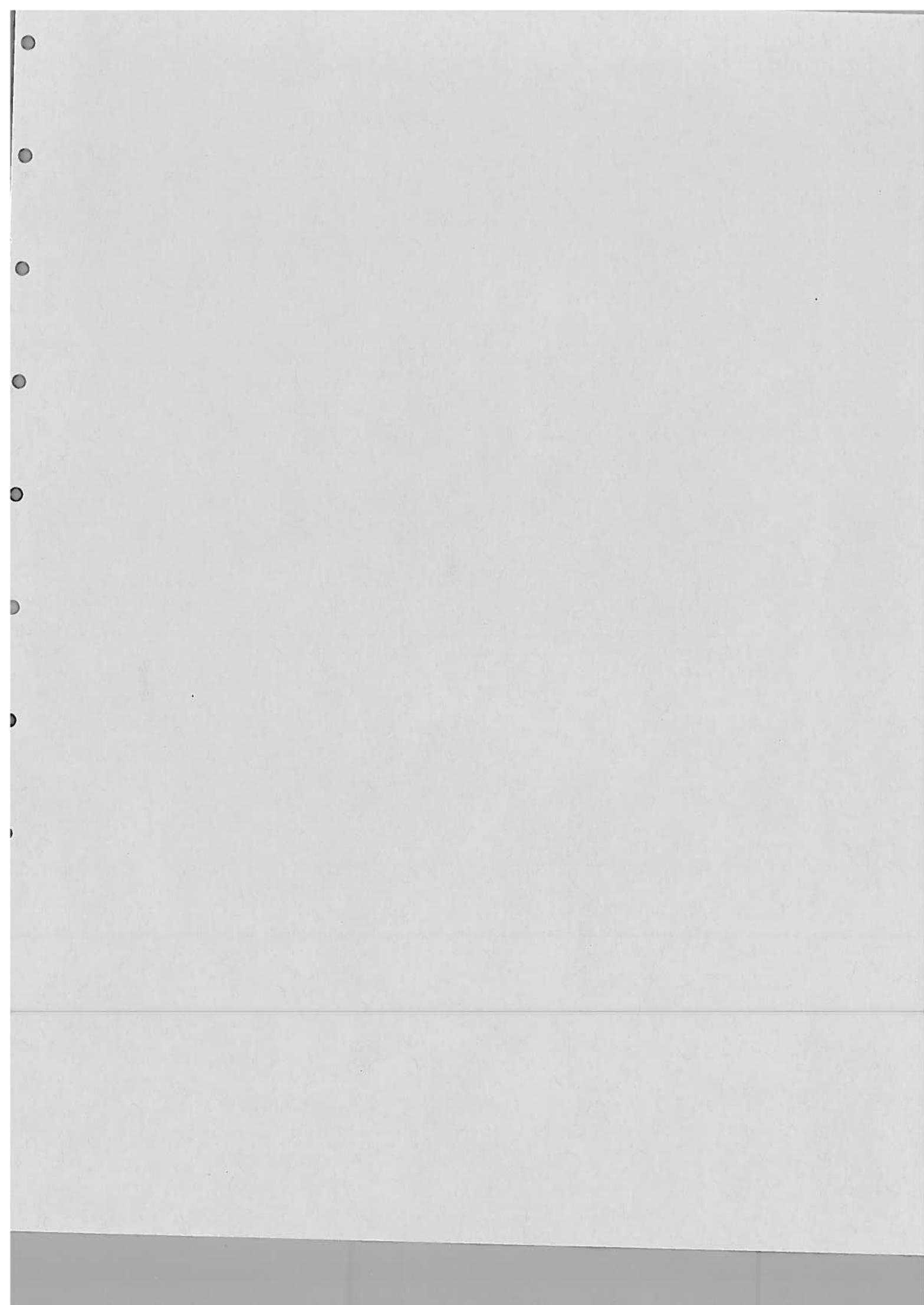


FIGURE 5.3  
DELTA COMMUNITY AREA  
RECREATIONAL AREAS





CHAPTER SIX  
RESIDENTIAL DEVELOPMENT

INTRODUCTION

The Delta is perceived by many persons as an attractive place to live as an alternative to a city or suburban life style. Its rural atmosphere and unparalleled water-oriented recreation opportunities, in relatively close proximity to several large urban complexes, may, in future years, draw more attention from developers and individual home seekers. The County should anticipate possibility of proposals for several types of development including lot splits along levees and waterways, scattered small scale subdivisions and condominium projects, infill and expansion of existing communities, and possibly even new large scale urban density development projects similar to Discovery Bay in Contra Costa County.

Past trends provide little indication of the magnitude or types of development proposals which might be forthcoming. Four types of prospective residents can be anticipated. Future developments will depend on the County's attitude, and policies concerning each, and the degree to which they are encouraged. Broadly, these types are:

1. Those whose livelihoods and/or roots are in the Delta and wish either to reside close to work or to return to familiar surroundings.
2. Those who would live in the Delta and commute to one of the urban centers (e.g., Stockton, Sacramento, Antioch) for work. These persons would use the Delta as a bedroom community.
3. Those from outside the area who see the Delta as a location for retirement.
4. Those desirous of a second (vacation) home close to recreation opportunities.

CURRENT RESIDENTIAL DEVELOPMENT

Whether by accident, design or simply economics, there is relatively little residential development in the Delta. As of 1980, the area contained approximately 2,400 dwelling units. Further, as indicated in Table 6.1 and Figure 6.1, there has been relatively little change over the past 25 years.

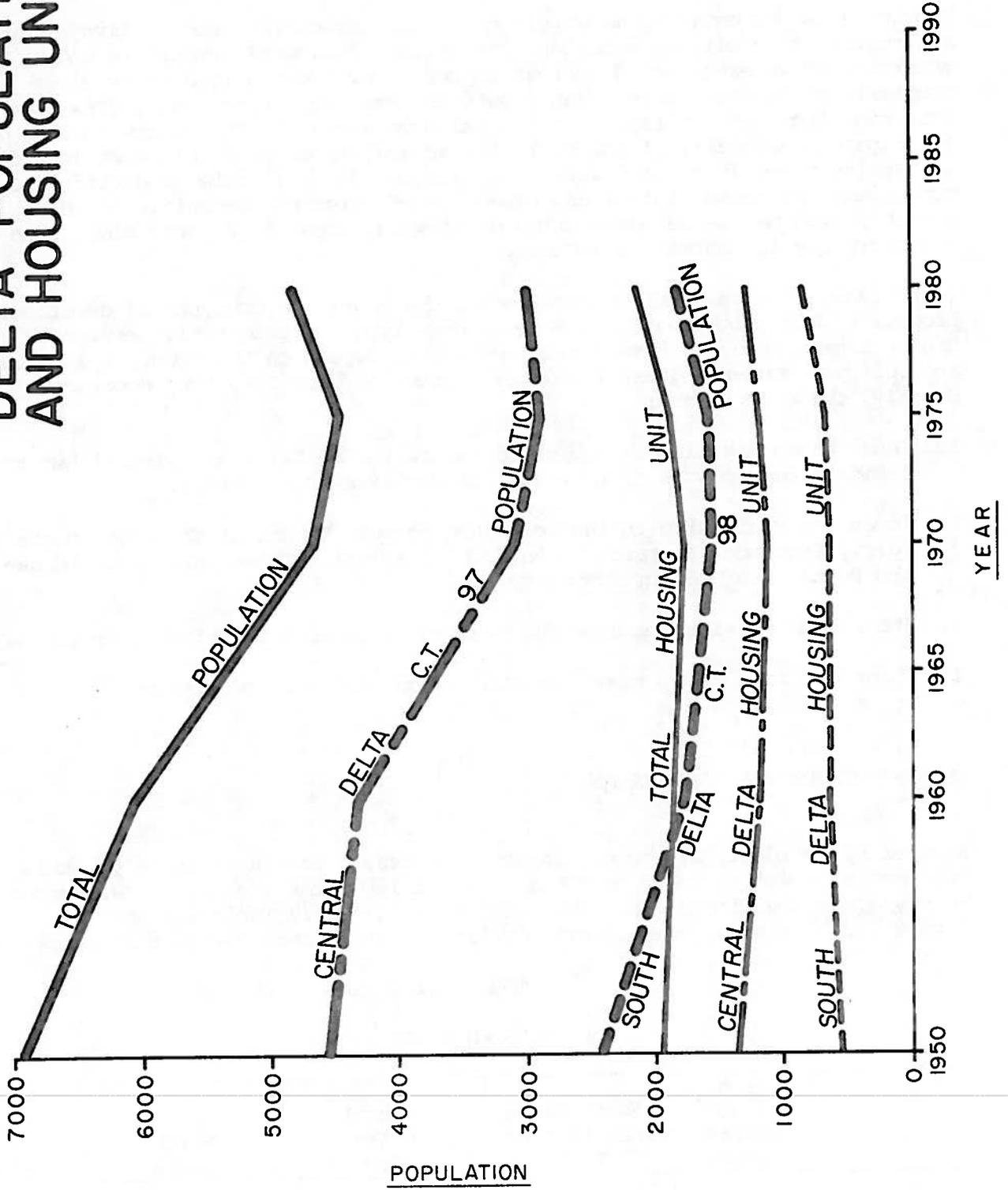
TABLE 6.1

HOUSING UNITS

	Study Area			
	South of Snodgrass Slough	South Delta (Inc. Isleton) C.T. 98	Central Delta C.T. 97	North Delta
1950	1943	566	1377	NA
1960	1823	629	1194	NA
1970	1755	629	1126	NA
1975	1858	674	1184	256
1980	2107	817	1290	NA

FIGURE 6.1

# DELTA POPULATION AND HOUSING UNITS



As of 1975,\* a very high percentage (79%) of these units were in single-family structures, as compared to 62% for the County as a whole. This percentage had declined somewhat from a high of 85% in 1950 as the Delta communities shared, in a modest way, in the County trend towards greater numbers of higher-density units and mobilehomes. Further, only 21% of Delta residents rented their quarters in 1975 as compared with 38% of all County residents.

### Distribution

For the most part, non-farm residential development in 1975 was concentrated in and around the established communities. The areas immediately surrounding Freeport, Courtland, Hood, Walnut Grove, Locke and Isleton contained approximately 60% of all dwelling units (Figure 6.2). Much smaller concentrations were located on Lower Andrus Island, Lelia Tract (Sherman Island), Ida and Long Islands in the Sacramento River and Simpson Tract (Grand Island). One substantial new development of approximately 100 units has been constructed since 1975 at Ox Bow Marina.

For whatever reason, at this point in time, the bulk of the Delta is remarkably free of residential developments. Further, under current zoning and lot patterns, there are relatively few opportunities for additional home sites outside the above-listed areas. Figure 6.3, which generally depicts the distribution of lots under two acres in size, illustrates this point.

### ISSUES

Notwithstanding the relatively-modest demand in recent years, proposals for residential developments, both large and small, can and should be anticipated in the future. Policies to guide decisions on these proposals need to be clear. The principal issues addressed in this plan are:

1. The amount of residential development which should be permitted in the Delta;
2. The types of residential developments deemed appropriate (e.g., retirement communities, second homes, bedroom (commuter) opportunities, local economy based, mobilehome park);
3. The location of residential developments to be permitted;
4. The public services or facilities to be required or provided to support residential developments; and
5. The scale of individual residential developments, if any, to be permitted (e.g., individual parcel splits, small cluster developments, large scale new communities, expansion of existing communities).

These issues are very much interrelated and cannot be resolved independent of each other. Further, final resolution of these issues must be related to policies on agriculture, recreation, environmental quality, flood protection, and public services and facilities.

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\* 1980 census data is available only for the total number of dwelling units.

-  FREEPORT AREA
-  HOOD AREA
-  COURTLAND AREA
-  LOCKE & EAST WALNUT GROVE AREA
-  WEST WALNUT GROVE AREA
-  ISLETON

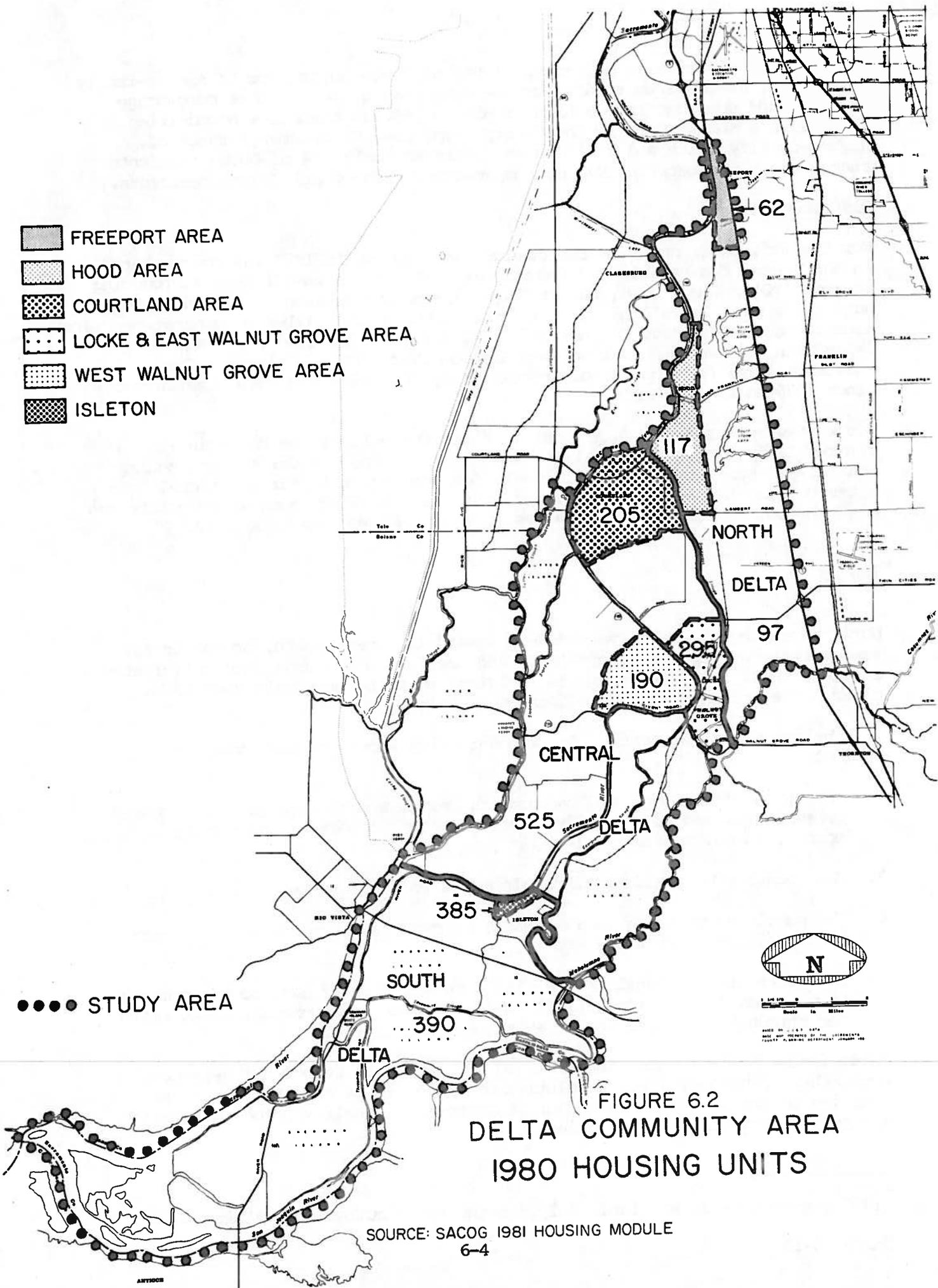


FIGURE 6.2  
 DELTA COMMUNITY AREA  
 1980 HOUSING UNITS

SOURCE: SACOG 1981 HOUSING MODULE  
 6-4

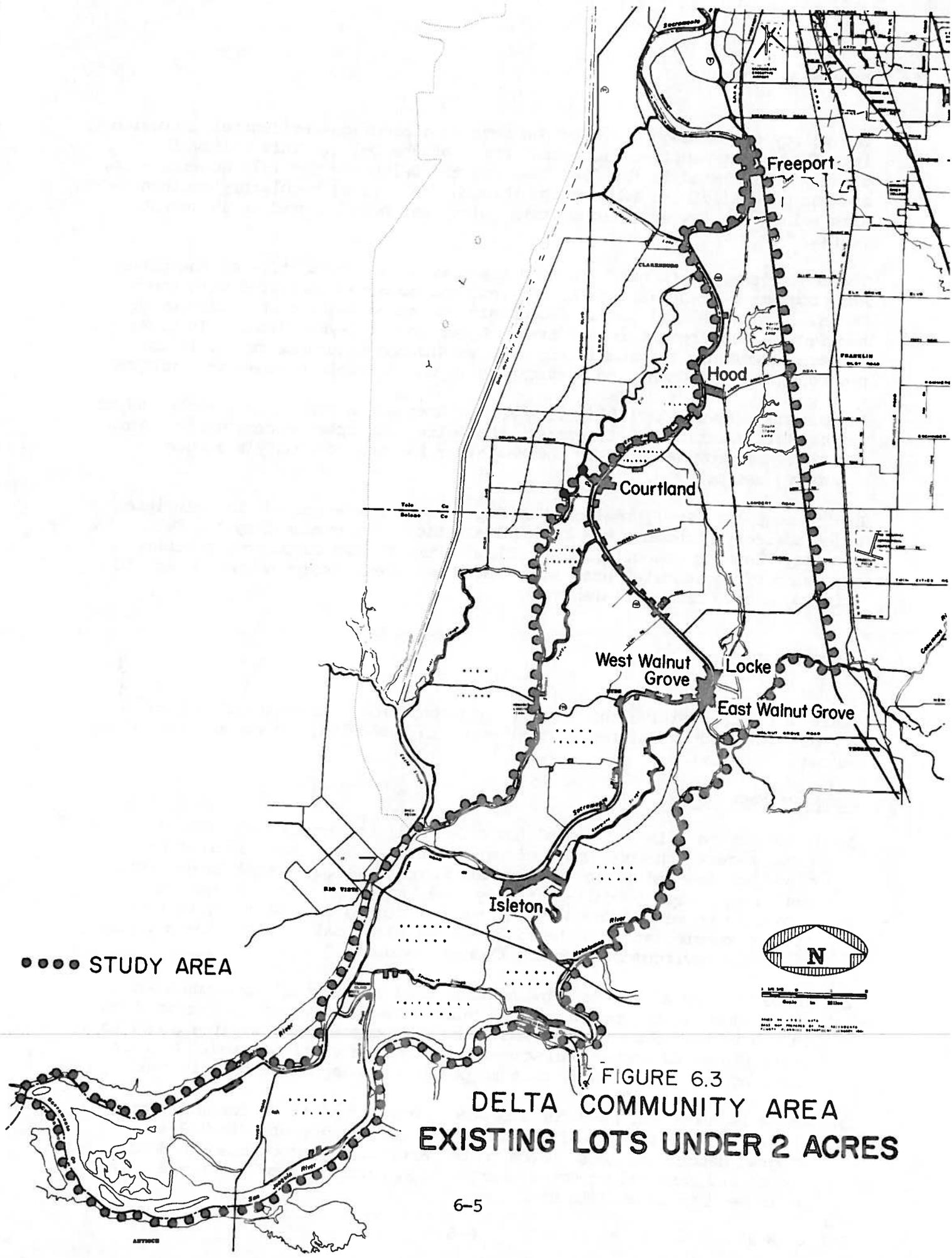


FIGURE 6.3  
 DELTA COMMUNITY AREA  
 EXISTING LOTS UNDER 2 ACRES

## CURRENT POLICIES

The policy of Sacramento County has been to discourage residential intrusion into the predominantly-agricultural areas of the Delta. This policy is clearly articulated in the 1963 Plan for the Delta and the 1973 General Plan, and has generally been implemented through the several regulatory ordinances. With relatively few exceptions, this policy has been adhered to in recent years.

The County's approach has been consistent with, and supportive of the plans and programs of federal, state, and regional agencies concerned with the Delta. At the federal level, floodplain insurance requirements discourage residential development in any area subject to a 100-year flood. In order for area residents to benefit from the subsidized insurance rates, it is necessary for the County to participate in the floodplain management program.

At the state level, the 1976 Delta Master Recreation Plan promotes the use of enforceable restrictions to protect the Delta from urban encroachment. This document has provided much of the basis for Sacramento County's adopted waterways use program.

At the regional level, the Board of Supervisors has endorsed, in principle, as an advisory document, the 1975 Delta Action Plan prepared by the Delta Advisory Planning Council (DAPC). This document also recommends against expansion of residential uses and related services, except when adjacent to existing cities and settlements.

## ALTERNATIVES

There are both positive and negative arguments for increased numbers and a broader distribution of residential units in the Delta. These are summarized below:

### Positive Factors

1. There may be a latent demand for a Delta living environment due to its rural nature, the proximity of waterways, the attractive recreation opportunities and its central location relative to several urban centers. The recently-completed I-5 freeway could make parts of the Delta more appealing to many persons. Meeting this demand may, in fact, be considered consistent with the 1973 General Plan goal, "To provide a choice of living environments for all County residents."
2. There will be a need to provide additional residential opportunities (both numbers and locations) for those whose livelihoods are or will be in the Delta. Such persons should have an opportunity to live close to their places of work. Farmworker housing is a critical need. At this time, however, it is difficult to predict the magnitude of this need.
3. There is a current need for improved housing conditions for many who presently live in the Delta. The Community Development Block Grant Program determined these needs to be particularly pronounced in Hood, Locke, and East Walnut Grove where a high percentage of homes are aging or in need of rehabilitation.

4. There should be opportunities for those persons with roots or family ties in the Delta to remain or to return.
5. Capacities of existing and/or planned sewer and water systems are sufficient to accommodate increased residential developments in and adjacent to existing communities.
6. Schools and certain other public service facilities have excess capacities due to the population decline in recent years. Additional residential developments would permit full utilization of these facilities without additional tax burdens.
7. Current residents need, but cannot support, a full range of public and private services. Additional residential developments would augment the demand and might lead to expansion of such services, to the benefit of the current residents.
8. If only a small amount of residential development were attracted to the Delta, neither the agricultural economy nor the overall environmental quality would be significantly affected. Careful locational decisions and effective mitigation measures could reduce potential impacts.
9. There is a perceived need for further economic growth in the Delta. Residential development could provide a stimulus for this.

#### Negative Factors

1. Permission for substantial residential developments, particularly those geared to urban commuters, would constitute an extreme form of leapfrogging beyond existing urban developments in the County.
2. There is sufficient land in and adjacent to existing Delta communities and on lots of record to accommodate all demands which might result from foreseeable "normal" economic growth in the Delta.
3. Residential development will remove prime agricultural land from production. There should be a public commitment to preservation of this limited and irreplaceable resource which provides the basis for this single, most-important element of the Delta economy.
4. Residential developments lead to conflicts with agricultural activities and, in time, tend to impose constraints on agricultural practices. Such conflicts often include:
  - a. Trespass of private property.
  - b. Vandalism.
  - c. Agricultural dust.
  - d. Use of agricultural pesticides.
  - e. Agricultural noise (e.g., tractors and pumps).

- f. Agricultural produce trucks at certain times of the year.
  - g. Interruption of agricultural drainage systems.
5. Concentrations of homes often lead to demands by their residents for higher levels of services than might be expected by agricultural interests. A part of the costs of such services would be borne by the agriculturalists. There would be additional demands for upgrading of public facilities such as roads. At present, certain types of public services (e.g., police, fire protection, medical, ambulance) may be inadequate to support additional dispersed developments. The Sheriff's Department, for example, has expressed concern about its ability to provide an adequate level of service to this rural area. In an analysis of the area, the Department concluded: "Most Delta residents recognize the type of police services they have, expect to fend for themselves at time, and generally call this department on only those calls that are a real emergency. The development of, and importation of new residents who previously were living in cities, will cause an increase in service calls due to their expectations of urban services."
  6. The potential for flooding at the present level of levee improvements constitutes a danger of life and property in many parts of the Delta even if homes are floodproofed and meet the 100-year flood requirements of the National Flood Insurance Program. Increased residential developments in these areas would increase the demand for levee improvements beyond that level which is necessary for agricultural or recreational uses. If developed to higher densities, the opportunity for evacuation of residents might be hampered by lack of personnel, inadequate roads, and difficult topography, to the point where there could be a substantial loss of life.
  7. There are no public sewer or water systems outside of the existing towns. Extensive developments with individual wells and septic systems in any given area could result in health problems which would be correctable only through construction of costly community systems. These, in turn, would be growth inducing. Their very existence would have a tendency to encourage even more developments in that area.
  8. Although any one or two small-scale developments might not, in and of themselves, create problems, they would establish a precedent for additional projects. The cumulative affects of a number of small-scale projects could be significant.
  9. In certain areas, there already are conflicts with recreation uses. At certain levels of intensity, the two uses (permanent residential and recreation) can be considered incompatible. Since the recreation industry contributes a significant portion to the Delta's economy, its future should be protected from unwarranted intrusion.
  10. In all likelihood, the bulk of any residential developments outside the established communities would be located along the waterways, either on the levees, where possible, or adjacent to them. This would add to the levee maintenance problems and could threaten their integrity through careless usage. Also, in all likelihood, each home would have its own dock in a navigable waterway. These would tend to impede waterway use or, at least, create additional pressures for further regulation of boating traffic.

## Summary

In balance, arguments against substantially-increased residential growth of the Delta at large appear to outweigh those which favor it. The Delta has unique environmental, agricultural, and recreational qualities which should be guarded. Further, the potential for a flood of any island in any given year should act as a principal constraint.

There are legitimate needs for additional residential units, but for the foreseeable future, it would appear that these can be accommodated within and adjacent to existing communities already provided with urban types of services. Within the foreseeable future, there should be no need for expansion of public facilities within these communities or for the establishment of new publicly-serviced developments.

New residential developments, outside existing communities, which might appeal to commuters, retirees, or those seeking recreation-oriented second homes should be considered very carefully for their impact on the delicate environmental balance of the Delta. In general, such developments should be discouraged as unwarranted intrusions.

Intense urban development requires urban services that incorporated cities are designed to provide. If larger urban developments are to occur within the Delta, the Cities of Isleton and Rio Vista may be the appropriate location.

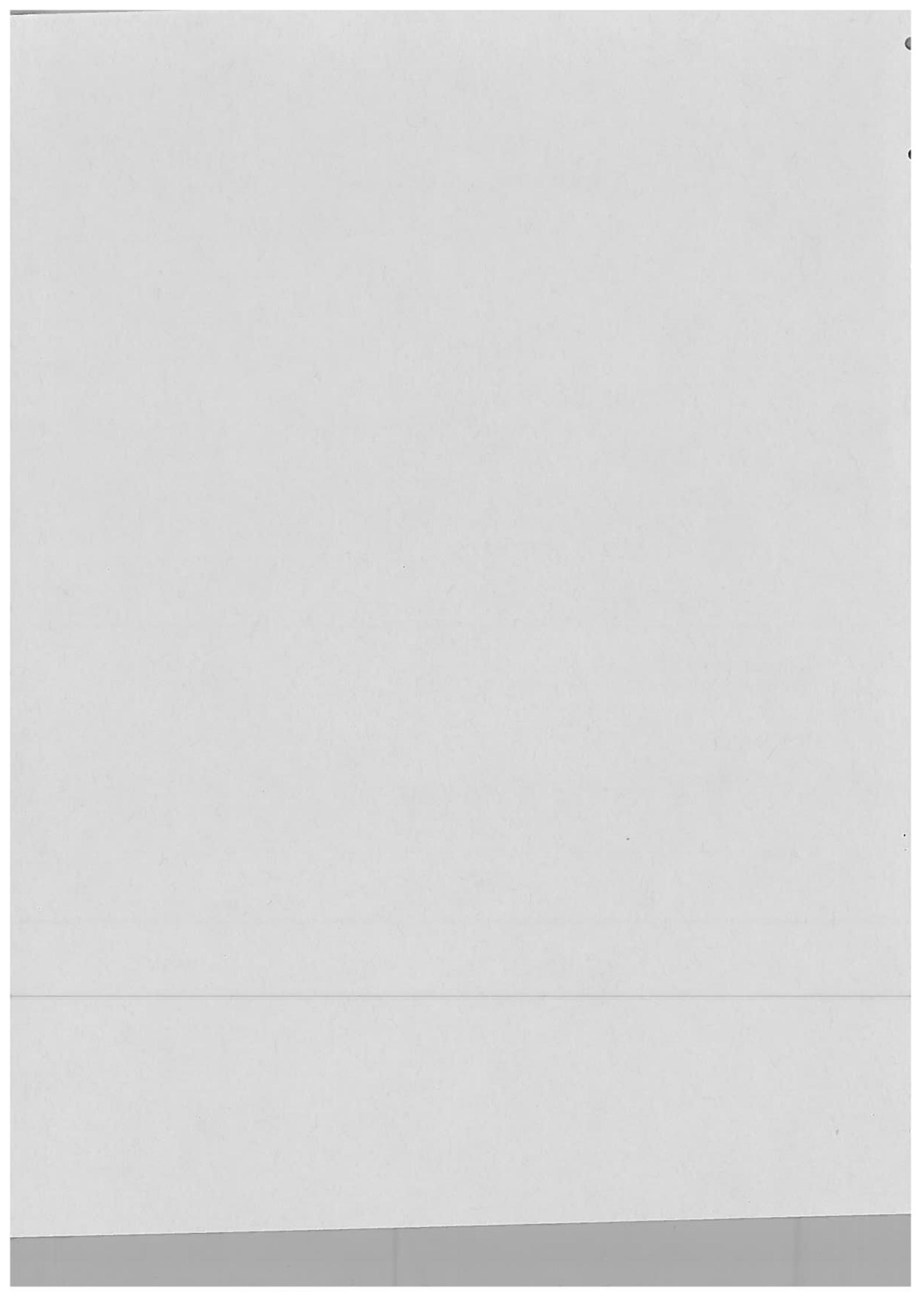
The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both manual data entry and the use of specialized software tools. The goal is to ensure that the data is both accurate and easy to interpret.

The third part of the document provides a detailed breakdown of the results. It shows that there has been a significant increase in sales over the period covered by the report. This is attributed to several factors, including improved marketing strategies and a focus on customer service.

Finally, the document concludes with a series of recommendations for future actions. These include continuing to invest in marketing, maintaining high standards of customer service, and regularly reviewing financial performance to identify areas for improvement.





CHAPTER SEVEN  
COMMERCIAL DEVELOPMENT

INTRODUCTION

Delta commerce can be categorized into five sectors: agriculture, recreation, industrial, local sales and services, and other export. As an economic system, the Sacramento Delta is relatively small scale; the overall residential population density is low, and natural and locational constraints limit extensive economic diversification. The scattered Delta towns are generally agricultural and/or recreational in orientation, and nearly all development in the Delta is related to local resources.

FACTS AND PROJECTIONS

Agricultural Production

Agriculture remains the primary source of economic activity in the Delta. In 1980, there were approximately 81,000 acres of land devoted to agricultural production, with a total of about 90 million dollars, representing about 41% of the agricultural income in Sacramento County in that year. For a more complete discussion of agricultural production, see the Agricultural Element in this Plan.

Recreation

Recreation is the fastest growing industry in the Delta. With hundreds of miles of waterway frontage and nearly unlimited demand for water-oriented recreation opportunities, the potential for recreational development in the Delta is immense. The opening of the I-5 freeway has made the Delta much more accessible than it had been in the past, and the escalating price of gasoline makes the Delta more attractive to nearby recreationists from Sacramento, Stockton, and the San Francisco Bay Area as the costs of travel to Lake Tahoe and other more distant recreation areas become more and more prohibitive.

Lower Andrus Island is the recreational center of the Sacramento County Delta. Highway 12 provides convenient access to Lower Andrus Island from both the I-5 and I-80 freeways; and there is easy access to Georgiana Slough, the Mokelumne River, the San Joaquin River, and the Sacramento River as well. From a regional perspective, Lower Andrus Island is at the very heart of the Central Valley Delta. Thirteen private recreation facilities are presently located on Lower Andrus Island, providing marina facilities, recreational vehicle and camping facilities, and recreational support services.

The recreation industry is seasonal. Most recreationists favor outdoor activities such as motorboating, picnicking, and camping, which tend to be warm weather activities; however, fishing and hunting also occur in the Delta during the winter, so that the seasonal shift affects not only the numbers of recreationists, but the nature of their activities as well.

Total value of the recreation industry in the Delta region is estimated at 70 million dollars per year. Estimates of Sacramento County's portion of this value are not available.

### Industrial

Most industrial land uses in the Delta are agriculturally oriented, such as storage and packing facilities, equipment repair, trucking, etc. These operations are located throughout the Delta area where they can provide their services conveniently. There is no accurate record of industrial activity in the Delta because much of it occurs on agricultural lands as incidental uses to farming operations. Some industrial activity probably occurs on a small scale in back yards, garages, and commercially-zoned buildings.

The term "agricultural-industry" is often associated, in Sacramento County, with food processing industries such as canneries, which utilize land-extensive methods of wastewater disposal rather than connecting to public sewerage facilities. This method of wastewater disposal has been promoted by the County in certain areas, and is addressed by policies in the General Plan. Although this form of agricultural industry is not practiced in the Delta at the writing of this community plan, it is recognized that there may some day be interest in establishing such use in the form of wineries or similar operations which can use land-extensive processes for drying waste products or disposing of waste water. Since the General Plan does not identify any sites in the Delta for agricultural industry, any proposal for such use will require a General Plan amendment as well as a rezone and use permit. This procedure is described in the General Plan and the Zoning Code.

Industrial zoning in the Delta is limited. There are about 54 industrially-zoned parcels, covering 92 acres, within the unincorporated Sacramento Delta area. The City of Isleton has about 23 additional acres of industrially-zoned land. The Planning Department estimates that about 30% of the unincorporated industrially-zoned land is vacant or undeveloped, and the 1979 Isleton General Plan identifies about 10 acres of vacant industrial land. In total, the Sacramento Delta, including Isleton, has less than 50 acres of vacant or underdeveloped industrial land.

Despite this limited acreage, there does not appear to be a shortage of available industrial land. Development of industrial properties in and around Walnut Grove has occurred slowly, and Isleton has recently converted much of its long-vacant industrial land to other land use classifications.

## Local Sales and Services

This sector of the Delta economy, which by definition does not serve areas outside the Delta area to any significant degree, is composed of numerous small-scale businesses such as grocery stores, supply stores, butchers, and so on. These businesses primarily serve the permanent residential population of the Delta, but often overlap into the recreational sector as well. In fact, many of the small businesses with the river communities rely on the seasonal influx of recreationists to augment the permanent resident market.

Local sales and services within the Delta are located almost exclusively within the communities of Freeport, Hood, Courtland, Locke, Walnut Grove, and the incorporated City of Isleton. The cities of Sacramento, Stockton, Rio Vista, and Antioch areas provide additional large-scale sales and services which are not available in the small Delta communities.

Commercial land use occupies an extremely-small percentage of the land area in the Delta. According to a land use survey prepared by the California State Department of Water Resources in 1977, there are about fourteen acres of land in active urban commercial use in the unincorporated Delta area. Commercial zoning prior to adoption of this community plan covered about eighty-four acres, including twenty-three acres in east Walnut Grove that are designated "Residential-Commercial" within a Special Planning Area zoning ordinance. The Isleton General Plan, adopted in 1979, identifies 6.3 acres in commercial land use within the city limits.

Commercially-zoned land accounts for less than one-tenth of one percent of the total land mass in the Delta, and provides about 0.87 acres per 1000 population, based upon the 1980 Census. Despite the fact that the acreage per capita of commercially-zoned property in the Delta is much less than elsewhere in the County, there is an ample supply of vacant commercial property and a high vacancy rate. The Isleton General Plan, for example, identifies a 40% commercial vacancy rate within the city limits.

Several factors may account for the low rate of commercial development. Competition from the Sacramento and Stockton metropolitan areas draws much of the market away from the Delta; better selection, lower price, and general economies of scale can be better realized in those metropolitan areas. This single factor is probably the most significant one, but the historical decline in population since 1950 has had an effect as well. New businesses prefer to locate within expanding market areas, yet the Delta has lost about 1/3 of its population since 1950. This decline no doubt accounts for the high vacancy rate in commercial buildings; it is noted, however, that the population began to again increase between 1975 and 1980, perhaps signalling a reversal in the declining trend. The third factor contributing to the low rate of commercial development may be the fact that residents of rural areas tend to accept lower levels of service as part of the rural environment so that the demand for commercial services is diminished. This affect may also be lessened if population in the Delta increases through an influx of nonagriculturally-oriented residents, and because of the increasing cost of gasoline for commute trips to the metropolitan areas.

It is expected that the demand for local sales and services will increase in the Delta over the next five to seven years.

## Other Export

This sector is composed of nonagricultural commerce and nonrecreational water-oriented commerce whose primary market is beyond the Delta boundaries. Specific categories within this sector include commercial fishing, water-oriented transportation, oil and natural gas extraction, the sale of water as a commodity, and other miscellaneous export businesses which find the Delta area to be locationally attractive.

Commercial fishing is presently comprised exclusively of the taking of crayfish, which began on a small scale in 1969 and became a major industry when a fungus destroyed the crayfish crop in Sweden and created a major export market for the local industry. The annual reported catch rose from 106,714 pounds in 1970 to 533,000 pounds in 1975 as a result of the export market. The market began to approach saturation in 1977 as a result of increasing numbers of commercial fisherman on the rivers, then took a serious downfall in 1978 when the Swedish market collapsed due to financial difficulties on the part of the overseas broker. The market recovered in 1979, and in 1980, the total catch was up to 494,000 pounds. Table 7.1. summarizes activities within the crayfish industry between 1975 and 1980.

TABLE 7.1 (1)  
CRAYFISH FACT SHEET

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>
Number of boats landing crayfish	46	59	57	25	39	47
Percent of total boats taking 50% of the total catch	16.7	12.7	18.6	13.6	17.0	14.0
Average number of traps set/boat	131	137	155	137	170	194
Average catch/trap (lbs)	1.92	1.73	1.55	1.55	1.46	1.11
Average price paid for crayfish	.65	.57	.50	.65	.75	.90
Total catch for the year (lbs)	533,000	550,000	535,000	104,000	454,000	494,000

(1) California Department of Fish and Game, 1981.

Water-borne transportation has historically been a major industry in the Delta; today, there are inland ports in West Sacramento, Stockton, and the Antioch-Pittsburg waterfront area. Since there are no ports in the Sacramento Delta, the water-borne transportation industry has little direct impact upon the unincorporated Sacramento Delta. However, records from the U.S. Army Corps of Engineers indicate that \$6,648,270\* was spent on maintenance of the channel during the ten-year period between 1972 and 1981. Most of this

\* Unpublished records and telephone conversations with staff of the U.S. Army Corps of Engineers.

amount was spent on riprap and dredging work, with contracts let to firms in Sacramento, Rio Vista, and Petaluma. A portion of this money no doubt found its way into the Delta economy. Additional information on water-borne transportation can be found in the Delta Plan Technical Supplement VI, Delta Resource Development, prepared by the Delta Advisory Planning Council, March 1976.

Natural gas and the production of associated by-products in the Sacramento Delta during 1980 had an estimated market value of about \$45 million. The actual value is difficult to ascertain because of widely varying market prices, and this estimate is probably somewhat high. There were 95 producing wells in 1980, within six identified gas fields. The largest field is the Rio Vista Gas field, which is located within Sacramento, Solano, and San Joaquin Counties, and has 73 gas wells within Sacramento County. The Rio Vista Gas field is the largest in the state, representing 23.2 percent of the state's nonassociated gas (dry gas) total.\*

#### ISSUES AND PROBLEMS

The policies of the County General Plan, the Delta Action Plan, and the Rural Development Strategy reiterate common themes which are reflective of the recognized issues and problems facing commerce in the Delta:

- the resources of the Delta should be utilized in an effective, efficient manner that minimizes impacts upon the natural environment and upon agricultural use of the Delta.
- efforts should be made to foster an economic/employment base which is reliable and diverse within the Delta.
- commercial establishments should be encouraged to locate within existing residential communities, where they will best serve Delta residents, minimize commute distances, and minimize conflicts with adjacent land uses.

Individual sectors of the Delta commerce are also subject to their own specific problems and constraints:

- competition from the Stockton and Sacramento metropolitan areas inhibits the expansion of commercial establishments within the Delta.
- natural hazards, substandard roadway systems, and conflicting agricultural land use limit the locations for establishment of new businesses.
- much of the employment in the Delta is seasonal.
- Recreation and agriculture, the two major components of the Delta economy, are highly subject to yearly fluctuation due to weather conditions.

\* California State Division of Oil and Gas, 66th Annual Report of the State Oil and Gas Supervisor, 1980, p. 18.

