CHAPTER 3.0 DESCRIPTION OF PROJECT AND ALTERNATIVES

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3.1 INTRODUCTION

The proposed project is the draft Cache Creek Resources Management Plan (CCRMP) for lower Cache Creek (December 4, 1995), the draft Cache Creek Improvement Program (CCIP) as provided in Section 7.3 of this DEIR and implementing ordinances. The CCRMP will serve as an area plan for the in-channel portion of the creek, as determined by the present channel bank line or the 100-year flood elevations, whichever is wider, extending from the Capay Dam to the Town of Yolo. The in-channel area (planning area) contains approximately ~~4,995~~ 4956 acres, including roughly ~~2,000~~ 2819 acres within the present channel boundary, plus several hundred acres located in the floodplain north of the City of Woodland.

The CCRMP represents one of two key plans prepared by the County of Yolo (lead agency) to manage the resources of the mining reach of Cache Creek. The CCRMP addresses a variety of issues relevant to managing the diverse resources within the creek channel. The other key plan is the Off-Channel Mining Plan (OCMP) which focuses on sand and gravel extraction outside the creek channel. Though the plans were prepared and evaluated separately, it is proposed that the final OCMP and CCRMP be joined together after adoption, as one printed document entitled the Cache Creek Area Plan.

The CCRMP is largely a river management plan. It focuses on a program of channel stabilization and habitat restoration, and would prohibit commercial mining within the active channel. Implementation of the plan would be largely carried out under the Cache Creek Improvement Program (CCIP). Initial channel reshaping following channel design specifications, ongoing maintenance activities to be regulated by the County, and habitat restoration projects consistent with the CCRMP, would be reviewed by a Technical Advisory Committee, who would provide recommendations on their design and construction. A copy of the draft CCIP is provided in the Section 7.3. This EIR provides the environmental analysis of these operations in order to allow for the immediate commencement of the activities and programs included within the CCIP, once the CCRMP is approved.

3.2 SETTING

Regional Location

Cache Creek traverses Yolo, Lake and Colusa counties in northern California. Its drainage basin extends from the upper basin highlands north and northeast of Clear Lake to the

Yolo Bypass east of the City of Woodland (see Figure 3.2-1). The 14.5-mile segment of lower Cache Creek that would be subject to the requirements of the CCRMP falls between Capay Dam and the Town of Yolo, at the western margin of the Sacramento Valley in central Yolo County (see Figure 3.2-2). Unincorporated towns in the vicinity of the project area include Capay, Esparto, Madison, and Yolo. The City of Woodland, the county seat, is located several miles to the southeast of the planning area.

The regional topography consists of low rolling hills and broad alluvial plains formed at the base of the eastern flank of the California Coast Range. The predominant land use for the region is agriculture.

Project Location

The project location for the CCRMP includes the waterway of Cache Creek extending for about 14.5 miles, from Capay Dam downstream to a levied section of the creek near the town of Yolo. The definition of a waterway is always subject to varied interpretation. The CCRMP uses a definition that is measurable and allows the plan to focus on the extent of the present creek and improvement of channel stability.

The 1979 In-Channel Boundary

The existing boundary for defining the Cache Creek channel was adopted in 1979, as a part of the Interim In-Channel Mining Ordinance for Yolo County (see Figure 3.2-3). The extent of the channel (presently approximately 2,819 acres) was determined primarily based on those portions of the creek where erosion and deposition had occurred, excluding any areas of land being converted to agriculture. The desires of local land owners were taken into consideration when defining the channel boundary. Within this area, commercial mining is currently allowed with approval of the appropriate permits, zoning, and a reclamation plan. In-channel excavation is also restricted by the "theoretical thalweg," a maximum depth established to minimize streambed lowering.

These early attempts at managing the creek were ahead of their time. Even today, few jurisdictions have established a maximum depth for in-stream mining. However, the Technical Studies and Recommendations for the Lower Cache Creek Resources Management Plan (Technical Studies), which include studies of creek geomorphology, groundwater resources, and biological resources used as the technical basis for the CCRMP, indicate that these concepts have since outlived their usefulness. In some areas, levees have been constructed to separate mining and other uses from the channel. Other areas were defined much too broadly, so that "in-channel" mining occurred some distance from the active channel. Similarly, the design of the theoretical thalweg did not take the complex characteristics of Cache Creek into account. Elevations and slopes were inappropriate for the channel hydrology. The CCRMP uses new definitions to more accurately reflect the nature of the creek.