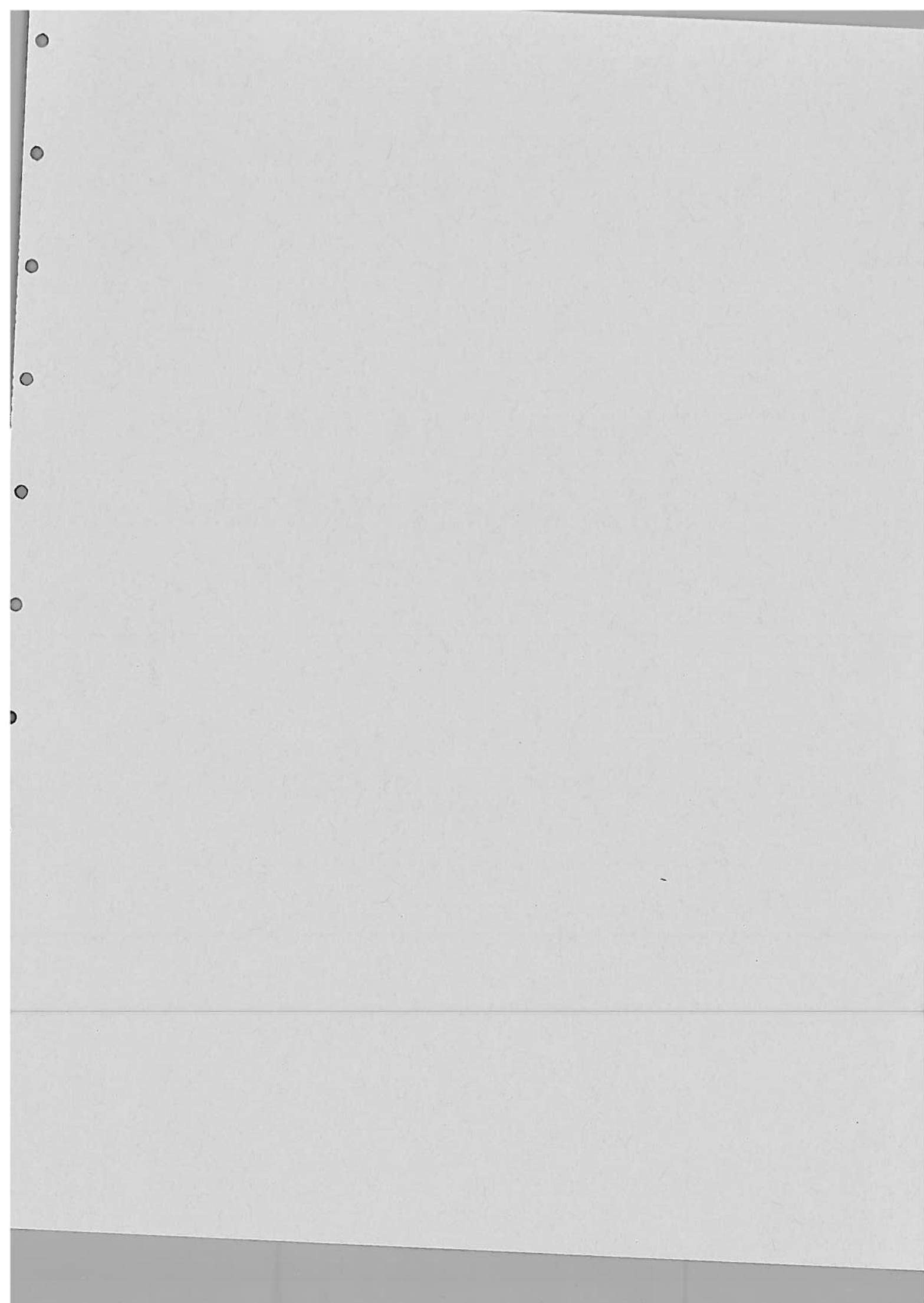
## ALTERNATIVE SOLUTIONS

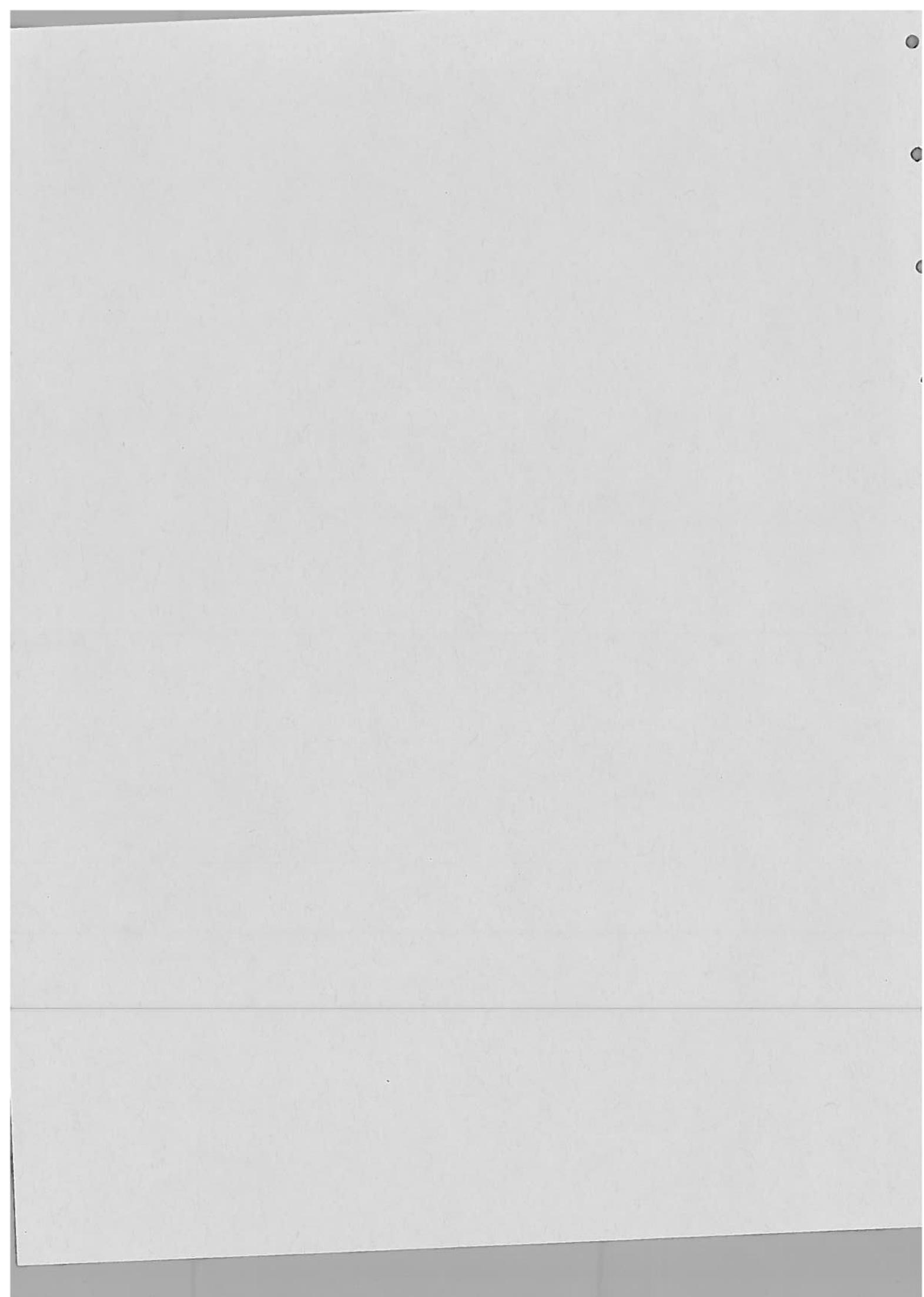
The major issues to be addressed are (1) the degree to which commerce in the Delta should be encouraged to expand, and (2) the appropriate sector in which such expansion should occur. Although many alternative solutions to these issues are possible, the feasibility is limited a great deal by natural constraints, market constraints, and existing regulatory policy. In considering these constraints, it becomes apparent that any expansion of commercial in any sector must relate to a demonstrated local need in the Delta; that need will be limited. The protection of agricultural productivity is of primary concern in the Sacramento Delta, and expansion of any other sector in the economy must not interfere with this valuable asset. Expansion of agriculture and related industries should be encouraged. Expansion of recreational development should be permitted to the extent that it does not interfere with agriculture or other natural amenities. Expansion of local sales and service should be permitted to the extent that it does not interfere with agriculture. Expansion of industrial development should be viewed with caution, and should be discouraged unless it is clearly shown that such expansion will not interfere with agriculture.

The County General Plan and this Community Plan clearly establish policies limiting residential growth within permanent agricultural areas and within flood hazard areas. These policies will restrict any major influx of residential development in the Delta, and the local market will thus limit expansion in the local sales and services sector. "Other export" such as commercial fishing, sale of water, and so on are regulated by external factors beyond the scope of this Community Plan, and would not be significantly affected by land use policies in this Plan. The three remaining areas for which alternative scenarios may be drawn by this Community Plan are within the industrial, recreational, and agricultural sectors.

To date, there has been little interest in industrial development within the Sacramento County Delta, except for relatively small-scale agriculturally-oriented industry. It is estimated that about 30% of the industrially-zoned land is vacant or underdeveloped, and it is unlikely that additional industrial property will be needed unless these vacant parcels develop to a greater extent. Sacramento County has recently experienced a sudden interest in the development of "high-technology" industrial development which could spill over into the Delta planning area if the City of Sacramento permits such development within the city limits adjacent to Freeport. At time of writing this Community Plan, it is not known what land use policies may evolve in this area, and to second-guess them in this Plan would be premature. It must be presumed that no major influx of industrial development will occur within the Delta during the planning period of the Community Plan.

The recreational sector has tremendous potential for growth. Unfortunately, it also has great potential for conflict with agriculture. Since it is a major policy of the County General Plan and this Community Plan to protect and preserve agriculture, any policies which address recreation or any other sector of the Delta economy must also strive to balance growth in that sector with the need to protect agriculture.





## CHAPTER EIGHT CIRCULATION

### INTRODUCTION

Circulation includes all modes by which people and goods move about in the Delta, including light and heavy trucks, private automobile, motorcycle, bicycle, walking, public transit, farm machinery, rail, air, and water. The circulation system in any area greatly affects the economy and character of the area. Despite the fact that much of the Delta is in navigable waterways, the nonrecreational use of waterways for travel is negligible. Likewise, air travel is minimal in the Delta as well. The dominant mode of travel is by private automobile on public highways. This mode of travel has evolved through technological and geographic changes and will probably remain dominant until economic or physical changes occur to alter the present pattern of development and movement.

### STREETS AND HIGHWAYS (Figure 8.1)

Most destination-oriented travel in the Delta occurs on streets and highways by private automobile. The rural character of the area dictates that this mode of travel will continue to be the dominant mode for the foreseeable future. Potential for expansion of the roadway systems is limited. Most roads are located on levees adjacent to waterways and are restricted in width by the size of the levee crowns. Although many of these roads are shown to be widened on various circulation plans, including the County General Plan, the costs of improving levees to allow road widening is prohibitive, and it is unlikely that the indicated improvements will occur.

Those roads located off the levees are subject to different constraints. Although there is often ample room for widening of these roads, unstable soils increase construction and maintenance costs, and flood potential on some of the Delta islands threatens them as well.

#### Interstate Freeway

The I-5 freeway is the largest, newest highway in the Delta and carries the largest volume of traffic. It is the eastern boundary of the Delta Community Plan area and provides convenient access, especially from the Stockton and Sacramento metropolitan areas. It does not provide direct access to the interior of the Sacramento County Delta area.

#### State Highways

There are three designated state highways in the community plan area. Highway 160 follows the Sacramento River from above Freeport to Sherman Island, then heads south across Sherman Island and over the San Joaquin River to Antioch. This highway and Franklin Boulevard were the main links between Sacramento and Antioch before the I-5 freeway was constructed. Known as the "River Road," it continues to provide access between the Delta river towns, but no longer serves as the major Delta transportation corridor.

-  I-5 FREEWAY
-  STATE HIGHWAYS
-  MAJOR COUNTY ARTERIALS
- 3150** 1980 TRAFFIC COUNTY, VEHICLES/DAY
- 2470** 1979 TRAFFIC COUNTY, VEHICLES/DAY

SOURCE: TRAFFIC VOLUME FLOW MAP, 1981  
 COUNTY OF SACRAMENTO  
 DEPARTMENT OF PUBLIC WORKS  
 HIGHWAY AND BRIDGE DIVISION

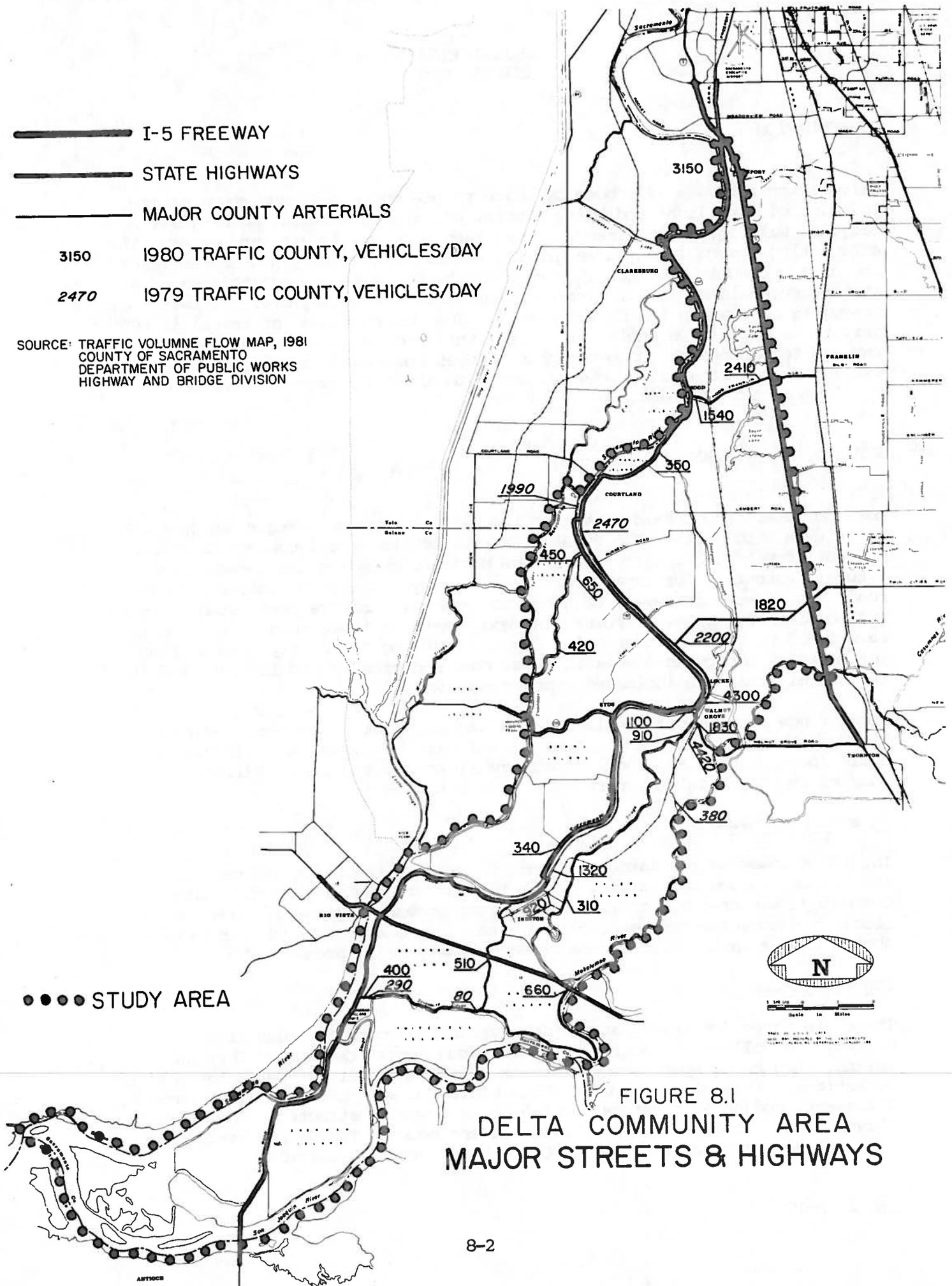


FIGURE 8.1  
 DELTA COMMUNITY AREA  
 MAJOR STREETS & HIGHWAYS

State Highway 12 crosses the Delta area east/west, connecting Lodi to Fairfield. This highway crosses Brannan and Andrus Islands and provides convenient access to Rio Vista, Isleton and the Lower Andrus Island recreation area from the I-5 and I-80 freeways.

State Highway 220 runs westerly from Ryde, across Grand Island to Howard's Ferry where it crosses Steamboat Slough. From that point, it leaves Sacramento County and crosses Ryer Island to connect with State Highway 84, which connects Rio Vista to West Sacramento. Highway 220 is the least used state highway in the Sacramento County Delta, but does provide access to the Hogback Island county recreation area on Steamboat Slough.

#### County Roads

Several county-designated roads play major roles in providing access to the Delta. The following roads are shown on the County General Plan as future arterials, with ultimate width of 84 feet. Hood-Franklin Road is the northernmost connector between I-5 and the River Road (160). The latest traffic count, done in 1980, indicates 2,410 vehicles per day.

Twin Cities Road originates at Highway 160 north of Locke, and heads easterly across the I-5 and U.S. 99 freeways to eastern Sacramento County. This road provides the most direct link between Locke/Walnut Grove and the Sacramento Metropolitan area, via I-5. The traffic count in 1980 was 1820 vehicles per day.

Walnut Grove-Thornton Road is the most heavily used county road in the area, with a traffic count of 4,420 vehicles per day. Besides linking Walnut Grove to Thornton and the I-5 freeway, this road provides access to several marinas and an industrial area near Walnut Grove.

Jackson Slough Road is a short, but important connector between Isleton and Highway 12. It continues south from Highway 12 to intersect with Brannan Island Road, which serves the Lower Andrus Island recreation area. Traffic volume on Brannan Island Road at Highway 12 was 660 vehicles per day in 1980.

#### PEDESTRIAN AND BICYCLE TRAILS (Figure 8.2)

The Sacramento Bikeway Master Plan, a joint city/county effort, was published in January 1977. This plan proposes on-street bikeways on Hood-Franklin Road, Twin Cities Road, Walnut Grove-Thornton Road, and the River Road. Hood Franklin Road and Twin Cities Road are included in the Phase Four (last phase) construction priority for the county and are not scheduled for construction at the writing of this community plan. Likewise, there are no immediate plans for construction on Walnut Grove-Thornton Road. The River Road (Highway 160) is a state highway, and construction of the on-street bikeway will be the responsibility of the California Department of Transportation (CalTrans). According to a CalTrans representative, there are no active plans to construct the bikeway as a whole, but existing policy dictates that

- - - - - ON STREET BIKEWAY  
 ●●●●● OFF STREET BIKEWAY

●●●● STUDY AREA

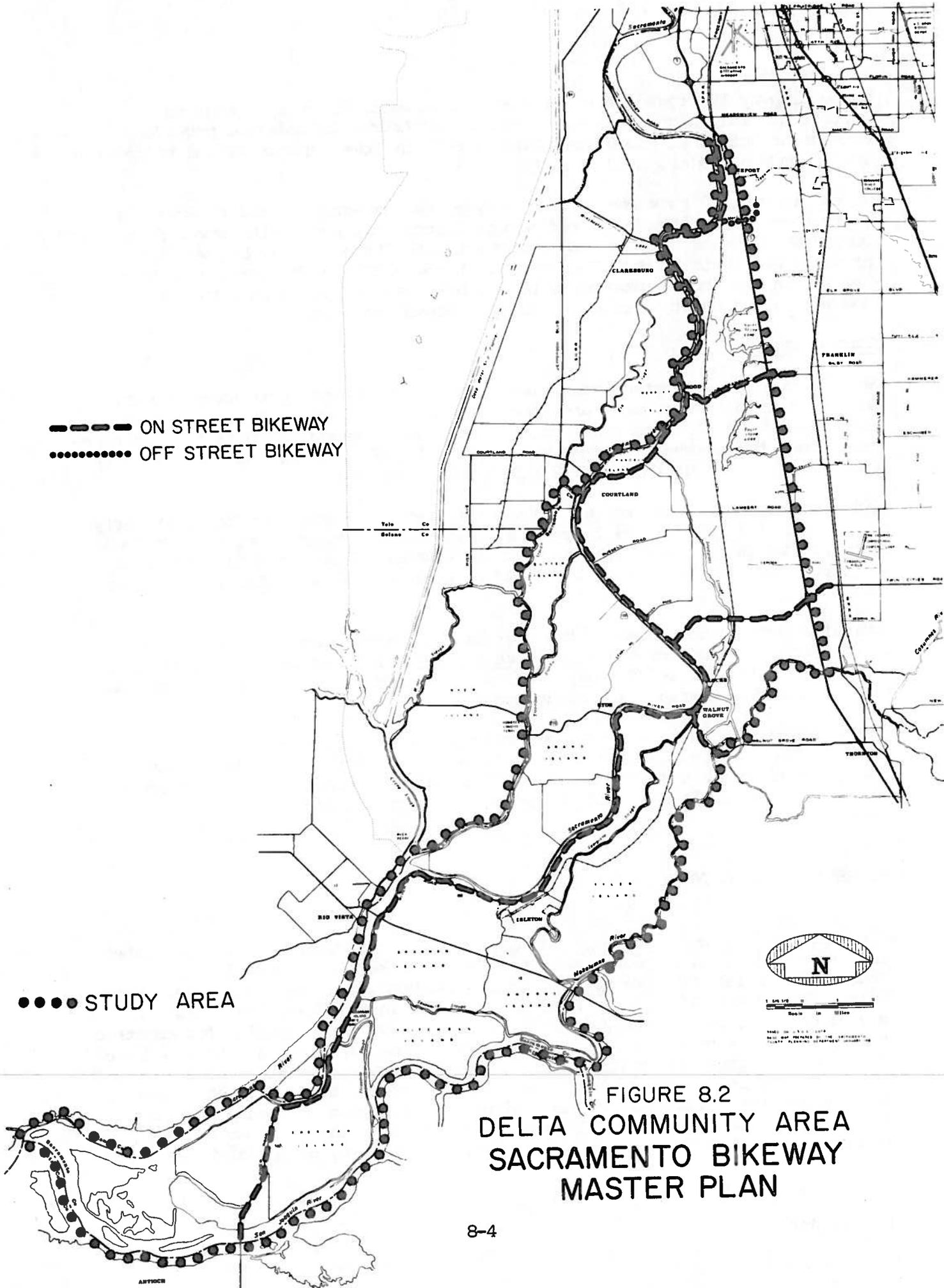


FIGURE 8.2  
 DELTA COMMUNITY AREA  
 SACRAMENTO BIKEWAY  
 MASTER PLAN

they be included in any spot improvements that are made to the highway. Typical bike lane improvement would be composed of the addition of four feet of "shoulder pavement" on either side of the road. These shoulder lanes would normally be unmarked.

Bicycle traffic in the Delta is increasing. Rising commute costs have been incentives for many workers to bicycle rather than drive, and coincidentally, the popularity of recreational bicycling has risen as well. The River Road is a popular route because it provides a pleasant view of the waterway and conveniently links the river towns and other informal rest areas. Trees along the route provide shade on hot days. Unfortunately, the River Road is narrow, and sight distance on turns is often poor. Vehicle traffic speed is high, and many of the vehicles on the road, such as produce trucks and farm machinery, are wide. These conflicts can be dangerous to cyclists.

Off-street bikeways would alleviate this problem. From a cyclist's point of view, the best location would be along the watersides of the levees where the waterway amenities could be enjoyed. This alternative would entail considerable extraordinary costs to modify levees and probably is not feasible given present funding constraints. Likewise, acquisition of rights-of-way across private property would probably be expensive and politically difficult. The remaining alternative would be to construct a bikeway along the abandoned Southern Pacific Railroad line between Freeport and Isleton (see discussion of railroads). Much of the railroad property is far removed from waterways and may not be as aesthetically attractive to cyclists as would be the River Road bikeway. A bikeway along the abandoned railroad tracks would introduce public access into farmland that may meet opposition from abutting landowners. Nevertheless, sections of the route may be feasible for bikeways or pedestrian trails and should not be discounted.

Bicycle and pedestrian movement within the river towns can be difficult and dangerous. Freeport has no formal sidewalks or bikeways, and pedestrian/bicycle movement through the town is in direct conflict with vehicle traffic on Highway 160. A similar situation occurs in Hood along Hood-Franklin Road, although the shoulders of the road will soon be widened to accommodate bicycles and pedestrians in the town. Most streets in Locke and east Walnut Grove are narrow and unpaved. Community Development Block grant projects will improve the streets in these two communities and should emphasize nonvehicular movement. Where feasible, sidewalks and/or bikeways should be included in all development projects in the Delta.

#### RAILROAD (Figure 8.3)

Railroad freight transit is nonexistent in the plan area today. Once a vital transportation mode between Isleton, Walnut Grove, Locke, Hood, and the metropolitan Sacramento area, the Southern Pacific line has experienced continuing decline due to growing competition from other transportation modes such as trucking and from rising operation costs. The tracks were abandoned in 1977 and 1978.

- 8.5 miles RAILROAD MUSEUM to FREEPORT
- 7.1 miles FREEPORT to HOOD
- 7.6 miles HOOD to LOCKE
- 1.2 miles LOCKE to WALNUT GROVE
- 8.7 miles WALNUT GROVE to ISLETON

■■■■■■■■■■ ABANDONED SOUTHERN PACIFIC RAILROAD

●●●●● STUDY AREA

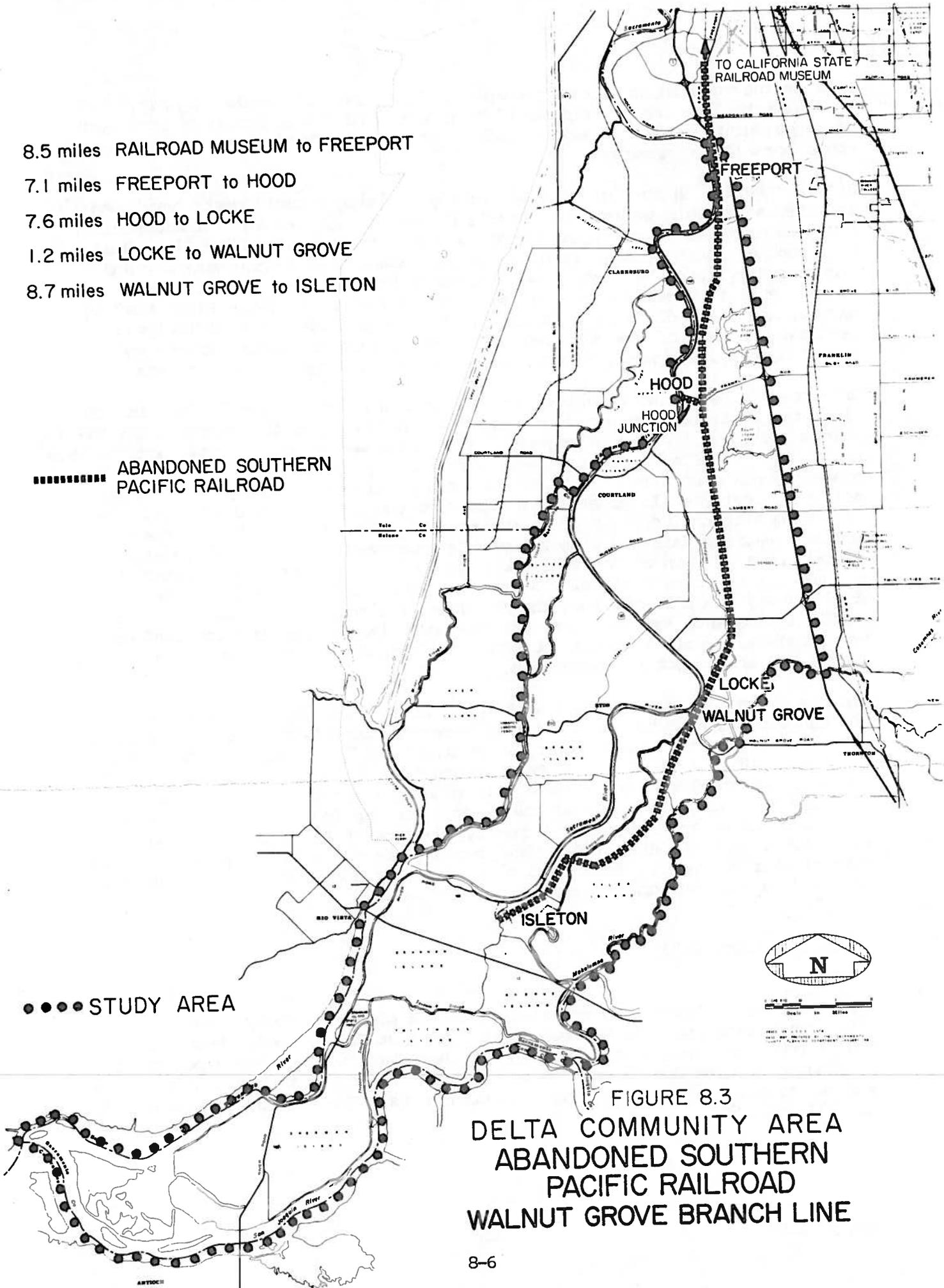


FIGURE 8.3  
 DELTA COMMUNITY AREA  
 ABANDONED SOUTHERN  
 PACIFIC RAILROAD  
 WALNUT GROVE BRANCH LINE

The Walnut Grove Branch line, originally named the Sacramento Southern Railroad, had been intended to be a connector between other major railroad routes. This never happened, and the line became a spur feeder to the Southern Pacific system. Construction was completed in sections between 1909 and 1929. The primary purpose of the line was to transport produce to Sacramento from the many agricultural packing houses in the Delta, although passenger service was provided as well. By the mid-1930's, the line had begun to decline, leading to the eventual closure in 1978.

In January 1980, the California State Department of Parks and Recreation published a feasibility study for acquisition of the Walnut Grove Branch line to Isleton. This study, entitled Steam Train to Sacramento, proposed acquisition of part of the railroad right-of-way in order:

1. "To preserve a major portion of the Walnut Grove branch line right-of-way corridor as open space for recreation, interpretation, transportation, and conservation purposes, both present and future.
2. To develop a successful recreational and interpretive excursion train service on the railroad in conjunction with the California State Railroad Museum in Old Sacramento State Historic Park."

The study lists several perceived benefits of the project:

1. "Preservation of open space and possible future parkway lands in the rapidly urbanizing southern Sacramento County area.
2. Preservation of a unique transportation corridor between an urban center and the rural Delta wilderness, which links 13 public recreation and park facilities. This provides the opportunity to create new recreational trails connecting these facilities, which will partially alleviate existing deficiencies and permits future development of recreational and commuter transportation systems.
3. The establishment of an excursion passenger train operation as a new state park experience, which will permit interpretation of railroads in the most dynamic way possible, enhance the historic environment of Old Sacramento, connect two units of the State Park System, and facilitate the continuing development of the California State Railroad Museum.
4. Create an attraction which will be accessible to several million people from around the world each year and, if properly managed, potentially self-supporting."

The study concludes that the portion of the facility south of Walnut Grove is in such a state of disrepair that reconstruction may not be feasible. The section of tracks between Walnut Grove and Hood has been removed subsequent to publishing of the study, complicating successful acquisition and operation south of Hood. The state is actively pursuing acquisition of the tracks as far south as Hood where existing tracks can be improved as a turn-around facility.

The Sacramento Regional Transit District is coordinating with the State Department of Parks and Recreation in the acquisition of facilities north of Freeport for commuter light rail transit into downtown Sacramento. According to district staff, commuter demand south of Meadowview Road, in the city limits, is not sufficient to justify extension of light rail transit. Eventually, the light rail commuter facility could extend eastward along the Route 148 corridor to serve the Laguna community area, but service in the Delta is not anticipated.

#### AIRPORTS

There are no major airports in the plan area. Most of the air traffic for the plan area is served by facilities in Rio Vista and Antioch, in neighboring counties. Franklin Field, which accommodates overflow from the Sacramento Executive Airport, is located east of the plan boundaries, north of Twin Cities Road and west of Bruceville Road. A few agricultural landing strips are scattered throughout the plan area, but these private strips are not intended to meet the needs of the general public. The Spezia Airport, a private facility on Georgiana Slough, serves a limited need, with fewer than a dozen aircraft based on the site at last count. There are no known plans for expansion of airport facilities in the plan area, but demand for such facilities may someday be generated by the growing recreation industry.

#### TRANSIT

Transit facilities are limited. There are no scheduled stops by commercial operators, and the Sacramento Regional Transit District does not serve the area. The River Delta Unified School District and the Galt Joint Union Elementary School District provide bus service for students, but they do not provide regular service to the general public.

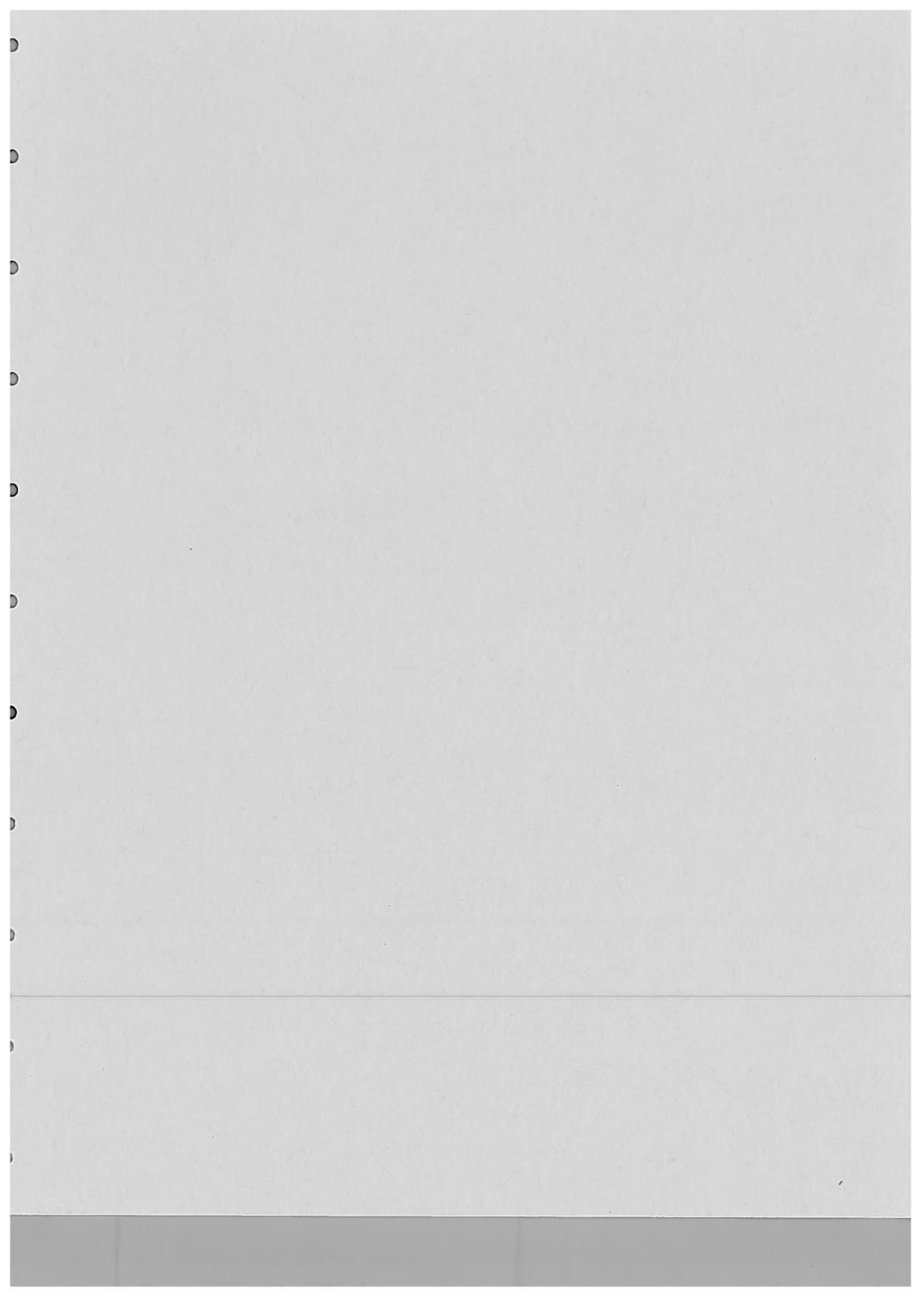
Several public service organizations have provided service from time-to-time, mainly to elderly and low-income clients and clients with special health problems. Most of these service providers have been oriented toward limited clientele, with specific, predetermined destinations. This type of service does not meet the general public's transit needs and has proven to be costly due to the limited ridership. In most cases, transit facilities have been provided by public service organizations to transport clients to central locations where special programs such as alcohol treatment, elderly nutrition and medical treatment, and special education are available. These programs have fallen victims to rising costs and diminishing budgets, and continued service may be questionable.

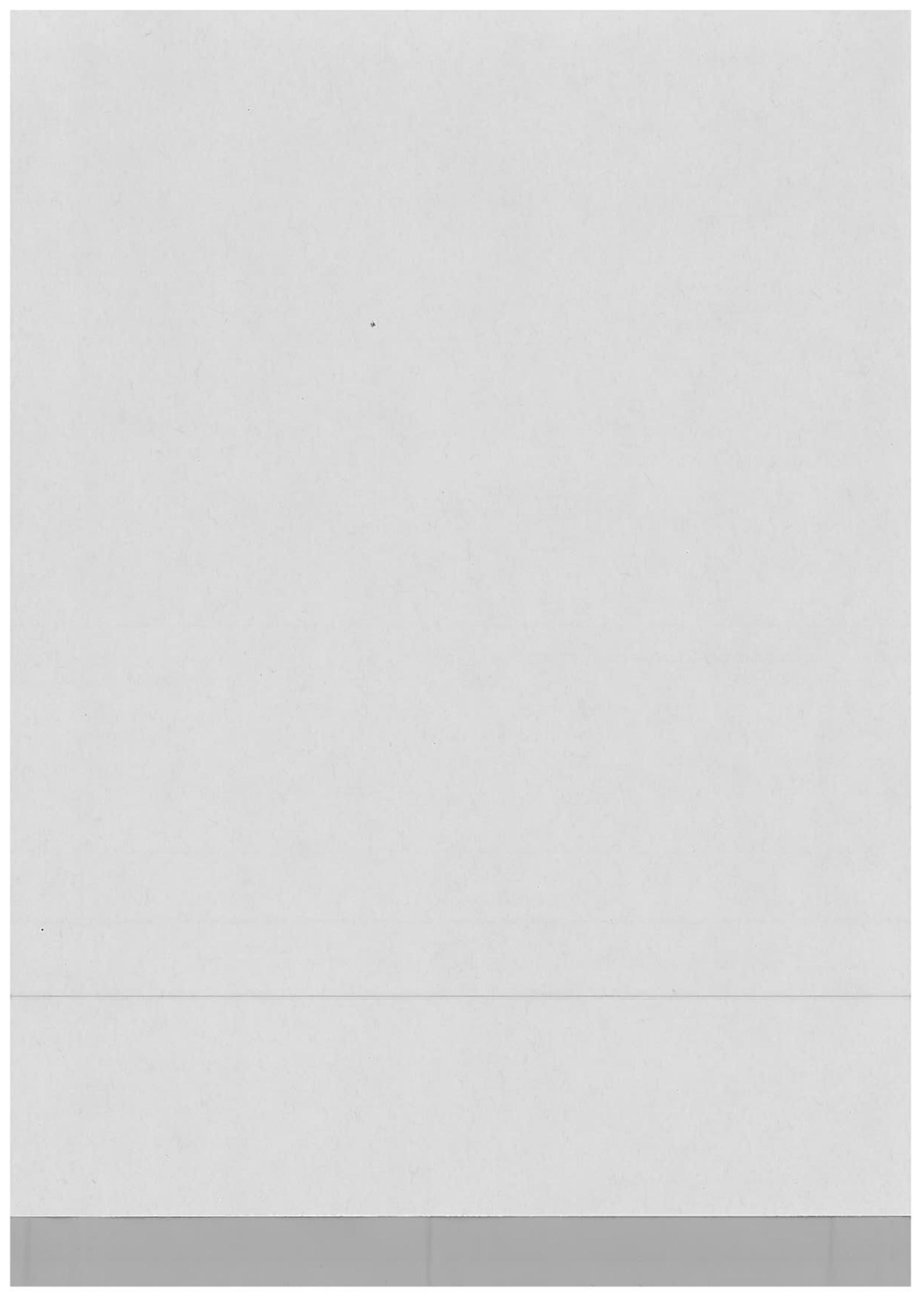
In 1980, the Sacramento Regional Area Planning Commission (SRAPC), now the Sacramento Area Council of Governments (SACOG), prepared a compilation of social service transportation providers. This document was prepared in response to State Assembly Bill 120, the "Social Service Transportation Improvement Act," which was adopted in 1979. The purpose of the act is to make more efficient use of social service agency resources through coordination and consolidation of their transportation services. In December 1981, at public hearing, the SACOG Board of Directors designated Sacramento County as the Consolidated Transportation Agency for one year. To date, there has been no consolidation of these transit services in the Delta.

Sacramento County has contracted with the City of Isleton for bus service along the Highway 160 River Road. This service, known as the Delta Area Rural Transit (DART), operates Monday through Friday between Isleton and Sacramento. The nine-passenger van makes two round trips per day, stopping in Ryde, Walnut Grove, Locke, Courtland, Hood, and Freeport. Fares are 50 cents each way in the Delta, and \$1.00 each way to Sacramento.

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CHAPTER NINE  
PUBLIC SERVICES AND FACILITIES

INTRODUCTION

Public services and facilities play a vital role in the emerging land use within the Delta community area and have a great effect upon the everyday lives of Delta residents. The Delta community area is one of the largest community areas in Sacramento County, yet it has a relatively small, dispersed population. In 1980, there were approximately 5,000 residents living in the 162-square mile Delta community area, with an overall density of about thirty persons per square mile. In contrast, the South Sacramento community area, which is more typical of Sacramento County communities, had a density of about 2,500 persons per square mile. The Delta also includes some of the most physically remote areas in the County when viewed from the Sacramento metropolitan area. The provision of public services and facilities is difficult at best under these circumstances; the declining revenue being collected by special districts and local government as a result of Proposition 13 compounds the problem as well.

The services and facilities to be addressed in this element are: police protection, fire protection, schools, community parks and recreation, domestic water, sewage disposal, storm drainage, solid waste disposal, electrical services, natural gas supply, and telephone service. The Community Development Block Grant program has identified target areas within the Delta where CDBG funds can be spent on certain capital improvements. The Sacramento Housing and Redevelopment Agency has also given attention to some of the Delta towns. As a result, improvements are being made to the infrastructure in selected areas. These capital improvement projects are noted as applicable within the discussion on individual services.

## POLICE PROTECTION

The Sacramento County Sheriff's Department has primary responsibility for police protection in the Delta, except for Isleton which has its own police department. The Sheriff's Department has recently reorganized its patrol beats in the County. Beat Number 27, which had previously covered most of the Delta, has been combined with Beats 25 and 26 to become District 7. This district is further divided into subdistricts which coincide with census tracts. The purpose of the reorganization is to provide more efficient police coverage of the County and to facilitate collection of statistical information for reporting purposes.

The Delta area is patrolled by one sheriff's unit, which is based in Sacramento City. This arrangement can create exceptionally long response times, especially if the patrol unit is in Sacramento City when a call is made. Rural residents have traditionally accepted a lesser level of service than do urban residents, but increasing recreational activity in the area and the easy access created by completion of the I-5 freeway have placed an extraordinary burden on law enforcement in the Delta. For example, the desirable standard for police coverage is one patrol officer/1000 population. In Sacramento County, the actual coverage is about 0.74 patrol officer/1000 population. In the Delta, however, the single patrol officer for the area serves a resident population of 4,800 persons, or the equivalent of 0.20 patrol officer/1000 population, covering a large geographical area.

The seasonal influx of recreationists compounds the law enforcement shortage. It is estimated that 11,900,000 recreation days were spent in the Delta region.\* Responses to random sample questionnaires indicate that 91% of the recreationists in the Delta region are visitors from outside the area, and about 37% of these visitors recreate in Sacramento County or adjoining waterways.\*\* In other words, approximately 4,006,730 recreation days were spent in the Sacramento County Delta area by visitors from outside the Delta region. If distributed evenly throughout the year, this recreation use would equal about 11,000 persons per day visiting in the Sacramento County Delta area in addition to the 4,800 residents. Realistically, recreation use is not evenly distributed throughout the year, and peak use days probably generate at least 20,000 to 30,000 persons.

Primary responsibility for law enforcement on the waterways in Sacramento County also falls within the Sheriff's Department, with occasional aid from the Coast Guard as needed and available. The Sheriff's Department operates two 27' patrol boats in the Delta, with two small aluminum boats available as needed. A third patrol boat is maintained upstream near Sacramento City. There are eight persons assigned to the Sheriff's water patrol detail. One of them is primarily responsible for equipment maintenance, and another is primarily responsible for administration of the unit. The other six operate the patrol boats on a rotating basis.

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\* Geidel, Marcia and Moore, Susan, Delta Recreation Concept Plan, Department of Water Resources, January 1981.

\*\* Delta Outdoor Recreation Survey, Department of Water Resources, March 1980.

## FIRE PROTECTION

Fire protection in the Delta community area is provided by six fire districts (Figure 9.1).

1. Courtland
2. Delta Fire
3. Elk Grove
4. Isleton
5. Sacramento City
6. Walnut Grove

Fire service in the Delta area is highly reliant on volunteers. Major services provided include fire suppression, medical aid, rescue and fire prevention. The largest number of calls, between 50 and 75 percent, are medical aid related. Due to the rural nature of the area, problems sometimes are related to access, response time, inadequate water supplies, and aging structures in the small towns. All districts, however, are party to a Countywide mutual aid agreement whereby districts will respond to calls outside their jurisdiction, when requested.

The districts, with the exception of Sacramento City, are independent and governed by an elected Board of Directors. Each district will be summarized below:

### Courtland Fire District

This district provides service within a 32-square mile area. Fire protection is dependent on the services of approximately 25 volunteers. There are two fire stations in the district, one located in Hood and the other in Courtland. The ISO rating for this district is 8-9.\* According to station volunteers, the major problem in the district is the increased demand for medical aid services. In terms of firefighting, however, water is often a problem due to the district's lack of a tanker and the lack of public supplies and hydrants in the area. Recently, Community Development Block Grant funds were utilized to purchase new equipment for the district, construct an addition to the Courtland Station and rehabilitate the Hood Station. The district is presently working towards acquiring a tanker with the use of additional Block Grant Funds. The 1980-81 budget for this district was \$44,621.

### Delta Fire District

The Delta Fire Protection District consists of a 30-square mile area. The district, however, is consolidated with the Rio Vista City Fire Department and

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\*The Insurance Services Offices use a system by which insurance companies compute fire insurance coverage and rates. The rating classes are numbered from 1 through 10, the highest number representing the least protection with the highest fire insurance premium rates. Some of the factors which are considered in establishing fire rating zones are water supply, building codes and structural conditions of buildings in the district, the distance of structures from the nearest fire station, type of equipment and number of firemen available at the station and factors such as distances between residences and local street access circulation.

-  COURTLAND
-  DELTA
-  ELK GROVE
-  ISLETON (Includes the city)
-  SACRAMENTO
-  WALNUT GROVE
-  NO FIRE PROTECTION
-  EXISTING FIRE STATION

 STUDY AREA

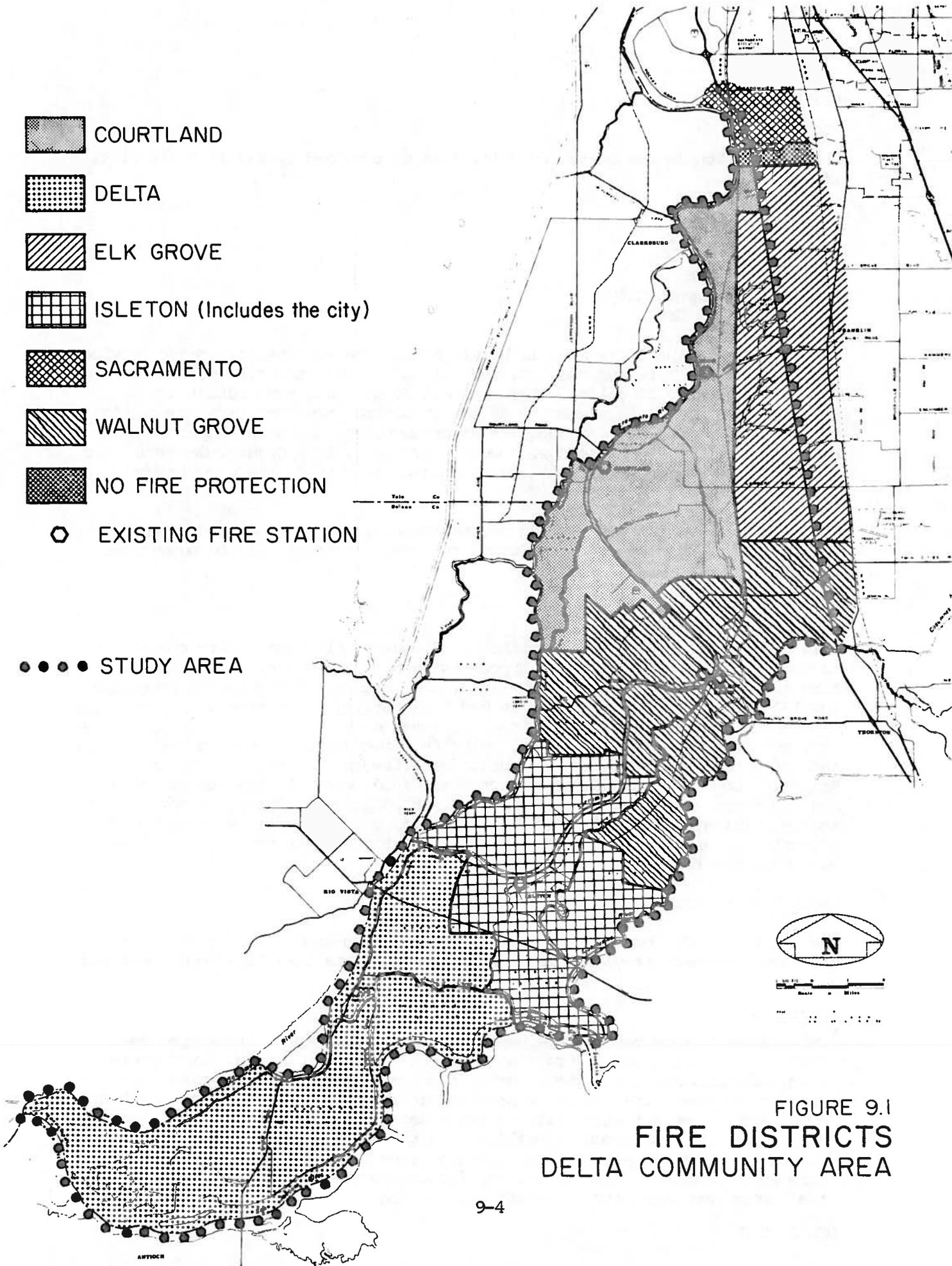


FIGURE 9.1  
FIRE DISTRICTS  
DELTA COMMUNITY AREA

the Montezuma Fire District, both of which are located in Solano County. There are two fire stations in the two-county area. The main station is located in Rio Vista and the secondary station is located at the Vieiras Resort in the Delta area. There are no plans for additional stations or station closures in the future.

Fire protection and service for the entire area is provided by 55 volunteers. There are three full-time paid staff members. Funding for salaries, operation and maintenance and equipment is provided on a percentage basis by the three individual districts. The 1980-81 budget for the Delta district was \$70,000. The ISO rating for the Delta portion of the district is 8.

#### Elk Grove Fire District

The Elk Grove Fire Protection District serves a 125-square mile area. Only the western portion of the district is within the Delta area.

There are three stations located within this district. Fire protection is provided by 65-70 volunteers and 11 full-time staff members. Since the implementation of Proposition 13, the district has lost 2 paid staff members.

The 1980-81 budget for the district was \$616,760. Future plans for the district include a new station in the Laguna area.

The Delta portion of this district is sparsely populated. The majority of calls in this area involve grass and cropland fires. The closest fire station to this area is the Franklin Station, which is volunteer operated.

Problems are sometimes related to access and distance factors. The ISO rating for this area is 9.

#### Isleton Fire District

The Isleton Fire Protection District serves the City of Isleton as well as a portion of unincorporated Sacramento County. The district encompasses a 27-square mile area. There are two fire stations located within the City of Isleton. The Fire Chief is the district's only paid staff member. Fire protection is dependent on the services of approximately 30 volunteers. The 1980-81 budget for this district was \$70,000.

There are about 37 fire hydrants within the city and four in the remainder of the district, but water pressure is sometimes marginal for fire protection needs. Water is also transported by tanker. Recently, a new fire truck was purchased for the district with the use of Community Development Block Grant funds. The ISO rating within the city is 7 while outside the city limits it is 8.

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#### Sacramento City Fire District

The town of Freeport is not within a specific fire district, however, the County has an agreement with the City of Sacramento to provide fire protection

service to the area. There are four city fire stations located within two miles of the Freeport area. Fire protection and services are primarily provided by full-time staff members.

#### Walnut Grove Fire District

The Walnut Grove Fire Protection District serves a 45-square mile area. Fire protection is dependent on the services of approximately 20 volunteers. There are two stations within the district, both of which are located in Walnut Grove. The 1980-81 budget for this district was \$57,057.

The major problems in the district are within the town of Locke. Locke's highly flammable wooden buildings are served by individual propane and butane gas tanks. The electrical wiring system is old and unprotected in numerous places. The old age and insufficient capacity of the water lines for fire fighting and the small number and age of the fire hydrants makes this system inadequate. The system can only provide one-tenth of the 2,000 gallons per minute considered necessary for such a densely built-up area. Added to this dangerous situation is the fact that the fire fighting trucks from nearby Walnut Grove will not go into the town because the streets are too narrow and congested and for fear of damage to the fire equipment if the town should have a serious fire.

The Sacramento Housing and Redevelopment Agency has spent Community Development Block Grant funds for health and safety repairs in Locke in fire extinguishers and smoke detectors. Other improvements have included fireproofing structures with fire retardant substances and replacing the propane and butane gas tanks with electrical systems.

Fire protection and related services have traditionally been financed by property tax revenues. Subsequent to the implementation of Proposition 13, fire district revenues have been uncertain. However, due to the primarily volunteer nature of the fire agencies serving the Delta area, expenses are rather minimal. The districts have indicated that, at this time, their firefighting equipment is adequate.

## SCHOOLS

The following three unified school districts serve the residents of the Delta community planning area:

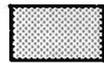
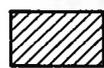
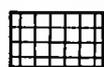
1. River Delta
2. Elk Grove
3. Sacramento City

As indicated on Figure 9.2, the majority of the area is within the boundaries of the River Delta Unified School District. This district also serves portions of Solano and Yolo Counties. There are three elementary schools (K-8) located in the Sacramento County portion of the district. Students from the Hood and Courtland areas attend Bates Elementary in Courtland; those from the vicinities of Locke and Walnut Grove attend Walnut Grove Elementary; and those from the Isleton area attend Isleton Elementary. There are no high schools in the Sacramento County portion of the district. Students from the Hood, Courtland, Locke and Walnut Grove areas attend Delta High School in Clarksburg (Yolo County) while those from the Isleton vicinity attend Rio Vista High School in Rio Vista (Solano County).

In recent years, the River Delta Unified District has experienced declining enrollments. District officials indicate that in 1968 there were approximately 3,000 students in the three-county area, while in 1982, there are only 1,950. As a result of the decline, some schools have been closed. In the Sacramento County portion of the district, one school, Jean Harvie Elementary in Walnut Grove, was closed about five years ago because the facility did not meet earthquake standards. Students formerly attending this school were absorbed by the Walnut Grove Elementary School. Further school closures, however, are not anticipated. District officials have indicated that although from a total student number standpoint school consolidation could occur, it would pose problems from a community identity perspective. Transportation would also become a problem due to the distance between the communities. The Elk Grove Unified School District also serves a portion of the Delta community planning area.

Students residing in the eastern portion of the Delta area attend Franklin Elementary, Kerr Junior High School and Elk Grove High School. These schools are presently impacted because the district has been receiving a large number of new students from new housing developments in the Elk Grove community. Further housing development is also planned in the Franklin-Laguna community and may have an affect on these schools. Little change, however, is expected in the eastern portion of the Delta which lies within the Elk Grove District.

The third school district within the Delta area is Sacramento City Unified. This district serves a very small area, which includes Freeport, in the northern portion of the Delta community. Students from this area attend Freeport Elementary, John Still Junior High and Luther Burbank High School. In the past few years, these schools have experienced declining enrollments.

-  SACRAMENTO UNIFIED
-  ELK GROVE UNIFIED
-  RIVER DELTA UNIFIED

●●●● STUDY AREA

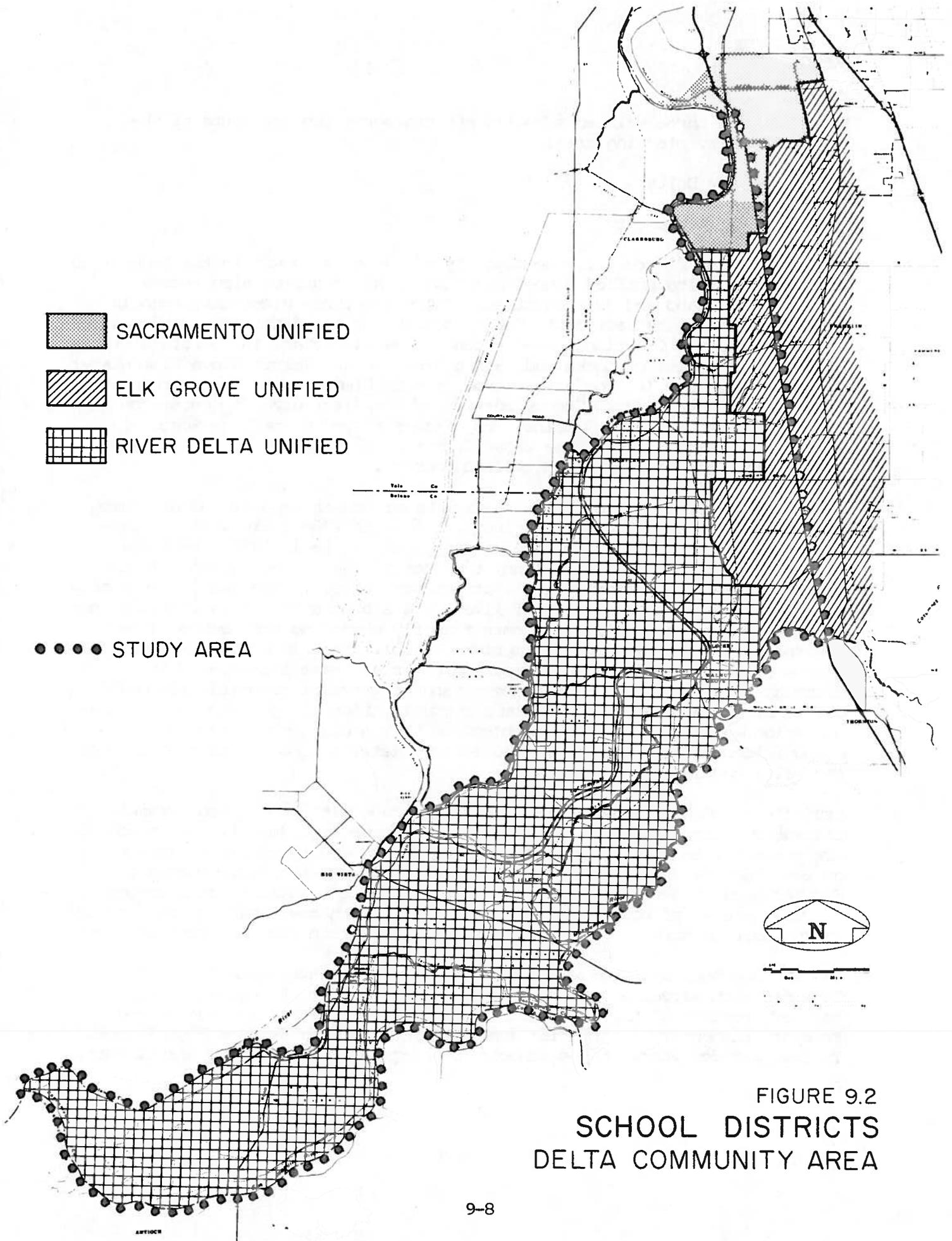


FIGURE 9.2  
SCHOOL DISTRICTS  
DELTA COMMUNITY AREA

## COMMUNITY PARKS AND RECREATION

This section addresses community level recreational facilities in the Delta community area. Noncommunity level facilities and recreational areas (primarily water-oriented activity areas) are included in the Recreation Element.

The Delta area is served by five park and recreation districts (Figure 9.3).

1. Elk Grove (Dependent district)
2. CSA 4B (Dependent district)
3. CSA 4C (Delta) (Dependent district)
4. City of Isleton (Independent district)
5. City of Sacramento (Independent district)

Park and recreation facilities provided by each district will be discussed below.

### Elk Grove Recreation and Park District

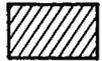
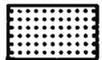
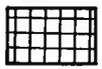
The Elk Grove Recreation and Park District serves an area of 130 square miles. Only a small area, at the western edge of the district, is within the Delta community area. Population in this portion of the district is sparse. There are no existing or planned community recreational facilities or programs in this area. The district owns a number of park sites east of the Delta area, however, only one is developed. The existing park is located in Elk Grove. Recreational programs are also provided in Elk Grove. As with other recreation and park districts, funding is a limitation. The 1980-81 budget for this district was \$360,739.

### CSA 4B

CSA 4B is, in effect, a "holding" district for extensive areas of rural land where local park and recreation programs are limited or nonexistent. This service area consists of 114 square miles and includes portions of land in the Cosumes, Delta and Vineyard community areas. The portions of the service area within the Delta are sparsely populated. There are no existing or planned community recreational facilities in the Delta portion of service area. There are some facilities in the other community areas within this district, however, overall funds are limited. The 1980-81 budget for this district was \$5,535.

### CSA 4C

CSA 4C was reactivated in 1975, at the request of local citizen groups, to provide park and recreation services to residents of the Delta area. A citizen's advisory council, appointed by the Board of Supervisors, presently oversees park and recreation programs and facilities in CSA 4C. The major portion of the Delta community, including the towns of Hood, Courtland, Locke and Walnut Grove are within the boundaries of this service area. The service area consists of 90 square miles. A summary of the park and recreation facilities in each community is provided below:

-  ELK GROVE
-  CSA 4B
-  CSA 4C (Delta)
-  CITY OF ISLETON
-  CITY OF SACRAMENTO

● ● ● ● STUDY AREA

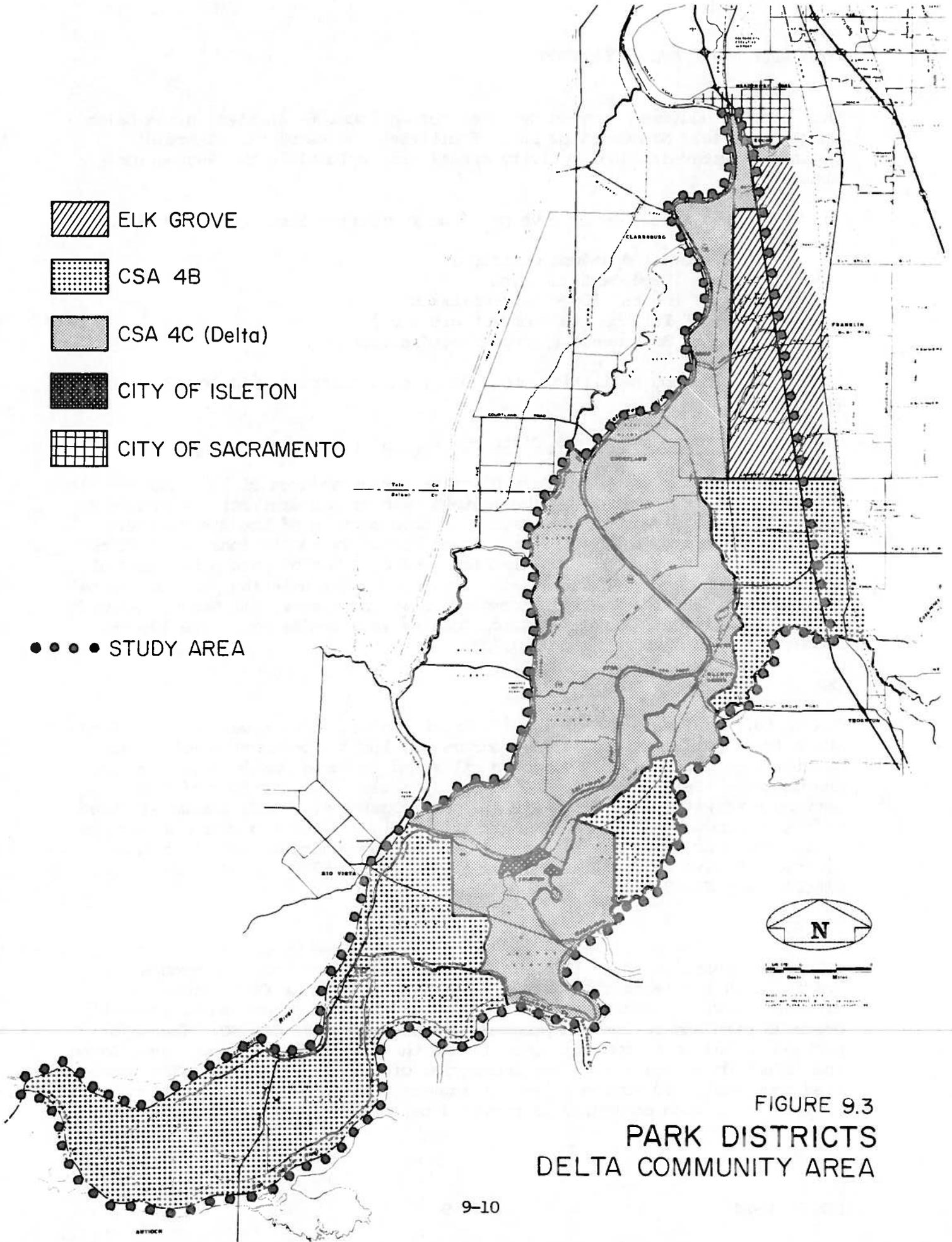


FIGURE 9.3  
 PARK DISTRICTS  
 DELTA COMMUNITY AREA

1. Courtland. There is one developed public park in the community, which consists of approximately 2.2 acres and is located adjacent to the Bates Elementary School. The park is a joint venture between CSA 4C and the River Delta School District. The school district owns and maintains the site. Community Development Block Grant monies have been used for development of this site, including picnic tables, tennis courts, soccer and softball fields and play equipment. There are no additional park facilities planned for this community.
2. Hood. At the present time, there are no public park and recreational facilities in this community. The nearest facilities are located four miles to the south in Courtland. Community Development Block Grant funds have been recently allocated for acquisition and development of a one- to two-acre neighborhood park in Hood. A park site, however, has not yet been chosen. Residents of Hood have formed a community park group for the purpose of overseeing the process.
3. Locke. There are no existing or planned recreational facilities in Locke. The closest facilities are in the adjacent town of Walnut Grove.
4. Walnut Grove. While not having a public park site per se, the community does have recreational facilities available at the Walnut Grove Elementary School. The school facilities include a playfield, combined tennis and basketball courts, ball fields and two gymnasiums. The County has been working with the River Delta Unified School District to upgrade these recreational facilities. Lights for the ball fields were recently installed through the joint use of Community Development Block Grant monies and County funds. Future improvements may include renovation of the existing tennis courts.

The former Jean Harvie Elementary School also serves as a social center for the community. A tennis court and basketball court are located on the site but are in need of repair. The site is presently under the ownership of the River Delta Unified School District.

The major problem faced by CSA 4C is the lack of funding for acquisition and development of park sites and programming. Funding levels for this service area were low prior to Proposition 13 and have continued to decline. The 1980-81 budget for this district was \$66,862. Recent park improvement projects have been funded, in part, by Community Development Block Grant monies.

The only recreational program presently offered through CSA 4C is the summer swimming program at Clarksburg High School in Yolo County. The park district provides transportation to the high school. Although a few other programs are offered through other community organizations, the County Park Department believes that needed recreation and park services can only be accomplished through a cooperative coordinated action program. The staff sees the existing local schools as key facilities because they are centrally located in each community and have the administrative and financial capabilities to maintain the facilities. Full utilization of these existing resources will enable CSA 4C to better serve the needs of the communities.

### City of Isleton

The City of Isleton is responsible for park and recreational facilities within the city limits. There are three parks in the city. The largest park is five acres in size and was developed in conjunction with a ball diamond. The next largest site is a one-acre grass play area with equipment. The third park is a play lot less than one acre in size.

### Sacramento City Park District

A very small portion of the Delta area, which includes the community of Freeport, is located within the City of Sacramento Park District. There are no existing or planned community park facilities in this area. The nearest parks are located approximately 1-1/2 miles to the north (Freeport Park) and about 2 miles to the northeast (Meadowview Park). Freeport Park consists of 3 acres and is developed in conjunction with the elementary school. Meadowview Park consists of about 5 acres. Both park sites include playgrounds and ball field. The city provides recreational programs at various locations.

## DOMESTIC WATER

In contrast to other parts of the County which are experiencing serious groundwater overdraft problems, the Delta relies on wells for potable water and experiences no detectable decline in the water table. Quite to the contrary, the water table is so high in some locations as to cause ponding in times of high water flow in the rivers and sloughs. It would seem surprising that Delta communities do not simply siphon and treat surface water for domestic needs, since rivers and sloughs are in such abundance, but studies have found that the cost of treating groundwater is so much less expensive that it offsets the additional costs of pumping the groundwater to the surface.

Domestic water in the Delta is provided by individual private wells, small private systems serving a limited number of residences, larger private systems which provide for the municipal needs of Delta towns, and public water systems which are administered by the County of Sacramento. The Community Development Block Grant Program has allocated money to improve the water systems in Hood, Locke and east Walnut Grove.

### Freeport

Freeport is served entirely by private wells on individual lots. Public water can be made available to abutting properties which are within the Sacramento City limits, but the city does not provide public water outside the city limits. Given the cost of providing a community system for Freeport, it is unlikely that such a system will be installed unless a major development occurs in the town, or the City of Sacramento extends its boundaries to include the town.

### Hood

Domestic water in Hood is provided by the County of Sacramento. The system was completed in 1981 and was financed through the help of Community Development Block Grant funds. The system includes a new well, pump, filtration system, and distribution lines. The system can be expanded to meet anticipated growth in the town.

### Courtland

Domestic water in Courtland is provided by three small mutual water districts: Courtland Enterprises (formerly Herzog), Courtland Boardwalk, and Lincoln Chan. County health officials indicate that the systems are under County health permit and meet health standards. It is not known what condition the systems are in, although there is no record of service complaints. The maximum flow rates are also unknown; a representative of the Courtland Fire District indicates that the flows are not adequate for fire protection, and the fire district must rely on water pumped from the Sacramento River to meet emergency needs.

There are no active plans to upgrade or consolidate these water systems.

## Locke

The domestic water supply in Locke is provided by a private system which was constructed approximately 60 years ago. Water quality is described as being good to excellent, with no apparent health standard violations. The system appears to function dependably but is inadequately designed for capacity and fire protection flows. The Community Development Block Grant Program has money allocated to upgrade the system, but organizational details for administering a new system have not been completed at the writing of the community plan.

## Walnut Grove

Domestic water for the west side of the river is provided by the Grove Water Company, a private water purveyor. This system appears to be functioning adequately.

Domestic water for the east side of the river is provided by several small private water purveyors whose systems are not interconnected. The quality of water from these systems varies. Although tests indicate that the wells meet primary drinking water standards (health standards), they contain contaminants such as manganese, hydrogen sulfide and methane which adversely affect taste and smell of the water and cause staining of clothes and fixtures.

The combined capacity of all the wells in east Walnut Grove is about 270 gallons per minute (gpm). The water mains are generally between 1-1/2 to 4 inches in diameter. The systems fall far short of the 1,200 to 1,400 gpm that are needed to provide fire protection as well as domestic needs for the town. A report published in 1981\* describes these systems and recommends improvements that could be made as part of the capital improvement program underway in the town. Ultimately, the existing system should be consolidated under the management of one entity.

## Isleton

The domestic water supply in Isleton is provided by the Citizens Utilities Company of California which operates two wells in the city. The system has adequate capacity for the existing needs of Isleton, but will need to be improved as new growth occurs. The system has occasional problems with underground leakage and aesthetics (taste, etc.) due to highly corrosive peat soil and varying quality of groundwater, but adherence to health standards is satisfactory. The Citizens Utilities Company also provides water to residences along Tyler Island Bridge Road.

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\* Domestic Water Study for Walnut Grove, CH<sub>2</sub> M Hill, Report to the County of Sacramento Department of Public Works, June 1981.

## SEWAGE DISPOSAL

Sewage disposal in the Delta is accomplished in a variety of ways, including private septic tanks on individual parcels, private treatment or disposal systems, and public sewage facilities. There are four public sewerage districts in the Delta, serving the towns of Hood, Courtland, Walnut Grove, and the City of Isleton; the sewer district for Hood is inoperative since money is not available for installation of the sewerage system. The town of Locke is served by a private system. Sewage disposal in the remainder of the Delta area, including Freeport and the Tyler Island Bridge Road area, is served by private, individual septic tanks.

Sewerage capacities play an important role in the future of the Delta towns. Any new development must be properly served by sewage disposal systems which meet County health standards. If a system is substandard, or has no excess capacity, growth in that town may not be able to occur. Since County policy directs that new growth take place within these towns rather than in detached locations, the condition of the sewerage facilities and all local infrastructure within the Delta towns has an effect upon the entire Delta area.

### Courtland Sewerage System

The town of Courtland has a relatively new public sewerage system, constructed in the late 1970's with the Clean Water Act grant money from the U.S. Environmental Protection Agency. The treatment facility is capable of processing 70,000 gallons per day, using a land disposal technique and percolation ponds. The system initially served a population of about 530 persons and has an estimated design capacity to serve about 700-800 persons. The district has about 200 connections at the writing of this community plan. There are no known deficiencies in the system at present, although the high groundwater table, especially near the river, could eventually prove troublesome.

### Walnut Grove Sewerage System

Walnut Grove is served by a public sewage treatment plant located east of the town on Walnut Grove Island, and has about 200 connections at the writing of this plan. Much of the collection system in east Walnut Grove is in private ownership and in need of repair or replacement. In October 1979, the County of Sacramento entered into a study of the sewerage system and identified deficiencies in the collection system and the treatment plant. The study found that many of the sewer lines were cracked or broken, allowing infiltration of groundwater during the winter months. East Walnut Grove had no formal drainage system, and much of the standing water from rainstorms drained into the system as well. Several buildings throughout the town had illegal connections to the sewerage system which added runoff from rain gutters and sump pumps to the already overtaxed system.

In total, the study found that wet weather flows through the system at times exceeded 400,000 gallons per day; the treatment plant is capable of properly processing a maximum of 180,000 gallons per day. As a result, the system pumps improperly treated sewage into Snodgrass Slough during the wet months of the year. During the dry months, the system can adequately treat the sewage that reaches the plant.

The County has begun a phased program for capital improvements in Walnut Grove, with coordinated effort of the Community Development Block Grant Program, the Highways and Bridges Division of Public Works, the Water Quality Division of Public Works, and the Water Resources Division of Public Works. Construction is anticipated to continue through 1985, and will result in improvement to the streets, drainage, sewage collection system, and possibly the water system. The combined effect of separating drainage from sewerage, and eliminating infiltration into the sewer pipes, will bring the system up to an acceptable standard. Once the work on the collection system has been completed, some minor improvements to the treatment plant will be made as well.

Average per capita sewage generation in the Sacramento area is about 100-120 gallons per day. This figure assumes an average mix of residential and nonresidential use. Assuming that the sewerage system in Walnut Grove can be made to function at optimum efficiency, it can treat 180,000 gallons per day and serve about 1,500 to 1,800 persons. Realistically speaking, this optimum efficiency may not be reached, especially if some minor leaks remain undetected in the collection system. It should be assumed that the per capita sewage generation in Walnut Grove will be about 135 gallons per day, giving a holding capacity for the sewerage system of about 1,330 persons being served.

#### Locke Sewerage System

In 1977, the Sacramento Housing and Redevelopment Agency published the technical supplement to "A Plan and Action Program for Locke, California" which identifies public and private services in Locke and proposes specific modifications where needed. Locke is presently served by a 60-year old, private collection system and septic tank. Discharge from the septic tank is pumped into three evaporative-percolation ponds, which have insufficient capacity for wet-weather use. The existing vitrified clay pipe collection system is in poor repair and should be replaced. Sewage generated by the residents and commercial establishments in Locke is estimated at about 9,000 gallons per day, but groundwater infiltration increases this amount to about 17,200 gallons per day. The system serves about 60 units and has a capacity of about 10,000 gallons per day.

The present system is inadequate for existing development in Locke, and cannot accommodate any new development. The Locke Action Plan Technical Supplement identifies two alternative methods of improving the system: Alternative 1 would be to construct new evaporation-percolation ponds, and Alternative 2 would be to integrate Locke into the Walnut Grove system with expansion of the Walnut Grove facility. At the time of writing this community plan, there are no active plans for upgrading the Locke sewerage system.

#### Hood Sewage Disposal

Sewage in Hood is treated by private, individual septic tanks and leach fields. Many of these systems are located on substandard sized parcels with high groundwater and have experienced failures on occasion. A survey conducted

by the Sacramento County Health Department in early 1978 found that 29 of the 58 inspected systems were functioning satisfactorily, 9 were marginal, 12 were inadequate, and 8 were failing, with a history of surface sewage. In effect, half the systems surveyed were substandard. A report published in June 1980 identifies the existing problems with sewage disposal and details several alternatives for providing an adequate sewerage system.\* Funds for installing a system are not available at the writing of this community plan, and the project is not on an active work program.

#### Freeport Sewage Disposal

The town of Freeport is served entirely by private septic systems on individual lots. Ironically, the outfall for the Sacramento Regional Wastewater Treatment Plant is located immediately south of Freeport. It is unlikely that any new public system will occur in the town unless new development generates the need for such a system.

#### Isleton City Sewerage System

Isleton's sewage treatment plant was built in 1976, replacing the old facility that was in use when the 1972 flood occurred. The processing of sewage at the plant is limited to primary treatment, and there is no discharge of effluent from the facility. Service from the Isleton facility is limited to the city limits except for the Oxbow Marina, which is located in the County and has connections to the Isleton plant.

In 1981, the Isleton facility served about 100 hook-ups in the Oxbow Marina, and 300 hook-ups in the City of Isleton; the population during that time was 923. The facility has a capacity of 1.2 million gallons per day and can serve a population of 3,400. The old treatment plant has been left intact and can be used to augment the new facility as needed.

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\*Draft Wastewater Management Project Report & EIR, Community of Hood, Phase II, Frederick R. McLaren, Environmental Engineering, Inc., Sacramento, Ca., June 1980.

## STORM DRAINAGE

Storm drain systems are virtually nonexistent in the Delta communities. In Locke and east Walnut Grove, storm runoff has been found to be infiltrating the sewerage systems through leaky or broken pipes, overtaxing the sewage treatment facilities during wet weather. Drainage in Freeport, Hood and Courtland occurs, for the most part, in roadside ditches or swales which are inadequate for winter flows. The Clampett Tract in west Walnut Grove has perhaps the best storm drainage facilities of the Delta towns, with curbs, gutters and sidewalks included on all public streets. In every town, surface runoff must find its way to an agricultural drainage canal to be pumped into the rivers and sloughs by local reclamation districts.

Public storm drainage improvements in Sacramento County are administered by the County Public Works Department. The Highways and Bridges Division is responsible for construction and maintenance of drainage facilities within public street rights-of-way, and the Metropolitan Storm Drain Maintenance District, administered by the Water Resources Division, is responsible for public storm drainage facilities not with the public streets. Freeport and Hood are the only two Delta towns within the Metropolitan Storm Drain Maintenance District; it is unlikely that the district will expand to include the other towns because the taxing restrictions placed upon the district by Proposition 13 make it financially unfeasible to provide service to new areas.

The Community Development Block Grant Program has money allocated for drainage improvements in Hood, Courtland, and east Walnut Grove. Capital improvements in Hood will include resurfacing local streets, improving roadside ditches and swales, and providing an adequate drainage channel to carry surface runoff to the reclamation district pumps. The estimated cost of these improvements is \$70,000, excluding improvement costs for Hood-Franklin Road.

Drainage improvements in Courtland are proposed to be installed in three phases, with recommended completion in 1985. This system, as proposed, will be comprised of drop inlets and underground culverts which will carry surface runoff to a reclamation district drainage canal east of the town. The total cost of the capital improvements, including street work, is estimated to be \$280,000.

Capital improvements proposed for east Walnut Grove include public streets, sewerage and public water, as well as storm drainage. When completed, the system will direct surface runoff to a reclamation district drainage canal east of town. The project is recommended to be completed in 1985; the estimated cost for this total package of capital improvements is \$855,000.

Locke faces a more difficult drainage problem than the other towns because the town is lower than the existing drainage channel. Any drainage system must include a pump to raise the surface runoff in the town to the elevation of the existing channel before it can be pumped into the adjoining waterway. The Technical Supplement to the Locke Plan includes a preliminary drainage system alignment, but no formal engineering has been completed at the writing of the community plan, and no money is allocated to the project.