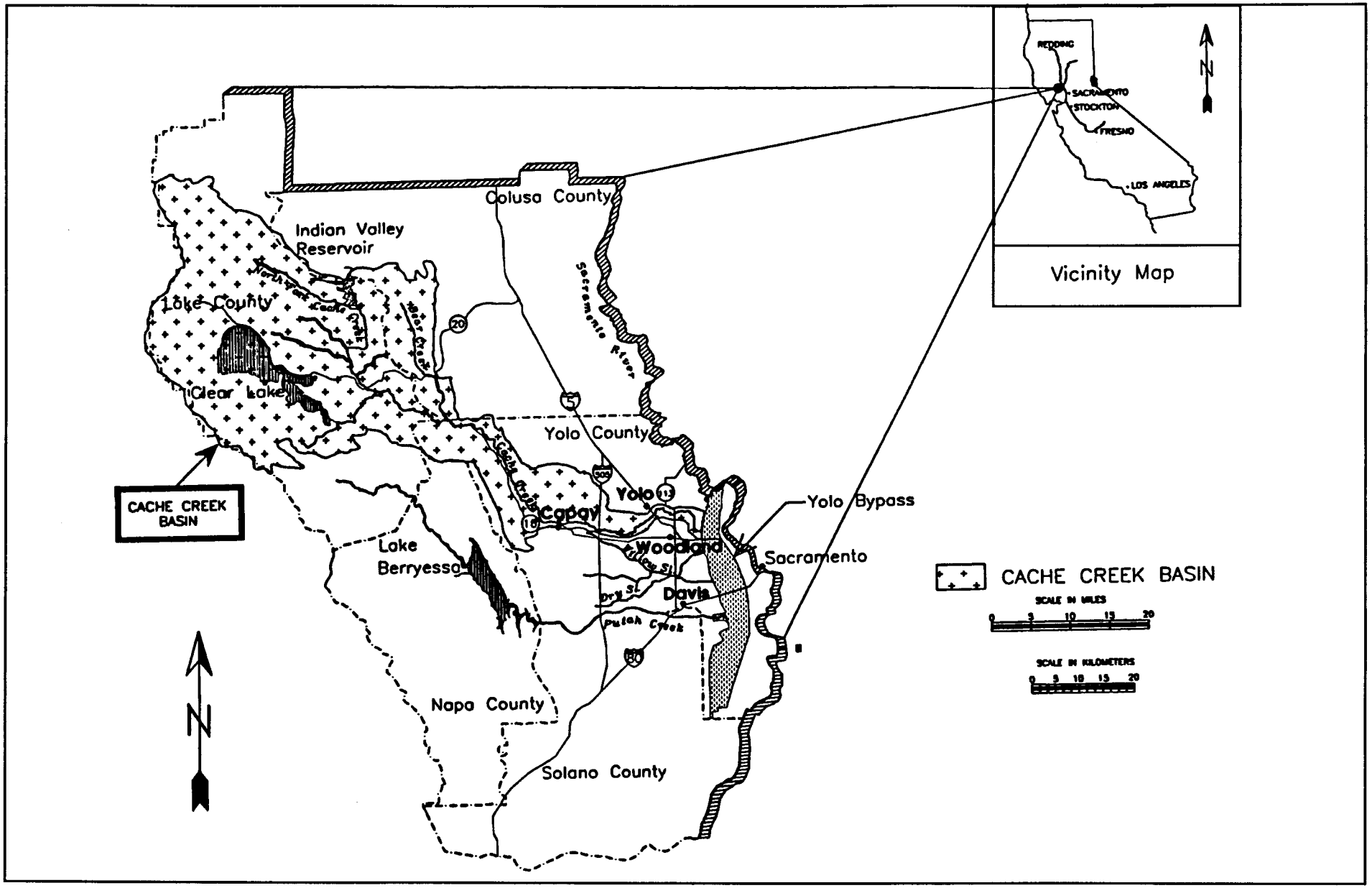

Figure 3.2-1 Regional Location

SOURCE: SACRAMENTO DISTRICT, CORPS OF ENGINEERS

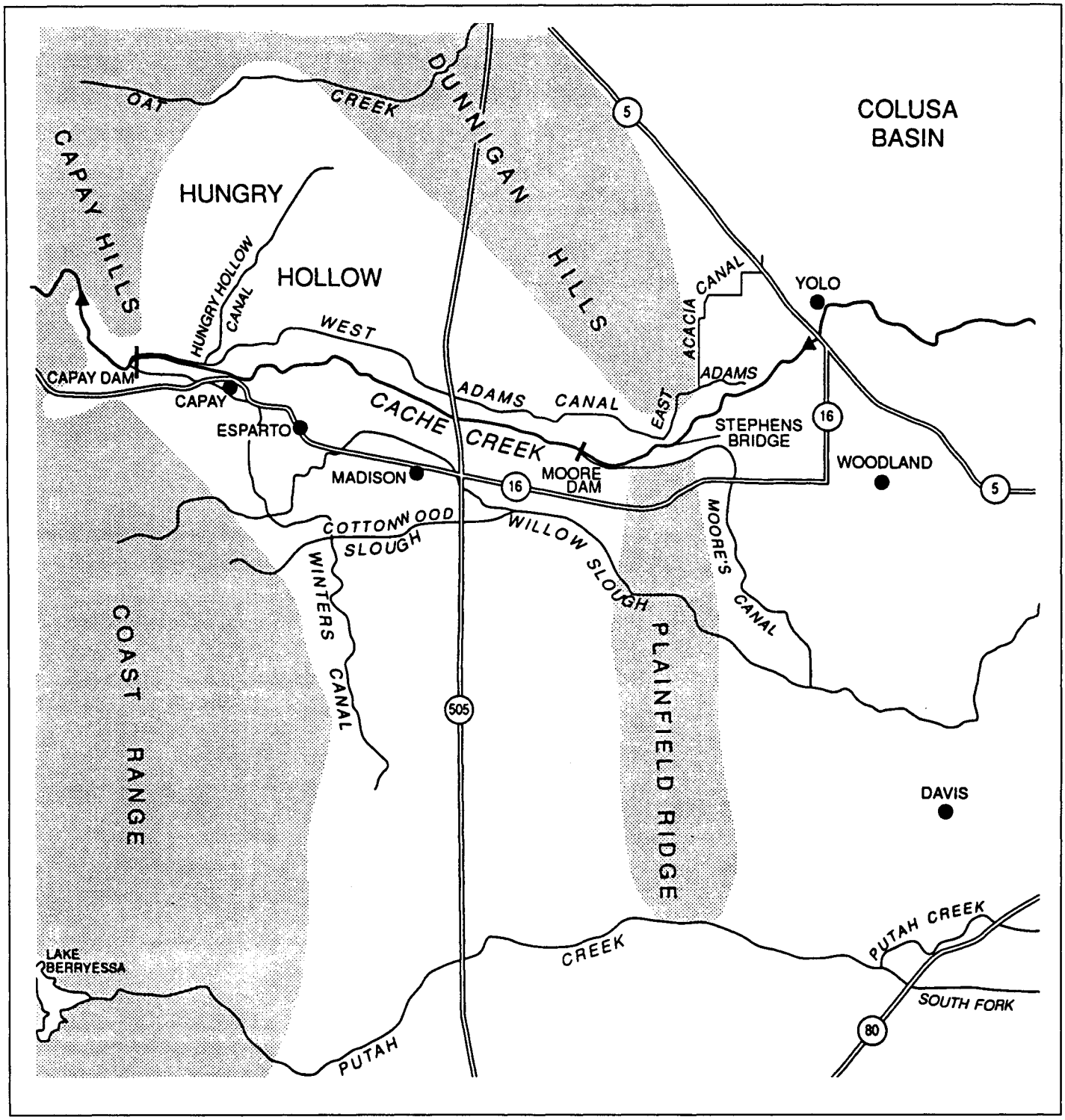

Figure 3.2-2 Site Location Area

SOURCE: DAVID KEITH TODD

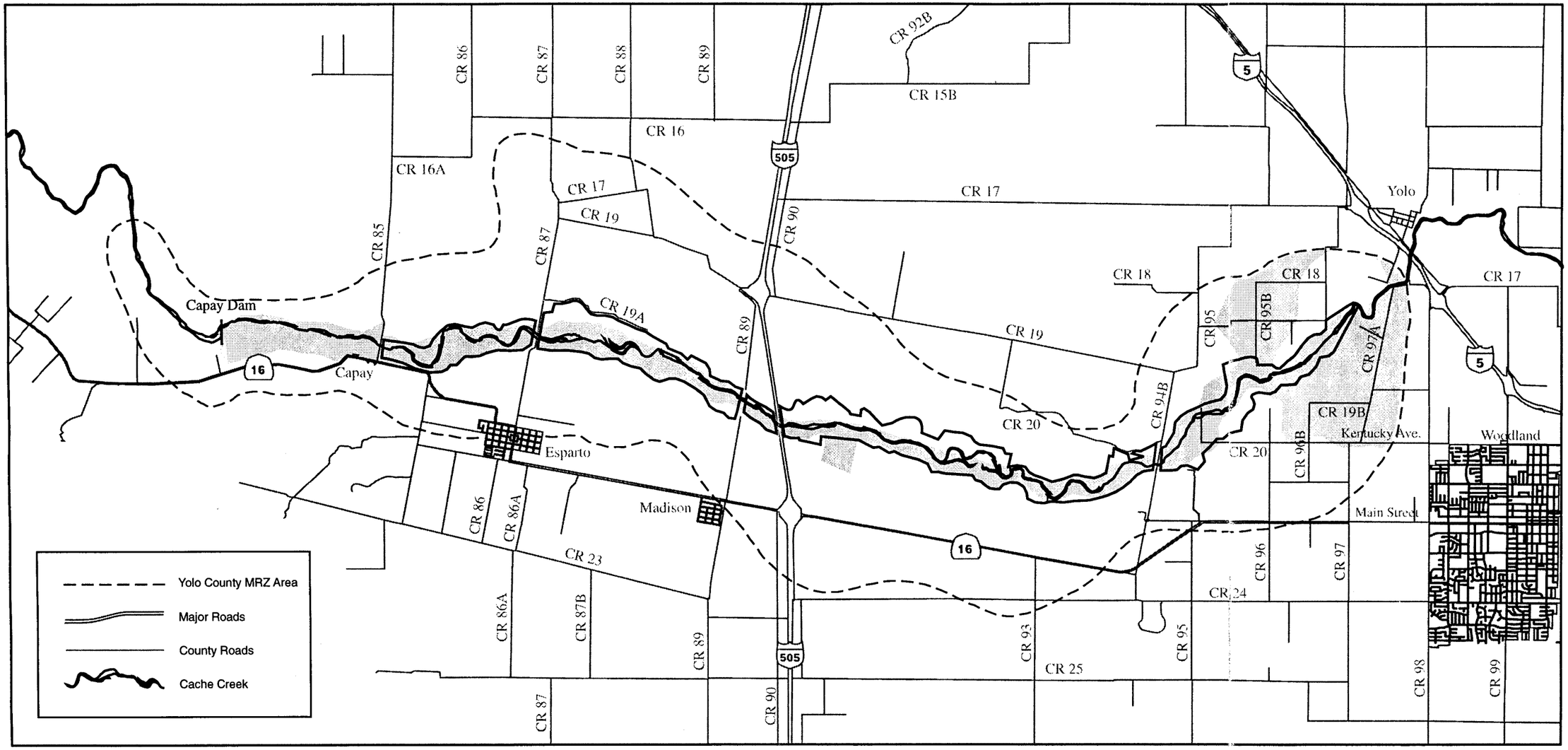

Figure 3.2-3 1979 Regulatory In-Channel Boundary

SOURCE: YOLO COUNTY COMMUNITY DEVELOPMENT AGENCY

The CCRMP Channel Boundary

The Technical Studies provided recommended channel slopes and sinuosity ratios to replace the theoretical thalweg, but no specifics were given as to how the channel should be defined. The authors of the Technical Studies, as well as other consultants, recommended that the CCRMP use two measures for determining the extent of the channel. One is the existing channel bank, as shown in 1994 aerial photographs taken of Cache Creek. The other is the 100-year floodplain boundary. There are several flood boundaries for Cache Creek, developed by the Federal Emergency Management Agency, the U.S. Army Corps of Engineers, and the State Reclamation Board, each of which vary slightly from the others. On the recommendation of the County's technical consultants, the floodplain used to determine the channel boundary for the CCRMP is the one calculated by the Army Corps of Engineers in the *Westside Tributaries to Yolo Bypass, California, Draft Reconnaissance Report* released in June of 1994.

The present channel bank and the 100-year floodplain were then merged, and the outermost limit became the channel boundary for the Cache Creek Resources Management Plan (see Figure 3.2-4). The CCRMP channel boundary encompasses approximately 5,000 acres. Although the CCRMP concentrates on those issues that most directly affect Cache Creek, management of the stream must be done in a comprehensive manner that recognizes the interrelationships between the creek and its regional setting. The Streamway Influence Boundary (see Figure 3.2-5) described in the Technical Studies shows the approximate area subject to these interrelationships, based on the extent of the channel's historical meander.

3.3 PROJECT OBJECTIVES

Background

Yolo County has been attempting to resolve issues related to Cache Creek for over twenty years. Although much of the debate has centered on the benefits and problems associated with aggregate mining, previous studies have often expanded into other areas of environmental interest. The discussion of managing Cache Creek first began with the formation of the Aggregate Resources Advisory Committee (ARAC) by the Board of Supervisors in 1975. The ARAC described its scope as follows:

> Concern that the high quality aggregate resources of Yolo County may be being depleted led to the need to understand the impact of gravel extraction on: sediment transportation, bank erosion, scour, stream channelization and meandering, groundwater recharge, agriculture, land values, air and noise pollution, environmental and aesthetic considerations as well as obtaining an estimate of needs for Yolo County to the year 2025 for aggregate. There is also concern that alternatives for management be recommended.

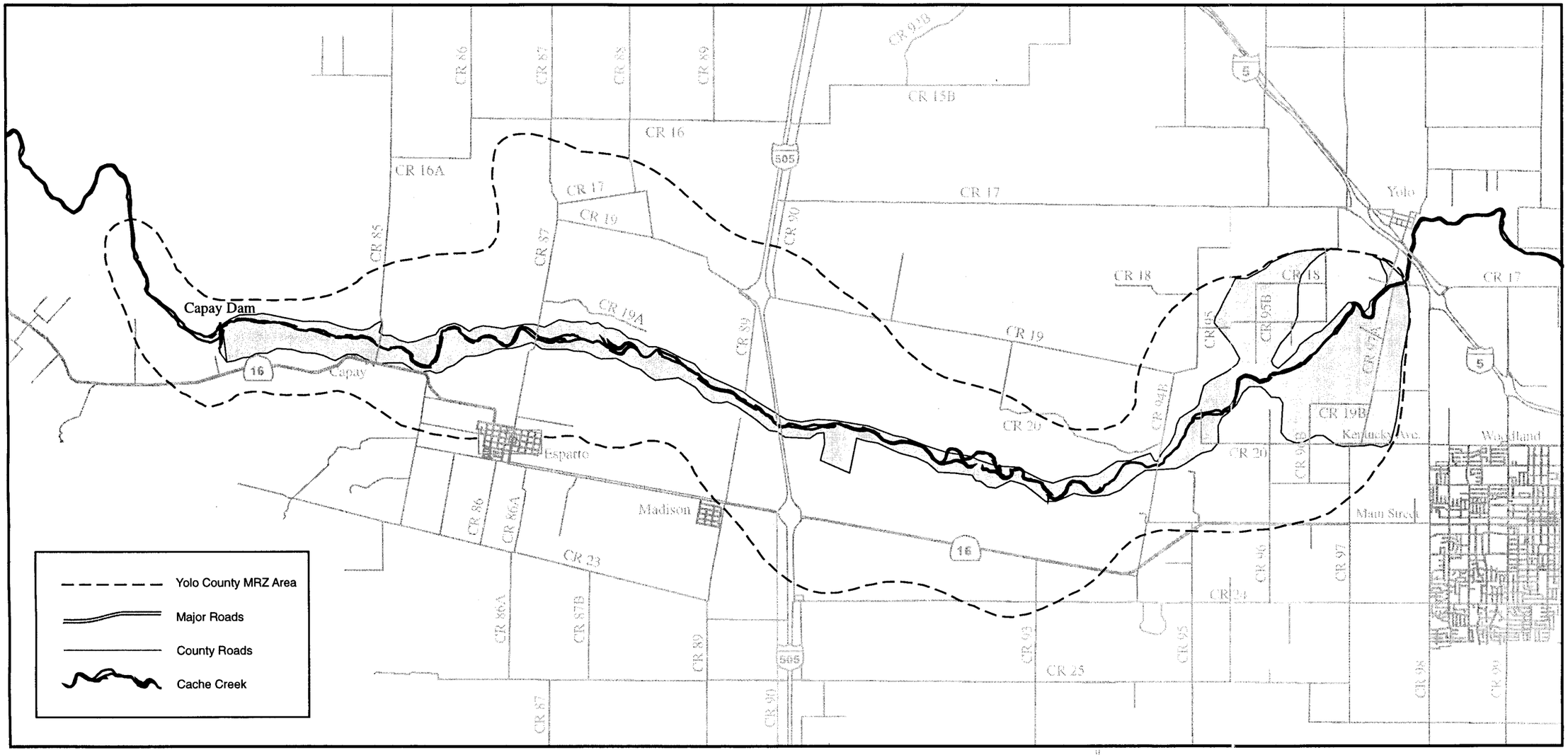

Figure 3.2-4 Lower Cache Creek Channel Boundary

SOURCE: YOLO COUNTY COMMUNITY DEVELOPMENT AGENCY

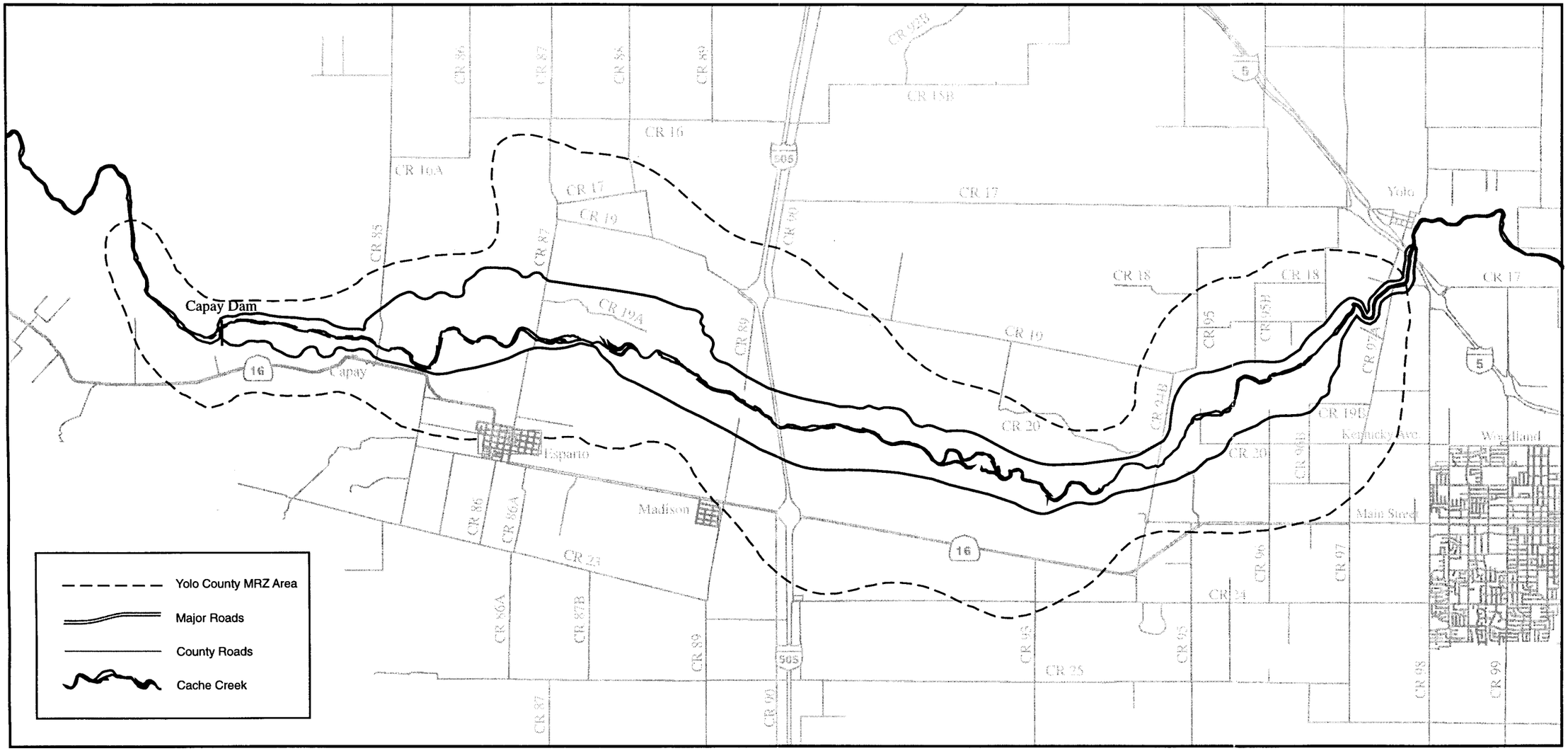

Figure 3.2-5 Streamway Influence Boundary

SOURCE: YOLO COUNTY COMMUNITY DEVELOPMENT AGENCY

Woodward Clyde Consultants were hired to provide an objective technical investigation of the conditions on Cache Creek. The primary purpose of the study was to develop a sound basis for establishing a viable management policy. The report focused on two primary environmental impacts associated with the creek: (1) the causes and effects of streambed lowering; and (2) the causes and effects of stream widening.