## SOLID WASTE DISPOSAL

Solid waste disposal in the Delta is provided by the Camarillo Sanitation Service which serves the area west of Franklin Boulevard and south of the Sacramento City limits. The Camarillo Sanitation service has about 1,165 service accounts in the Delta, including 211 in the City of Isleton; it also provides service to about 35 accounts on the east side of the I-5 freeway in the County and to a few commercial accounts within the Sacramento City limits. Garbage collection in the town of Freeport is currently provided by Sacramento County, but negotiations are under way to turn those accounts over to Camarillo as well.

Garbage pickup is once a week, with more frequent service by special requests. Camarillo collects five days per week on a rotating basis, using one rolloff vehicle and two rear loaders. Two additional vehicles are maintained as standby. Approximately 4,000 tons per year of solid waste are collected in the Delta. Two thirds of this tonnage is deposited at the Grand Island Transfer Station, and the remainder is transported directly to the Sacramento County landfill on Grant Line Road. The Grand Island site had been used as a landfill until 1979, but was forced to cease because of operational difficulties. The transfer station, now on the site, is operated by the Camarillo Sanitation Service. Most of the solid waste is now eventually dumped at the County landfill which services the entire County, with the exception of Sacramento City. This site receives 390,000 tons per year, and has capacity to serve the County through the year 2005. In general, solid waste disposal service seems adequate to meet the needs of the Delta throughout the time frame of the community plan.

## ELECTRICITY AND NATURAL GAS

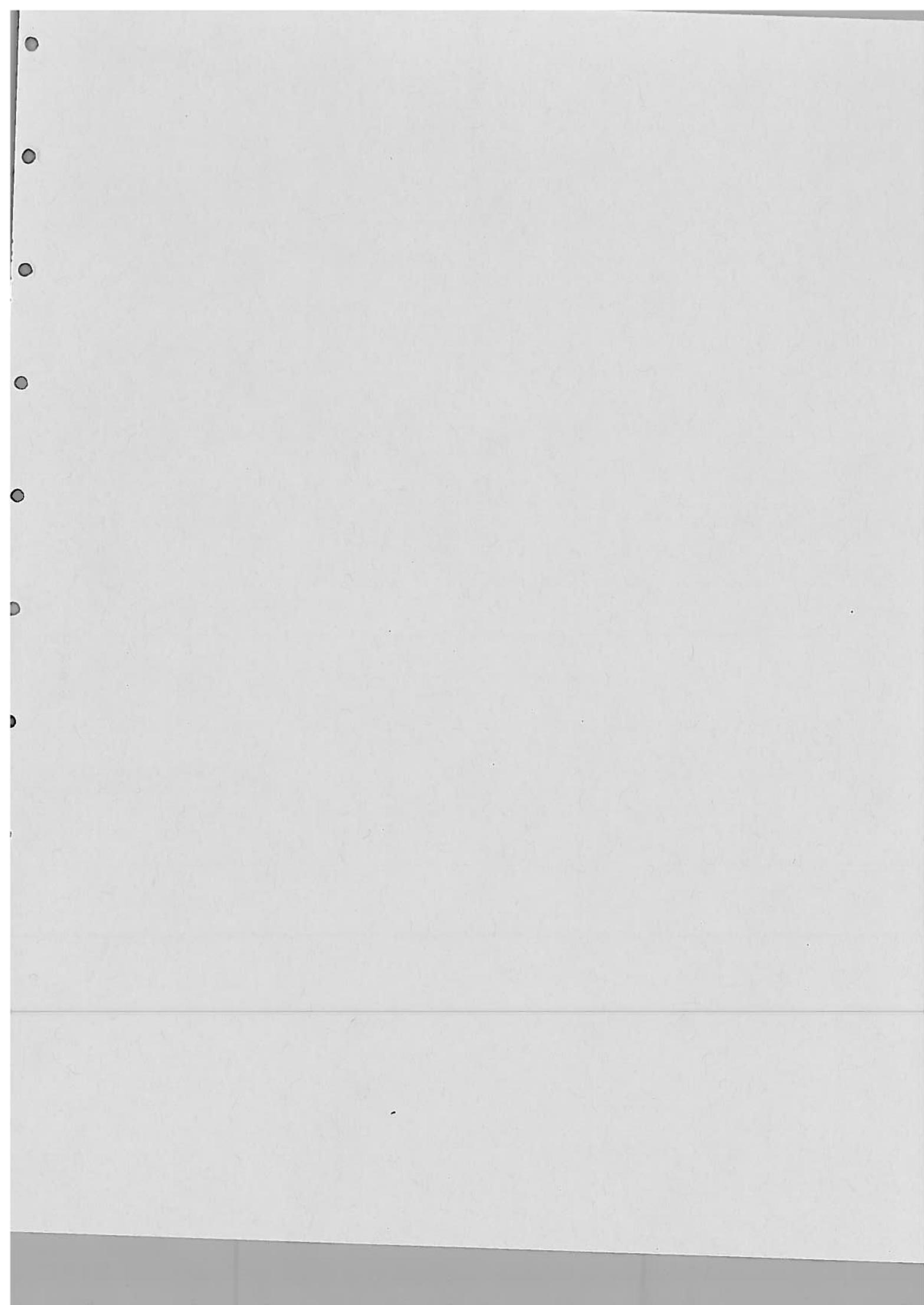
A portion of the Delta area is within the Sacramento Metropolitan Utility District. The remaining area is served by the Pacific Gas and Electric Company.

Pacific Gas and Electric Company provides natural gas to Isleton and Freeport, as well as to a few scattered farms that coincidentally are located near gas transmission lines. Hood, Courtland, Locke, Walnut Grove, and the remaining Delta area are served by on-site propane gas tanks which are serviced by several private gas providers.

## TELEPHONE SERVICE

The General Telephone Company provides telephone service to the Delta, with facilities at Isleton, Walnut Grove, and Courtland. The present system is comprised of transmission trunk lines with aboveground service lines. According to General Telephone officials, the system is approaching capacity and should be updated. Plans are underway to install a system of microwave transmission towers at Isleton, Walnut Grove and Courtland to augment the underground cable system and provide better long distance service.

General Telephone serves 3,500 customers in the Sacramento Delta, including Isleton and Clarksburg. All calls are routed through the facilities at Isleton or Walnut Grove, and are transmitted by way of cable trunk lines to Courtland, which is the central point for long distance telephone service. General Telephone has proposed microwave facilities to replace these trunk lines and make some of the long distance lines available for local service. If the system is installed, additional capacity can be added by increasing the capacities of the microwave tower facilities without the necessity of stringing new cable. At present, there are 262 trunks serving the Isleton and Walnut Grove areas; the ultimate capacity of the proposed microwave system would be equivalent to about 672 trunk lines.





CHAPTER TEN  
HISTORIC RESOURCES

INTRODUCTION

The Delta is an area rich in colorful history. It has emerged, from its beginnings as a tidal marsh, through periods of Spanish exploration and Mexican colonization, to see an era of riverboats and gold rush fever come and go. Ethnic culture and economics played a major role in the reclamation of islands and establishment of agricultural patterns, many of which persist today. Flood management and land development practices, which emerged beginning in the 1930's, have a profound affect upon present decisions being faced in the Delta. In one way or another, each of the river towns in the Delta is a living museum, reflecting times which are easily overlooked elsewhere in the County.

Water has been the common thread throughout the history of the Delta. In its prime, water-oriented commerce was the lifeblood of Delta activity. Boat building and marine engine manufacture were once thriving industries along the Sacramento River; tugboats and barges were common as late as the 1960's. Landing docks and piers once dotted the levees along the waterways. Today, most of those docks and piers are reduced to stumps of former pilings, or are nonexistent. Likewise, the tugs and barges are rare. Recreational boaters now account for most river traffic, but the effects of the historical water-oriented activities are indelibly a part of the modern-day Delta.

DELTA HISTORY

An excellent description of the history of the Delta is provided in the Delta Plan technical supplement, Delta Historic Resources, Delta Advisory Planning Council, May 1976. The following discussion summarizes that report.

"Delta history can be organized into the following periods, some of which overlap:

- . Natural tidal marsh - prehistory to 1851.
- . Spanish exploration - native American wars - 1772 to 1835.
- . Mexican colonization and French trapping - 1835 to 1848.
- . Gold rush, riverboats, and initial land reclamation by Chinese laborers - 1848 to 1880.
- . Extensive reclamation, agriculture, and later-day riverboats - 1850 to 1930.
- . Flood management and land development - 1930 to present.
- . Water use and development - 1951 to present."

The earliest evidence of man's existence in the Delta appeared in about 3000 B.C. These inhabitants appear to have been nomadic, migrating between the valley and the foothills.

Earliest recorded history of the Delta occurred with the first Spanish expeditions in 1772. Spanish exploration and colonization took their toll on the native American population, and by 1870, the native California Delta Indians were effectively eliminated as a result of battles and introduced disease.

The 1830's saw the advent of extensive fur trapping in the Delta and the beginning of Mexican occupation of California. By the mid 1840's, the beaver, muskrat, fresh water mink, and otter of the Delta had nearly become extinct, and the fur trade dwindled. John Augusta Sutter founded New Helvetia in 1839 at the confluence of the Sacramento and American Rivers, the beginning of what is now the City of Sacramento.

In 1848, James Marshall, working for John Sutter, discovered gold at Coloma. That same year, California was acquired by the United States, ending Mexican occupation. The California Gold Rush occurred in 1849, attracting thousands of gold seekers to the Delta/Mother Lode area. Between 1848 and 1850, the population of California jumped from about 13,000 to 100,000, mostly in the region between San Francisco and the Mother Lode.

California became the 31st state in 1850, and Sacramento became the State Capitol in 1854. By this time, steamboats were running the Sacramento River and other waterways of the Delta, and levee construction was beginning to occur. It is believed that the first levee was built in 1851 by George Kercheval at the confluence of Steamboat Slough and the Sacramento River. Chinese laborers who had been imported for work on the transcontinental railroad began working on Delta levees when the railroad was finished in 1869. By 1900, half of the Delta islands which exist today had been reclaimed by levees. While this reclamation was an obvious asset to agricultural productivity, it greatly reduced the water surface area so that the remaining waterways and unprotected land were subjected to much greater flows from winter floods. At the same time, erosion caused by hydraulic mining was depositing tremendous quantities of silt in the Delta waterways, raising the low water levels by as much as 7-1/2 feet and increasing the mineral content of the water.

By the time Congress had banned mining in 1909, several significant changes had occurred in the Delta. The 1.5 billion cubic yards of silt that had worked into the Delta had rendered many of the waterways unnavigable to river steamboats; the steamboat era declined. High water tables and increased mineral content of the water destroyed stone fruit orchards, which were replaced by Bartlett pears. These pear orchards are still in existence. The floods which resulted from this siltation created an awareness and concern for a coordinated flood protection entity.

In 1882, the federal government began its involvement in the Delta, and the first of a continuing list of studies was prepared by the U.S. Army Corps of Engineers. The Federal Flood Control Act of 1917 established federal involvement in flood control as well as navigation. In 1933, California voters approved the creation of the Central Valley Project, but when the state could not finance the project, federal funds were allocated, ultimately leading to the presence of the U.S. Bureau of Reclamation in California.

In 1957, construction was started on the Feather River and Sacramento-San Joaquin Delta Division Project. That same year, the Delta Protection Act was passed in response to concern over potential damage to the Delta as a result of the project.

In 1961, the joint state and federal Interagency Delta Committee was formed to study water extraction from the Delta. That committee first endorsed the Peripheral Canal concept in 1964. In 1971, the State Water Project was complete, with the exception of the Peripheral Canal. The controversy surrounding potential damage to the Delta as a result of the proposed Peripheral Canal created an issue of statewide concern. The project was placed on the June 1982 ballot for popular vote and was defeated.

#### SIGNIFICANT HISTORIC TOWNS AND PLACES (Figure 10.1)

The term "historic town" is redundant; all river towns in the Delta are historic, having been conceived at times when river travel carried far greater economic importance than it does today. Likewise, most notable "places" in the Delta carry historic value. The DAPC Delta Plan identifies the following historic towns in the Sacramento County Delta, some of which are no longer in existence:

##### COURTLAND

"Located on the east bank of the Sacramento River eight miles north of Walnut Grove and 18 airline miles south of Sacramento. A steamer landing was established here in 1870 by James V. Sims, an ex-miner who turned to farming and was one of the first to grow grapes commercially in California. The following year, a wharf was built. The California Pacific Railroad Company steamers made regular landings, and the town was a shipping port for the fruit growing areas. In December 1879, the Chinese section of town was burned to the ground. Another Chinese settlement named Elliott Village, which was built on stilts over the banks of the Sacramento River, burned in 1885. Another such fire occurred at an unknown date. Both Courtland and Locke played an important role in organizing American Chinese to respond to their motherland's political turmoils. Dr. Sun Yat-sen visited Courtland to raise money for his fight against the Communists. Chinese in the Delta raised substantial money for this cause, buying "ten or twenty airplanes" (Sacramento Bee, April 27, 1975) which were stored on a wharf below Hood prior to shipment. However, sabotage sent the warehouse and planes up in flames. The Wo Chong and Co. general store is especially notable today."

##### EMMATON

"Located on the north side of Sherman Island just across Horseshoe Bend from Decker Island and close to the main stream of the Sacramento River. It is six miles northeast of Antioch and nine miles northeast of Pittsburg. The name was given by an early landowner honoring his wife. Fifty years ago, Emmaton Landing was a town of three stores (one was operated by Chinese),

a blacksmith shop, post office, and a school house. It was a receiving point for drift gill net fish--salmon, shad and striped bass. In about 1920, it declined as a shipping port, and buildings were moved away for use elsewhere. The last reminder of the former town was an old warehouse where sugar beets were loaded into barges."

#### FREEPORT

"Located on the east bank of the Sacramento River eight airline miles south of Sacramento. In the gold rush days the town became an important shipping point to the mines when a dispute arose between the railroad and the City of Sacramento. This history is as follows--the Sacramento Valley Railroad was completed from Sacramento to Folsom--then the stage lines moved to Folsom to connect with this terminus--this was a fiscal loss for Sacramento, so the city levied a tax on all passengers and freight that came off the river to connect with the railroad--the railroad reacted by establishing a new non-taxed port down the river--hence, "free port." The new location also allowed boats to avoid a tight bend on the way to Sacramento. If the wind was wrong, those few miles could take up to a day. "A. J. Bumps" is the key landmark today."

#### HOOD

"Located on the east bank of the Sacramento River 15 airline miles south of the City of Sacramento. The town was named after William Hood, chief construction engineer for the Southern Pacific Railroad in the 1880's, who had hoped to connect the railroad with Suisun and Antioch (it never got beyond Isleton). He selected the townsite so farmers could bring in goods by ship, then onto the rails. The area was also selected because it was not flood prone and was free from County water regulations. The new town was accepted by the Board of Supervisors in 1909 but a depression halted its realization as a proposed 'new Netherlands'."

#### ISLETON

"Located on the north end of Andrus Island on the south bank of the Sacramento River six miles up river from Rio Vista. The town was established in 1874 by Josiah Pool. The island took its name from George Andrus who settled there in 1852. Prior to the flood of 1881, the town had a wharf, hotel, post office, two stores and a small plant which attempted to refine sugar from watermelons. By the 1920's, Isleton was known as "the Little Paris of the Delta." During the early 1900's, Isleton was known as the "Asparagus Capitol of the World." Canneries were located here to be near the fields and the river commerce. Improved roads reduced the value of this location and the cannery industry decreased. This, the depression, and increased mechanization in farming brought a population decline, down to the present 909. A serious flood in 1972 invaded about half of the city. Incorporated on May 20, 1923."

### LOCKE

"Located on the Sacramento River 1 mile north of Walnut Grove. In 1915, the Chinese quarter of Walnut Grove burned and the residents received permission from the Locke family to build a settlement where a few houses were already located near the orchards. The population grew to 1,500 with fish markets, dry goods stores, ten boarding houses, and the famous Star Theater. Locke is the only remaining Chinese settlement in the Delta and in fact is the only Chinese-built town in America."

### PAINTERSVILLE

"Founded in 1852 by Levi Painter. Located on the eastern bank of the Sacramento River several miles upstream from Steamboat Slough. The town grew to a store, river landing, hotel, and saloon. Painter is said to have founded the first "Post Hole Bank," storing his friends' money beneath his fence posts. After his death, the town disintegrated."

### RYDE

"Located on the west bank of the Sacramento River on property owned by W. A. Kesner. The town was named after a community on the Isle of Wright. By 1893, there was a store and hotel. Two asparagus canneries operated there for some years but are now gone. The present Ryde hotel was opened in 1926 and was a popular prohibition era spot. It was reopened in 1973."

### VORDEN

"Located about halfway between Courtland and Walnut Grove. In 1898, the settlement was known as Trask Landing. That year, Rio Limoni opened a tavern, and later a hotel and two grocery stores were added. A cannery for asparagus employed 200 Chinese. The Vorden Hotel served a seven-course Italian dinner for \$1.00. In time, the buildings fell down or were dismantled."

### WALNUT GROVE

"Located on the east bank of the Sacramento River 15 miles up river from Rio Vista and roughly 25 airline miles south of Sacramento. The town was founded in 1851 by John W. Sharp, who later operated the first ferry on the river. It soon was dominated by a large population of Chinese with their stores, rooming houses and gambling dens located on low ground behind the dike. In 1855 or 1857, a post office was established, making Walnut Grove one of the earliest small communities in the west to have a post office. By 1865, the town had evolved into a significant Central California shipping point, serving substantial river traffic. It is said the town was a hangout for river bandits that robbed steamboats in the back sloughs. A sawmill operated there from 1865 to 1875. When the Central

Pacific Railroad was completed (1869), hundreds of Chinese laborers were employed at building dikes by the shovel and wheelbarrow method. The modern business houses of Walnut Grove are built along the landward side of the dike road on a level with the top of the levee but the residences are on low ground. Chinatown burned in 1915 (leading to the construction of Locke). There are still several blocks of oriental stores. In 1912, Southern Pacific completed its Sacramento tracks to Walnut Grove. In 1913, the first cantilevered bridge west of the Mississippi was built across the Sacramento River at Walnut Grove. In the 1920's and 1930's, the value of this river depot decreased with the advent of the trucking industry."

The DAPC Delta Plan identifies the following historic places and structures in addition to the river towns:

"Beach family home, south of Freeport. May be County's oldest house.

Eddinger House (also known as Rosebud Ranch) on the River Road near Hood. Built by designer of Governor's Mansion.

Delta Meadows archeological site, native American village.

River Mansion on Steamboat Slough. The most elegant and stately old home in the Delta, reminiscent of southern mansions. Construction began in 1918. The four-storied home with 58 rooms cost half a million dollars. It is now a restored restaurant available for touring.

Steamboat Slough 'dolphin.' Was one of the first improvements by the state to aid navigation. Located at the Steamboat Slough beach, at juncture with the Sacramento River, this was a set of bound together pilings which allowed the long, deep-draft boats coming down river to nose into the cluster, drive the ship hard with the rudder over, and bring her around. Without this, the turn couldn't have been made. The pilings site should be indicated by a plaque."

#### NATIONAL REGISTER OF HISTORIC PLACES

The National Register of Historic Places, administered by the Heritage Conservation and Recreation Service of the United States Department of the Interior, is a recorded list of places of historical significance. A yearly notice is published in the federal register in order to apprise the public, as well as government agencies, associations and all other organizations and individuals interested in historic preservation of new properties added to the list. Those structures placed on the register may be eligible for federal funds to aid in the historical preservation.

- ① FREEPORT
- ② BEACH HOUSE
- ③ ROSEBUD RANCH
- ④ HOOD
- ⑤ COURTLAND
- ⑥ PAINTERSVILLE
- ⑦ STEAMBOAT DOLPHIN (site)
- ⑧ RIVER MANSION
- ⑨ VORDON (site)
- ⑩ DELTA MEADOWS INDIAN VILLAGE (site)
- ⑪ LOCKE
- ⑫ WALNUT GROVE & BRIDGE
- ⑬ RYDE HOTEL
- ⑭ ISLETON
- ⑮ EMMATON (site)

●●●● STUDY AREA

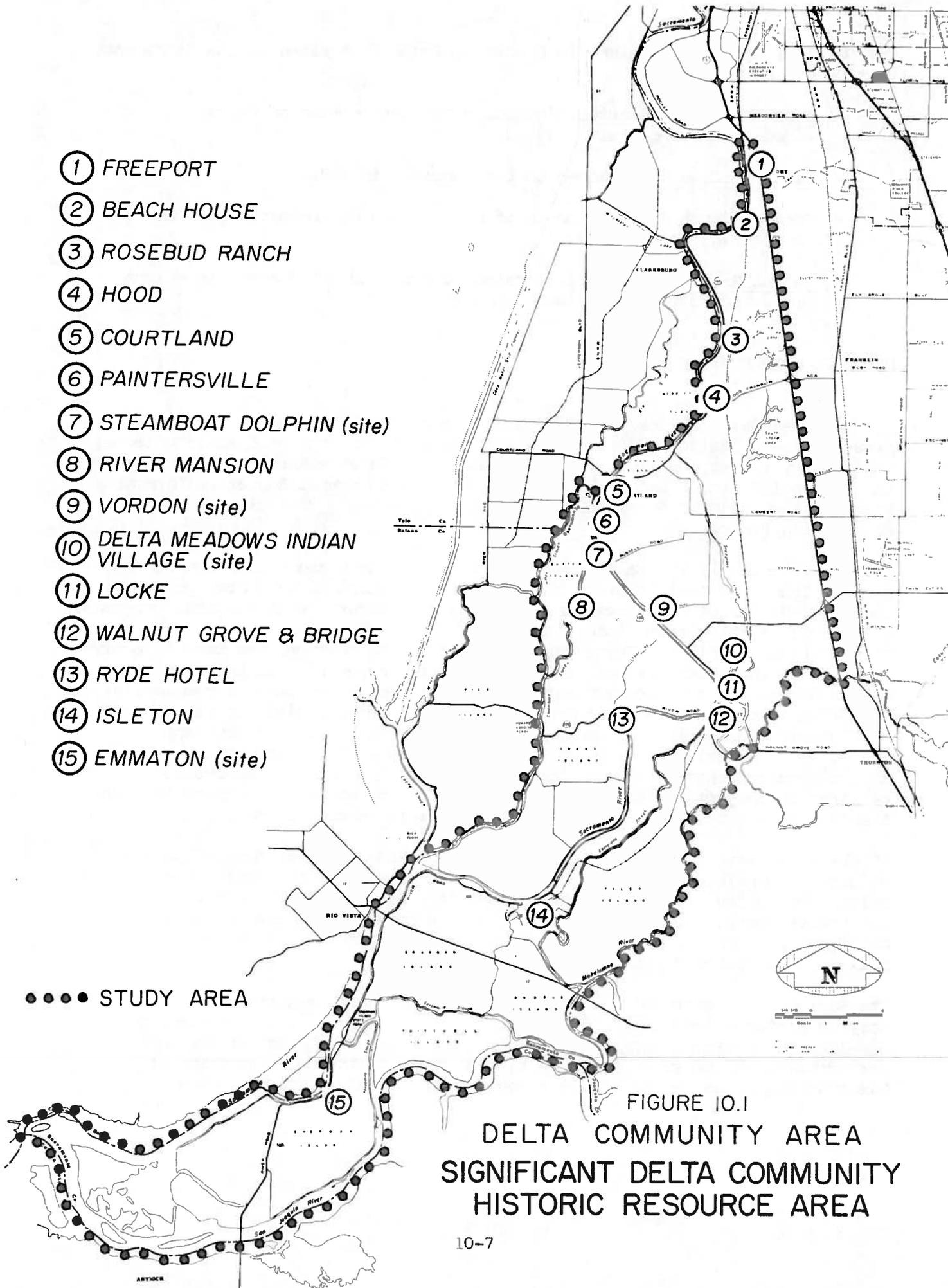


FIGURE 10.1  
 DELTA COMMUNITY AREA  
 SIGNIFICANT DELTA COMMUNITY  
 HISTORIC RESOURCE AREA

The National Register of Historic Places includes four sites in the Sacramento portion of the Delta:

- Locke Historic District; including the entire town of Locke, added to the register in 1971.
- Delta Meadows Site, added to the register in 1971.
- Rosebud Ranch, located north of Hood on the Sacramento River, added to the register in 1979.
- Walnut Grove Gakuen Hall, located at Pine and "C" Streets in Walnut Grove, added to the register in 1980.

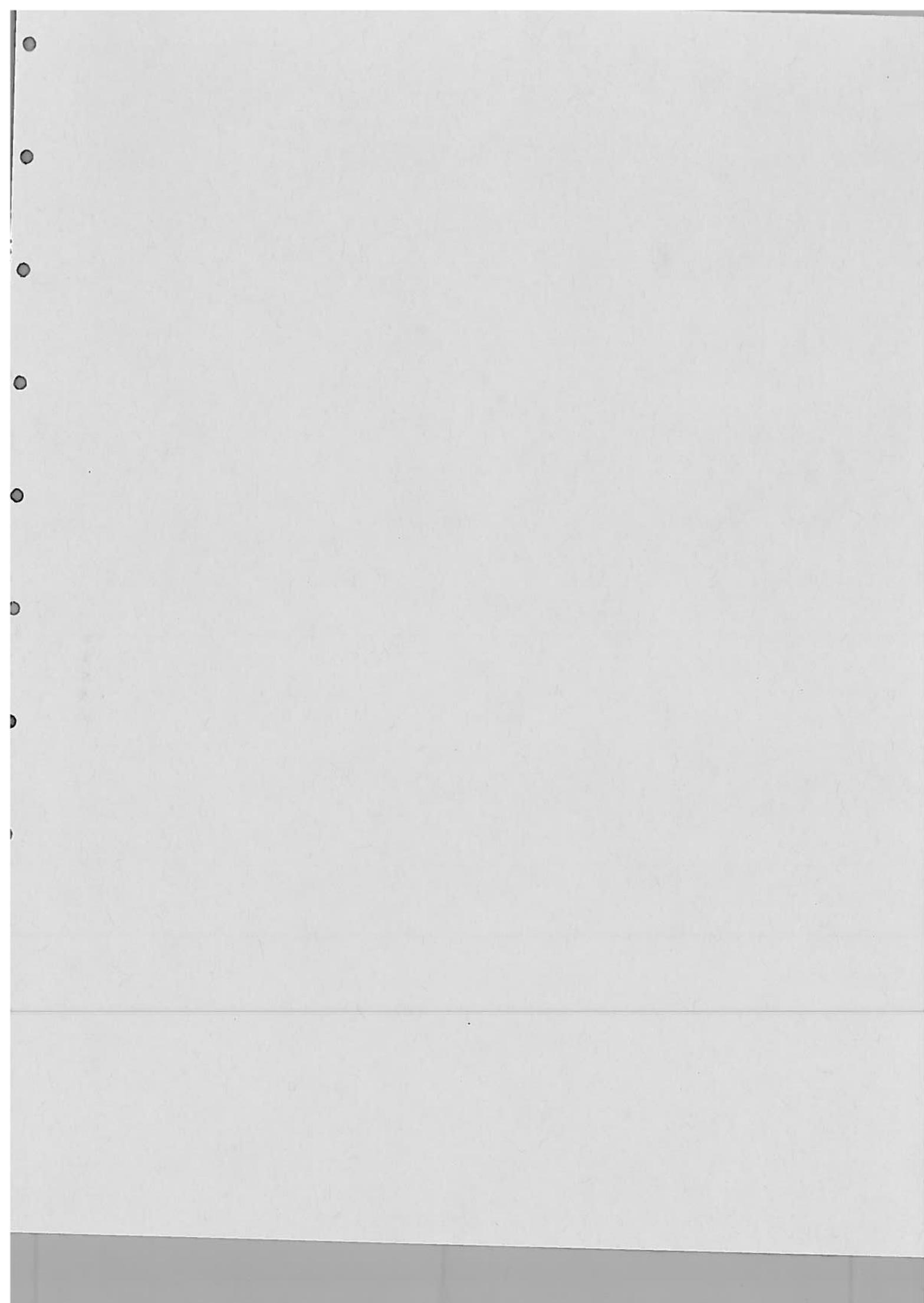
#### HISTORIC PRESERVATION

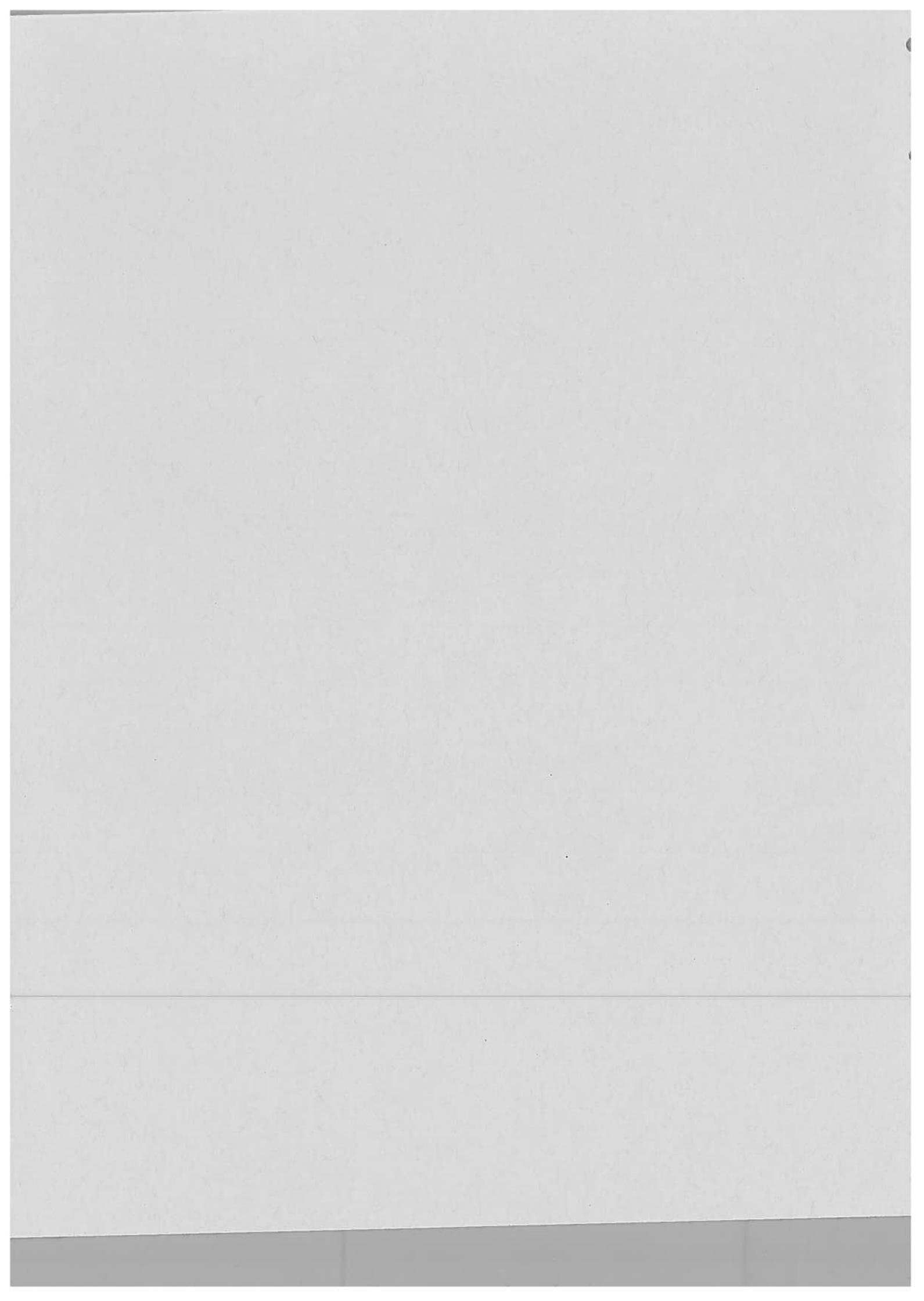
The National Park Service is the federal agency most responsible for historic preservation. Besides administering the National Register of Historic Places, this agency is responsible for the National Park Service Archeological Program, the National Historic Landmarks Program, the Environmental Education Landmarks Program, the Historic American Building Survey, and the Historic American Engineering Record.

At the state level, the California Department of Parks and Recreation has a similar function, administering the California Historical Landmarks programs, the State Points of Historical Interest program, several archeological programs, and the California State Historical Parks. The State Office of Historic Preservation, within the Department of Parks and Recreation, has been directly involved in the Delta area of Sacramento County, especially in Locke and Walnut Grove. This office administers historic preservation at three levels: first, it is responsible for identifying and documenting historic resources, both physical and cultural; second, it maintains historical records and provides historical overviews as needed for state projects and environmental impact reports; third, it provides assistance in the actual preservation/restoration projects. The most recent project with which this office has been involved is the restoration of the Gakuen Hall in Walnut Grove.

At the local level, the Sacramento Housing and Redevelopment Agency has had primary responsibility for historic preservation in the Sacramento County Delta. Using federal funds from the Community Development Block Grant program, the Redevelopment Agency has been involved in preservation and restoration of buildings in Locke, and a redevelopment plan for Walnut Grove which will also include some historical preservation.

The Sacramento Historical Center is a city/county body responsible for inventorying historic landmarks within Sacramento County and for administering and developing the City and County Historical Museum. This group is responsible for advising the Board of Supervisors and the City Council on matters of historic significance and has been monitoring activities in the Delta.





## CHAPTER ELEVEN MINERAL RESOURCES

### INTRODUCTION

The Sacramento Delta is rich in two types of mineral resources: highly productive alluvial soil, and natural gas and associated by-products. The prime soil is an obvious asset to the Delta, with agriculture being the major activity and land use. Perhaps less obvious to the casual observer is the natural gas industry. Nevertheless, the market value of natural gas extracted from the Delta is highly significant. In 1980, the estimated value of agricultural production in the Sacramento Delta was about 90 million dollars. During that same period, the estimated value of natural gas and associated by-products was nearly 45 million dollars.

### GEOLOGIC SETTING

The Delta region lies within a geologic province known as the Great Valley. This province roughly coincides with the California Central Valley, extending from Redding at the north end to Bakersfield at the south end. This area is described in a report of the Sacramento Environmental Management Task Force entitled "Sacramento County's Physical Environment:"

"The Great Valley province is a large structural basin which has become filled with sedimentary rocks ranging in age from early Cretaceous to Holocene. The older rocks have become uplifted and deformed to the west of the Valley, and now form the eastern part of the Coast Ranges. The Valley trough is assymetrical; the deepest part of the basin is near the western edge, west of the present axis. The Valley deposits thin eastward and overlap the crystalline basement complex rocks of the Sierra Nevada block.

A westward projection of the slope of the Sierra Nevada basement complex suggests that Cretaceous marine sediments may be more than 20,000 feet thick along the southwestern margin of the Valley. Here, beneath Sacramento County, the Cretaceous sediments are estimated to be at least 10,000 feet thick. Post-Cretaceous marine rocks, mostly Eocene in age, are about 3,000 feet thick. Post-Eocene sediments in the Valley are mostly non-marine and approximately 3,000 feet thick. All of the sediments of the Sacramento County portion of the Great Valley have a uniform westerly dip. Dips range from 300 feet per mile to as little as five (5) feet per mile . . .

The Delta islands are underlain by areas of peat and related organic sediments (i.e., muck), separated from one another by stream channel sands and silts. The islands are typically bowl-shaped, with the lowest elevations being near the center. The lowest elevations in Sacramento County occur in the Delta area. Andrus and Brannan Islands each have elevations of minus seventeen (-17) feet at their centers, even though the

water surface in the adjacent waterways fluctuates between minus three (-3) feet and plus five (+5) feet. The Delta sub-unit is arbitrarily fixed at the zero elevation contour which roughly coincides with the contact between organic and inorganic soils."

The report also explains the presence of marine sediments which now form the gas-producing formation in the Delta:

"Some 80 million years ago, when the Cretaceous Sea was at its maximum extent, all of Sacramento County was submerged. Enormous quantities of rock were eroded from the ancestral range by the Cretaceous Sea, and were deposited as thick marine sediments. Marine deposition continued during the Paleocene and into the Eocene epoch of early Tertiary time. The shore line at that time was relatively stable along a north-south line running through the eastern part of the County. A warm and humid climate developed, and a lush cover of broad-leaved vegetation formed on the hills east of the Eocene Sea. Seams of lignite, a brownish-black coal between peat and bituminous coal, and deeply weathered sediments of laterite, a red residual product of rock decay, attest to this tropical environment."\*

Table 11.1 identifies the gas-producing formations in the Delta, many of which were deposited during the Cretaceous Period. These marine deposits were then covered by deposits that had eroded from the Sierra Nevadas during their uplifting and formation. As the ocean receded and erosion of the Sierran Bank continued, the region was transformed from an ocean bottom to a lowland swamp. Lush vegetation combined with rich alluvial deposits to create the peat bogs which are responsible for the rich peat soil that is now characteristic of the Delta islands.

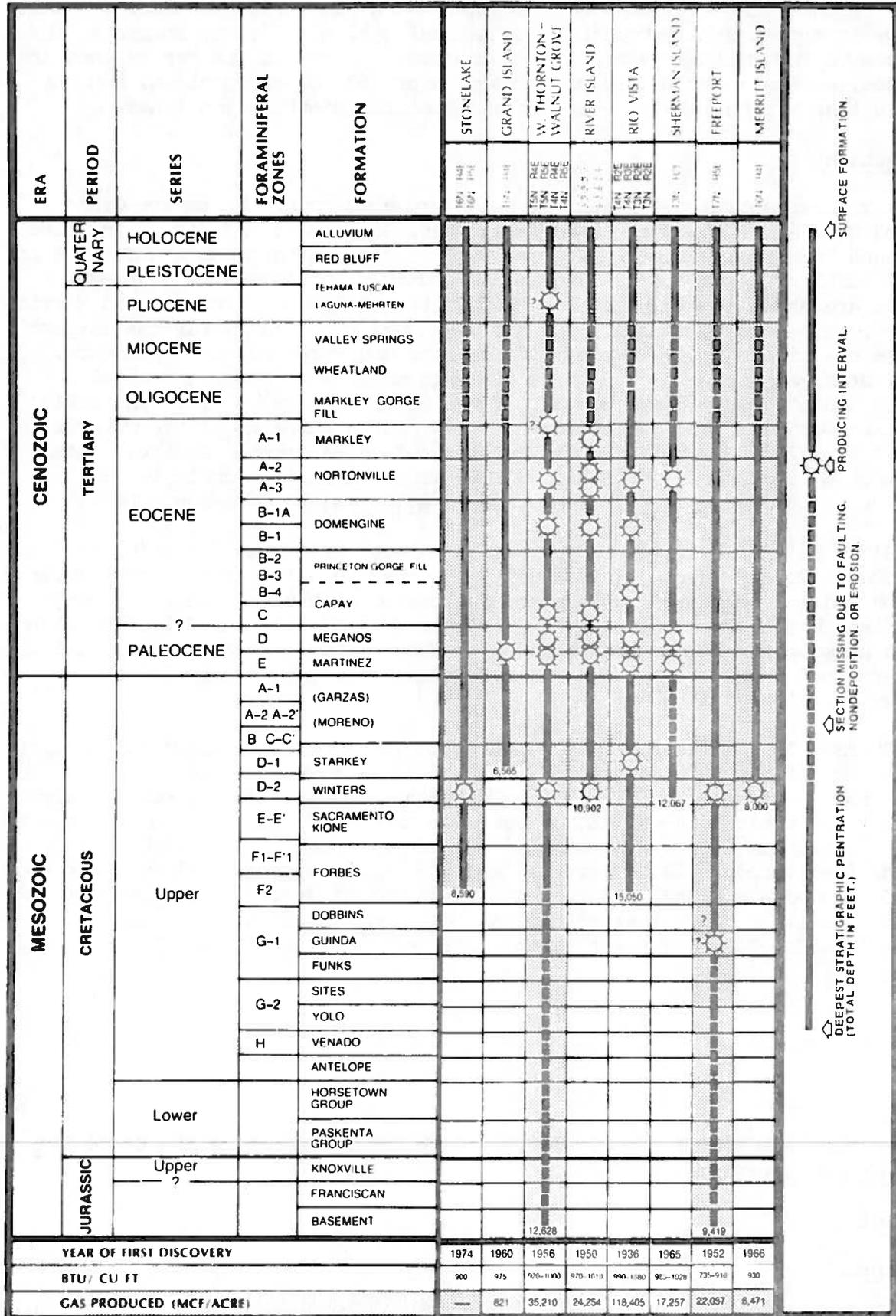
#### NATURAL GAS

There are six active natural gas fields in the Sacramento Delta area, ranging in size from the 180-acre Stone Lake Gas field to the 21,140-acre Rio Vista Gas field which is the most highly-productive field in the state, and includes 11,877 known acres in Sacramento County. Wells in the fields produce non-associated gas (dry gas), condensate (similar to kerosene), and water. No crude oil fields are known to exist in the Sacramento Delta.