Woodward Clyde concluded that the streambed had been lowered significantly in many areas, largely as a result of gravel extraction, but that several other factors contributed as well, including flood control structures (dams, levees, channelization, etc.), the construction of bridges with piers in the channel, and the removal of riparian vegetation associated with both aggregate removal and agricultural activities. Widening through increased meandering was also determined to be a result of in-stream mining, although the consultants thought that natural processes may have also played a role.

While recommending that in-channel excavation be significantly reduced, the report advised that aggregate mining should be encouraged along the banks and in off-channel pits, as long as such concerns as hydraulics, water, and agricultural land were adequately addressed. Woodward Clyde also suggested that the County undertake further study and regular monitoring of the stream. Many of the recommendations described in the Woodward Clyde report were subsequently incorporated into the ARAC recommendations and the policy framework of the draft CCRMP as presently proposed.

Two of the primary recommendations of the ARAC were to update the County surface mining and reclamation ordinances, and require that all existing in-stream mining operations obtain new use permits and reclamation plans consistent with the updated ordinances. This was accomplished in 1980. The permits were analyzed in a program-level Environmental Impact Report (EIR), prepared by Environ. In their EIR, Environ also discussed the County's approach to resource management. They reiterated many of the recommendations made by Woodward-Clyde and the ARAC, such as the need for additional study and future monitoring; revision of the recently adopted interim mining and reclamation ordinances; provisions for off-channel mining; and the maximization of net benefits from the aggregate industry (similar to the CCRMP's concept of "net gain"). In addition, Environ suggested that the County reexamine its policy with regards to agriculture lands and allow for reclamation to other compatible uses, such as groundwater storage and recharge basins, recreation ponds, and fish farming. Most importantly, however, was the ARAC's emphasis on developing a coordinated approach to resolving interrelated resource problems.

Aggregate Technical Advisory Committee

In order to implement the directions of the ARAC, the Board of Supervisors appointed an Aggregate Technical Advisory Committee (AgTAC) in 1979 to develop a Resources Management Plan (RMP) for Cache Creek. A new study was prepared by Wahler Associates in 1982, of sand and gravel deposits along Cache Creek, as well as the upper and lower groundwater basins within the plan area. The Draft Resources Management Plan for the Cache Creek area, located between the towns of Yolo and Capay, was

released by the AgTAC in 1984. The draft plan looked at eleven separate management alternatives. After comparing the various benefits and problems of each method of stream management, the AgTAC recommended a channel of sufficient capacity to convey flood events, in-channel mining restricted to maintenance activities, with commercial mining moving off-channel (Alternative No. 5). This plan was determined to best accomplish the committee's goals, as well as be most practical and least expensive to implement. The recommended plan expanded upon this alternative, describing a number of specific actions needed to carry out the development of the flood channel concept. Among the actions to be taken were:

- the design of a floodway using the 100-year storm event, as determined by the U.S. Army Corps of Engineers;

- the development of criteria to ensure that off-channel pits would not adversely impact groundwater flow or breach during a flood;

- adoption of new zoning designations to protect mined lands from encroachment by incompatible uses; and

- incorporation of the classification study of aggregate resources prepared by the State Department of Conservation.

The AgTAC also reiterated earlier recommendations to review the compatibility of the A-P (Agricultural Preserve) Zone with future mining and reclamation, as well as a need to revise the County mining and reclamation ordinances.

A Draft EIR for the Draft Resources Management Plan was prepared by the firm of Dames and Moore in 1989. The document looked at seven different mining alternatives and examined the environmental impacts of each alternative in a general manner, since no specific applications had been submitted to the County for review. Before any further work could be completed, however, the Draft EIR was subjected to significant controversy regarding the adequacy of the project description and the accompanying analysis. As a result, the document was abandoned by the County in 1991.

Over the next two years, a series of public workshops was held by the Community Development Agency in order to develop a consensus project description to form the basis of a new Resources Management Plan. Although substantial progress was made, the effort was ultimately unsuccessful. This effort was later taken up by a subcommittee of the Board of Supervisors, who made their findings in March of 1994. These findings formed the foundation for the goals and objectives of the Cache Creek Resources Management Plan.

Overview of the Plan

On June 14, 1994, the Yolo County Board of Supervisors approved the conceptual workplan and Statement of Goals, Objectives, and Policies for the Cache Creek Resources

Management Plan (CCRMP). In doing so, the Board determined that the creek is integrally bound to the environmental and social resources of the County, including drainage, flood protection, water supply and conveyance, wildlife habitat, recreation, aggregate mining, and agricultural production. As such, development of these plans was to be based on the key assumption that the creek must be viewed as an integrated system, with an emphasis on the management of all of Cache Creek's resources, rather than a singular focus on any one issue. A number of goals were adopted to guide this overall management, in order to ensure that a diverse range of concerns were balanced within the overriding vision of enhancing the variety of resource needs for the region.

There are several actions in the CCRMP that will assist Cache Creek in attaining a more stable condition. One of the most important measures is to significantly reduce the amount of aggregate removed from within the channel. In-stream mining would not exceed the annual replenishment of sand and gravel, and in fact, would likely be far less than that amount in most years, in order to allow the creek to aggrade and reduce the amount of scour. At the same time, the CCRMP would result in reshaping of portions of Cache Creek according to the conceptual design provided in the "Test 3" Run Boundary (see Figure 3.3-1). This proposal requires regrading portions of the streambed to create a series of terraces and a low-flow channel, which will stabilize the creek and allow it to operate more like a natural system. In addition, selected banks and levees would be excavated to provide gentle transitions into and out of the channel bottlenecks created by the bridge structures. In some areas, jetties would be constructed to encourage expansion of the banks. The overall goal of the Test 3 Run Boundary is to smooth the abrupt width and slope changes that occur along Cache Creek. In order to supplement these efforts, the County would seek to acquire a perennial flow of surface water in Cache Creek when water supplies are available. This would create a stable low-flow channel that would reinforce the regrading performed in the Test 3 Run Boundary.

Although in-stream excavation would be much more restrictive than presently allowed, it would not be prohibited altogether. Cache Creek would continue to be a managed system, in order to protect agricultural land, off-channel mining operations, and nearby communities from the effects of flood and erosion. Under the CCRMP, the County would take a strong role in providing this management, based on the recommendations of a Technical Advisory Committee. To reflect this shift in priorities, changes would be required in the operating concepts that currently regulate activities within Cache Creek. As discussed earlier, both the theoretical thalweg and the present in-channel boundary do not accurately represent existing channel conditions. The CCRMP recommends that they be replaced by new standards based on concepts provided in the Technical Studies. Future in-channel excavation would be limited to the 100-year floodplain and would take not only the elevation of the streambed into account, but the slope of the streambed and the ratio of the width to depth. In addition, off-channel mining would have to consider the potential for the streambank to move, either through erosion or as a result of channel reshaping according to the Test 3 Run Boundary.

In-channel mining is currently regulated under Chapter 3 of Title 10 of the Yolo County Code, while reclamation is administered under Chapter 5 of the same title. Although minor

amendments have been made over the years, these regulations are essentially the same as they were when adopted in 1979.

Cache Creek Aggregates, Syar, Solano, Teichert (Woodland), Teichert (Esparto), Schwarzgruber, and Granite have existing permits to operate in-channel. [Note: The Schwarzgruber and portions of the Granite operation will be "off-channel" under the new proposed channel boundary.] Most of the in-channel mining permits were approved in 1980, with the exceptions of several Teichert operations, specifically: Reiff/Esparto (1986), Muller/Haller (1989), and Coors-Fong (1989). Within the 1979 planning area, approximately 75 percent of the Cache Creek channel has been mined. The conditions of approval associated with these prior permits, although typical for the time, do not adequately reflect the increased level of concern and expanded body of knowledge regarding Cache Creek that has developed since. As described in the Technical Studies, in-stream mining has created a significant sediment deficit, removing more aggregate than has been annually deposited. Although not the only cause, this deficit has contributed to the lowering of the streambed, which has in turn increased scour and flow velocity, resulting in a generally imbalanced creek system. While a number of factors besides in-channel mining have played a role in creating these conditions, channel stability cannot be achieved unless commercial in-stream mining is removed and the rate of extraction is significantly reduced.

The first step of the CCRMP would be to require that aggregate producers relinquish their existing permits that allow them to excavate within the active channel. This approach is necessary to implement the CCRMP, and would be required as a condition of any future off-channel approvals. Accomplishment of this would be a substantial net gain. Existing operations that mine outside of the active channel, such as Granite Construction and Schwarzgruber and Son, would not be affected. Coinciding with the relinquishment of in-channel mining permits by the gravel operators, the County would implement a program of channel stabilization and erosion control under the coordination of a Technical Advisory Committee and the Floodplain Administrator as described in the CCIP. This would allow in-channel work to occur in those areas where it is most needed, such as upstream of the Capay Bridge. The County would not acquire the land within the channel, under this permit, nor would any exercise of eminent domain occur. No removal of sand and gravel within the channel would occur without the express consent of the affected landowner.

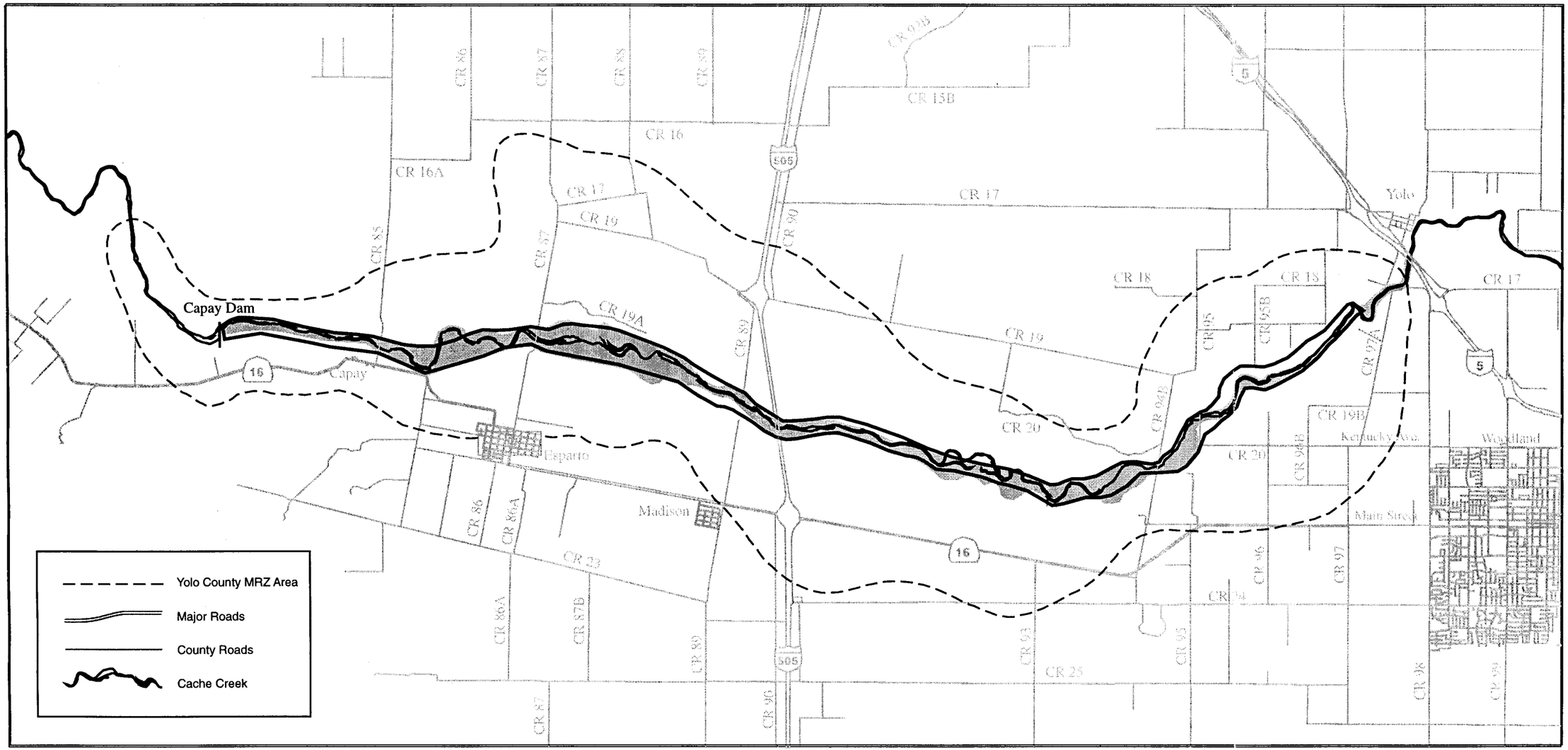

Figure 3.3-1 Test 3 Mobile Sediment Modeling Results

SOURCE: YOLO COUNTY COMMUNITY DEVELOPMENT AGENCY

As a part of managing Cache Creek, the County would work with other agencies of jurisdiction to establish "regional" permits for the portion of Cache Creek to be permitted. Of particular importance would be the U.S. Army Corps of Engineers (404 Permit), State Department of Fish and Game (Stream Alteration Agreement), Regional Water Quality Control Board (Waste Discharge Permit), and the Federal Emergency Management Agency (Letters of Map Amendment and Map Revision). Standard conditions would be sought to streamline the permit process and ensure a consistent multi-agency approach to managing the creek. Coordination with Caltrans would have to be established on a project-by-project basis to ensure the protection of State bridge structures.
This program would reduce the time and expense for individual property owners of acquiring all of the various permits necessary to work in the channel, while assuring the County a role in determining how to best manage the creek. Maintenance agreements could be executed to formally recognize the above relationships, as well as establishing prearranged procedures for performing repairs and maintenance during an emergency.

Finally, the CCRMP acknowledges that there is a substantial cost associated with doing the actual aggregate removal and channel shaping. The County has neither the funds nor the equipment and labor to implement the required tasks. It is the intention of the CCRMP to encourage partnership between private property owners and participating aggregate companies to carry out this work. Property owners who wish to perform erosion/flood control work or other activities within the creek have to apply for a Floodplain Development Permit from the Community Development Agency. A fee would be paid to the County to reimburse the cost of reviewing the proposal and monitoring the work. All work would have to comply with applicable regulatory requirements, as well as recommendations made by the TAC. Participating aggregate companies could carry out the work, if agreed to by the property owner. Material removed would not be counted against the company's maximum annual production limits. This arrangement would be beneficial for all parties involved, and would allow the County to provide close monitoring of in-channel excavation, without incurring significant new costs.

Objectives of the County

Goal statements and identified objectives listed in the CCRMP include the following:

Floodway and Channel Stability

Goals

2.2-1 Recognize that Cache Creek is a dynamic stream system that naturally undergoes gradual and sometimes sudden changes during high flow events.

2.2-2 Establish a more natural channel floodway capable of conveying floodwaters without damaging essential structures, causing excessive erosion, or adversely affecting adjoining land uses.

2.2-3 Coordinate land uses and improvements along Cache Creek so that the adverse effects of flooding and erosion are minimized.

2.2-4 Ensure that the floodway is maintained to allow other beneficial uses of the channel, including groundwater recharge and riparian vegetation.

Objectives

2.3-1 Provide flood management as required to protect the public health and safety.

2.3-2 Integrate the Cache Creek Resources Management Plan with other planning efforts to create a comprehensive, multi-agency management plan for the entire Cache Creek watershed.

2.3-3 Design and implement a more stable channel configuration that will convey a 100-year flood event.

2.3-4 Protect permanent in-channel improvements (e.g., pipelines, bridges, levees, and dams) from structural failure caused by erosion and scour.

2.3-5 Restrict the amount of aggregate removed from Cache Creek, except where necessary to promote channel stability, prevent erosion, protect bridges, or to ensure 100-year flood protection, in order to allow the streambed to aggrade and create a more natural channel system.

2.3-6 Establish monitoring programs for the continued collection of data and information, to be used in managing the resources of Cache Creek.

2.3-7 Manage Cache Creek so that the needs of the various uses dependent upon the creek, such as flood protection, wildlife, groundwater, structural protection, and drainage are balanced.

Water Resources

Goals

3.2-1 Improve the gathering and coordination of information about water resources so that effective policy decisions can be made.

3.2-2 Promote the conjunctive use of surface and groundwater to maximize the availability of water for a range of uses, including habitat, recreation, agriculture, water storage, flood control, and urban development.

3.2-3 Maintain the quality of surface and groundwater so that nearby agricultural productivity and available drinking water supplies are not diminished.

3.2-4 Enhance the quality of water resources by stressing prevention and stewardship, rather than costly remediation.

Objectives

3.3-1 Encourage the development of groundwater recharge basins located along the Cache Creek channel.

3.3-2 Use the CCRMP as a basis for developing a comprehensive watershed plan for Cache Creek, that eventually integrates the area above Clear Lake to the Yolo Bypass, relying on coordinated interagency management.

3.3-3 Promote public education programs that encourage the use of innovative methods and practices for enhancing the water quality of Cache Creek, through the voluntary cooperation of local landowners.

3.3-4 Establish monitoring programs for the continued collection of data and information, to be used in managing surface and groundwater resources.

Biological Resources

Goals

4.2-1 Provide for a diverse riparian ecosystem within the Cache Creek channel, that is self-sustaining and capable of supporting wildlife.