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\* Sacramento County Environmental Management Task Force, Sacramento County Environmental Studies, Volume 2: Sacramento County's Physical Environment, December 1972.

# PENETRATION CHART GAS FIELDS OF THE SACRAMENTO COUNTY DELTA\*



\* EXCERPT FROM CHART PREPARED BY MARJORIE A. CHAN, 1977 (AFTER DIVISION OF MINES AND GEOLOGY, BULLETIN 181, PLATE 6, 1962), FOR CALIFORNIA DIVISION OF OIL AND GAS.

The gas pools in the Delta region are sandwiched between water-bearing substrata so that they are kept constantly under pressure as underground water replaces the extracted natural gas. As a result, comparatively little energy is expended in extracting the natural gas, since it is forced to the surface of the wells by subterranean pressure. Once the gas has reached the surface, excess water is removed through a process of dehydration, and the gas is then tapped into Pacific Gas and Electric distribution lines.

### Production

The six known active gas fields in the Sacramento County Delta are Grand Island Gas, Rio Vista Gas, River Island Gas, Sherman Island Gas, Stone Lake Gas, and Thornton, West-Walnut Grove Gas. These fields produce about 92% of the natural gas extracted in Sacramento County. The locations of these fields are shown on Figure 11.1. Two additional fields, Freeport and Merritt Island, have been abandoned. The Rio Vista Gas field is by far the largest of the six fields, both in terms of its size and its production per acre. It is also the most highly-productive field in the state, producing about twenty-two to twenty-three percent of the state's annual yield. The field was discovered in 1936 and included 21,140 proved acres as of December 31, 1980;\* 11,877 acres of this field are located in Sacramento County. Total production of gas from the field in 1980 was 34.1 billion cubic feet; 17.3 billion cubic feet were extracted from 73 wells in the Sacramento Delta.

The River Island Gas field is the second largest producing field in the Sacramento County Delta. The majority of this field is located under Tyler Island and Andrus Island, with portions located within San Joaquin County. The field had a proved acreage of 2,090 acres as of December 31, 1980, with 1,715 known acres in Sacramento County. This field was discovered in 1950, and produced about 1.4 billion cubic feet of natural gas in 1980 from 15 operating wells.\*\*

The Sherman Island Gas field, discovered in 1965, produced about 997 million cubic feet of natural gas in 1980 from three wells, with a proved acreage of 725 acres as of December 31, 1980. The Stone Lake Gas field produced about 151 million cubic feet of natural gas from one well; the field was discovered in 1974, and had a proved acreage of 180 acres in 1980. The Grand Island Gas field, discovered in 1960, produced about 85 million cubic feet from one well on 460 proved acres, and the Thornton, West-Walnut Grove Gas field produced about 36 million cubic feet of natural gas from two wells on 380 proved acres.\*\*\* See Table 11.2 for further 1980 production figures.

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\* California Division of Oil and Gas, 66th Annual Report of the State Oil and Gas Supervisor, 1980.

\*\* Ibid.

\*\*\* Ibid.

-  STONE LAKE GAS
-  GRAND ISLAND GAS
-  THORNTON-WALNUT GROVE GAS
-  RIVER ISLAND GAS
-  RIO VISTA GAS
-  SHERMAN ISLAND GAS
-  FREEPORT GAS (Abandoned)
-  MERRITT ISLAND GAS (Abandoned)

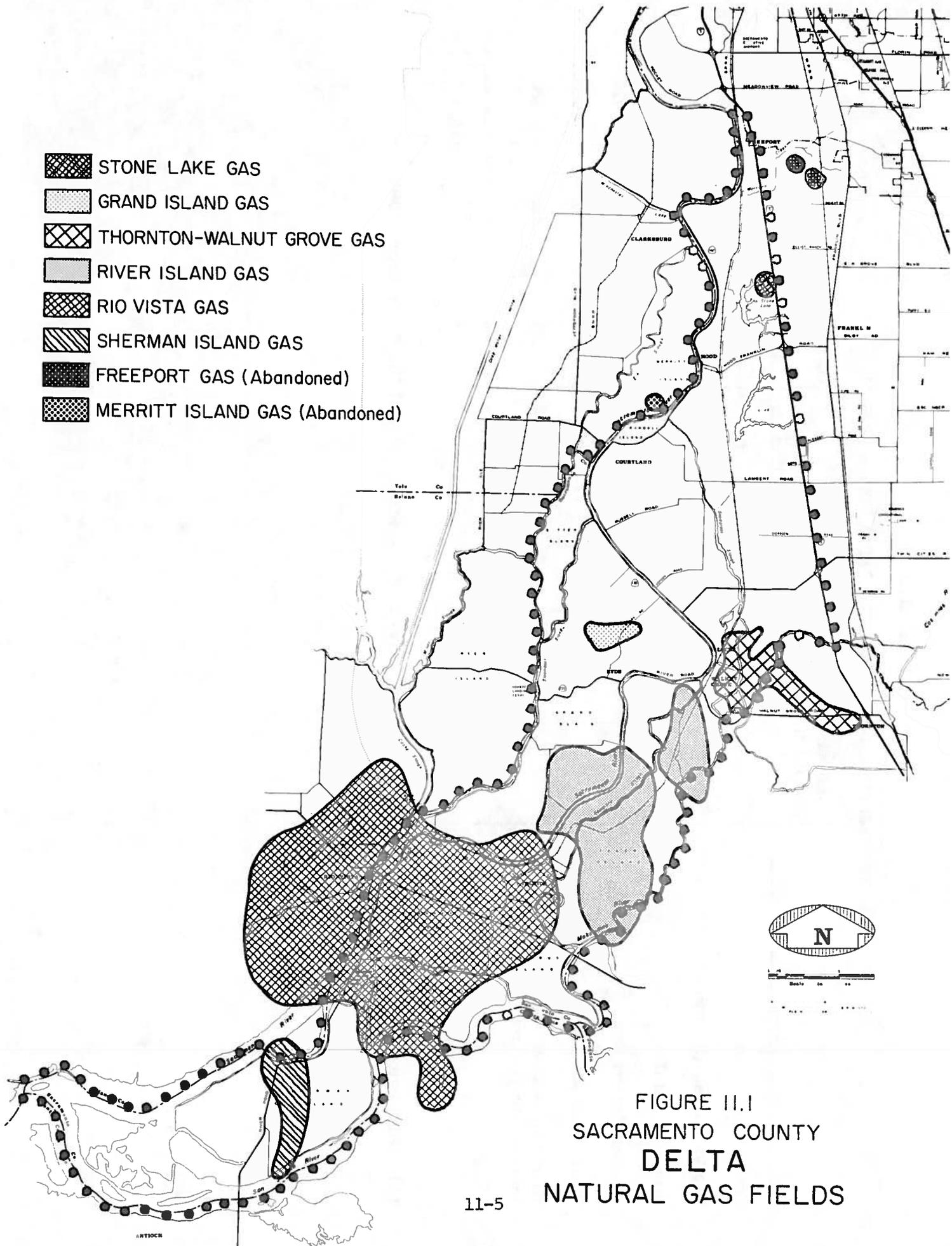


FIGURE II.1  
 SACRAMENTO COUNTY  
 DELTA  
 NATURAL GAS FIELDS

TABLE 11.2

## GAS AND CONDENSATE PRODUCTION AND RESERVES 1980 (1)

Field	Number Operating Wells	Condensate (bbl)	Cumulative Condensate (Mbb1)	Gas (Mcf)	Cumulative Gas (MMcf)	Estimated Gas Reserves (MMcf)	Proved Acreage
Grand Island Gas	1	0	Na	85,448	1,373	327	460
Rio Vista Gas (Sacramento Portion)	73	3,654	Na	17,256,070	Na	Na	11,877
River Island Gas	15	0	Na	1,417,486	Na	Na	1,715
Sherman Island Gas	3	1,564	98	497,018	31,031	6,616	725
Stone Lake Gas	1	0	Na	150,746	482	518	180
Thornton, West-Walnut Grove Gas (Sacramento Portion)	2	0	Na	38,856	Na	Na	380
	95	5,218		19,442,624			15,337

116

(1) California Division of Oil and Gas, 66th Annual Report of the State Oil and Gas Supervisor, 1980.

DEL 3 A-22

## Value

During the last half of 1980, the Pacific Gas & Electric Company, the major purchaser in the Delta, paid \$2.30 per thousand cubic feet for locally-produced, 1,000 Btu gas.\* Total natural gas production in the Sacramento County Delta was 19,442,624,000 cubic feet, for a total estimated value of \$44,718,035. The exact value is not known, since the rates paid by purchasers other than the Pacific Gas & Electric Company are not available. Production of condensate, a by-product of natural gas, was 5,218 barrels. The market value fluctuated between about \$27.00 and \$32.00 per barrel, but assuming an average price of \$30.00 per barrel, the total value of condensate production was \$156,540.

## Trends in Natural Gas Production

Some trends in natural gas production are apparent. Not surprisingly, the market value has continually climbed. In 1977, the average price paid by Pacific Gas & Electric Company was \$1.20 per thousand cubic feet; in 1978, it was \$1.78. The price dropped slightly in 1979 to \$1.74 per thousand cubic feet but was up to \$2.30 in 1980. The price paid for Canadian gas was \$3.77 per thousand cubic feet in 1979 and \$4.60 per thousand cubic feet in 1980. It can be assumed that the unit cost of natural gas will continue to rise.

The amount of natural gas produced in the Sacramento County Delta has been steadily increasing. In 1978, the production was about 18.3 billion cubic feet; in 1979, it rose to nearly 19.3 billion cubic feet; and in 1980, it was over 19.4 billion cubic feet. The number of operating wells during that time increased from 85 to 95. This increasing production, in combination with steadily-inflating market values, has led to a predictable increase in the overall value of natural gas production. In 1978, the total value of natural gas production in the Sacramento County Delta was 32.6 million dollars; in 1979, it was 33.5 million dollars; in 1980, it was 44.7 million dollars. This trend is expected to continue.

Production of condensate will probably continue to increase as well. In 1978, the production was 3,038 barrels; in 1980, 5,218 barrels. As a by-product of natural gas production, condensate production will tend to follow the trends in natural gas extraction, although the ratio of condensate-to-natural gas production varies from year-to-year. The market value of condensate has fluctuated greatly because of the instability of the oil market in general, so that it is difficult to predict the total value of condensate in a given year. At any rate, the production of condensate is of little significance when compared to the much larger natural gas production in the Delta.

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\* Ibid.

## SOIL

Delta soils, much of which are created from historic peat bogs, comprise some of the richest farmland in the County. Peat is actually not a soil at all by some definitions, but rather, an organic material from which future soils will develop. However, for the purposes of this report, the distinction is not necessary. Peat and muck soils exist within a wide range of climatic and vegetative conditions in the United States and are most predominantly found in the Atlantic and Gulf Coast marshes, southeastern Coastal Plain, New England, and Great Lakes states, the Pacific Northwest, and the Pacific Coastal Valley areas.\* These soils are fairly rare, covering only about one percent of the Earth's land surface.\*\* In Sacramento County, peats are usually found in the Basin Soils, a physiographic soil group which occupies about eight percent of the County land area.\*\*\*

### Physiographic Groups

The U.S. Department of Agriculture Soil Conservation Service identifies seven major soil association groups in Sacramento County, four of which are found in the Delta area. The following description of these major soil association groups is found in a document prepared by the Sacramento Environmental Management Task Force, entitled "Sacramento County Environmental Studies, Volume II: Sacramento County's Physical Environment," December 1972:

- "Group 1: These are areas dominated by poorly drained organic and mineral soils of the river deltas. They are located primarily in that portion of Sacramento County lying south of the town of Courtland and southwest of Walnut Grove.
- Group 2: These are areas dominated by deep, somewhat poorly drained soils of natural river levees and alluvial fans. These soil associations are generally found along the Sacramento River in the Delta and the southwestern end of the Cosumnes River and Dry Creek. Also, they can be found along the Sacramento River from the Pocket Area north to the Sutter County line.
- Group 3: These are areas dominated by poorly drained clay, and clay loam soils of basins and basin rims. Soils in this group are found next to those described in Group 2 along the western edge of the County, from Walnut Grove on the south, to the Sutter County line on the north, including most of the Natomas areas.

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\* U.S. Bureau of Wildlife, Circular 39 "Wetlands of the United States."

\*\* "Audobon" magazine, March 1975, page 129 = Quoted from the DAPC "Delta Action Plan," Vol. III, page 3-388.

\*\*\* Weir, Walter W., "Soils of Sacramento County." April 1950.

- Group 4: These are areas dominated by very deep, well drained soils of alluvial plains and low terraces. They are found on relatively level alluvial bottoms along the American and Cosumnes Rivers.
- Group 5: These are areas dominated by shallow to moderately deep, somewhat excessive to poorly drained soils of the terraces. Group 5 contains the type of soil associations that are most extensive in Sacramento County. These soils are located both north and south of the Cosumnes River, and in the area located between the western and the eastern edges of the County, as well as to the north of the American River, east of the Natomas area.
- Group 6: These are areas dominated by shallow to moderately deep soils formed in place on gently rolling to hilly uplands. Soils of this type are found in the northeast area of the County and along the Sacramento-El Dorado County line.
- Group 7: These [are] areas dominated by miscellaneous land types, consisting primarily of areas of gravels and cobbles that have been left after dredging and hydraulic mining operations. These associations occur mostly from Folsom south, and east to Mather Field."

Several more specific soil associations and groups can be found within the major soil groups. Table 11.3 describes these soil associations found in the Delta.

The locations of these soil association groups in the Delta are shown on Figure 11.2.

#### Soil Ratings

There are two commonly recognized systems for rating the agricultural potential of soils. The first is the Storie Index prepared by the University of California. This system assigns five ratings for agricultural soils based solely upon soil characteristics, with group one being the most advantageous soil and group five having the most constraints. An additional group, six, identifies nonagricultural land. The Storie Index considers four characteristics of soil: profile characteristics (i.e., density, porosity), texture and surface layer, slope, and other characteristics (i.e., poor drainage, salts, alkali). A numeric value is assigned to each of these characteristics, with a possible composite total of 100; soil with a score of less than 10 is considered unsuitable for farming (see Table 11.4).

TABLE 11.3  
TABLE OF SOIL CHARACTERISTICS AND QUALITIES\*

Map Symbol	Soil Name	Position	Profile (dry)			Natural Drainage	Subsoil Perm.	Runoff	Erosion Hazard	Effective Depth (inches)	A.W.C. (inches)	Inherent Fertility	Present Land Use
			Surface Layer	Subsoil	Substratum or Parent Material								
GROUP 1 - AREAS DOMINATED BY POORLY DRAINED ORGANIC AND MINERAL SOILS OF THE RIVER DELTAS													
Ry-af	Ryde-Station assoc.	River deltas	Gray silty clay loam, massive, hard, strongly acid	Stratified gray silty clay loam and black fibrous muck, strongly acid	Stratified mineral and organic soils	Very poor	Modern-ately rapid	Very slow	Moderate	40 (2)	7.5	High	Row crops
	Station	River deltas	Very dark gray to black muck, hard, medium acid	Black peaty muck, fibrous, medium acid	Black peaty muck, fibrous, medium acid	Very poor	Modern-ately rapid	Very slow	High wind	40 (2)	8	High	Row crops
GROUP 2 - AREAS DOMINATED BY DEEP, SOMEWHAT POORLY DRAINED, SOILS OF NATURAL RIVER LEVEES AND ALLUVIAL FANS													
Va	Valdez assoc.	Natural river levees and alluvial fans	Pale brown silt loam, massive, slightly hard, neutral	Pale brown, prominently mottled silt loam, platy, slightly hard, neutral	Stratified silt loam and fine sandy loams	Somewhat poor	Moderate	Slow	None	36-60 (2)	6-10	Moderate	Row and field crops
Vac.	Valdez assoc. over clay	Basins	Pale brown silty clay loam, massive, slightly hard, neutral	Light yellowish brown prominently mottled, silty clay loam, platy, slightly hard, neutral	Very dark gray silty clay, calcareous	Poor	Modern-ately slow	Very slow	None	60 (2)	8-10	Moderate	Row and field crops pasture
GROUP 3 - AREAS DOMINATED BY POORLY DRAINED CLAYS AND CLAY LOAM SOILS OF BASINS AND BASIN RIMS													
Glam	Glam	Basin and basin rims	Grayish brown loam, granular, hard, slightly acid	Grayish brown, prominently mottled sandy clay loam, massive, hard, moderately alkaline	Prominently mottled, somewhat indurated clay loams	Poor	Modern-ately slow	Very slow	None	40-48	5-7	Moderate	Row crops pasture
mj	Merritt assoc.	Basins	Dark gray silty clay loam, granular, hard, calcareous	Light brownish gray distinctly mottled silty clay loam, hard calcareous	Mottled olive gray silt loams and fine sandy loams	Poor	Moderate	Slow	None	36-60 (2)	6-10	High	Row and field crops
GROUP 5 - AREAS DOMINATED BY SHALLOW TO MODERATELY DEEP, SOMEWHAT EXCESSIVELY TO POORLY DRAINED SOILS OF THE TERRACES													
San Joaquin	San Joaquin-Alamo assoc.	Very gently sloping to undulating hummocky low terraces	Reddish brown loam, massive, hard, medium acid	Reddish brown clay, blocky, extremely hard, slightly acid	Reddish yellow iron-silica cemented hardpan	Moderately good	Very slow	Slow to ponded	None to slight	12-36	2-5	Low	Pasture urban
Alamo	Alamo	Basin-like or depressed terraces	Gray clay, coarse, blocky extremely hard, slightly acid	Gray mottled clay, blocky, extremely hard, mildly alkaline	Reddish brown hardpan underlain by weakly cemented sandy loam	Poor	Very slow	Ponded or very slow	None	24-36	4-6	Moderate	Pasture grain

(1) Total available water holding capacity within effective soil depth.  
(2) Effective depth, dependent on depth to water table.

\* Excerpt from table prepared by the U.S. Department of Agriculture, Soil Conservation Service, cooperating with the Florin Conservation District "Report and General Soil Map, Sacramento County," July 1967.

GROUP 1-AREA DOMINATED BY POORLY DRAINED ORGANIC AND MINERAL SOILS OF THE DELTAS

 Ryde-Staten association

 Ryde-Egbert association

GROUP 2-AREA DOMINATED BY DEEP, SOMEWHAT POORLY DRAINED, SOILS OF NATURAL RIVER LEVEES AND ALLUVIAL FANS

 Valdez association

 Valdez association over clay

GROUP 3-AREAS DOMINATED BY POORLY DRAINED CLAY AND CLAY LOAM SOILS OF BASINS AND BASIN RIMS

 Glann association

 Merritt association

GROUP 5-AREAS DOMINATED BY SHALLOW TO MODERATELY DEEP, SOMEWHAT EXCESSIVELY TO POORLY DRAINED, SOILS OF THE TERRACES.

 San Joaquin-Alamo association

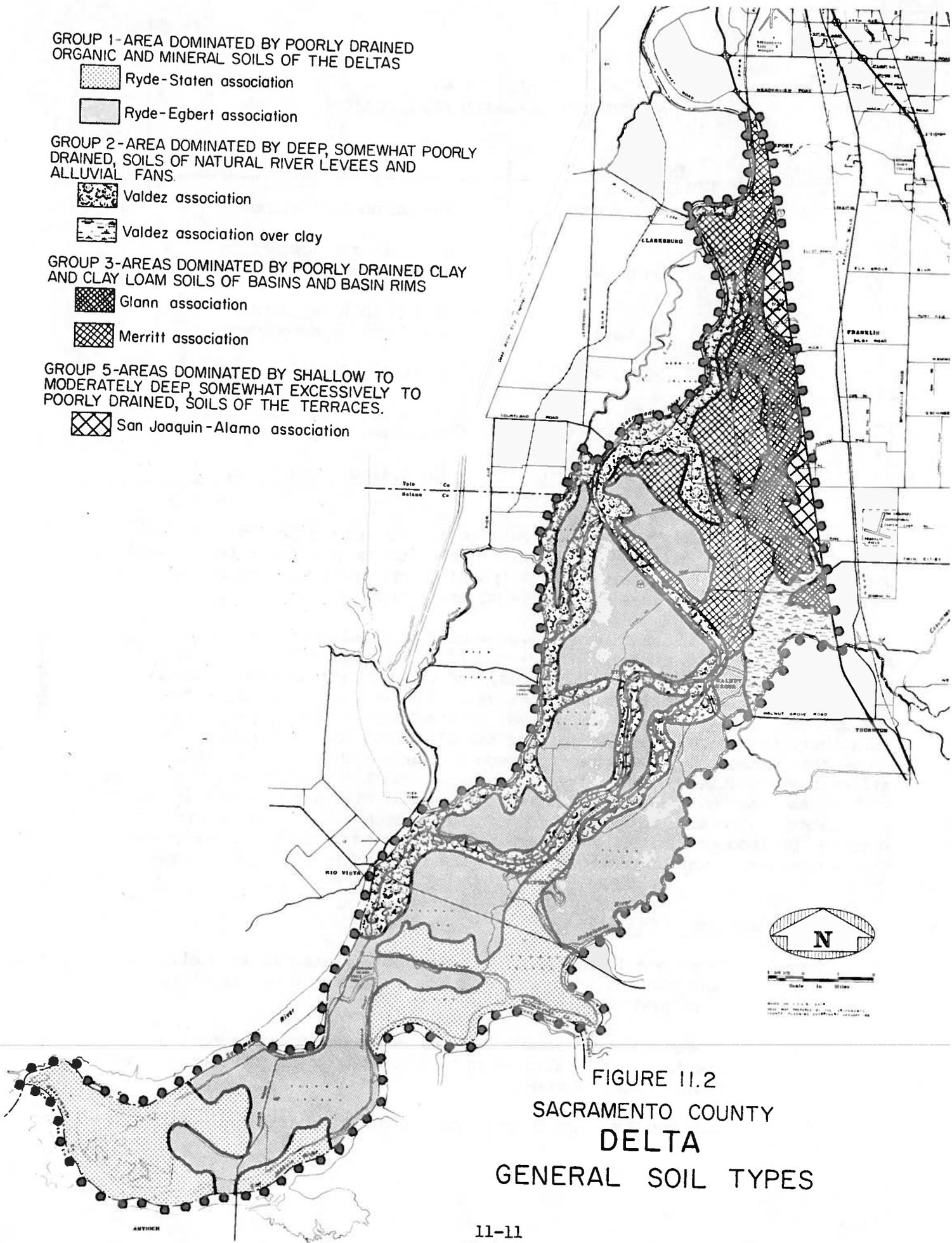


FIGURE 11.2  
SACRAMENTO COUNTY  
DELTA  
GENERAL SOIL TYPES

TABLE 11.4  
STORIE SOIL CLASSIFICATION SYSTEM

GRADE	INDEX RATING	DESCRIPTION
1	80 to 100	few or no limitations
2	60 to 80	suitable for most crops with few special needs
3	40 to 60	suited to a few crops with special management
4	20 to 40	severely limited to crops
5	10 to 20	not suited for crops but can serve as pasture
6	Less than 10	Not suited for farming

Figure 11.3 identifies Storie Index ratings for Sacramento County. Based upon this rating system, the majority of the Delta is in Grade 1 (excellent) with Grades 2 (good), 3 (fair), and 4 (poor) in the northern portion where peat soils give way to less productive mineral soils.

The Land Capability Classification system used by the U.S. Department of Agriculture Soil Conservation Service considers assumptions as to feasible soil improvements, management practices, and physical and economic factors, as well as permanent soil characteristics in rating soil suitability for agriculture. Thus, a soil with a given Storie Index rating may receive a relatively higher or lower Land Capability Classification rating if it is found that extenuating circumstances beyond those of the soil character affect the potential productivity of the land. This system has eight classes, with Class I having the fewest limitations. Lands with a classification of V or greater are considered unsuitable for cultivation. "Sacramento County's Physical Environment" gives the following description of these classes, and the generalized location of lands within these classifications in Sacramento County:

"Land Suited for Cultivation

Class I: Excellent land, flat, well drained. Suited to intensive agriculture, with no special precautions necessary other than good farming practice.

In Sacramento, these soils are primarily found along the American River, from Rancho Cordova, west to the Sacramento State College Campus.

All locally adapted crops can be grown on this type of soil.

-  **GRADE 1 - EXCELLENT**
-  **GRADE 2 - GOOD**
-  **GRADE 3 - FAIR**
-  **GRADE 4 - POOR**

"SOILS OF SACRAMENTO COUNTY" prepared by Walter Weir,  
University of California, Berkeley, College of Agriculture, April 1950.

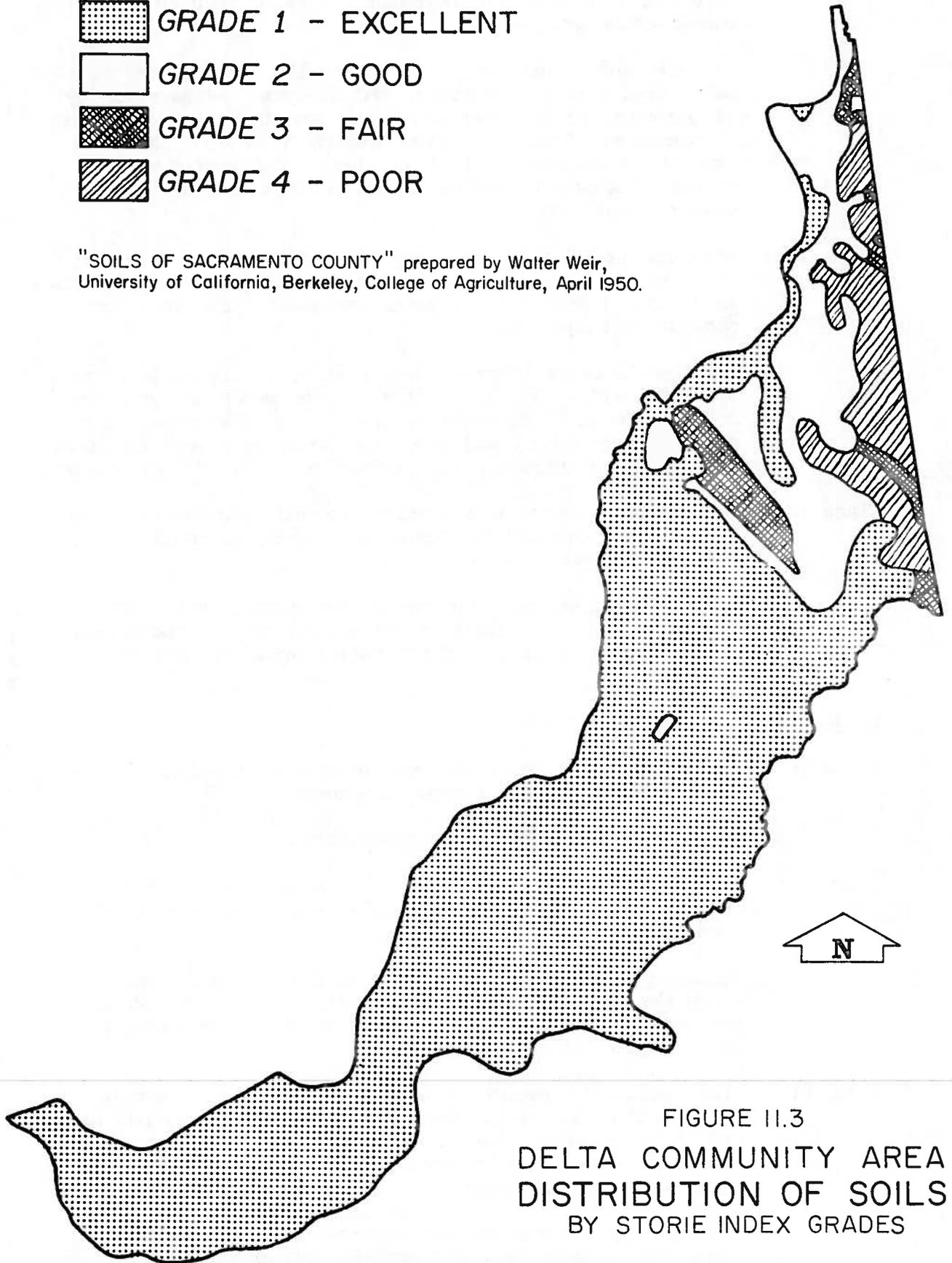


FIGURE II.3  
DELTA COMMUNITY AREA  
DISTRIBUTION OF SOILS  
BY STORIE INDEX GRADES

Class II: Good land, with minor limitations, such as, somewhat poor drainage, gravelly textures, or slightly dense subsurface layers that reduce the choice of plants or require some conservation practices.

In Sacramento, these soils are generally found in the Delta area next to the rivers and sloughs, in the vicinity of the mouth of the American River, and in that area north of Mather Air Force Base along Folsom Boulevard. Most crops are well adapted to this class. Soils with water tables or slowly permeable layers are not well adapted to deeper rooted crops.

Class III: Moderately good land, with important limitations caused by soil, topography, or poor drainage that requires restrictions in choice of plants and special management practices, cropping or drainage, etc.

These soils occur in relatively flat to gently hilly terrain. Soils classified as Class III are found essentially in the Delta, in most of the Natomas area, along the western edge of Sacramento County and along the Cosumnes River floodplain. Most of these soils are best suited for shallow rooted crops.

Class IV: Fair land with severe limitations caused by unfavorable soil, slopes that restrict the choice of plants, or require very careful management, or both.

Class IV land encompasses the largest area in the County. Generally, soils in Class IV are suited only to occasional or limited cultivation and are best adapted to pasture or hay crops.

#### Land Not Suited for Cultivation

Class V: Land suited to forestry or grazing without special precautions other than normal good management.

There is no Class V land in the County.

Class VI: Land suited to grazing with minor limitations caused by danger from erosion, shallow soils, etc. Requires careful management.

Soils in this class can be found in the Sierra foothills along the Sacramento-El Dorado County line. These soils are best suited to grazing because of their shallow depth and irregular topography.

Class VII: Land suited to grazing with major limitations caused by slope and soil. Soils are very shallow on gently rolling to hilly uplands. The annual vegetation dries up quickly due to the very shallow soil depth and production is only fair in favorable years.

Soils of this class are interspersed with those occurring in Class VI near the Sacramento-El Dorado County line.

-  CLASS II
-  CLASS III
-  CLASS IV

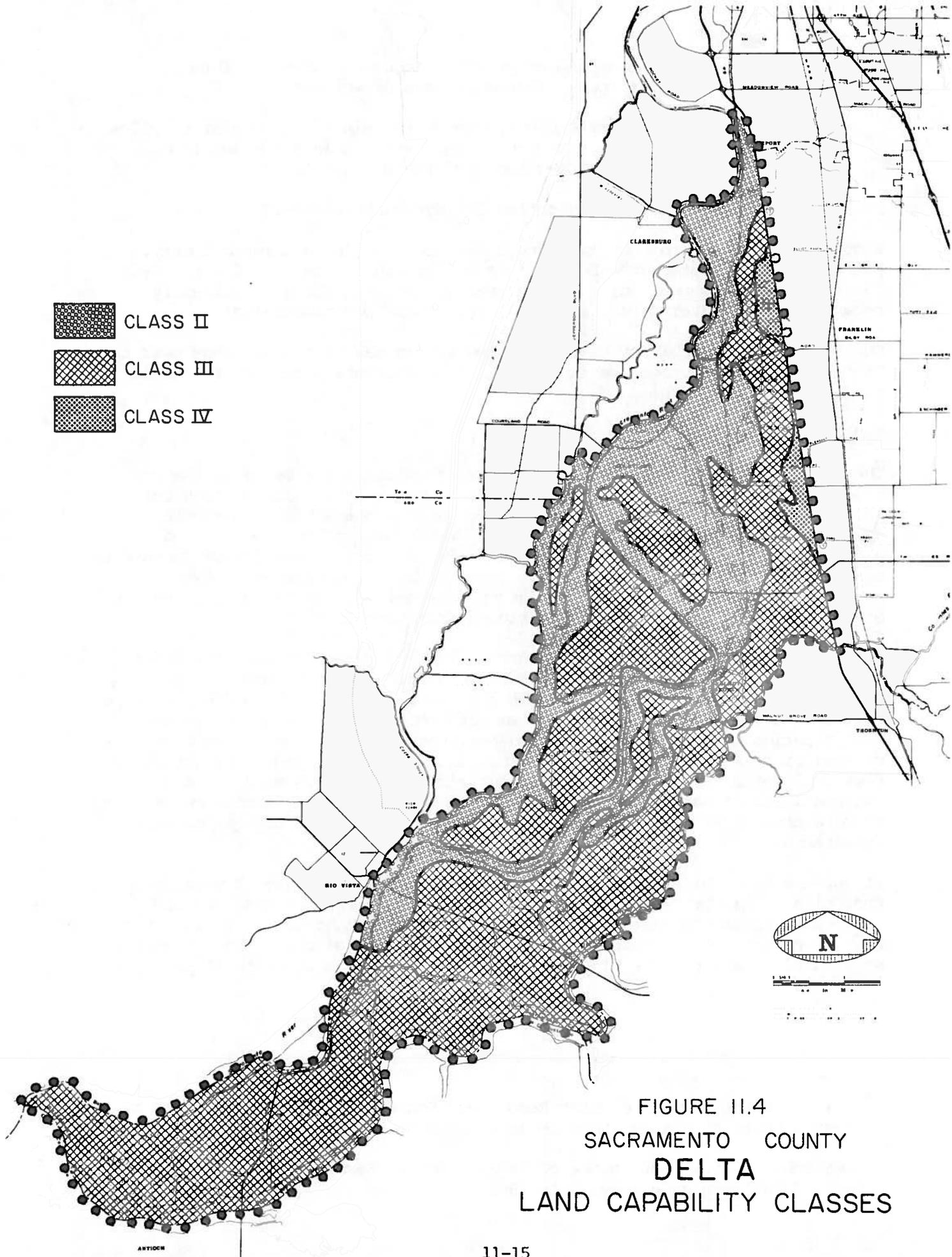


FIGURE 11.4  
 SACRAMENTO COUNTY  
 DELTA  
 LAND CAPABILITY CLASSES

Class VIII: Lands unsuited to grazing because of absence of soil, steep slopes, extreme dryness or wetness.

In Sacramento County, lands in this class consist of piles of cobbles and gravels that are debris resulting from hydraulic mining and dredging operations.

These are not suited for agricultural use."

Figure 11.4 shows Land Compatibility Classification in Sacramento County. Based upon this system, the Delta lands are within Classes II, III and IV. The highly-fertile peat soils of the area do not rate Class I, primarily because of high water table, salinity, and subsidence constraints.

The SCS Land Compatibility Classification system has gained in usage over the Storie Index system, because it tends to more accurately reflect the actual production value of the land.

### Erosion and Subsidence

The most significant problem associated with soils in the Delta is the continuing loss of peat land through oxidation, shrinkage, and wind erosion. Other potential causes include tectonic movement, compaction, anaerobic decomposition, consolidation from gas and water extraction, and burning, although studies to date do not conclusively attribute these latter factors to significant loss of soil elevation. The California Department of Water Resources has recently completed a study of subsidence in the Delta, and much of the following information is extracted from that study.\*

Subsidence of organic soils has occurred at a measurable rate in the Delta since the time the islands and tracts were originally reclaimed. It is estimated that this subsidence occurs at a rate of about 1.6 to 4.6 inches per year in the Sacramento Delta. This amount becomes significant when measured over a period of years. Tyler Island has subsided about twenty-one feet (6.4 meters) since it was reclaimed. Brannan Island has subsided about seventeen feet (5.2 meters); Sherman Island, about fifteen feet (4.6 meters); and Twitchell Island has dropped about ten feet (3.0 meters). Subsidence tends to be more pronounced near the centers of the islands, giving them a bowl-shaped appearance.

It appears that oxidation of the peat soil is the major cause of subsidence in the Delta. This process occurs when the organic soils are dried out and exposed to the atmosphere, resulting in aerobic decomposition. It is estimated that 50 percent of the subsidence is a result of oxidation.\*\* The problem is aggravated by agricultural tilling, which increases the exposure of peat soil to the air.

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\* California Department of Water Resources, Central District "Subsidence of Organic Soils in the Sacramento-San Joaquin Delta," 1980.

\*\* Newmarch, George, "Subsidence of Organic Soils, Sacramento-San Joaquin Delta," California Geology, July 1981.

The second major contributor to soil subsidence is shrinkage. It is estimated that about 30% of the subsidence of organic soils is attributable to shrinkage through water loss. The wind also plays a role in subsidence by transporting exposed soil (wind erosion), by accelerating shrinkage, and perhaps, to some extent, by accelerating oxidation. It is suspected that natural gas withdrawal affects subsidence as well, but its effect has not been quantified or substantiated. Other possible causes such as tectonic movement, compaction, and anaerobic decomposition have effects which have either been found to be negligible, or are undetermined.

Depletion times of the organic soils have been calculated for various islands, based upon estimated soil thickness and estimated depletion rates. Some islands within the Delta region are expected to be depleted in as little as fifteen years, and some are expected to last over 200 years at the present rate of subsidence.

TABLE 11.5  
DEPLETION TIMES OF ORGANIC SOILS (1)

Area	Estimated Maximum Thickness of Organic Soils		Estimated Subsidence Rate per Year		Estimated (2) Time Until Depletion (years)
	Meters	(feet)	cm	(inches)	
Andrus Island	16.2	(53)	4.1	(1.6)	> 200
Brannan Island	8.8	(29)	4.1	(1.6)	> 200
Grand Island	11.6	(38)	Insufficient data		--
Sherman Island	Insufficient data		7.6	(3.0)	--
Terminus Tract	Insufficient data		--	--	--
Twitchell Island	12.2	(40)	7.6	(3.0)	160
Tyler Island					
Northern Portion	9.8	(32)	4.1	(1.6)	> 200
Southern Portion	9.8	(32)	11.7	(4.6)	83

- (1) Newmarch, George, "Subsidence of Organic Soils, Sacramento-San Joaquin Delta," California Geology, July 1981, p. 137.
- (2) Assumes all subsidence is due to loss of organic soils. Estimates are theoretical. They are computed by dividing estimated maximum organic soil thickness by estimated subsidence rates. Actual depletion times may be considerably different, depending on such variables as earth movement, land leveling, soil importation, irrigation practices, and flooding.