4.2-2 Create a continuous corridor of riparian and wetland vegetation to link the foothill habitats of the upper watershed with those of the settling basin.

4.2-3 Develop high quality natural habitat that is dominated by native plants.

4.2-4 Manage riparian habitat so that it contributes to channel stability.

4.2-5 Establish monitoring programs for the continued collection of data and information, to be used in measuring the success of revegetation efforts.

Objectives

4.3-1 Conserve and protect existing riparian habitat within the channel, to the greatest extent possible. Where flood protection, erosion control, channel widening, or other activities result in the removal of riparian habitat, require disturbed areas to be replanted.

4.3-2 Establish conditions to encourage the development of a variety of natural riparian habitat types within the Cache Creek channel.

4.3-3 Adopt standards for planning and developing habitat revegetation areas, in order to assure consistency and reasonable success, as well as provide information for public service groups seeking to undertake restoration projects.

4.3-4 Ensure that the establishment of habitat does not significantly divert streamflow, or cause excessive erosion or damage to nearby structures and/or property.

4.3-5 Encourage the use of alternative methods and practices for stream and erosion control that incorporate riparian vegetation in the design.

4.3-6 Coordinate restoration programs with relevant planning efforts of both the County and other private and public agencies.

Open Space and Recreation

Goals

5.2-1 Improve scenic resources within the Cache Creek channel.

5.2-2 Establish a variety of outdoor recreational and educational opportunities along Cache Creek for use by the public.

5.2-3 Ensure the compatibility of recreational facilities with surrounding land uses, in order to minimize adverse impacts.

Objectives

5.3-1 Create a continuous corridor of natural open space along the creek and provide for limited access, at specific locations, to recreational and educational uses.

5.3-2 Include use of the "Open Space" designation for the areas where resource management and habitat protection is warranted.

Aggregate Resources

Goals

6.2-1 Use the removal of in-channel aggregate deposits as an opportunity to reclaim, restore, and/or enhance the channel stability and habitat of Cache Creek.

6.2-2 Provide for effective and systematic monitoring and reclamation of aggregate removal activities within Cache Creek.

Objectives

6.3-1 Reduce duplication of effort and conflicting regulatory authorities, in order to encourage implementation of appropriate management measures and practices within and adjacent to Cache Creek.

6.3-2 Revise existing regulatory measures to more accurately reflect the environmental processes of Cache Creek.

6.3-3 Enlist the cooperation of private and public interests to assist in maintenance and channel reshaping efforts.

Agricultural Resources

Goals

7.2-1 Protect farmland along Cache Creek from land uses that may conflict with agricultural operations.

7.2-2 Develop opportunities where restoration efforts and agriculture can provide mutual benefits.

Objectives

7.3-1	Ensure the compatibility of planned habitat and the channel floodplain with adjoining agricultural land, so that productivity is not adversely affected.
7.3-2	Coordinate with local farmers to employ existing agricultural practices in improving the quality of riparian habitat.
7.2-3	Manage Cache Creek to reduce the loss of farmland from erosion and increase the recharge potential of the channel.

3.4 PROJECT COMPONENTS AND CHARACTERISTICS

Draft CCRMP

The CCRMP is organized into an introduction and six "elements" similar to the organization of the June 1994 Statement of Goals, Objectives, and Policies. Provided below is a summary of each chapter.

Introduction

Chapter 1.0 provides an overview of relevant history and background information including the work of the Aggregate Resources Advisory Committee (1975 through 1978), the Aggregate Technical Advisory Committee (1979 through 1984), the 1994 Statement of Goals, Objectives, and Policies, and the Technical Studies released in October of 1995. The relationship of the CCRMP to state and local regulations is discussed, as well as its authorization under the County General Plan. In addition, descriptions are provided of the various approvals that would be required in order to adopt and implement the CCRMP.

Floodway and Channel Stability Element

Chapter 2.0 is the Floodway and Channel Stability Element. It identifies that the Cache Creek channel system is currently unstable, which has resulted in extensive degradation of the riparian system. There are several contributing factors in creating this imbalance, including in-stream mining, bridge construction, conversion of creek bottom to farmland, and irrigation. The plan suggests that through careful and coordinated management, the amount of time it takes the stream to become more stable may be reduced. Without intervention, the creek may achieve periodic stability, but the process could take decades. The primary actions recommended within this Element are as follows:

- Limit the amount of aggregate removed from the channel to no more than the amount of sand and gravel deposited during the previous year (about 200,000 tons on average), except where channel widening is necessary, or potential erosion control and/or flooding problems exist;

- Implement the Test 3 Run Boundary described in the Technical Studies so that the creek may be reshaped to improve channel stability;

- Create a Technical Advisory Committee to provide the County with technical expertise in managing the resources of Cache Creek;

- Work with other agencies including the City of Woodland in developing a regional solution for managing flood events along lower Cache Creek;

- Focus efforts on minimizing scour and erosion around County and State bridges to provide additional protection and extend the operational life of the structures; and

- Revoke the 1979 in-Channel Mining Boundary and replace it with the channel boundary, as defined in the CCRMP. Similarly, replace the theoretical thalweg with the channel slope standards and sinuosity ratios provided in the Technical Studies.

Water Resources Element

Chapter 3 is the Water Resources Element. It describes the interrelationships between Cache Creek and the surrounding aquifer, and describes the status of various gaining and losing reaches. This section also summarizes the conclusion of the Technical Studies that the "teacup analogy" offered by the 1976 Woodward-Clyde Report is not entirely accurate with respect to how the groundwater aquifer actually operates. The Technical Studies indicate that although streambed lowering in Cache Creek may have an impact on water levels for those wells located within the immediate vicinity of the creek, general groundwater declines were attributed to intensive pumping and a prolonged drought. The basin has a significant capacity for recharge, however, that can be used to expand water supply options for local users. The recommended actions contained within this Element include:

- Discourage activities that impact the surface water quality of the creek, by working with the Natural Resource Conservation Service and the Resource Conservation District to promote soil and water management practices that improve water resources;

- Coordinate with the Flood Control and Water Conservation District to locate groundwater recharge and storage facilities in Hungry Hollow and recharge facilities downstream of County Road 94B, as recommended by the Technical Studies;

- Improve monitoring of the creek, by performing an annual test of the water quality in Cache Creek, as well as enlisting adjoining landowners to voluntarily submit periodic groundwater level measurements and other available testing data; and

- Extend the efforts of the CCRMP beyond the plan area by working with Army Corps of Engineers and the Bureau of Land Management, among others, to provide the foundation for a comprehensive watershed plan for Cache Creek.

Biological Resources Element

Chapter 4.0 is the Biological Resources Element. It briefly describes the declining health of the wildlife habitat and native species along Cache Creek, especially riparian woodlands. Less than 200 acres of this habitat type presently exist. The remnants contain low species diversity and are threatened by streambed lowering. Restoration of the woodlands is not only important for the establishment of a wildlife corridor, but can also improve channel stability and provide erosion control for the streambanks. In addition, the element discusses the negative impact of both tamarisk and the giant reed on the creek system. These species out-compete native plants, provide poor habitat, disrupt surface flows, and require large amounts of water. Tamarisk also increases soil salinity.

This Element contains a reach-by-reach analysis of the immediate opportunities for habitat restoration along the creak, based on the Technical Studies and supplemental analysis by Jones and Stokes Associates. The analysis identifies several areas where revegetation efforts may be focused over the next few years, with a map showing the potential site and text describing the type of work that might be done there. Emphasis was placed on several factors, including: providing restoration opportunities throughout the plan area; encouraging multiple use, such as erosion control and groundwater recharge; and identifying projects that are achievable and would have the most benefit to the health of the overall riparian habitat. The recommended actions include:

- Restore riparian habitat throughout the plan area in order to create a continuous habitat corridor along Cache Creek;
- Favor projects that establish riparian woodlands over emergent wetlands, in appropriate areas within the creek channel;
- Coordinate in-channel restoration with mitigation and "net gain" created as a part of the off-channel mining operations, as well as existing volunteer efforts such as the Moore Dam Sanctuary, to create a larger riparian habitat area;
- Establish a series of wildlife preserves to provide core areas for the protection of high quality habitat, through dedication of the land to the County or non-profit organization, or through conservation easements;
- Work with interested groups, including the Cache Creek Conservancy, the HAWK program, and the Flood Control and Water Conservation District, to ensure that habitat revegetation plans are consistent with the CCRMP and the efforts of the County Habitat Management Program;
- Promote the eradication of tamarisk and the giant reed, especially in restoration areas and reaches of the creek where flows are being significantly disturbed;
- Encourage the use of riparian vegetation in bank and structure protection, rather than rip rap or other hard engineering solutions; and

- Encourage the use of riparian vegetation in bank and structure protection, rather than rip rap or other hard engineering solutions; and

- Assist the aggregate industry in developing a Mitigation Banking Program, whereby habitat developed as a part of a reclamation plan may be dedicated for preservation to offset development elsewhere.

Open Space and Recreation Element

Chapter 5.0 is the Open Space and Recreation Element. Currently, the high proportion of land in private ownership along Cache Creek severely restricts public access. This chapter suggests the designation of future recreation sites, on reclaimed mined lands that are distributed about every 2 miles long Cache Creek. These areas are conceptual in nature and serve to identify general locations that may be developed by the County at a future date. The element recognizes the potential land use conflicts that may arise from placing recreational areas near mining areas, agriculture, and private homes, and emphasizes the Country's interest in limiting public access and managing facilities to minimize undesirable activities. The Open Space and Recreation Element contains the following recommended actions:

- Coordinate with the Bureau of Land Management to investigate the eventual linkage of recreational uses along the upper watershed to the proposed recreational nodes within the planning area;

- Develop and manage recreational sites so that trespassing, vandalism, and other undesirable activities are prevented;

- Encourage restored habitat areas and/or recreational areas to be dedicated to the County or an appropriate land trust, in order to provide a future continuous open space corridor along Cache Creek;

- Develop a Recreation Plan to provide a range of public activities and uses along Cache Creek; and

- Acquire future recreational sites, so that the County can maintain and develop facilities accordingly.

Aggregate Resources Element

Chapter 6.0 is the Aggregate Resources Element. It briefly describes the status of existing in-channel mining regulations and notes that most of the in-channel mining permits were approved in 1980. These permits contain conditions of approval that do not adequately reflect the increased level of concern and studies regarding Cache Creek that have developed since. Furthermore, the discussion notes that the creek is significantly imbalanced, and that according to the Technical Studies, channel stability cannot be

achieved without a substantial reduction in the amount of in-stream mining. The CCRMP addresses this problem by including the cross-section templates recommended in the Technical Studies, to guide in-channel excavation so that it enhances the flow characteristics of the creek, while maintaining the ability to convey floods. Other standards have also been included to ensure that in-stream maintenance is completed with minimal potential for harm to important riparian vegetation or other creek features. These standards would be incorporated into the County's implementing regulations for the CCRMP. The recommended actions include:

- Require that all existing permits for mining within the active channel be relinquished before off-channel operations commence. In their place, the County would implement a program for ongoing stabilization and erosion control for the area within the Test 3 Run Boundary, so that emergency work and regular maintenance could be performed under County review.

- Pursue joint regulatory efforts with other agencies of jurisdiction, including the State Reclamation Board, the Army Corps of Engineers, and the Department of Fish and Game to obtain regional permits for the entire reach of the stream located within the plan area, in order to provide more consistent and coordinated management of the creek;

- Provide a market incentive for the widening and ongoing maintenance of the creek, by not including any sand and gravel removed from the channel as part of an operations maximum annual production, so that work would be accomplished at no cost to either the Country, or the property owner; and

- Develop agreements with property owners, mining operators, and government agencies to allow for channel maintenance and repair, such as the removal of deposits that may divert flows that threaten property and structures, the construction of flood protection and erosion control measures, and the provision of emergency work during and/or after flood events.

Agricultural Resources Element

Chapter 7.0 is the Agricultural Resources Element. This chapter recognizes that the functioning of Cache Creek and the adjoining agricultural land are closely interrelated. Management of the creek could provide new groundwater recharge opportunities, and would reduce the erosion that threatens nearby farmland. In addition, the Country may pursue measures to minimize the impacts of habitat development on local farmers. Coordinated activities between both agriculture and environmental restoration are encouraged as beneficial to both. Recommended actions within the Agricultural Resources Element include:

- Design and develop habitat restoration projects so that they do not adversely impact the agricultural productivity of nearby farmland;

- Incorporate agriculturally-related features, such as row crop forage areas and irrigation drainage systems into the design of habitat planning.

Implementing Regulations

The CCIP, as well as the other actions and performance standards of the CCRMP, will be implemented by specific regulatory ordinances. The staff proposes that these ordinances be written following approval of the CCRMP, in order to allow for additional time to coordinate with landowners, the TAC, and responsible state and federal agencies. It is unlikely that any additional environmental analysis of these ordinances will be required, however, they would be circulated for comment prior to adoption.

Required Actions

Certification of the EIR

The County must certify that the EIR was completed in compliance with CEQA, that there was independent review and consideration of the information in the EIR prior to taking action on the project, and that a Mitigation Monitoring Plan was adopted to ensure implementation of feasible mitigation measures identified in the EIR.

Adoption of the CCRMP

County staff is recommending adoption of the CCRMP (including the CCIP) addressing a variety of issues relevant to in-channel restoration. The Plan should be updated a minimum of every ten years to take into account the results of monitoring programs and reclamation efforts.

Rezoning of the Proposed Channel Boundary Area to Apply the Open Space (OS) Zone

County staff is recommending rezoning of the proposed channel boundary, through Road 96, as Open Space (OS). From Road 96 to the eastern terminus of the planning area, staff is recommending rezoning of the Test 3 boundary. The Test 3 boundary is recommended for use east of CR 96 because it is more representative of the channel at that point.

This action delineates the channel for the purposes of initial reshaping and subsequent maintenance.

Amendment of the Flood Damage Prevention Ordinance

Section 8.3-404 would be added to the Yolo County Flood Damage Prevention Ordinance, specifying the findings and information necessary to grant a Floodplain Development Permit within the CCRMP area, as well as establishing procedures for review by the TAC.

Direct Staff to Prepare Implementing Regulations

County staff will prepare regulations to implement the CCRMP and CCIP.

3.5 ALTERNATIVES

Introduction

The purpose of the alternatives analysis is to allow for informed decision making and meaningful public participation [Section 15126(d)(5) of the CEQA Guidelines]. The EIR must describe a range of reasonable alternatives to the project, or its location, that would feasibly attain most of the basic objectives, but would avoid or substantially lessen any of the significant effects of the project. The comparative merits of the alternatives must be evaluated [Section 15126(d)].

The EIR must include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project (Section 15126(d)(3)). This becomes the factual basis for reaching conclusions about the feasibility of various alternatives. If an alternative would cause one or more significant effects in addition to those that would be caused by the project as proposed, this must be discussed, but at a lesser level of detail.

Range of Alternatives

The range of alternatives to be examined in the EIR is governed by the "rule of reason" that requires that only those alternatives necessary to permit a reasoned choice need be addressed. The CEQA Guidelines require that the number of alternatives analyzed be limited to those that would avoid or substantially lessen any of the significant effects of the project [Section 15126(d)(5)]. Of those alternatives, the EIR need only examine in detail those that the lead agency determines could feasibly attain most of the basic objectives of the project. Among the factors that a lead agency can consider in determining feasibility, the CEQA Guidelines specifically identify site suitability, economic viability, availability of infrastructure, general plan consistency, other plan or regulatory limitations, jurisdictional boundaries, and whether there is a reasonable ability to acquire, control, or otherwise have access to an alternative site [Section 15126(d)(5)(A)].

No one of these factors establishes a fixed limit on the scope of reasonable alternatives. However, the CEQA Guidelines indicate that an EIR need not consider an alternative "...whose effect cannot be reasonably ascertained and whose implementation is remote and speculative" [Section 15126(d)(5)(C)].

The six alternatives listed below (by name and assigned number) were initially identified by the County for examination and analysis in this EIR.

- Alternative #1a: No Project (Existing Conditions)
- Alternative #1b: No Project (Existing Permits and Regulatory Condition)
- Alternative #2: No Mining (Alternative Site)
- Alternative #3: Channel Bank Widening (Implement Streamway Influence Boundary)
- Alternative #4: Deeper In-Channel Mining (Below Theoretical Thalweg)
- Alternative#5: Floodplain Alternative

Description of Alternatives

Alternatives 1a, 1b, 2 and 3 are analyzed in Chapter 4.0 (Environmental Analysis) at a level of detail equivalent to that given the project. This level of detail is not required by CEQA, but was determined by the County to be appropriate in order to fully address public concerns and to provide full information disclosure. Alternative 4 is rejected as infeasible and therefore, not further analyzed. Alternative 5 is qualitatively analyzed in Chapter 5.0, at the request of a citizen comment letter regarding the Notice of Preparation (NOP). Since this alternative combines elements of both the OCMP and CCRMP, an equivalent level review was not possible. A description of each alternative is provided below.

Alternative 1a: No Project (Existing Conditions)

Under this alternative, the County would not adopt the CCRMP (or the OCMP). Mining would continue at existing operations, based on the 1995 actual production for each producer. Continuation of all regulations in place as of December 31, 1995 would be assumed, including the 1979 regulatory channel boundary and existing "interim" regulations. The assumed gravel extraction, based on an estimate of remaining reserves at permitted operations, is 18.8 million tons on 543 acres. The rate of extraction based on total 1995 production (mined tonnage) would be 2.46 tons annually, both in- and off-channel. Using that rate, the remaining reserves would last approximately 7.6 years after which time all permitted reserves would be exhausted and mining would be assumed to cease.