The California Department of Water Resources suggests that the present rate of subsidence might be reduced by as much as 30% through implementation of certain measures. Maintenance of high groundwater levels could reduce oxidation by 40 to 75 percent and reduce soil shrinkage by 50 to 75 percent. This method would have the single greatest effect in slowing subsidence, but unfortunately, might also create other deleterious effects on agriculture:

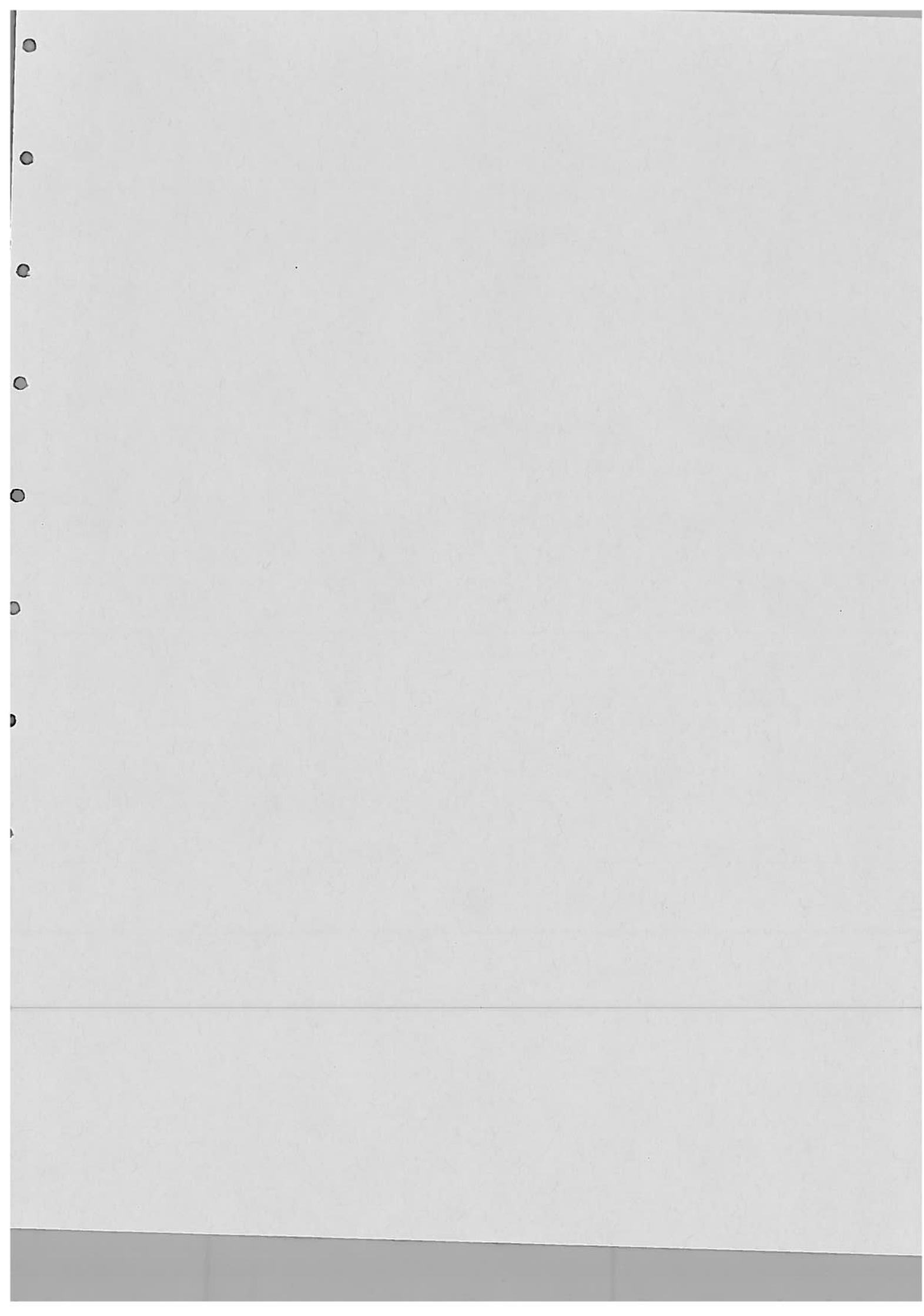
"High water tables may cause tillage problems, could cause salts to be deposited in the soils due to lack of leaching, could restrict vehicular travel, and could restrict the type of crops that could

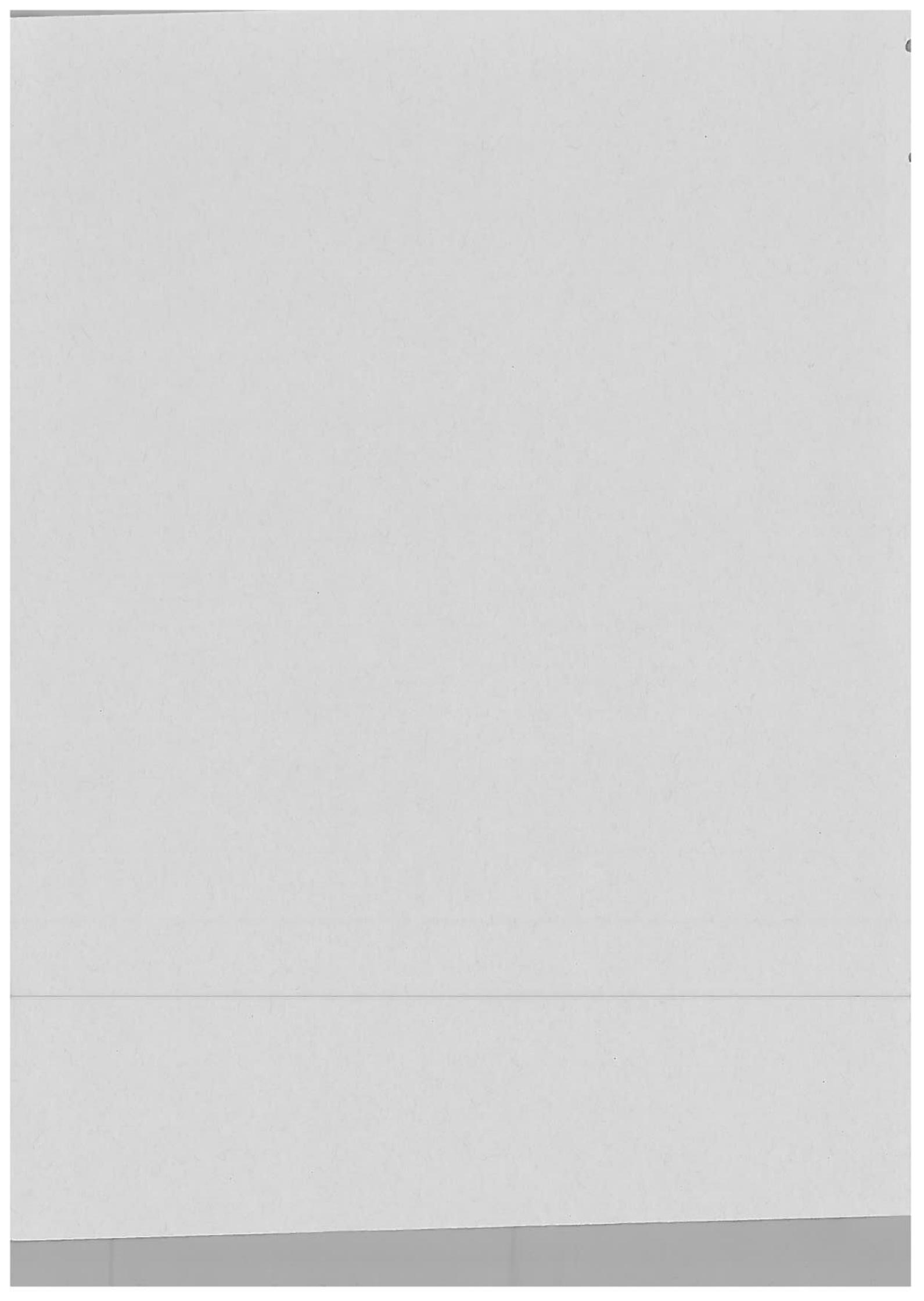
be grown. The economic effects of such factors will need to be evaluated in determining whether to use high-water tables for subsidence control. In addition, the pH of soils could be raised by intruding saline water and oxidation rates might be increased as a consequence. However, this has not been proved in the field, and keeping high water tables as a subsidence control measure would counteract the oxidation that might be accelerated by increased pH."\*

Wind erosion can be reduced by planting wind breaks such as rows of trees or building wind fences. Special attention should be paid to the spacing of crop rows and the direction of furrows. These measures are commonly practiced in windy areas, as evidenced by the presence of large eucalyptus trees throughout the Delta. Wind breaks, especially trees, can interfere with agriculture by shading crops, blocking movement of farm equipment, and competing with crops for water and soil materials. Measures to reduce compaction, consolidation, and so on are of little significance, since the effect of these factors on subsidence is minimal.

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\* Ibid., p. 140





CHAPTER 12  
LAND USE

INTRODUCTION

The Delta community, covering 162 square miles, is unlike any other portion of the County. Indeed, the Sacramento-San Joaquin Delta region is unique, for nowhere else in the world do natural history and cultural history blend with present day land use practices and natural forces to create a similar environment. The land use plan for the Delta community area is composed of three distinct but related land use plan types: agricultural, regional recreational, and river towns (Freeport, Hood, Courtland, Locke, Walnut Grove). For ease of discussion, this community plan addresses the individual river communities separately from the overall Delta community land use, which occurs on a much larger scale. Isleton is discussed summarily as well, although it is an incorporated city and does not fall within the scope of this community plan.

EXISTING LAND USE

Existing land use surveys of the river towns were prepared in the spring and summer of 1982, and are discussed under the headings of these individual towns. A more generalized summary of areawide land use is in Table 12.1. As the table clearly shows, agriculture/open space is the predominant land use, covering 86.5% of the plan area. Undeveloped watersides of the levees account for another 12% of the plan area, and 1.5% of the Delta is developed in some specific, intensive land use. The river towns of Freeport, Hood, Courtland, Locke, and Walnut Grove occupy less than 0.4% of the area total.

The following land use types are found in the community area. Corresponding zoning is identified within the discussions of individual land use categories.

Agriculture/Open Space

Agricultural land use predominates in the Delta community area, occupying nearly 80% of the land area. Agricultural parcels are generally in excess of eighty acres in size, and may be as large as 600 acres or more. A few twenty-acre parcels are scattered throughout the area, especially in the highly fertile bottomlands abutting the waterways. The agricultural land use zones are AG-20 (twenty-acre minimum parcel size), AG-40 (forty-acre minimum) and AG-80 (eighty-acre minimum).

Open space land use occurs in the Stone Lake/Beach Lake Basin north of Lambert Road. This area acts as a drainage retention area for the Morrison Creek watershed which covers 132 square miles in the the east central County. A large portion of this area is covered with water much of the year, and is a recognized wetland area. Field crops are grown on the fringes as weather and water level permit.

## Agricultural Residential

Agricultural-residential land use (two- to five-acre parcels) does not exist to any great extent in the Delta community area, and is generally discouraged in areas where nonagricultural residences may conflict with general agricultural land use practices, which often generate noise, dust or odor, and may involve the use of pesticides. However, isolated pockets of agricultural-residential land use exist, notably along Georgiana Slough between Oxbow Marina and Highway 12. Agricultural-residential properties are zoned AR-2 (two-acre minimum parcel size) in the community plan area.

## Residential Estate

Parcels in this land use category are between 10,000 square feet, and one acre in size, zoned RD-1 (one-acre minimum parcel size), RD-2 (20,000 square foot minimum) or RD-3 (10,000 square foot minimum). Notable concentrations of residential estate land use are located in west Walnut Grove, Tyler Island Bridge Road near Isleton, Simpson Tract along Steamboat Slough, and Lelia Road on lower Sherman Island.

## Residential

With few exceptions, residential land uses are confined to the river towns along the Sacramento River. The residential zones are: RD-5 (standard single-family residential), RD-10 (single-family, duplex and garden apartments), and RD-20 (multiple-family residential). Mobilehome parks in residential areas are identified by the (MHP) combining zone, used in conjunction with a residential land use zone; one such park is in Hood. Other such parks may be scattered throughout the community, under various land use zones.

One mobilehome subdivision exists in the Delta Community Plan area. This subdivision, located on Georgiana Slough near Isleton, is the Oxbow Marina development. Oxbow Marina is a planned development, incorporating residential, commercial, and marina uses. The residential portion of this development is zoned RM-2(PD).

## Commercial Recreational

Recreational land uses are found along waterways throughout the Delta community area. The DW (Delta Waterways) land use zone and its subzones DW-R (restricted), DW-S (scenic), and DW-N (natural), are applied along the watersides of the levees throughout the area. This zone addresses a range of commercial, recreational, and residential land uses which are oriented to the waterways.

The C-O (Commercial Recreation) land use zone is generally applied to recreational developments located on the landsides of the levees. Resorts and recreational vehicle parks are the usual land uses zoned C-O.

The largest concentration of recreational land use in the plan area is located on lower Andrus Island, south of Highway 12 along the Mokelumne and San Joaquin Rivers. This area has perhaps the greatest recreational potential in the Delta region, due to its accessibility from both land and water. An SPA (Special Planning Area) land use zone is drafted specifically for the Lower Andrus Island recreational area to preserve the aesthetic quality of the area while allowing orderly growth of recreation.

### Public Recreational

Five publicly operated water-oriented recreation facilities are located in the Delta community area. Brannan Island State Park is a 312-acre park offering camping, boating, picnicking and hiking facilities. The park is on Brannan Island, south of Rio Vista on Highway 160. Hogback Island is a County-operated picnic and boat launch facility on Steamboat Slough near State Highway 220. Public fishing accesses are located on Lower Sherman Island, Georgiana Slough, and on the Sacramento River near Rio Vista.

### Commercial

Most commercial land use in the plan area exists in the form of retail and support services for the river towns. Likewise, most commercial zoning is found in those river towns. Historically, stores have been located along the levee roads, creating river front commercial districts. Parking along these levee roads conflicts with through traffic, so that the emphasis now is on orienting new businesses to interior streets off the levees where parking can be safely accommodated. A few businesses are scattered about at noncontiguous key locations along major roads where they serve the travelling public.

The commercial land use zones are LC (Limited Commercial), GC (General Commercial), and AC (Auto Commercial). Some retail and service-oriented businesses are also located within the C-O (Commercial Recreation) zone.

### Industrial

A certain amount of industrial land use is needed to provide support service for agriculture. The largest industrial district in the plan area is located along Walnut Grove-Thornton Road, near Walnut Grove. This district also includes a portion of Walnut Grove proper. Smaller industrial areas are found in Freeport, Hood, Courtland, and isolated spots throughout the plan area. Rio Vista and Isleton, not within this plan area, provide additional industrial services.

### Public/Quasi Public

Public and quasi-public land uses are present at two levels in the Delta. Within the river towns, public buildings, parks, and service-providing entities such as the telephone company are shown as public/quasi-public on the land use map. Within the larger scope of the overall Delta community, this land use category includes the refuse transfer station on Grand Island, the Regional Sanitation District property south of Freeport, and the two radio/television broadcast towers at Walnut Grove and near Snodgrass Slough.

## LAND USE TRENDS

Trends in residential, commercial, agricultural, and recreational land uses are discussed in detail within the corresponding elements of the plan. In general, projections of land use trends are difficult to ascertain because of limited past activity. For instance, residential land use in the Delta has declined with decreasing population, during a time when Sacramento County as a whole has increased significantly in population. However, some assumptions can be made as to future trends:

- The opening of the I-5 freeway between Sacramento and Stockton has made the Delta Community Plan area much more easily accessible than in the past. This accessibility will probably increase pressure for residential and recreational development.
- Rising cost of petroleum fuel will be inducement for Stockton/Sacramento residents to recreate in the Delta rather than at more distant locations.
- Higher resulting commute costs may discourage some potential residents who work in the metropolitan areas.
- Transition in recreational boating from power boats to sailboats, resulting from rising petroleum fuel prices, may shift pressure for recreational development to areas where open water and reliable winds can be found and vertical restrictions such as bridges are minimal.
- Demand for retirement homes will grow.
- Flood hazard will increase, or at best, stabilize, and islands which flood in the future will be increasingly difficult to reclaim because of rising costs.
- Public service providers (sheriff, fire, schools, etc.) will continue to face tight budgets.
- Agriculture will remain a viable, productive land use.
- Public transportation may never be available to most of the community area.

These assumptions do not indicate a clear trend, but it can be assumed, based upon development patterns in metropolitan Sacramento County and in other Delta counties, that residential, recreational, and commercial development will grow, if allowed, at the expense of agricultural lands and production. The major determinant of future land use trends will be land use regulation.

#### LAND USE PLAN

Very little overall change in land use is envisioned in this Community Plan. On a gross scale this plan fine tunes the Recreation Element of the Sacramento County General Plan. Two Commercial Recreational areas are affected. Lower Andrus Island is affected by the deletion and redistribution of the commercial recreational land use to coincide with the Special Planning Area zoning ordinance; this change amounts to a net conversion of 557 acres of Commercial Recreational to Agricultural Cropland. The upper tip of Sherman Island is affected by the deletion of the Commercial Recreational land use category and its replacement it with a 600 foot wide strip of "Natural Recreation or River Access"; this change redesignates 194 acres to Agricultural Cropland.

This plan also clarifies the distinction between the "Natural Recreation Area" and the "River Access" categories in the Recreation Areas Plan Map of the General Plan. Designated natural areas on the County Waterways Use Plan are

so noted in this plan along with sensitive recreation areas on Sherman Island, Georgiana Slough, Sutter Slough, and Elk Slough. Land abutting waterways which is determined to be inappropriate for recreational use is shown for Agricultural Cropland.

Proposed land use changes within the individual river towns and other specific planning areas are addressed under the headings of those planning areas.

#### ESTIMATED RESIDENTIAL HOLDING CAPACITIES

The residential holding capacity is an estimate of the expected population that would inhabit a community if it were fully developed in accordance with the land use plan. The estimated residential holding capacities in this community plan serve as baselines for monitoring residential growth in the Delta area. In reality, these estimated holding capacities may never be reached, or they may eventually be surpassed. They are not intended to restrict nor encourage residential growth, but rather to inform the reader as to how large a population is anticipated by the land use plan.

Several assumptions must be made when estimating residential holding capacities. All residential land use zones in Sacramento County have maximum permitted residential densities stated in dwelling units per acre. For instance, the RD-5 land use zone permits a maximum of five residential dwelling units per acre. In practice, however, residential development in the RD-5 land use zone does not always attain this maximum allowable density because of physical constraints or developer preferences, and an assumption must be made as to the residential density that will actually occur, such as 3.5 dwelling units per acre. Similar assumptions are made for other land use zones in the community plan area. See Table 12.3.

Likewise, assumptions must be made as to the number of persons who will occupy a dwelling unit. Primary residences on agricultural parcels are typically occupied by families, and tend to have a relatively high occupancy (assumed 2.8 persons per dwelling unit). Single-family residences on smaller subdivision parcels tend to have a mixture of smaller families and couples, with a correspondingly-lower occupancy (assumed 2.6 persons per dwelling unit). Multiple-family residential units, such as apartments, tend to be occupied by singles and couples (assumed 1.5 dwelling units per acre).

These assumptions can only provide general guidelines for estimating residential holding capacities. The assumptions used in calculating the holding capacities for the Delta river towns sometimes vary from the general assumptions expressed in Table 12.3, because of first hand knowledge about the individual communities.

A table entitled (TOWN NAME) PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY is included with the discussions of the individual river towns. These tables explain the assumptions used for each town. In some cases, different assumptions are used for vacant versus developed residential property. Public and quasi-public land uses such as schools, fire station, churches, etc., are deleted from the calculations used for residential holding capacities, since they are unlikely to ever be used for residences. The tables represent mathematical equations used for calculating estimated Population Holding Capacities as follows:

$$\text{Acreage} \times \text{Assumed Dwelling Units per Acre} = \text{Estimated Residential Dwelling Unit Holding Capacity}$$

$$\text{Estimated Residential Dwelling Unit Holding Capacity} \times \text{Assumed Persons Per Dwelling Unit} = \text{Estimated Population}$$

Table 12.4 summarizes estimated residential holding capacities for the Delta community.

TABLE 12.1

DELTA  
SUMMARY OF EXISTING LAND USE  
SPRING 1982

	River Towns (Acres) (1)	Other (Acres)	Total (Acres)
Agriculture/Open Space	29	88,449	88,478
Agricultural Residential	0	220	220
Residential Estate	30	72	102
Residential	86	130	216
Commercial Recreational	0	411	411
Public Recreational	0	350	350
Commercial	33	49	82
Industrial	84	8	92
Public/Quasi-Public	35	155	190
Waterways	0	13,138	13,138
Streets, Alleys and Vacant (River Towns Only)	128	0	128
TOTAL	425	102,982	103,407(2)

(1) Freeport, Hood, Courtland, Locke, Walnut Grove.

(2) Excluding Isleton

TABLE 12.2

(Deleted)

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TABLE 12.3  
DELTA COMMUNITY PLAN  
RESIDENTIAL DENSITY ASSUMPTIONS  
FOR VACANT LANDS

Land Use Category	Assumed Residential Dwelling Unit Density	Assumed Persons Per Dwelling Unit
Permanent Agriculture	1 D/U per 20-100 acres	2.8
Agricultural Residential 1	1 D/U per 1.3 acres (0.7 D/U per acre)	2.8
Agricultural Residential 2	1 D/U per 2.5 acres (0.4 D/U per acre)	2.8
Agricultural Residential 5	1 D/U per 7 acres (0.14 D/U per acre)	2.8
Agricultural Residential 10	1 D/U per 20 acres (0.05 D/U per acre)	2.8
Residential Density 1	1 D/U per 1.1 acre (.9 D/U per acre)	2.8
Residential Density 2	1.8 D/U per acre	2.6
Residential Density 3	2.7 D/U per acre	2.6
Residential Density 5	3.5 D/U per acre	2.6
Residential Density 10	9 D/U per acre	1.5
Residential Density 20	18 D/U per acre	1.5

Source: Sacramento County Planning Department.

TABLE 12.4

DELTA  
SUMMARY OF ESTIMATED RESIDENTIAL HOLDING CAPACITIES  
(Based Upon Adopted Land Use Plans)

	Acres	Estimated Dwelling Unit Holding Capacity	Estimated Population Holding Capacity
Freeport	34	72	139
Hood	71	200	483
Courtland	54	190	343
Locke	27	76	114
East Walnut Grove	148	319	568
West Walnut Grove	91	217	492
River Town Subtotal	425	1,074	2,139
Remainder of County Delta Area	102,982	1,472	4,122
Subtotal	103,407	2,546	6,261
Isleton	235	690	1,605
GRAND TOTAL	103,642	3,236	7,866

## SPECIFIC PLANNING AREAS

Pockets of mostly residential development which are too minute to be properly addressed within the gross scale of the Delta area are scattered throughout the community plan area. Total acreage of these specific planning areas is about one percent of the plan area, yet most of the residential, commercial, and industrial land use occurs at these locations. The specific planning areas are the river towns of Freeport, Hood, Courtland, Locke, and Walnut Grove; Lower Andrus Island, Tyler Island Bridge Road, and Lelia Road. Isleton, an incorporated city, is not a part of the Delta Community Plan area but will be discussed briefly based upon its own General Plan (Table 12.5).

### FREEPORT

Freeport is the northernmost river town, abutting the Sacramento City limits on one side and the Sacramento River on the other. Established as a river port in the mid-1800's by the Sacramento Valley Railroad in order to avoid taxes levied by the City of Sacramento, Freeport has long been an informal community frequented by local farmers, fishermen, and boaters.

Freeport covers about thirty-four acres, excluding the river frontage. Existing land use is a mixture of residential, commercial, and industrial. (See Figure 12.1.) The town has developed in a linear pattern along the river road, State Highway 160. The Freeport Market is centrally located on the east side of the road, with A. J. Bumps, a popular restaurant and saloon, immediately to the north. Across the street are two bait shops and a gas station. The Freeport Marina dominates the south end of the town (Table 12.6).

Architecturally, there is little in Freeport in need of historic preservation. The town has evolved through a period of years with little consistency to a theme, and the Freeport identity appears to be more closely linked to its historic origins as a water-oriented rural town than to a distinct or architectural style. Unfortunately, that identity will soon be lost to some degree as development occurs around the town, but new development should be consistent with a water-oriented residential community theme, including positive recreational ties to the Sacramento River (Figure 12.2).

Long-term coordinated land use planning between the city and the county is necessary in order to assure a continuing distinct identity for Freeport. This community plan includes a Neighborhood Preservation Area to be applied by zoning ordinance to Freeport. The (NPA) combining zone requires development plan review for most new development, with particular attention given to height, location, shape, and proportion of structures; parking, and scale of projects as they relate to the overall community identity.

Based upon the land use plan, Freeport has an estimated holding capacity of 139 persons (Table 12.7).

TABLE 12.5  
 SPECIFIC PLANNING AREAS AND RIVER TOWNS  
 SUMMARY OF EXISTING LAND USE  
 SPRING 1982  
 (Acres)

	Freeport	Hood	Courtland	(1) Locke	East Walnut Grove	West Walnut Grove	River Town Subtotal	Lower Andrus Island Special Planning Area	Tyler Island Bridge Road	Lelia Road	Total
Single-Family Residential	5.5	17.0	10.1		13.5	49.4	95.5	13.3	17.0	7.0	132.8
Two-Family Residential	1.5	0.6	0.9	6.8	0.1	0.7	10.6				10.6
Multiple-Family Residential	0.9		3.8		0.6	1.0	6.3				6.3
Mobilehome	1.3	2.5			0.1		3.9			1.4	5.3
Business & Professional					1.9	0.1	2.0				2.0
Commercial	7.7	0.8	6.6	7.1	(2) 2.7	2.6	27.5				27.5
Commercial/Residential				3.3	0.3		3.6				3.6
Commercial Recreation								63.3			63.3
Industrial	2.3	7.5	4.7		37.2	1.9	53.6				53.6
Public/Quasi-Public		0.3	16.9		14.2	3.6	35.0				35.0
Vacant	10.1	31.5	6.2	2.2	41.7	8.8	100.5		19.6	5.4	125.5
Streets & Alleys	4.8	5.2	5.0	2.5	14.5	4.7	36.7	19.5	3.4	3.2	62.8
Ag./Open Space		5.2		5.0	21.1	18.1	49.4	466.3			515.7
TOTALS	34.1	70.6	54.2	26.9	147.9	90.9	424.6	562.4	40.0	17.0	1,044.0

(1) Acres based upon land use categories in the Locke Special Planning Area Zoning Ordinance.

(2) Includes vacant commercial.

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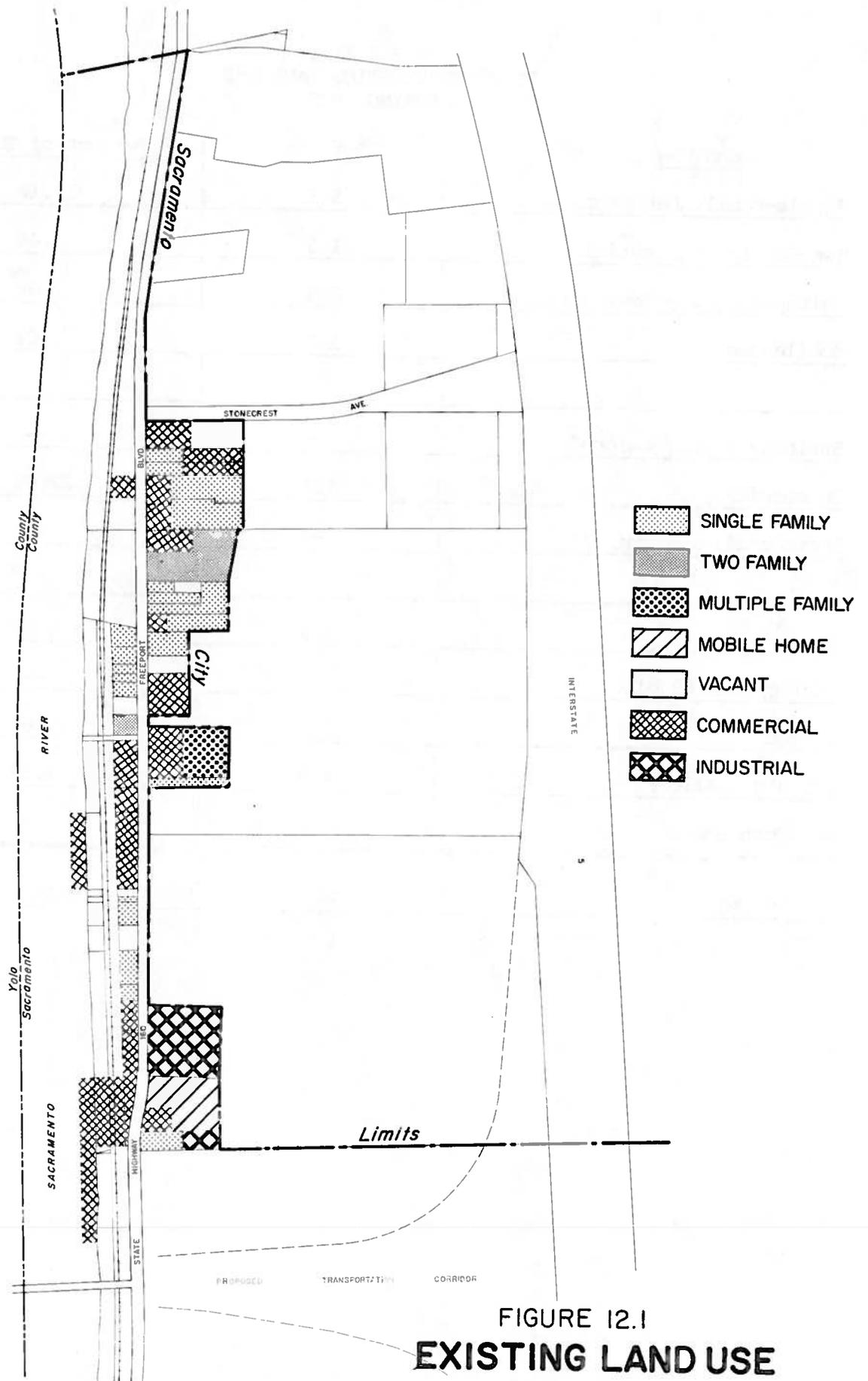


FIGURE 12.1  
**EXISTING LAND USE**  
 TOWN OF  
**FREEPORT**



TABLE 12.6  
 FREEPORT EXISTING LAND USE  
 SPRING 1982

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Single-Family Residential	5.5	16.1%
Two-Family Residential	1.5	4.4%
Multiple-Family Residential	0.9	2.6%
Mobilehome	1.3	3.8%
Business & Professional	—	—
Commercial	7.7	22.6%
Commercial/Residential	—	—
Industrial	2.3	6.8%
Public/Quasi-Public	—	—
Vacant	10.1	29.6%
Streets & Alleys	4.8	14.1%
Ag./Open Space	—	—
<b>TOTAL</b>	<b>34.1</b>	<b>100%</b>

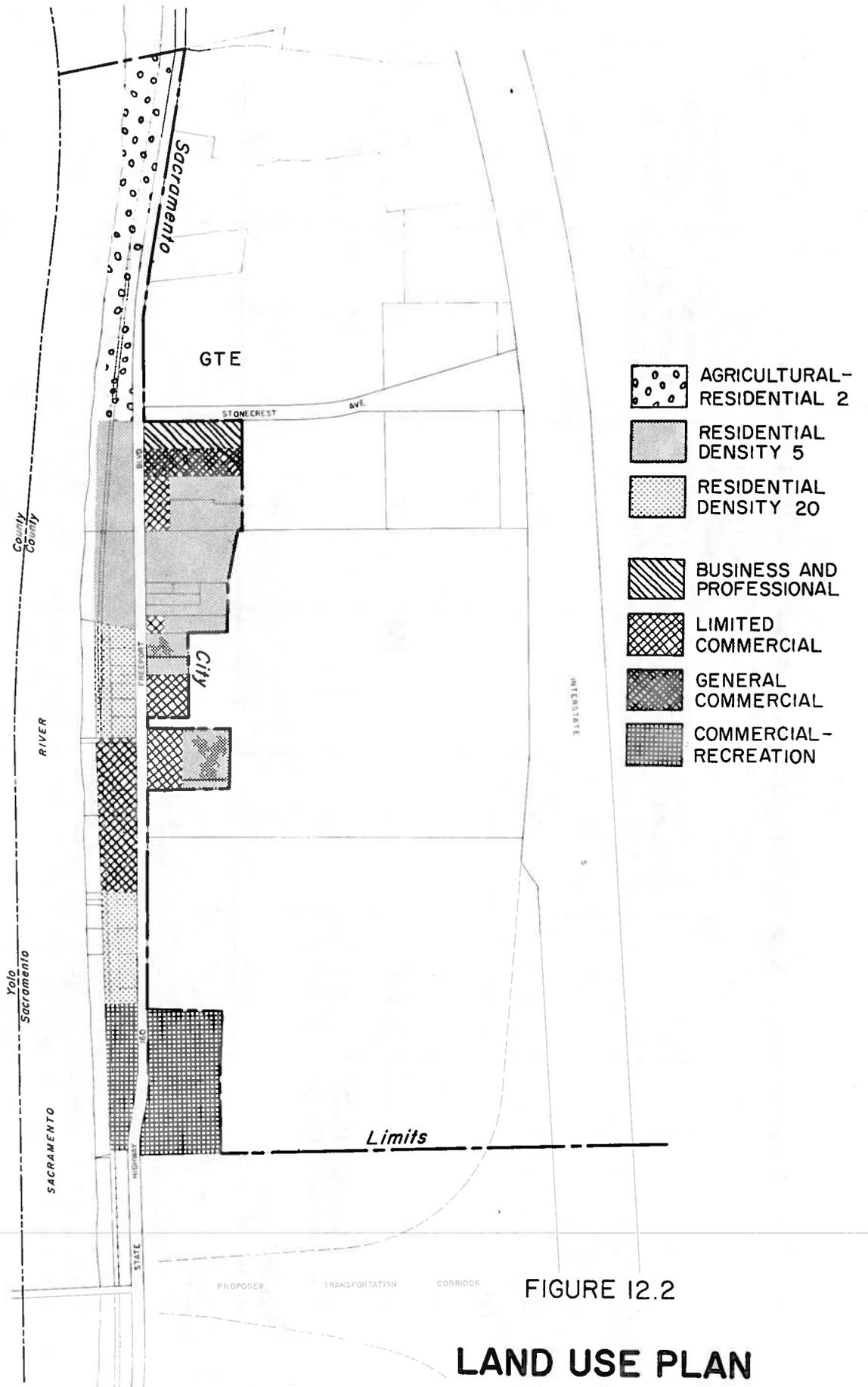


FIGURE 12.2

**LAND USE PLAN**

TOWN OF

**FREEPORT**

12-15



TABLE 12.7  
 FREEPORT PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY

Land Use Zone	Acreage	Percent of Total Acreage	Assumed Dwelling Units/Acre	Estimated Residential Dwelling Unit Holding Capacity	Assumed Persons per Dwelling Unit	Estimated Population Holding Capacity
IC	5.2	16%				
BP	1.1	3%				
GC	1.0	3%				
C-O	6.6	19%				
AR-2	6.2	18%	0 (1)	0	—	0
RD-5 (developed) (2)	7.0	21%	2.5	17.5	2.6	46
RD-5 (vacant) (3)	3.0	8%	3.5	10.5	2.6	27
RD-20 (developed) (2)	3.5	10%	10.0	35.0	1.5	53
RD-20 (vacant) (3)	0.5	2%	18.0	9.0	1.5	13
TOTAL	34.1	100%		72.0		139

- (1) This area is mostly levee slope and will probably not be developed with residences.
- (2) Parcels which were developed at the time of the land use survey.
- (3) Parcels which were vacant at the time of the land use survey.

## HOOD

Hood is located on the east side of the Sacramento River, approximately 15 air miles south of downtown Sacramento. The town was first recognized in 1909, and now occupies seventy acres of land, including thirty-one acres of potentially-developable vacant land. (See Figure 12.3.) The dominant structure in town is the Stillwater Orchards cold storage facility on the Sacramento River. The predominant land use is single-family residential. (Table 12.8.)

Commerically-developed land is scarce in Hood. A market, an abandoned gas station, and a restaurant/lounge occupy parcels near the intersection of Highway 160 and Hood-Franklin Road. Total area of these developments is less than one acre.

In 1981, a new public water system was installed in Hood with funds from the Community Development Block Grant program. This new system is operated by the County of Sacramento and can be expanded to meet anticipated growth needs in the town. Sewage disposal is accomplished by private septic tanks, many of which are substandard or failing due to age and a high water table. New growth in Hood will require installation of a public sewerage system.

The land use plan for Hood envisions residential growth to occur at the east end of town on either side of Hood-Franklin Road. (See Figure 12.4.) Three acres of commercial land use are planned near the intersection of Highway 160 and Hood-Franklin Road. Based upon this land use plan, the holding capacity for Hood is 483 persons. (Table 12.9.)

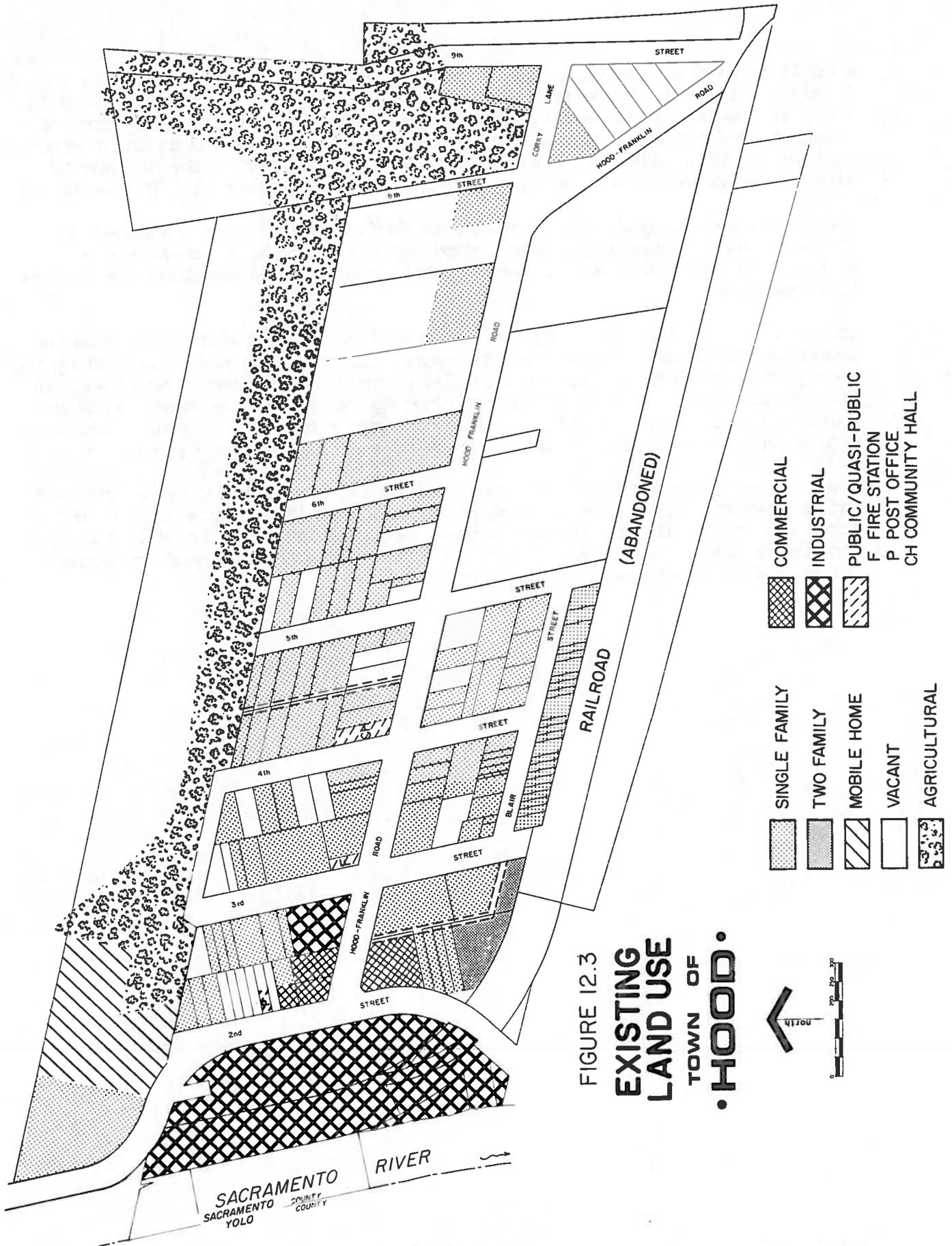


FIGURE 12.3  
**EXISTING  
 LAND USE**  
 TOWN OF  
**HOOD**

- |  |               |  |                     |
|--|---------------|--|---------------------|
|  | SINGLE FAMILY |  | COMMERCIAL          |
|  | TWO FAMILY    |  | INDUSTRIAL          |
|  | MOBILE HOME   |  | PUBLIC/QUASI-PUBLIC |
|  | VACANT        |  | F FIRE STATION      |
|  | AGRICULTURAL  |  | P POST OFFICE       |
|  |               |  | CH COMMUNITY HALL   |

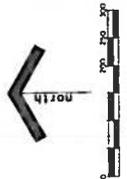


TABLE 12.8  
HOOD EXISTING LAND USE  
SPRING 1982

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Single-Family Residential	17.0	24.0%
Two-Family Residential	0.6	0.8%
Multiple-Family Residential	—	—
Mobilehome Park	2.6	3.7%
Business & Professional	—	—
Commercial	0.8	1.1%
Commercial/Residential	—	—
Industrial	7.5	10.6%
Public/Quasi-Public	0.3	0.4%
Vacant	31.5	44.6%
Streets & Alleys	5.2	7.4%
Ag./Open Space	5.2	7.4%
<b>TOTAL</b>	<b>70.6</b>	<b>100%</b>

TABLE 12.9  
HOOD PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY

Land Use Zone	Acreage	Percent of Total Acreage	Assumed Dwelling Units/Acre	Estimated Residential Dwelling Unit Capacity	Assumed Persons per Dwelling Unit	Estimated Population Holding Capacity
LC	5.2	7.4%				
GC	2.3	3.3%				
M-1	5.8	8.2%				
RD-5 (developed) (1)	33.1	47.2%	3.0	99.3	2.6	258
RD-5 (vacant) (2)	19.1	27.0%	3.5	66.9	2.6	174
RD-5 (P/QP) (3)	0.2	—	0	0	0	0
RD-10	4.9	6.9%	7.0	34.3	1.5	51
TOTAL	70.6	100%		200.5		483

(1) Parcels which were developed at the time of the land use survey.

(2) Parcels which were vacant at the time of the land use survey.

(3) Parcels with existing public and quasi-public uses (fire station, church, etc.) which are unlikely to be developed residentially.

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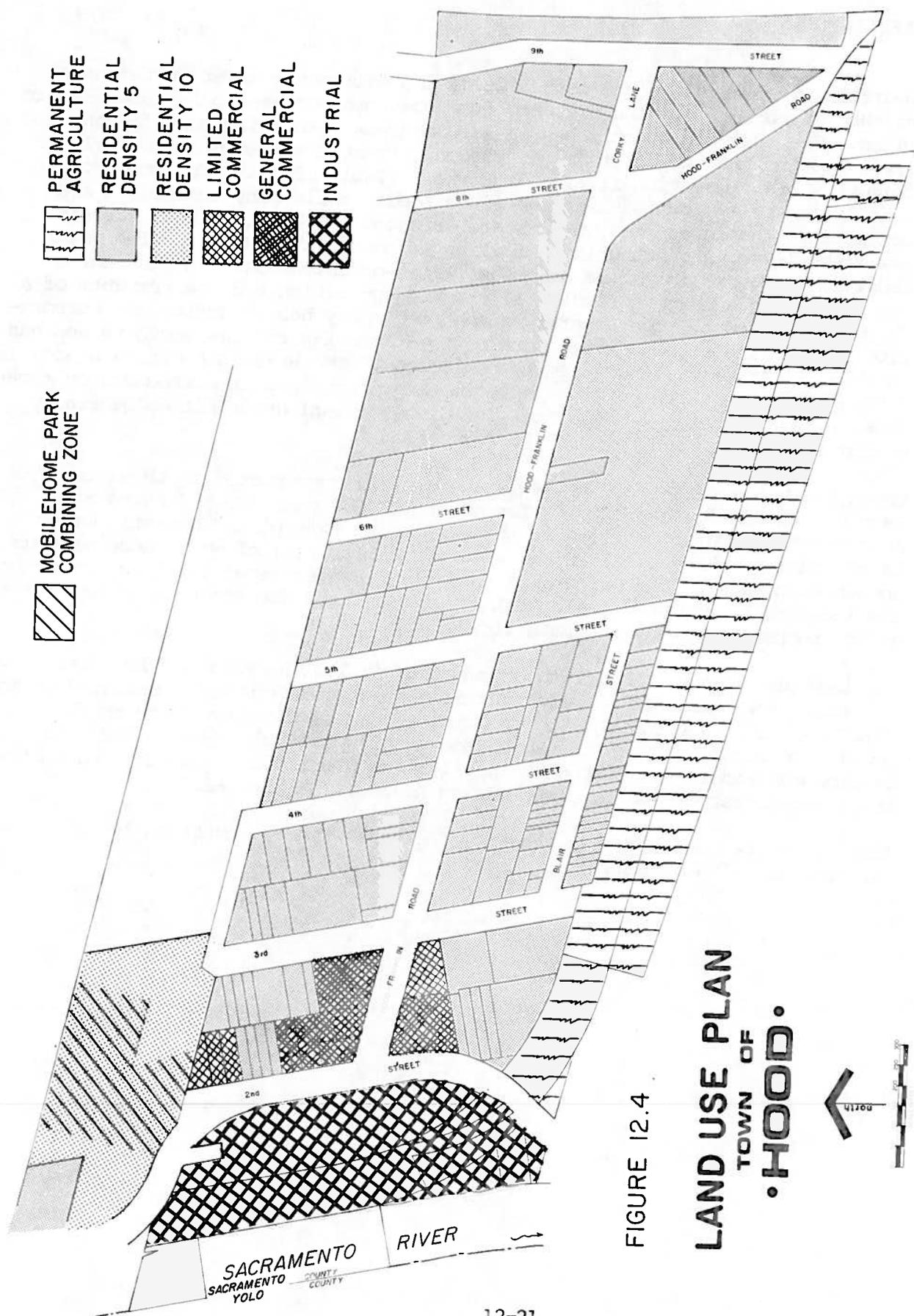


FIGURE 12.4

LAND USE PLAN  
TOWN OF  
•HOOD•



## COURTLAND

Courtland is located on the east side of the Sacramento River in the heart of the pear orchards. The distance from downtown Sacramento is about 18 air miles. The town was established in 1870 and was a shipping port for the fruit-growing industry. It is the second largest river town in the Delta community area, covering fifty-four acres. (Table 12.10.) The commercial area is centrally located near the river road. While many businesses are oriented to the levee road, others are oriented to the town-level streets below the levee, strengthening a feeling of community identity. The water front is developed in marina and other water-oriented uses. At the north end of town is a large agricultural trucking operation and the remnants of a Chinese settlement. The General Telephone Company has an office and corporation yard in the south-central part of town, and the extreme southern end has an area of large-lot single-family residences. The Bates Elementary School is located at the eastern terminus of Primasing Avenue and is surrounded on three sides by agriculture. Residential buildings of various densities generally occupy the eastern end of town. (Figure 12.5.)

Courtland has a relatively new sewerage system, constructed in the late 1970's. The design capacity is for about 700-800 persons, and there are approximately 200 connections at the writing of this plan. Domestic water is provided by three small mutual water districts, all of which were meeting health standards at the writing of this plan. Water flows for fire protection are inadequate, and new development may necessitate the addition of new wells and/or pumps to provide adequate flows.

The land use plan for Courtland attempts to follow the existing land use pattern. New commercial development is discouraged from being oriented to the river road and is encouraged to be oriented toward the town where traffic speeds are lower and parking can be adequately provided. New residential development should be located at infill sites within the community and in the large vacant parcels north of Primasing Avenue. (Figure 12.6.)

Based upon the land use plan, the holding capacity for Courtland is 343 persons. (Table 12.11.)

FIGURE 12.5  
EXISTING LAND USE

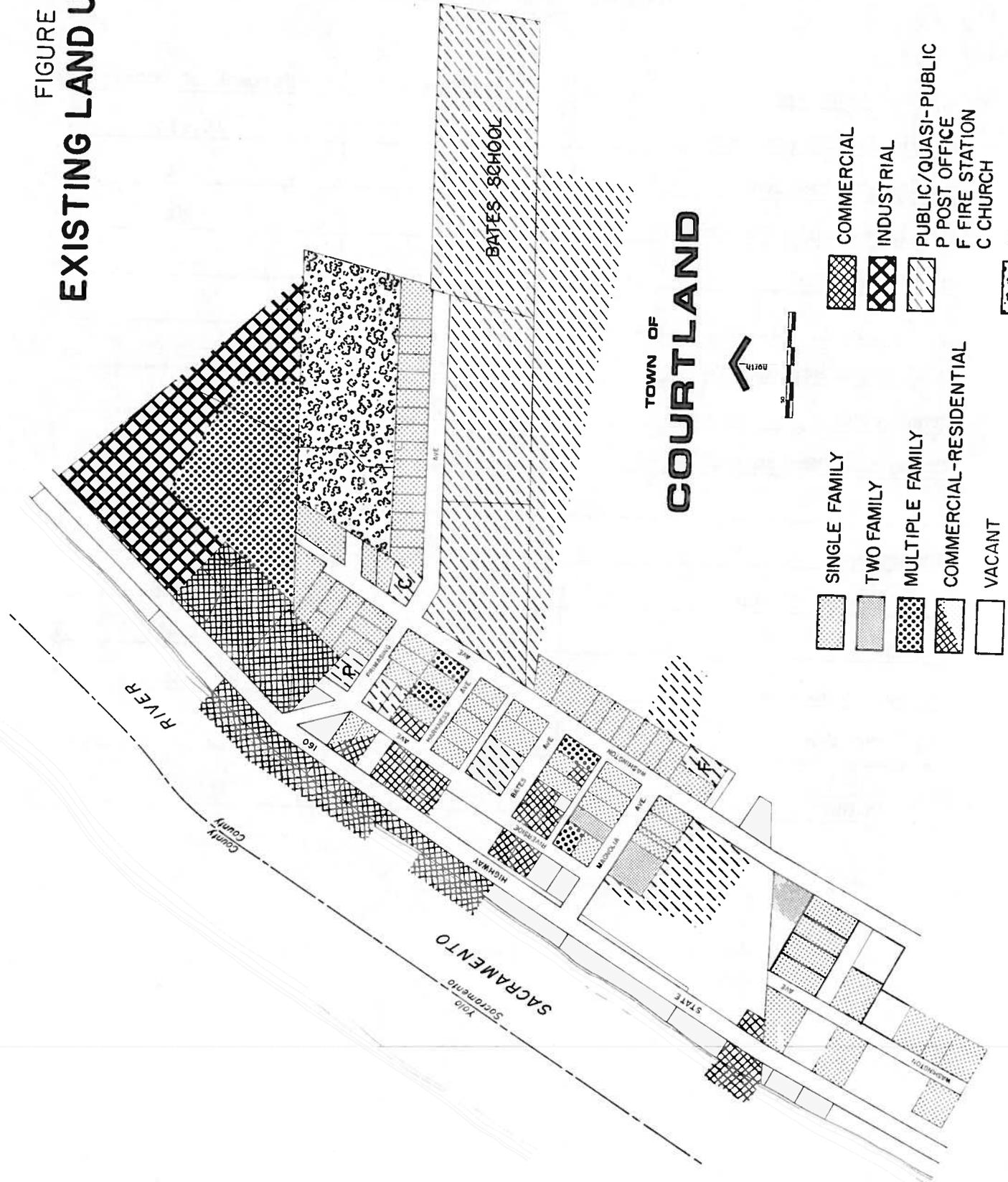
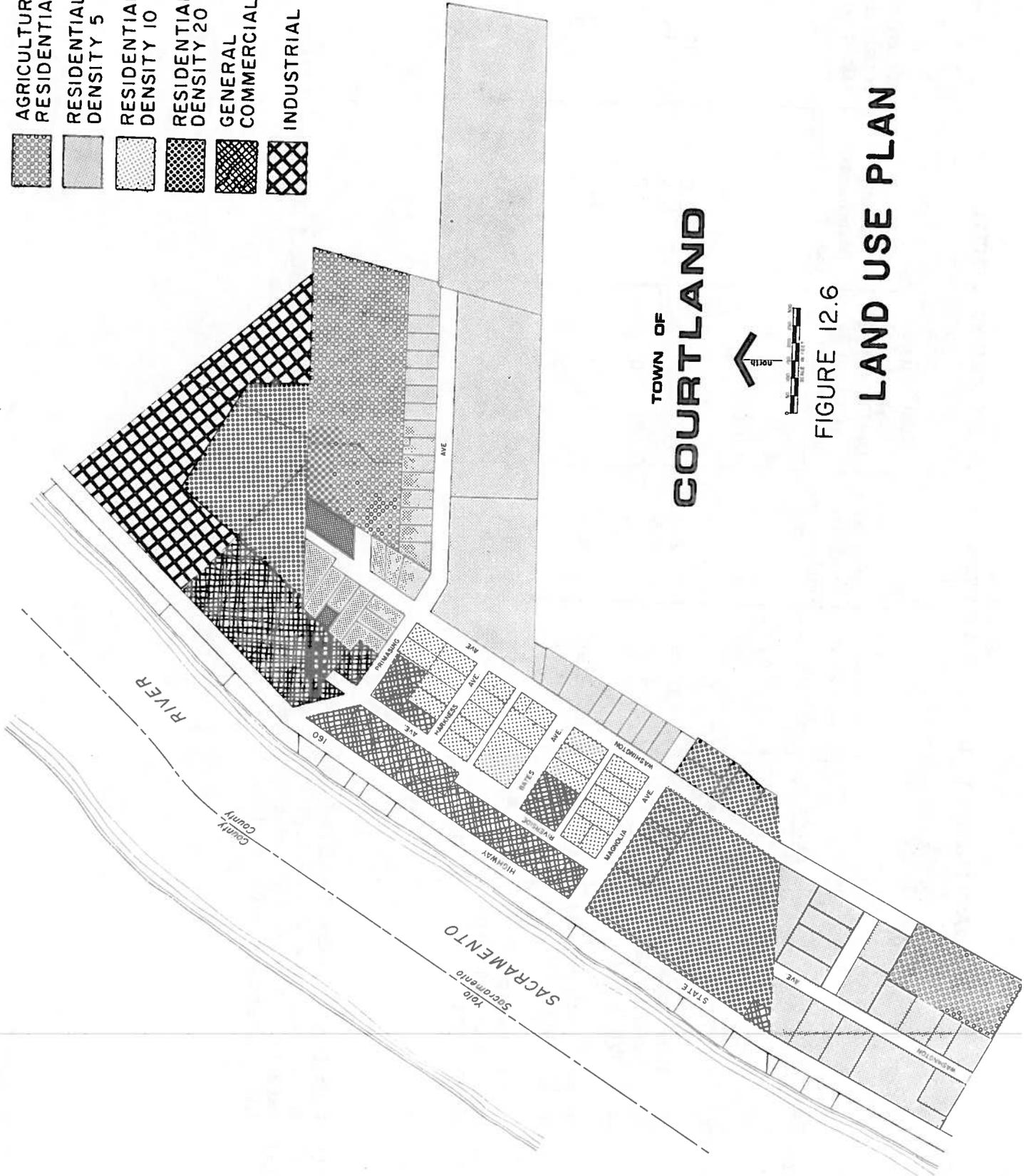


TABLE 12.10  
 COURTLAND EXISTING LAND USE  
 SPRING 1982

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Single-Family Residential	10.1	18.6%
Two-Family Residential	0.9	1.7%
Multiple-Family Residential	3.8	7.0%
Mobilehome Park	—	—
Business & Professional	—	—
Commercial	6.6	12.2%
Commercial/Residential	—	—
Industrial	4.7	8.7%
Public/Quasi-Public	16.9	31.2%
Vacant	6.2	11.4%
Streets & Alleys	5.0	9.2%
Ag./Open Space	—	—
<b>TOTAL</b>	<b>54.2</b>	<b>100%</b>

- AGRICULTURAL-RESIDENTIAL 10
- RESIDENTIAL DENSITY 5
- RESIDENTIAL DENSITY 10
- RESIDENTIAL DENSITY 20
- GENERAL COMMERCIAL
- INDUSTRIAL



**TOWN OF COURTLAND**



FIGURE 12.6

**LAND USE PLAN**

TABLE 12.11  
COURTLAND PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY

Land Use Zone	Acreage	Percent of Total Acreage	Assumed Dwelling Units/Acre	Estimated Residential Dwelling Holding Capacity	Assumed Persons per Dwelling Unit	Estimated Population Holding Capacity
GC	8.6	15.9%				
M-1	5.2	9.6%				
RD-5 (developed) (1)	17.6	32.5%	2.7	47.5	2.6	123
RD-5 (vacant) (2)	1.7	3.1%	3.5	5.9	2.6	15
RD-5 (P/QP) (3)	5.8	10.7%	0	0	0	0
RD-10 (developed) (1)	4.8	8.9%	6.7	32.2	1.5	48
RD-10 (P/QP) (3)	0.4	0.7%	0	0	0	0
RD-20 (developed) (1)	5.4	10.0%	9.0	48.6	1.5	73
RD-20 (vacant) (2)	3.1	5.6%	18.0	55.8	1.5	84
RD-20 (P/QP) (3)	1.6	3.0%	0	0	0	0
TOTAL	54.2	100%		190.0		343

- (1) Parcels which were developed at the time of the land use survey.
- (2) Parcels which were vacant at the time of the land use survey.
- (3) Parcels with existing public and quasi-public uses (fire station, church, etc.) which are unlikely to be developed residentially.

## LOCKE

Locke was established in 1915 by members of the Yeung Wong Tong who left Walnut Grove after a fire destroyed the Chinese section of that town. The site upon which the town was built was owned by George Locke, and the agreement which allowed the Chinese to build on the land was made verbally. Locke has had a colorful history. (A more detailed description can be found in "A Plan and Action Plan for Locke," Sacramento Housing and Redevelopment Agency, July 28, 1977). At its height, the town had a population of 1500; now there are fewer than 80 persons. The entire town is listed on the National Register of Historic Places.

The town covers 26.9 acres and is located 1/2 mile north of Walnut Grove. The Boathouse, a large covered wharf built in 1912, dominates Locke. The structure is used for storage and repair of boats, and an elevator on the waterside is used for launching boats. Other buildings within the town contain a variety of commercial and residential uses. There is a gradual trend toward private renovation of the buildings in Locke. Tourists are finding it an attractive weekend visiting spot, and some building owners are beginning to cater to the tourist trade.

In 1977, the Sacramento Housing and Redevelopment Agency completed a study for possible acquisition of the town. The California State Department of Parks and Recreation has plans to acquire the town as a "living museum," but funds are not available at the writing of this report. In 1979, Sacramento County established a Special Planning Area zoning ordinance (79-SPA-3) for Locke. This ordinance is intended to preserve the town and to permit rehabilitation of the structures in a manner that will minimize disruption to the residents and retain the cultural and historical value of the town.

The Locke Special Planning Area ordinance includes several land use categories for the area (see Figure 12.7), including agriculture-open space for the communal garden area and various residential and commercial categories. The sewerage system for Locke is inadequate and operating beyond capacity. There are no active plans to update the system at the writing of this plan. The domestic water system meets health standards, but does not provide adequate flows for fire protection. At the writing of this report, a project is underway to upgrade the system with funds from the Community Development Block Grant program.

Determining a population holding capacity for Locke is difficult. New development, if any, will be limited, and many of the existing buildings are in need of repair. However, the zoning ordinance allows a residential density of as much as ten dwelling units per acre in the residential areas of town. Based upon this density, the ultimate holding capacity is 114 persons. (See Table 12.12.)

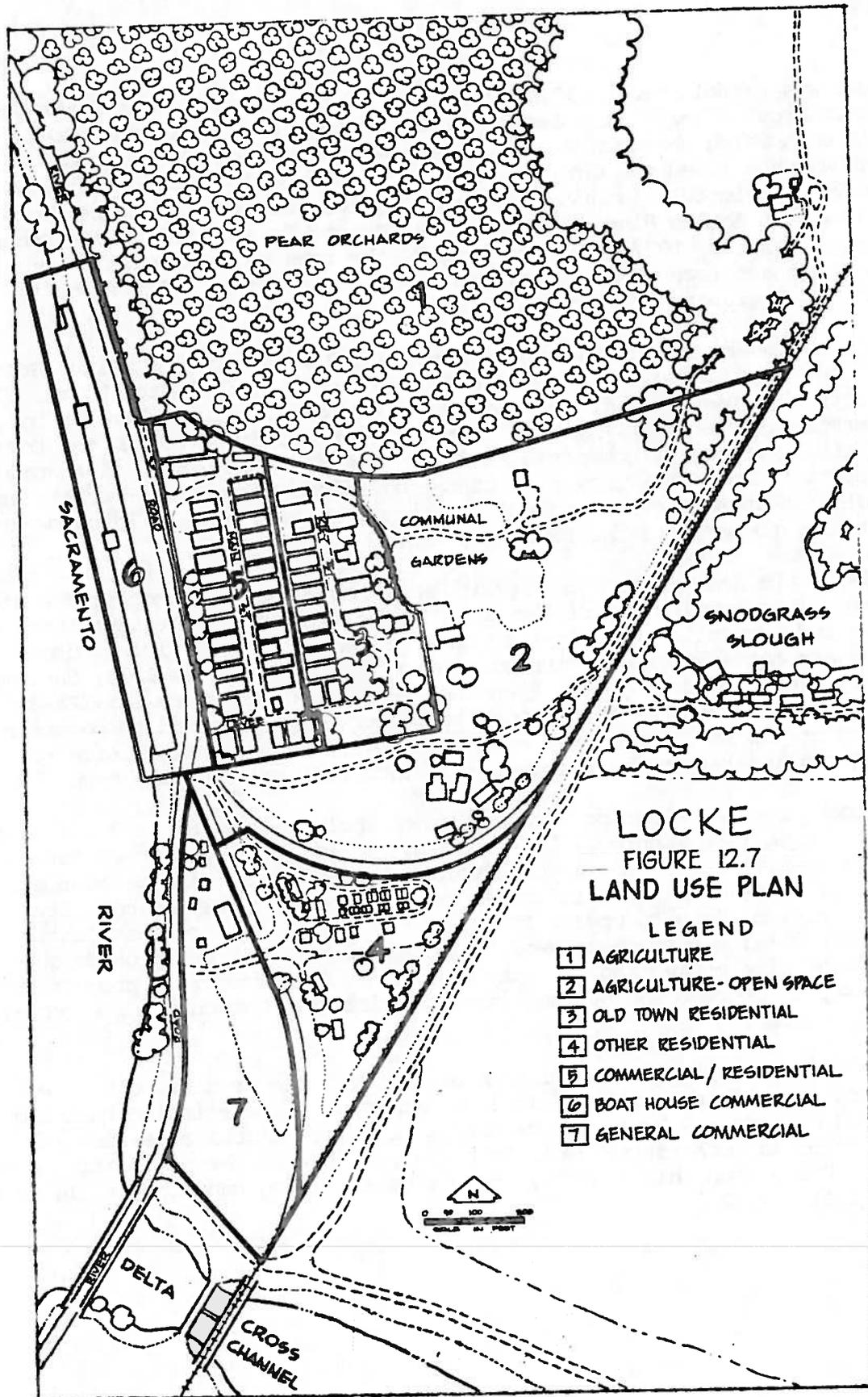


TABLE 12.12  
 LOCKE PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY

Land Use Zone	Acreage	Percent of Total Acreage	Assumed Dwelling Units/Acre	Estimated Residential Dwelling Unit Holding Capacity	Assumed Persons per Dwelling Unit	Estimated Population Holding Capacity
Agriculture-Open Space	9.7	36.1%				
Old Town Residential	2.9	10.8%	7.5	21.7	1.5	33
Other Residential	3.9	14.5%	7.5	29.3	1.5	44
Commercial/Residential	3.3	12.3%	7.5	24.7	1.5	37
Boat House Commercial	3.7	13.7%				
General Commercial	3.4	12.6%				
TOTAL	26.9	100%		75.7		114

Source: Sacramento County Planning Department.

## WALNUT GROVE

Walnut Grove is often described as the "Gateway to the Delta." It is located on both sides of the Sacramento River at its confluence with Georgiana Slough. The Delta cross channel, immediately north of Walnut Grove, provides access to the Snodgrass Slough/Delta Meadows area and the Mokelumne River. Walnut Grove is the largest Delta river town, covering a total of 180 acres. (See Figure 12.8.) It was established in 1851 by John Sharp on the east side of the Sacramento River and was soon dominated by a large Chinese population who found their way to the Delta after the gold rush and the completion of the Transcontinental Railroad. The bridge across the Sacramento River was completed in 1912, and west Walnut Grove began to evolve during the 1940's and 1950's. East and west Walnut Grove have distinctly different characters.

### East Walnut Grove (Table 12.13, Figure 12.8)

Buildings, on the east side, are typically small, two-stories, with little or no side yards. Many of these buildings are designed for commercial uses on the first story with residences above. Streets are narrow and mostly unpaved. Most of the construction is late 1800's to early 1900's vintage, and much is in need of repair; some of the commercial buildings are vacant. Remnants of the abandoned Southern Pacific Railroad tracks divide the town, and much of the property near the right-of-way is undeveloped. Large trucks have traditionally used the informal street system to gain access to the industrial area at the southeast end of town.

The haphazard development has occurred partly as a result of a peculiar historical land ownership situation. The land in east Walnut Grove is in large parcels, held by a small number of property owners. Buildings and streets were laid out casually, without the benefit of development standards. Today, many building owners must lease their underlying property from common landlords, creating a disincentive for renovation and maintenance of the structures.

Efforts have been made to correct this problem in recent years. The Delta Estate Cooperative, a group of homeowners at the northeast end of town, have collectively purchased the property under their homes. Funds from the Community Development Block Grant program were used to pave the streets. Today, the Delta Estates Cooperative area is an attractive, well-maintained section of east Walnut Grove. More recently, a group of homeowners and merchants in the commercial portion of town have formed a similar cooperative. A Redevelopment Plan has been adopted for the area, and at the writing of this community plan, efforts are underway to acquire the property and upgrade the buildings. Concurrently, funds from the Community Development Block Grant program are being used to install and pave streets in East Walnut Grove and upgrade sewerage collection lines.

### West Walnut Grove. (Table 12.14, Figure 12.9)

West Walnut Grove has a different character altogether. The area has been developed to modern standards, with curbs, gutters and sidewalks. Mature trees line the streets, shading the pavement. Two residential subdivisions, the Clampett Tract and Schauer Court, occupy most of the area, and commercial land uses are all adjacent to the River Road. Homes range in age from about thirty-five years to new. In short, West Walnut Grove resembles an attractive modern-day residential suburb.

## Services

Domestic water in west Walnut Grove is provided by the Grove Water Company, a private purveyor. The system is functioning adequately. Domestic water in east Walnut Grove is provided by several small water purveyors whose systems are not interconnected. The combined capacity of these wells is about 220 gallons per minute, far short of the 1200 to 1400 gpm needed for fire protection. New development in east Walnut Grove will require upgrading of the domestic water system.

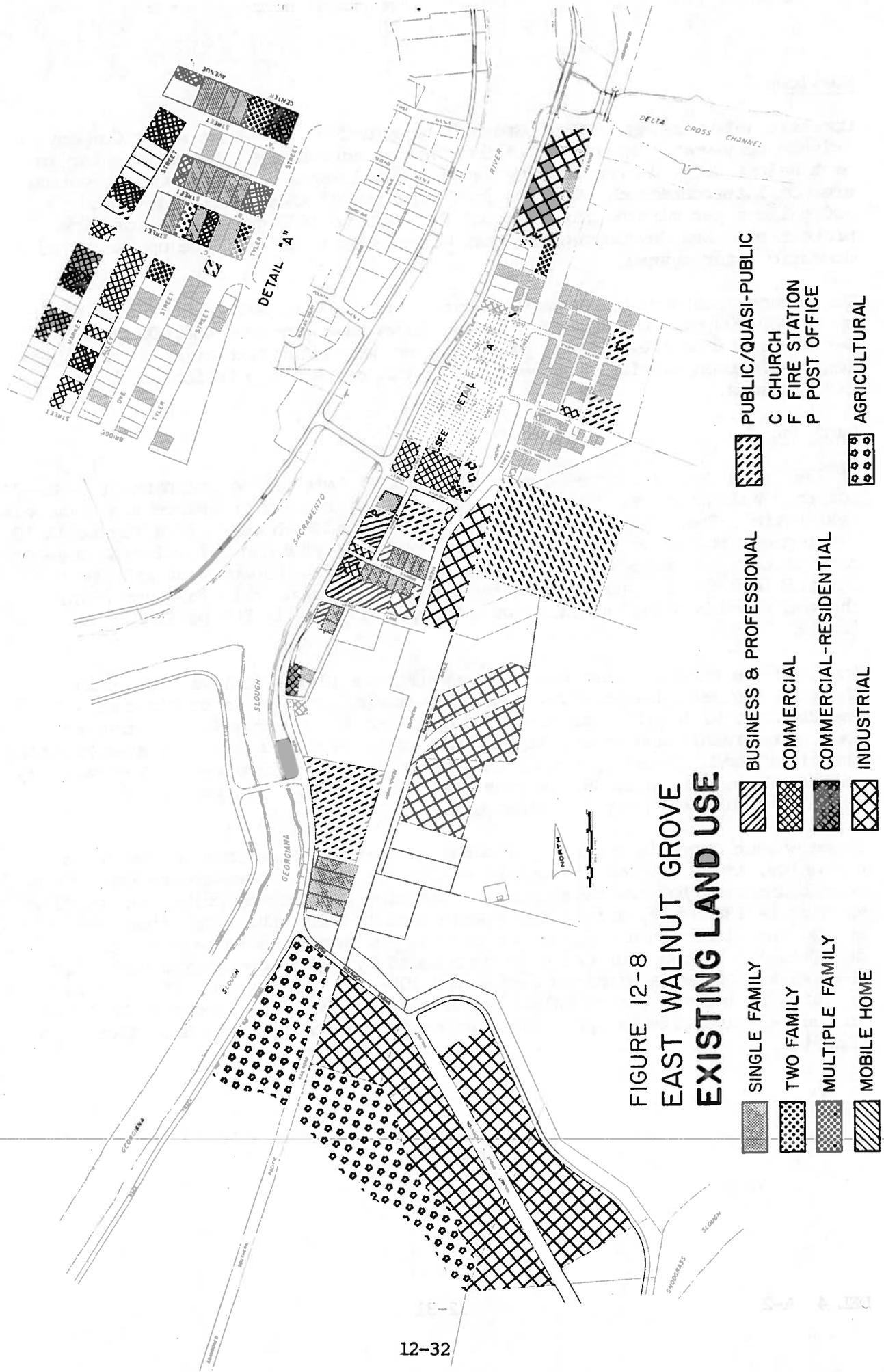
The sewage treatment plant serving both east and west Walnut Grove can treat up to 180,000 gallons per day. Winter flows have exceeded 400,000 gallons per day at times due to leaky pipes and wet weather infiltration. Once these leaks have been eliminated, the facility can serve a population of about 1330 persons.

## Land Use

In 1981, the County adopted a Special Planning Area zoning ordinance (81-SPA-2) for east Walnut Grove. The land use categories in this ordinance are Commercial/Residential, Residential, Industrial, and Office/Warehouse. (See Figure 12.10.) Development standards in this ordinance recognize the unusual existing development pattern and allow new development to occur in a manner that will be compatible with the character of the town. Based upon this land use plan, the estimated holding capacity for east Walnut Grove is 568 persons. (Table 12.15.)

The land use plan for west Walnut Grove (Figure 12.11) follows very closely the existing land use pattern. The predominant land use is single-family residential, with agricultural-residential and estate type lots at the north end. Commercial land uses will continue to be restricted to that area abutting the river road. Based upon this land use plan, the estimated holding capacity of west Walnut Grove is 492 persons (see Table 12.16), and the estimated overall holding capacity of Walnut Grove is 1060 persons.

Since Walnut Grove is centrally located and easily accessible in the Delta community, it is assumed that there will eventually be pressure to expand the town boundaries for new development. Assuming that County policy and development costs (sewerage, water, etc.) would not prohibit this expansion, the appropriate location and direction for the new growth would have to be determined. West Walnut Grove is surrounded by highly productive orchards. East Walnut Grove is within a designated 100-year floodplain. If a future decision is made to expand Walnut Grove, careful consideration must be given to the relative effects upon, among other things, agriculture and safety from flooding.



**FIGURE 12.9  
WEST WALNUT GROVE  
EXISTING LAND USE**

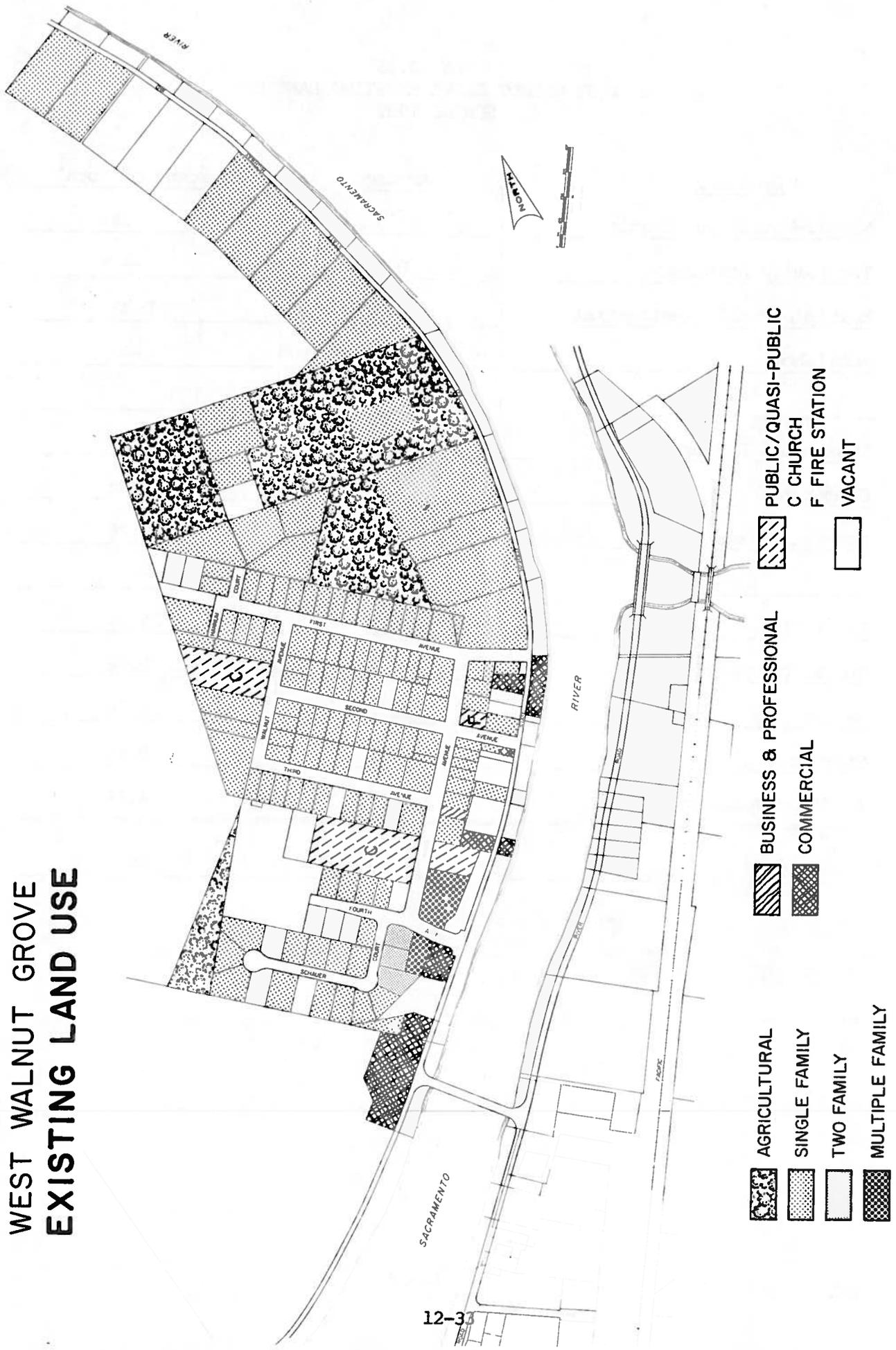


TABLE 12.13  
EAST WALNUT GROVE EXISTING LAND USE  
SPRING 1982

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Single-Family Residential	13.5	9.2%
Two-Family Residential	0.1	—
Multiple-Family Residential	0.6	0.4%
Mobilehome	0.1	—
Business & Professional	1.9	1.3%
Commercial	2.7	1.8%
Commercial/Residential	0.3	0.2%
Industrial	37.2	25.2%
Public/Quasi-Public	14.2	9.6%
Vacant	41.7	28.2%
Streets & Alleys	14.5	9.8%
Ag./Open Space	21.1	14.3%
TOTAL	147.9	100%

TABLE 12.14  
WEST WALNUT GROVE EXISTING LAND USE  
SPRING 1982

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Single-Family Residential	49.4	54.7%
Two-Family Residential	0.7	0.7%
Multiple-Family Residential	1.0	1.0%
Mobilehome	—	—
Business & Professional	0.1	0.1%
Commercial	2.6	2.8%
Commercial/Residential	—	—
Industrial	1.9	2.0%
Public/Quasi-Public	3.6	3.9%
Vacant	8.8	9.7%
Streets & Alleys	4.7	5.1%
Ag./Open Space	18.1	20.0%
TOTAL	90.9	100%

TABLE 12.15  
EAST WALNUT GROVE PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY

Land Use Zone	Acreage	Percent of Total Acreage	Assumed Dwelling Units/Acre	Estimated Residential Dwelling Unit Holding Capacity	Assumed Persons per Dwelling Unit	Estimated Population Holding Capacity
Industrial	22.0	14.9%				
Industrial (1)	54.6	36.9%				
Office/Warehouse	0.4	0.3%				
Commercial/Residential	21.0	14.2%	6.5	136.5	1.5	205
Residential (developed) (2)	19.2	13.0%	4.0	76.8	2.0	154
Residential (vacant) (3)	13.5	9.1%	7.5	101.2	2.0	202
Residential (P/QP) (4)	13.1	8.9%	0	0	0	0
Agricultural Residential	4.1	2.7%	1.0	4.1	2.6	7
<b>TOTAL</b>	<b>147.9</b>	<b>100%</b>		<b>318.6</b>		<b>568</b>

- (1) Walnut-Grove-Thornton Road area.
- (2) Parcels which were developed at the time of the land use survey.
- (3) Parcels which were vacant at the time of the land use survey.
- (4) Parcels with existing public and quasi-public uses (community center, school, etc.) which are unlikely to be developed residentially.
- (5) Not within the Walnut Grove Special Planning Area.

TABLE 12.16  
WEST WALNUT GROVE PLANNED LAND USE AND ESTIMATED RESIDENTIAL HOLDING CAPACITY

Land Use Zone	Acreage	Percent of Total Acreage	Assumed Dwelling Units/Acre	Estimated Residential Dwelling Unit Holding Capacity	Assumed Persons per Dwelling Unit	Estimated Population Holding Capacity
BP	1.0	1.1%				
LC	1.6	1.8%				
GC	2.6	2.9%				
M-1	2.1	2.3%				
AR-1	9.1	10.0%	0.7	6.4	2.8	18
RD-1	27.5	30.2%	0.9	24.7	2.8	69
RD-3	4.3	4.7%	2.7	11.6	2.6	30
RD-5 (developed) (1)	29.6	32.5%	2.7	80.2	2.6	209
RD-5 (vacant) (2)	6.7	7.4%	3.5	23.5	2.6	61
RD-5 (P/QP) (3)	2.5	2.8%	0	0	0	0
RD-20	3.9	4.3%	18.0	70.2	1.5	105
TOTAL	90.9	100%		216.6		492

(1) Parcels which were developed at the time of the land use survey.

(2) Parcels which were vacant at the time of the land use survey.

(3) Parcels with existing public and quasi-public uses (fire station, church, etc.) which are unlikely to be developed residentially.