Alternative 1b: No Project (Existing Permits and Regulatory Condition)

Under this alternative, the County would not adopt the CCRMP (or the OCMP). Currently approved maximum annual allocations at existing operations would establish the maximum intensity of mining that would be allowed. It would be assumed that all regulations in place as of December 31, 1995 would remain in place, including the 1979 regulatory channel boundary and existing "interim" regulations. The assumed resulting gravel extraction, based on an estimate of remaining reserves, would be the same as under Alternative 1a (18.8 million tons on 543 acres). Assuming maximum annual tonnage is the rate of extraction, for the purposes of this analysis, remaining reserves would last four years and three months. Annual maximum tonnage for individual producers would be as follows:

Cache Creek Aggregates	748,650 tons per year in-channel
Solano Concrete Company	772,417 tons per year in- or off-channel
Teichert (Esparto)	750,000 tons per year off-channel
Teichert (Woodland)	1,064,224 tons per year off-channel
Schwarzgruber and Son	114,000 tons per year in-channel (10 years estimated remaining reserves)
Syar Industries	960,871 tons per year in-channel
TOTAL	4,410,162 tons per year through 2005 (4,296,162 after 2025)

Alternative 2: No Mining (Alternative Site)

Under this alternative, the County would not adopt the CCRMP (or the OCMP). It would be assumed that existing permits to mine in- or off-channel and/or operate plants, for all producers would be voided as of December 31, 1995. Mining would occur elsewhere and be trucked into the County in response to market demand for construction. Market demand for the County would be assumed at 65 million tons over the next 30 years, or approximately 2.2 million tons per year based on interpolations of the State Geologist's estimates. This alternative would examine the potential for satisfying local demand from reserves of PCC-grade aggregate material known to occur in dredger tailings ("gold fields") east of Yuba City and Marysville (zoning and land use is assumed to allow aggregate mining), alluvium deposits underlying Mather Air Force Base in the Rancho Cordova area of Sacramento (industrial zoning and land use are assumed with vernal pool wetland resources), sand and gravel deposits along Morrison Creek in Sacramento (open space and mining land uses and zoning are assumed with riparian resources and alluvial deposits), and tailings from Folsom (residential and commercial zoning and land uses are assumed). It should be noted that although gravel reserves are known to occur along the American River, open space and land use and zoning was assumed to preclude access for mining. No assumptions have been made for reclamation on alternative sites as it would be highly speculative.

Alternative 3 Channel Bank Widening (Implement Streamway Influence Boundary)

Under this alternative, the CCRMP would establish a wider channel boundary similar to the Streamway Influence Boundary which describes the historical width of the creek. Local bridge structures would be extended to span the historical creek width. Commercial mining within the creek would be prohibited and the natural forces of the creek would be allowed to occur without active management (e.g., erosion control). Flood easements to accommodate this alternative would have to be acquired. Off-channel mining, outside the Streamway Influence Boundary, and a 200-foot minimum buffer would be allowed. It is assumed that 60.8 million tons would be extracted over 30 years under this scenario, at an average annual rate of 2.03 million tons. This material would come from those areas of proposed applications that fall outside the Streamway Influence Boundary. This includes 13.32 million tons from Solano Phases 4 and 5, 45.52 million tons from Syar in the areas of their proposed Lake, Phase B and portions of Phase D and E. An additional 2.0 million is assumed from the Lowe property rezone. The 2.0 million from the Lowe property is assumed to be mined above the groundwater table, the remaining 58.8 million is assumed to be "wet pit."

Table 3-1: Summary Comparison of CCRMP CEQA Alternatives

Alternative	CCRMP	1A	1B	2	3	4	5
Condition	Proposed Project	No Project Existing Conditions	No Project Existing Maximum Allocation	No Mining - Alternative Site-Importation of Finished Product	Widened Channel Bank (Streamway Influence Boundary)	Deepen In-Channel Mining (Below Theoretical Thalweg)	Gus Yates Alternative (Floodplain Alternative)
Mining in Yolo County?	Yes	Yes	Yes	No	Yes	Yes	Yes
Processing In Yolo County?	Yes	Yes	Yes	No	Yes	Yes	Yes
Implementation of CCRMP?	Yes	No	No	No	Yes	Yes	Yes
Total Tonnage (in millions of tons) Period of Mining	11.0 mined/ 30 years	18.8 mined/ 7.6 years	18.8 mined/ 4.25 years	65.0 imported/ 30 years	60.8 mixed/ 30 years off channel	120.0 mined/ 30 years	81.3 mined/ 20 years
Total Maximum Annual Tonnage[3] (in millions of tons)	1.2 mined-first 5 years[4] 0.2 mined-2002 to 2026	2.5 mined	4.4 mined	2.2 imported	2.03 mined off channel	4.0 mined	4.1 mined
Wet Pit Mining Allowed?	No[5]	Yes[1]	Yes[1]	No - 0%	Yes[6]	Yes	Yes[8]
Assumed Reclamation	Restoration of channel and wildlife habitat.	**In-channel:** graded slopes, no revegetation except Collet; **Off-channel:** agriculture.	**In-channel;** graded slopes, no revegetation except Collet; **Off-channel:** agriculture	Unknown - out of County	**In channel:** graded slopes, no revegetation except Collet; **Off channel:** agriculture 49% open lake 33% habitat 12% slopes/road 6%	**In channel**	**In channel:** open floodway native vegetation **Off-channel:** agriculture floodplain
Total Disturbed Acreage in channel	100 acres of 1,774 acres	543 of 2,819 acres	543 of 2,819 acres	0	0	Unknown	1,350 of 2,700 acres[9]
In Channel or Off-Channel? (tonnage)	11.0 mil. In-channel 179.5 mil Off-channel 190.5 Total Cum. over 30 years	In-channel 51 % Off-channel 49%	In-channel 41% Off-channel 59%	Unknown - out of County	0 In-channel 60.8 mil. Off-channel	In-channel 100%[7]	1.8 mil. In-channel 79.5 mil. Off-channel

[1] Solano-Hutson - exhausted in 1995. Solano-Farnham West short-term (3 year approval, through 1998). Teichert-Reiff short term (3 years approval through 1998). Teichert-Muller/Haller short term (3 year approval, through 1998).
[2] Includes 2,994 acres for borrow activities.
[3] Limited to no more than amount Creek replenishes each year.
[4] Limited to initial smoothing and shaping and to emergency responses to major events thereafter.
[5] Limited to theoretical thalweg.
[6] Assumes 2.0 million tons from Lowe property is dry mined and 58.8 million from other properties is wet mined. Solano phase 4+5 13.3 5 yrs most of lake + phase B + a little of D+E 45.5
[7] Existing off-channel operations assumed to be completed.
[8] Wet pit mining would be allowed in one or two prototype wet pits along the gaming reach between the Madison and Stephen Bridges. Solano would be one test case. A second pit would use a different size, mining method, or reclamation measure to broaden the test.
[9] An additional 3,600 acres would be disturbed off-channel.

Source: Yolo County, February 1996.

Alternative 5: Floodplain Alternative

Under this alternative, the CCRMP would establish a wider channel boundary, similar to the Streamway Influence Boudnary. Local bridge structures would not be extended. In order to create this widened channel, approximately 3,600 acres adjoining the creek would be mined and reclaimed to lowered agricultural fields. Excavation would remain above the seasonal high water table. All levees would be connected to the creek floodplain. Existing structures within the floodplain would have to be protected from erosion or relocated. The center portion of the channel would remain an open floodway, with the other banks of the creek revegetated with native species. The channel would contain 20-year flood events, with larger flows inundating the lowered reclaimed terraces. It is estimated that this alternative would yield approximately 81 million tons of aggregate over a 20-year period. Wet pit mining would continue under limited circumstances.

Alternative Rejected from Further Consideration

The following alternative is rejected as infeasible, and is therefore not analyzed further in the EIR.

Alternative 4: Deeper In-Channel Mining (Below Theoretical Thalweg)

Under this alternative, the CCRMP would allow in-channel commercial operations to mine below the maximum allowed depth established to minimize streambed lowering (the theoretical thalweg). The amount of aggregate removed from within the channel would increase from present levels. No new off-channel mining would be assumed to occur.

This alternative was rejected because increasing the depth initially established to minimize streambed lowering would be in direct contrast to what the County is attempting to achieve, including enhancing the variety of environmental and social resources of the creek, and developing a coordinated approach to resolving interrelated resource problems. In addition, the assumed amount of in-channel aggregate does not physically exist in the creek today and would not likely be deposited over the life of the CCRMP.