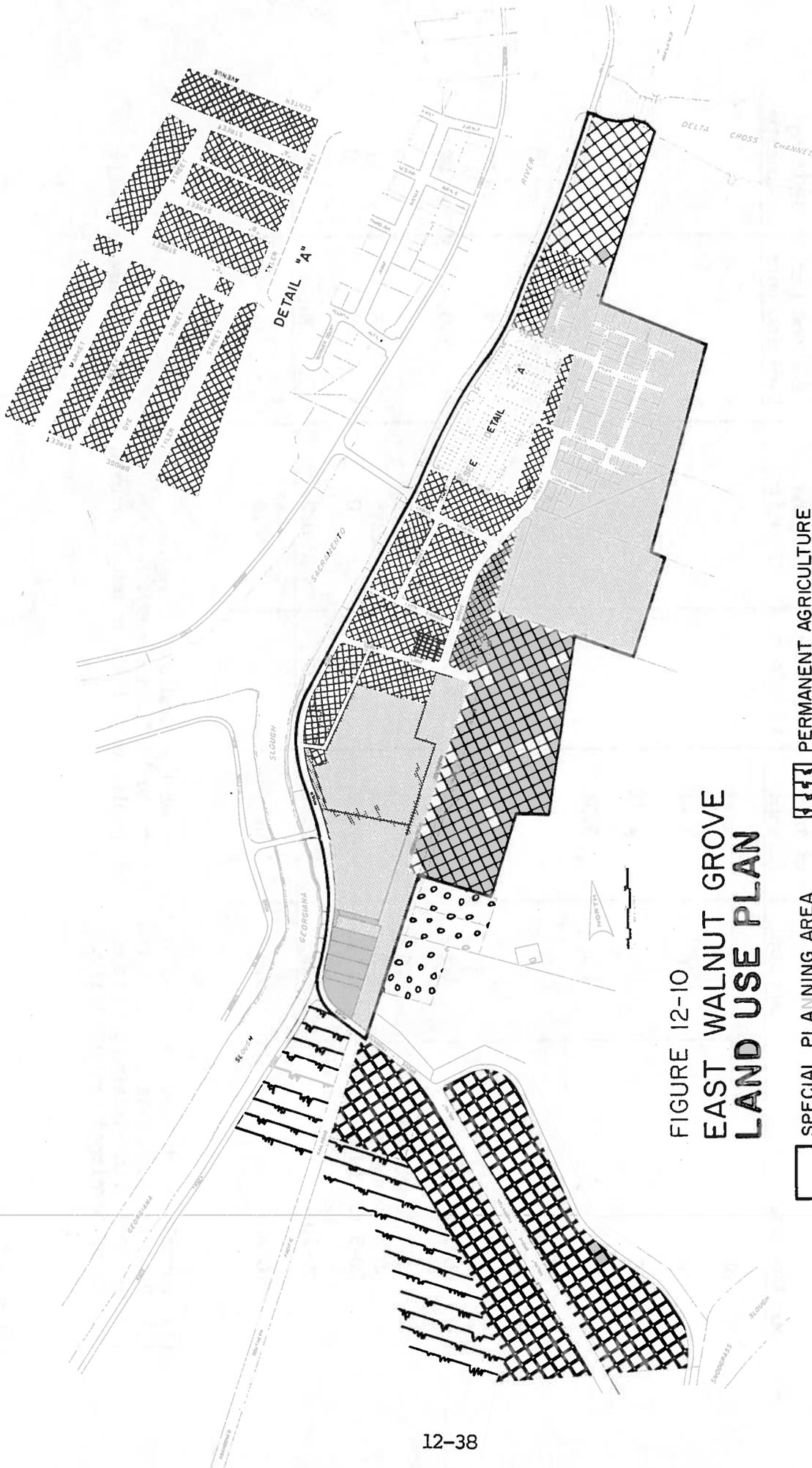
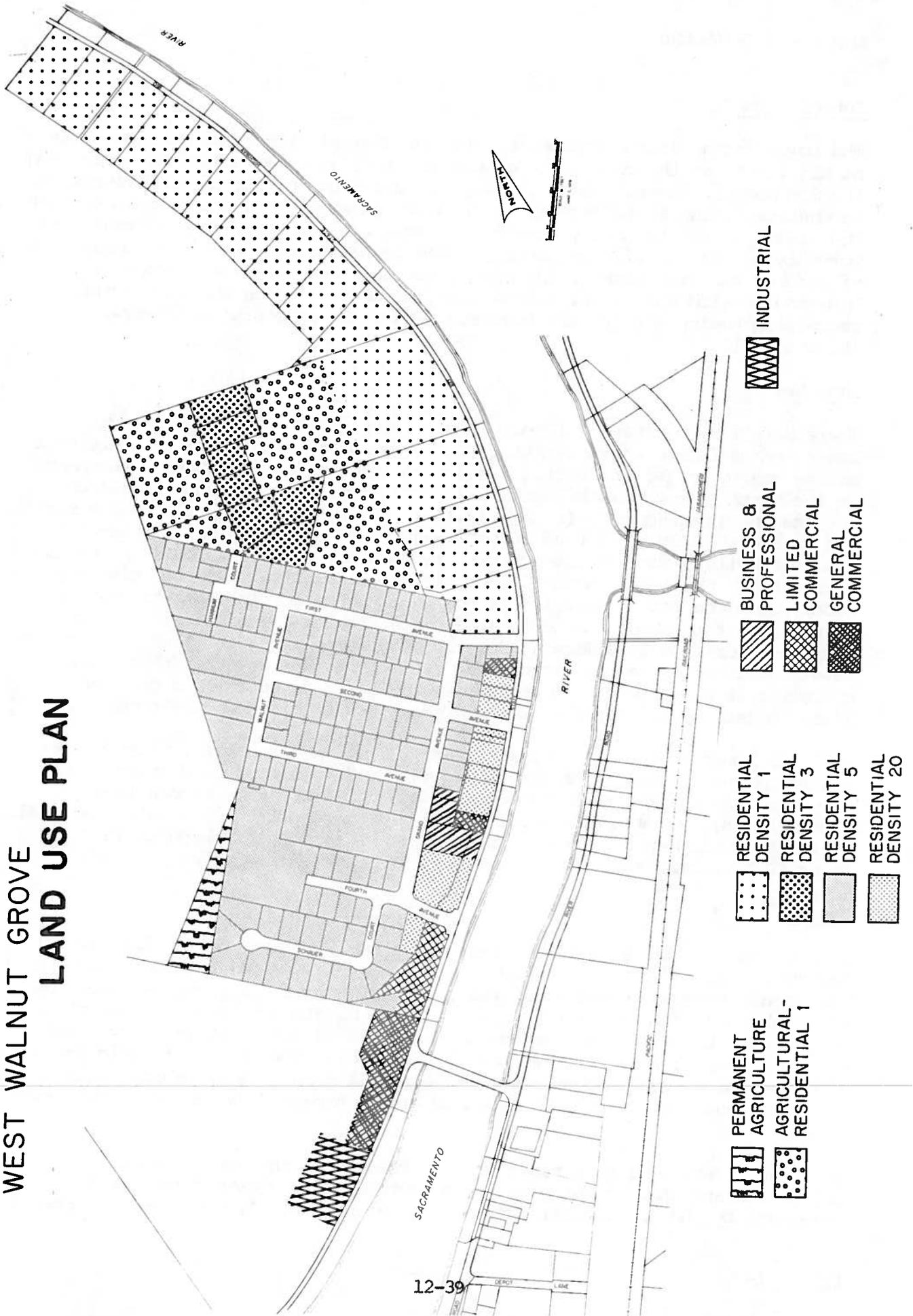


FIGURE 12-10  
**EAST WALNUT GROVE  
 LAND USE PLAN**

-  SPECIAL PLANNING AREA
-  Commercial / Residential
-  Residential Density 10
-  Industrial
-  Office / Warehouse
-  PERMANENT AGRICULTURE
-  AGRICULTURAL-RESIDENTIAL 2
-  INDUSTRIAL

FIGURE 12.11  
**WEST WALNUT GROVE  
 LAND USE PLAN**



## LOWER ANDRUS ISLAND

### Introduction

The Lower Andrus Island recreation area is located five miles southeasterly of Rio Vista, at the confluence of Georgiana Slough, the Mokelumme River, and the San Joaquin River. State Highway 12, which intersects the Interstate 80, Interstate 5, and State Highway 99 freeways provides good road access through the area. Access to nearby scenic waterways is excellent. The recreational potential of the area is tremendous. Vegetation in the area is a combination of natural riparian growth, introduced species, and cultivated crops. Man-made development on the island consists of residences and commercial/recreation business which are scattered along the adjoining waterways. (Figure 12.12.)

### Land Use

There were twelve commercial-recreational developments in operation on Lower Andrus Island at the writing of the community plan, plus an additional marina nearby on Twitchell Island and a residential/recreational development on the north side of State Highway 12 at the confluence of Georgiana Slough and the Mokelumme River. (Figure 12.13.) The Lower Andrus Island area has the greatest concentration of boat berths in the Delta region, indicating its desirability for boating-oriented recreation. (Table 12.18.) Somewhat surprisingly, the landside development is still relatively sparse, giving a rural, open character which is not so readily apparent in other recreation communities throughout the Delta region. A Special Planning Area Zoning Ordinance, drafted specifically for the properties along the land side of the levees, encourages new development to occur in such a way that this open character is preserved. The ordinance, 83-SPA-1, promotes this goal by limiting land division and requiring open space within new developments.

Although Lower Andrus Island covers over eleven hundred acres, this Special Planning Area is limited to the relatively narrow band of land which abuts the Mokelumme River, the San Joaquin River, and Seven Mile Slough (see Figure 12.14), as well as the recreational developments on the waterways. All existing development on Lower Andrus Island is within this band of land. Table 12.17 summarizes land use on the land side of the levee.

### Issues

Several related issues have emerged during the planning process for Lower Andrus Island. First is the provision of public services and facilities to the area. Brannan Island Road, the principal access, is a narrow levee road with substandard lane width and little or no usable shoulders in many places. At present, the road provides adequate service to the relatively low levels of traffic on it (660 vehicles per day in 1980). However, as traffic increases, the level of service and degree of safety will drop. Major improvements to the road cannot occur without a prohibitively expensive widening to the levee crown.

New development will also place greater burdens on the provisions of fire protection and sheriff patrols. Fire protection is provided through informal agreement by the Isleton Fire Department which is mostly volunteers. Occasional

calls can be met by the district, but response priority is given to the Isleton City limits. If significant development occurs on Lower Andrus Island and within the City of Isleton, this informal arrangement may no longer be acceptable. Likewise, sheriff patrol manpower is limited. Residents and commercial operators have compensated for substandard sheriff protection by actively engaging in cooperative self-policing, but this approach will be increasingly unsatisfactory as new development attracts greater numbers of people in the area.

Public water and sewerage facilities are nonexistent on Lower Andrus Island. While this situation has not yet created an apparent problem, a proliferation of septic tanks and wells within a confined location could eventually create a health hazard; cooperative sewage treatment facilities may some day be needed if major development occurs. These systems must be designed to function effectively with the highwater table on the island.

The second major issue relates to the intensity type of future development that may occur on Lower Andrus Island. Ideally, this new development should be a complementary mixture of residential and commercial-recreational land uses that will enhance the rural, water-oriented resort character of the area. If the balance swings too heavily toward recreational development, the desired sense of a permanent community may be threatened. On the other hand, too heavy a concentration of residences would tend to incrementally exclude public use of this valuable recreational asset. Too heavy a concentration of either, or both, land use types would also tend to destroy the rural, agricultural environment of the island and overtax the already-substandard public services and facilities, and could eventually lead to pressures that would threaten the highly-productive agricultural land of the island.

The third and most important issue is the flood potential on Lower Andrus Island. The levees protecting the island do not meet standards established by the National Flood Insurance Program for 100-year flood protection. If a flood were to occur on Lower Andrus Island, property damage and perhaps lost lives could result in proportion to the amount of development within the flood area. If a flood were to occur at night or during times of peak recreational use, the resulting panic could be disastrous.

Sacramento County entered into the Federal Flood Insurance Program in March 1978. In order to qualify for this program, the County must enforce requirements for floodproofing new structures and elevating new residences above the 100-year floodplain elevation. While it might seem that these requirements would eliminate flood danger to residences, such is not the case. Reclaiming flooded islands is a lengthy process taking months of time. During that time, a "floodproofed" residence will likely be unuseable due to lack of sewerage, potable water, and access. A home sitting vacant during the reclamation of the island would be highly susceptible to damage of one sort or another resulting from a flood. As an added concern, the economic feasibility of reclaiming flooded islands is becoming increasingly questionable. If a flood such as the one that occurred in 1972 were to happen again, the reclamation costs could be prohibitive as the federal government has shown reluctance to continue funding this activity.

There is no catch-all solution to these various issues. Each new development proposal on Lower Andrus Island must be considered in light of the effect upon services, land use character, and flood potential. It is recommended that policies affecting development of the Lower Andrus Island Special Planning Area be reviewed within five years, or sooner if major changes occur in the area.

TABLE 12.17  
 LOWER ANDRUS ISLAND SPECIAL PLANNING AREA EXISTING LAND USE  
 SPRING 1982

<u>Land Use</u>	<u>Acreage</u>	<u>Percent of Total</u>
Single-Family Residential	13.3	2.4%
Commercial Recreation	63.3	11.3%
Streets & Alleys (Brannan Island Road)	19.5	3.4%
Ag./Open Space	466.3	82.9%
TOTAL	562.4	100%

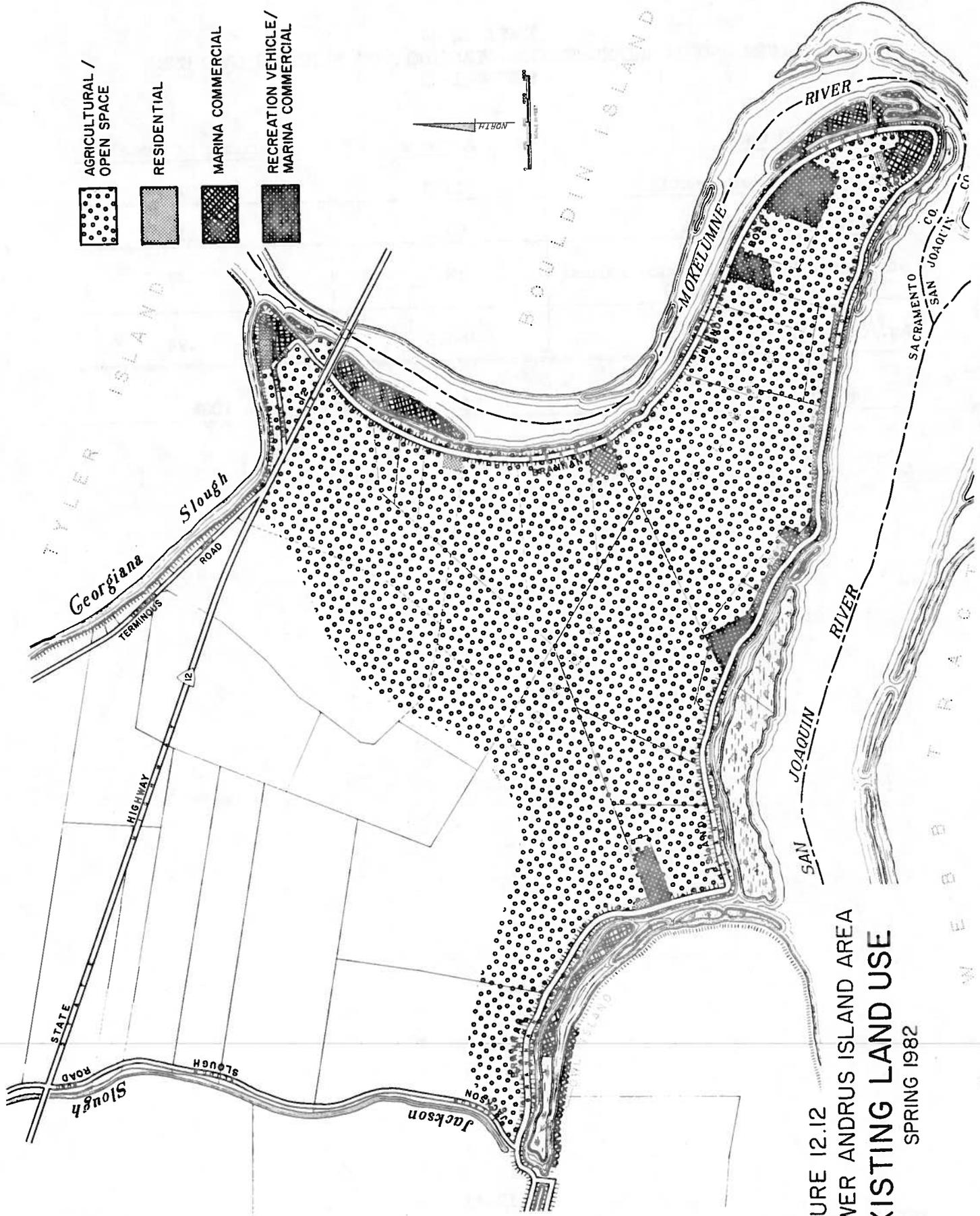
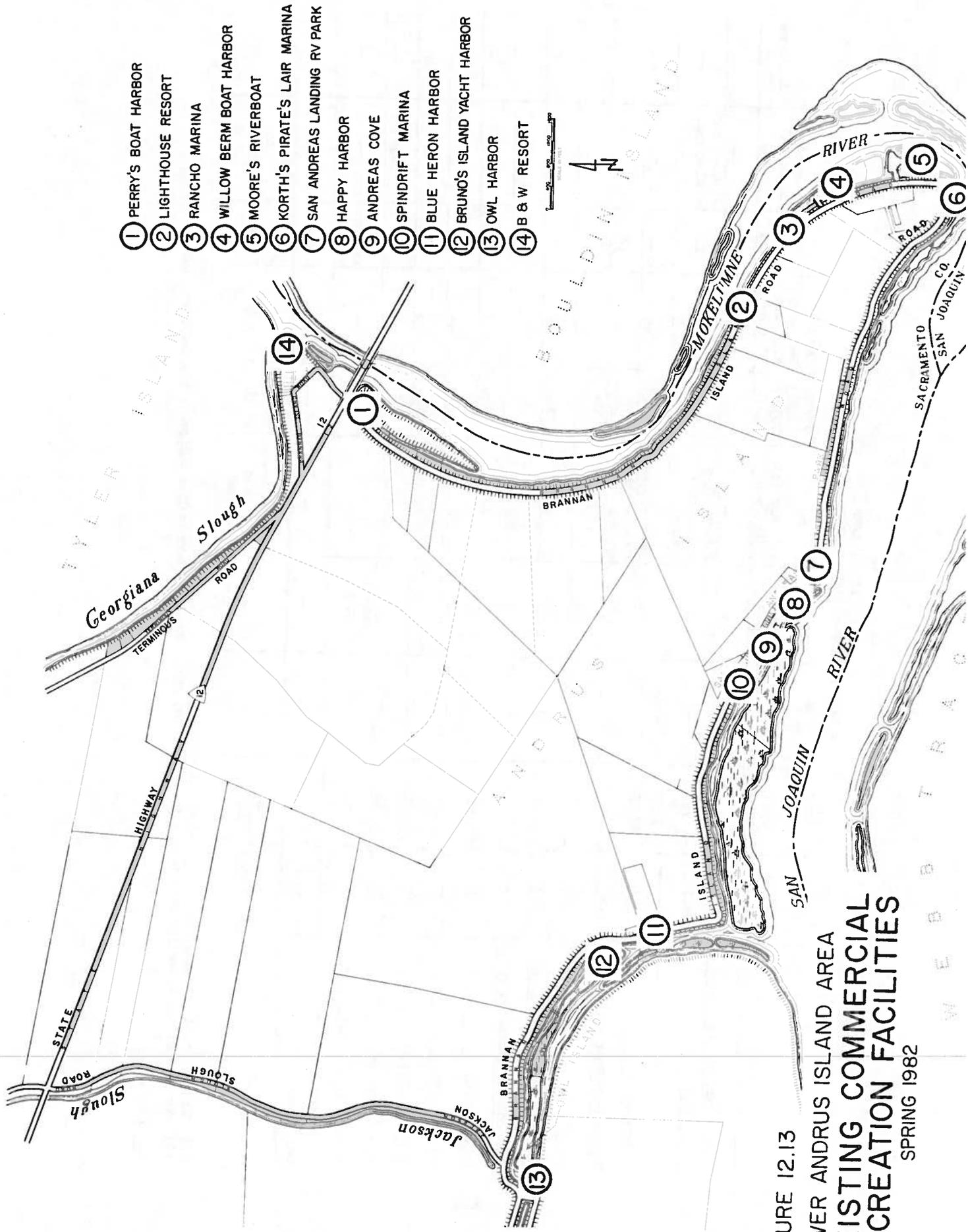


FIGURE 12.12  
 LOWER ANDRUS ISLAND AREA  
**EXISTING LAND USE**  
 SPRING 1982



- ① PERRY'S BOAT HARBOR
- ② LIGHTHOUSE RESORT
- ③ RANCHO MARINA
- ④ WILLOW BERM BOAT HARBOR
- ⑤ MOORE'S RIVERBOAT
- ⑥ KORTH'S PIRATE'S LAIR MARINA
- ⑦ SAN ANDREAS LANDING RV PARK
- ⑧ HAPPY HARBOR
- ⑨ ANDREAS COVE
- ⑩ SPINDRIFT MARINA
- ⑪ BLUE HERON HARBOR
- ⑫ BRUNO'S ISLAND YACHT HARBOR
- ⑬ OWL HARBOR
- ⑭ B & W RESORT

12-45

FIGURE 12.13  
 LOWER ANDRUS ISLAND AREA  
 EXISTING COMMERCIAL  
 RECREATION FACILITIES  
 SPRING 1982

TABLE 12.18  
LOWER ANDRUS ISLAND AREA  
EXISTING COMMERCIAL FACILITIES (1)

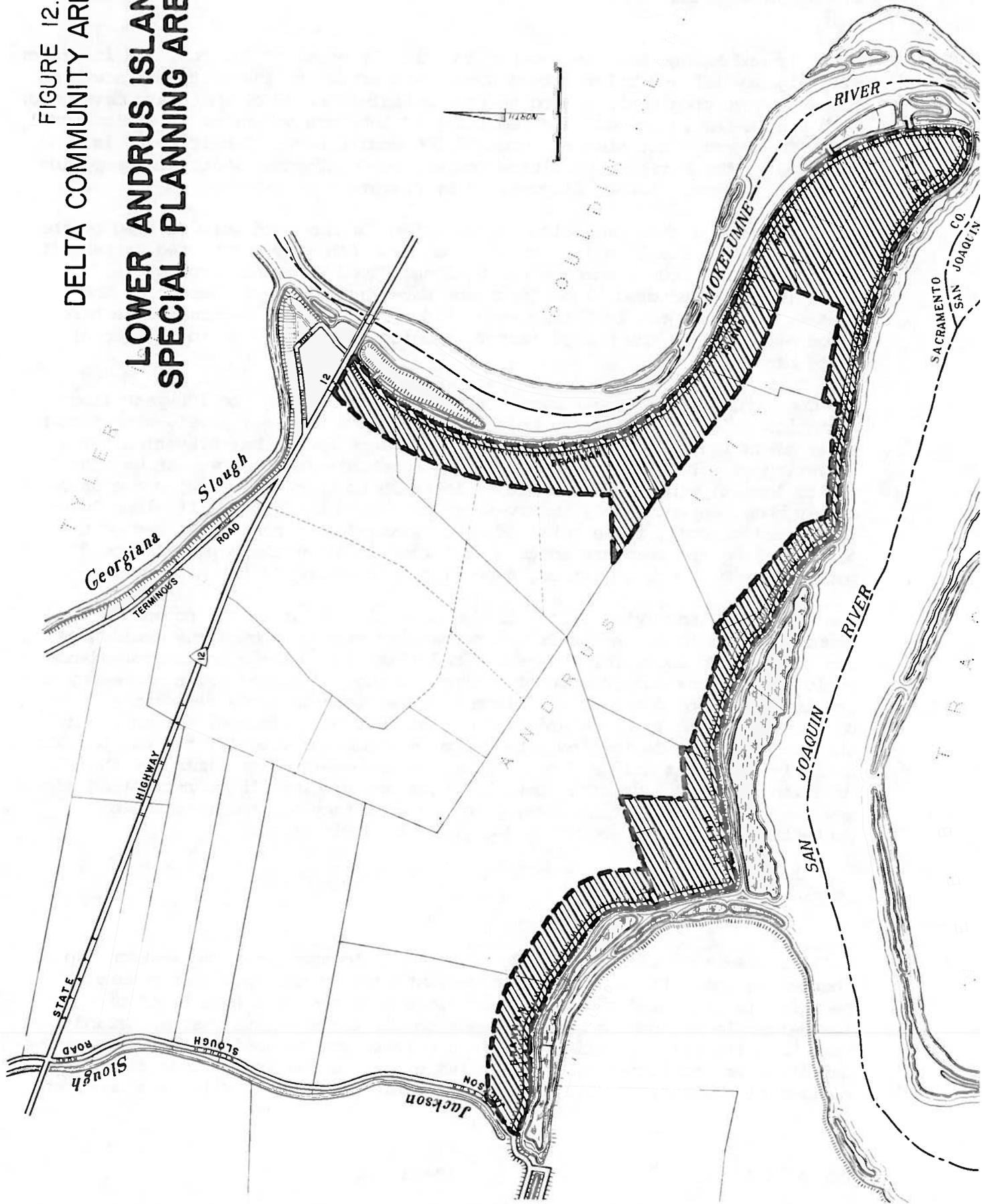
	Covered Berths	Open Berths	Boat Launch Facilities	Marine Service	Dry (2) Storage	On-Site Supply Store/Food	On-Site Restaurant/Cocktail Lounge	Picnic Sites	Recreational Vehicle Sites	Mobilehome Sites
Perry's Boat Harbor	122	—	Hoist	Yes	—	Yes	—	—	—	—
Rancho Marina	—	12	—	—	2 acres open and 14 covered spaces	Yes	—	25	2 acres open + 22 spaces	—
Lighthouse Resort	35	20 (day use)	2-lane launch ramp	Yes	40 open spaces 40 covered spaces	Yes	Yes	Yes	157	—
Willow Berm Boat Harbor	198	—	—	—	—	Ice only	—	10	—	—
Moore's Riverboat	50	115	—	Yes	—	Ice only	Yes	—	—	—
Korth's Pirate Lair Marina	208	—	Launch ramp	—	—	Yes	Yes	—	—	48
San Andreas Landing RV Park	—	—	—	—	—	—	—	—	17	—
Happy Harbor	8	20	—	—	—	Ice only	Yes	—	6	—
Andreas Cove	—	24	—	—	1 acre open	Ice only	Yes	—	—	—
Spindrift Marina	109	39	—	—	—	Yes	Yes	—	—	47
Blue Heron Harbor	25	43	—	—	30 open spaces	Yes	—	12	48	—
Bruno's Island Yacht Harbor	—	124	—	Members only	—	Ice only	—	4 Members only	—	—
Owl Harbor	12	—	—	—	—	—	—	—	—	—
<b>TOTALS</b>	767	397	3	4	3 acres open 170 open spaces 54 covered spaces	11	6	51+	2 acres open 250 spaces	95
		1164 Total								

(1) Source: "Delta Recreation Concept Plan," January 1981.

(2) Most commercial establishments have informal parking areas which may accommodate temporary trailer/boat storage.

FIGURE 12.14  
DELTA COMMUNITY AREA

**LOWER ANDRUS ISLAND  
SPECIAL PLANNING AREA**



## TYLER ISLAND BRIDGE ROAD

Tyler Island Bridge Road is located immediately north of Isleton, and intersects with Highway 160 and Tyler Island Road. Properties to the north and south of the road have been divided into 64 residential lots, 37 of which are developed with single-family homes. The remaining 27 lots are vacant or in agricultural use. The average lot size is about 26,000 square feet. Public water is supplied by the Citizens Utilities Company of California, which also supplies water to Isleton. Sewage disposal is by private septic tanks.

In 1972, many of the homes along Tyler Island Bridge Road were damaged by the Isleton flood. Nearly all of these homes have since been repaired or rebuilt. When Sacramento County entered the National Flood Insurance Program in March 1979, the adopted Flood Insurance Rate Maps (FIRM's) identified the area as being subject to the 100-year flood, but did not determine the base flood elevation or the hazard factor. Confusion followed as to the actual flood hazard.

The County Chief Drainage Engineer has since established the 100-year flood elevation at this location to be seven feet above mean sea level, with finish floor elevation of new residences to be one foot above that elevation. The elevation of Tyler Island Bridge Road is about six feet below mean sea level at its lowest point. If each vacant lot were to be developed with a single-family home, approximately twenty-seven new homes could be built along Tyler Island Bridge Road, for a total of about sixty-four residences. Ten of the parcels along the road are an acre or larger in size; these parcels could potentially be further divided, depending upon zoning of the property.

The conflict along Tyler Island Bridge Road is similar to the potential problem in the Lower Andrus Island recreation area; although new residences can be elevated above the 100-year flood elevation, damage and inconvenience could still occur as a result of a flood during the months often necessary to repair levees and pump out an island. It is clear that new residential development along Tyler Island Bridge Road must be minimized. To this end, the land use plan designates a half-acre minimum lot size for all new parcels along Tyler Island Bridge Road. This land use designation minimizes the creation of new residential lots, but does not preclude the construction of new residences on existing lots, provided that they are built to flood protection standards, above the 100-year flood elevation.

## LELIA DRIVE

Lelia Drive is an isolated residential tract, located near the western tip of Sherman Island. The original twenty-eight lots in the subdivision were recorded in 1953, and subsequent divisions have resulted in a total of forty-four lots. Public street access to the tract is via Sherman Island Road to Lelia Drive. Lelia Drive is a private gravel road. Public sewerage and public water facilities are not available. Since the Zoning Code requires a minimum of one-acre parcels when septic tanks and private wells are used, and

the parcels on Lelia Drive are between 10,000 and 20,000 square feet in size, no new construction can take place within the tract unless a variance from minimum lot size requirements and an exception from public street frontage requirements are granted. Additionally, all new construction is subject to regulations of the National Flood Insurance Program since Sherman Island is not protected from the 100-year flood.

In the summer of 1982, there were approximately twenty-two residences on Lelia Drive, along with a trailer court containing about thirteen trailers. Sixteen parcels were vacant, although some are in common ownership with abutting parcels and may be functionally merged. Consequently, it is unclear how many vacant parcels might actually be buildable lots. New construction should be limited, given the remoteness of the tract from public services, the lack of public facilities, and the flood potential on the island. In recognition of these constraints, the land use plan requires a minimum of one acre for all newly created lots.

#### ISLETON

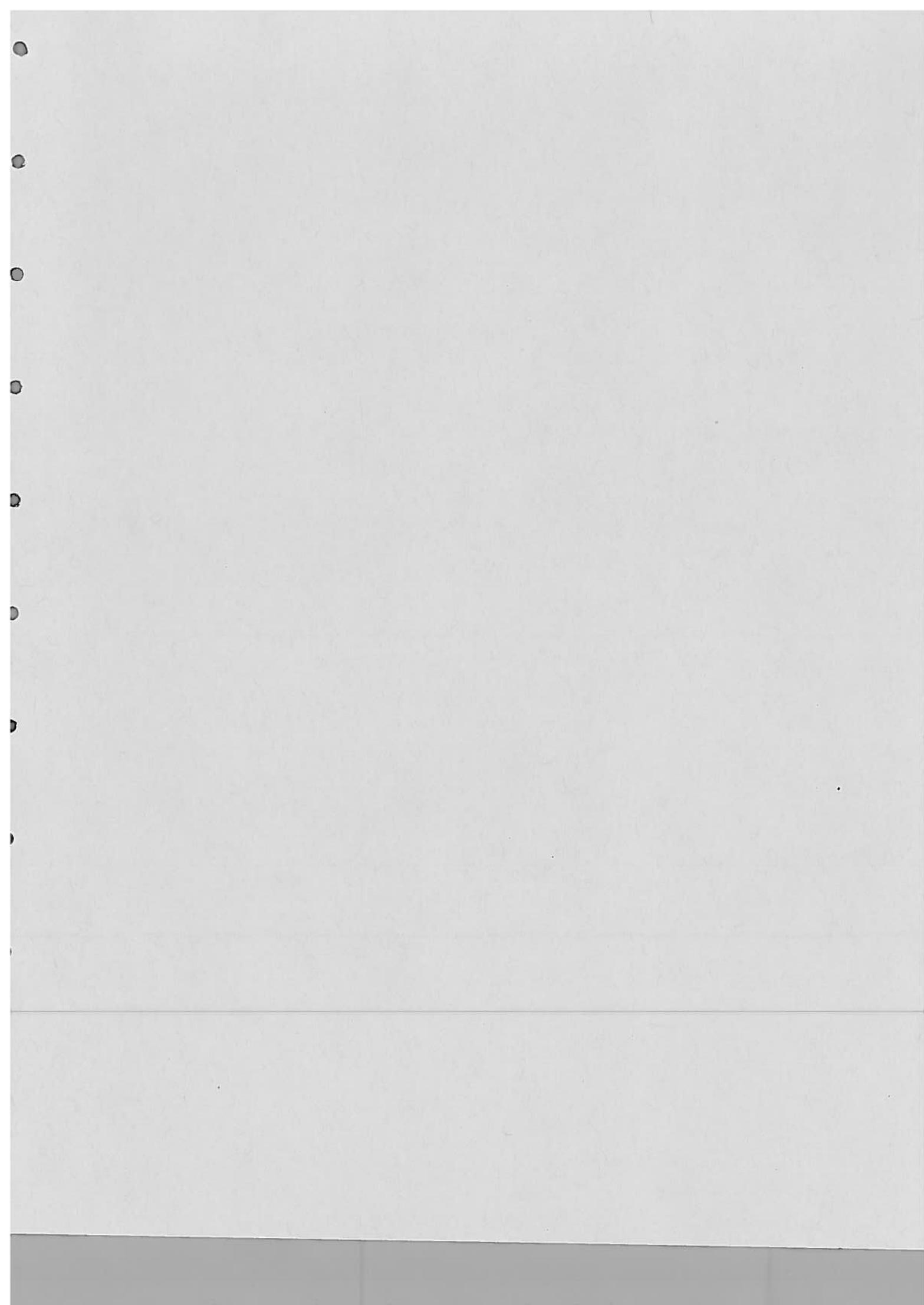
Isleton is an incorporated city regulated by its own General Plan, and does not fall within the scope of this community plan. However, Isleton is surrounded on three sides by the unincorporated Sacramento County area, and is physically and economically a part of the Delta community area. As such, a cursory summary of the 1979 Isleton General Plan is described below.

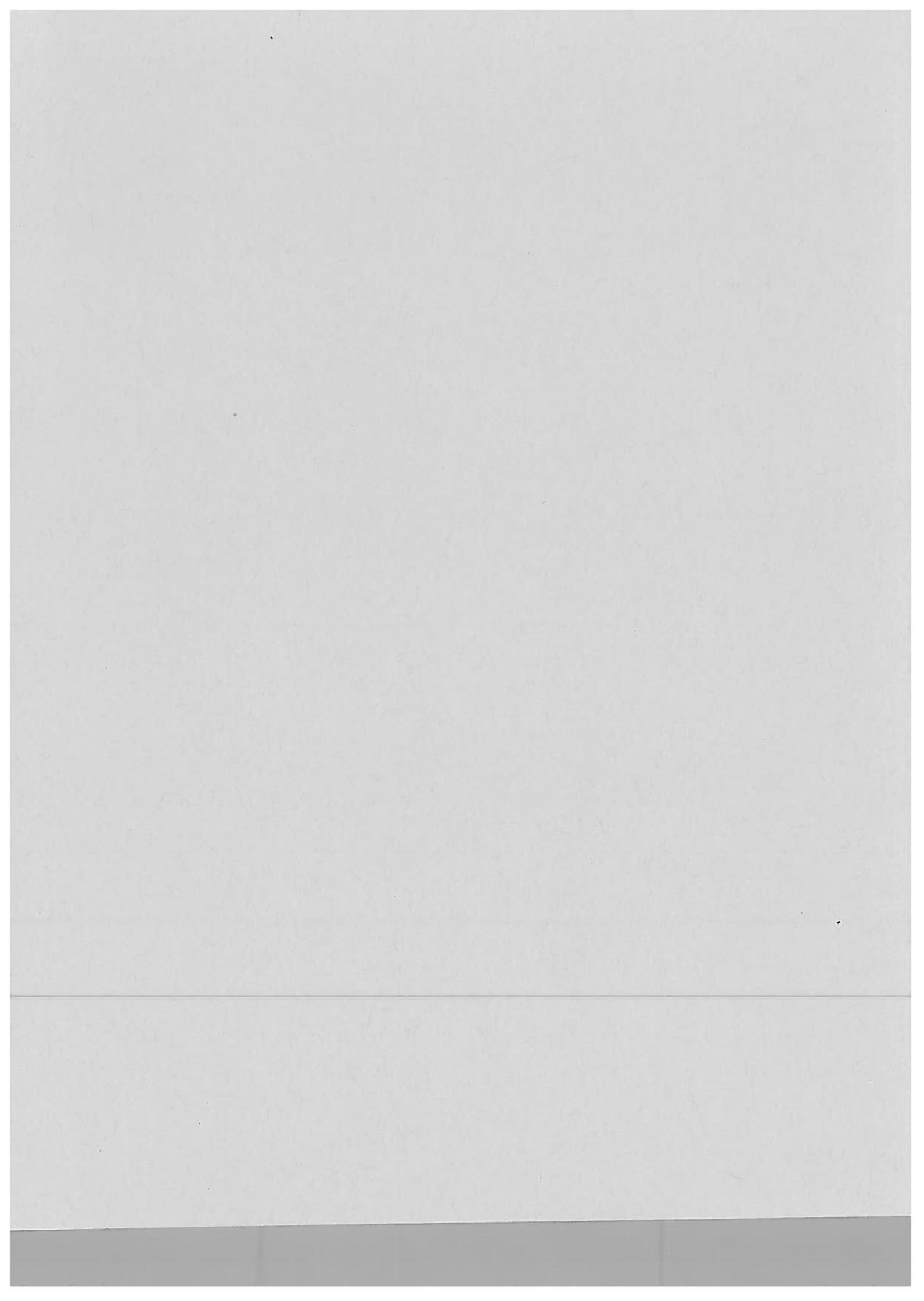
The city is located on the Sacramento River, approximately thirty-four miles south of the City of Sacramento. The city limits cover 252 acres, half of which were vacant in 1979. According to census information, Isleton had a population of 909 in 1970, 911 in 1975, and 914 in 1980. The population holding capacity, according to the General Plan, is 1,605 persons.

Little change in land use has taken place in Isleton since 1979. However a proposal has been made to develop a condominium/marina community at the north end of the city. This project would convert a sizeable area of planned industrial land to residential use, and could signal the start of new growth in Isleton.

The establishment of the National Flood Insurance Program placed severe restrictions on new development in Isleton. New development must now be built above the 100-year floodplain elevation, which can be in excess of 10 feet above grade in some parts of Isleton. As a result, little construction has occurred since the new regulations were enacted. Logically, though, any new residential growth in the Brannan/Andrus/Sherman Islands area should be directed to the Isleton vicinity where public services and facilities are available. It may be anticipated that this new development could begin to take place as construction techniques are found to cope with the flood potential.







CHAPTER THIRTEEN  
IMPLEMENTATION

ZONING CONSISTENCY

Land use in the Delta is regulated by zoning districts which are adopted by the Board of Supervisors by ordinance. The land use zones prescribe permitted land uses and the conditions under which those uses are permitted. The land use zones also prescribe specific development standards for development. State law requires that these zones be consistent with the County General Plan. County policy dictates that the community plans be consistent with the General Plan as well. Zoning consistency hearings are conducted as a part of the community plan hearing process so that consistency is effected upon adoption of the community plan.

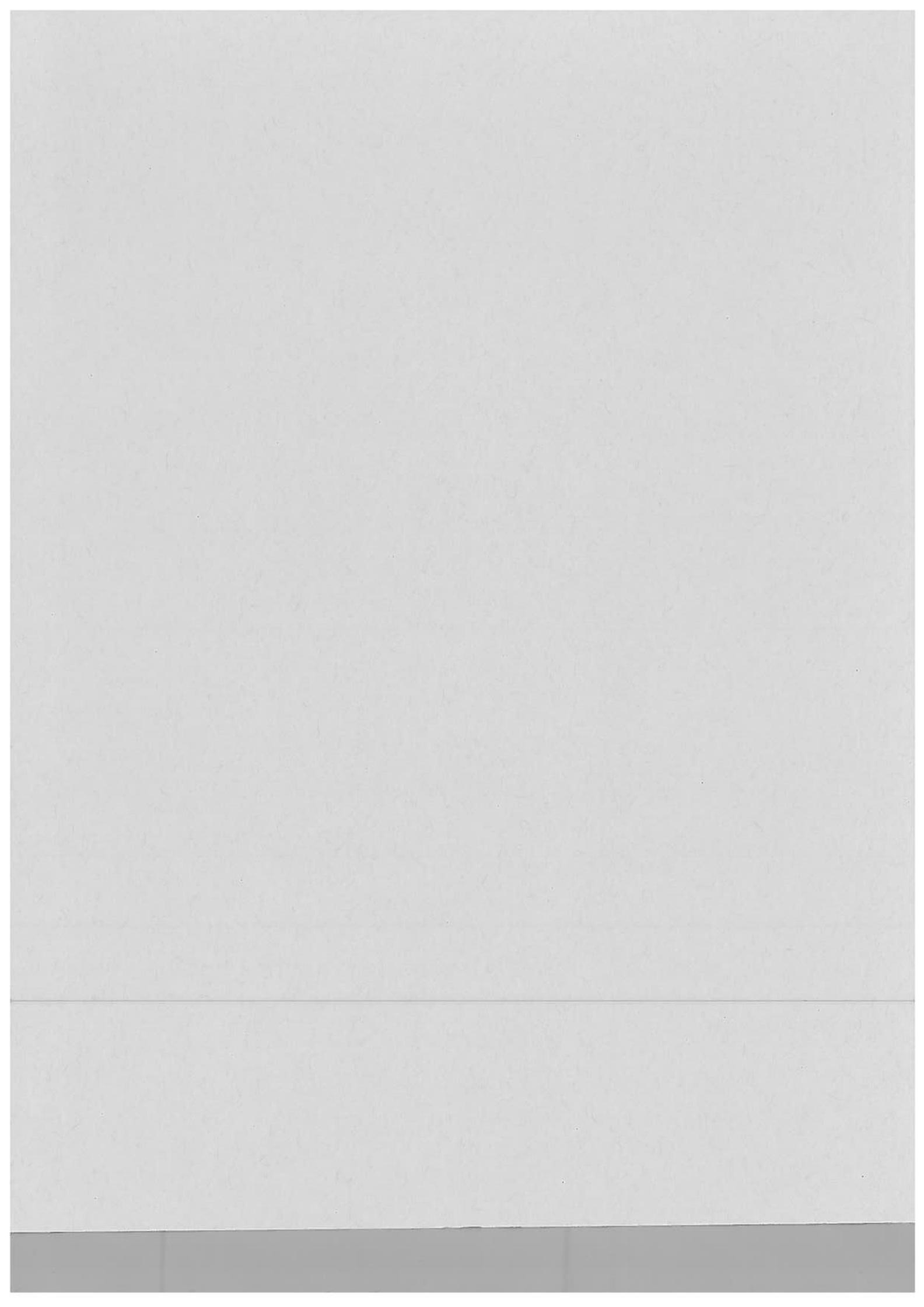
POLICY IMPLEMENTATION

The policies in this community plan are intended to provide specific direction for future land use decisions. These policies address issues and problems that have surfaced during the drafting of this community plan and should be consulted whenever discretionary decisions such as use permit or rezone requests are made.

While the policies were created to address future land uses, it is recognized that unforeseen changes in conditions can occur that might affect the policies. This community plan should, therefore, be reviewed within five to seven years and revisions made as needed.







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DEPARTMENT OF CHEMISTRY

LABORATORY OF ORGANIC CHEMISTRY

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ADVISOR: \_\_\_\_\_

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