DRAFT ***REVISED*** ~~***FINAL***~~

CACHE CREEK RESOURCES
MANAGEMENT PLAN (CCRMP)
for LOWER CACHE CREEK

Yolo County

Updated _____, 2018
Amended July 23, 2002
Adopted August 20, 1996

~~**Revised August 15, 2002**~~

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CACHE CREEK RESOURCES
MANAGEMENT PLAN
for LOWER CACHE CREEK

Yolo County

Updated _____, 2018 (Board Resolution x.x)
Amended July 23, 2002 (Board Resolution 02-130)
Adopted August 20, 1996 (Board Resolution 96-132)

~~**Revised August 15, 2002**~~

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CHAPTER 1.0 INTRODUCTION

~~On June 14, 1994, the Yolo County Board of Supervisors adopted draft goals and objectives for the Cache Creek Resources Management Plan (CCRMP) and Off-Channel Mining Plan (OCMP). In doing so, the Board recognized 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 is 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. The CCRMP and OCMP establish a number of goals to assist in this overall management, balancing a diverse range of concerns within the overriding vision of enhancing the variety of resource needs for the region.~~

Pursuant to local requirements, the Cache Creek Resources Management Plan (CCRMP) was comprehensively reviewed and updated in 2017. New hydraulic modeling was conducted along Cache Creek using HEC-RAS v.5.0 and topographic data collected in 2011. Biological resources within the program area were comprehensively assessed. Over twenty years of data collected as a part of the program were analyzed for patterns and trends. This information was reported in an update to the 1995 Technical Studies entitled 2017 Technical Studies, which provided information in support of proposed updates, clarifications, and modifications to the program documents.

1.1 HISTORY AND BACKGROUND

Cache Creek has long served as the social and economic heartland of Yolo County. Long before exploration by the French trapper and Spanish soldiers, Cache Creek was one of the main settlement areas for the Patwin tribe, providing a rich environment for water, food, building materials, and recreation. In 1821, when the Spanish first entered the area, they noted a village of about 900 native people situated along the creek in an oak forest. The word Yolo comes from the Patwin "yoloy," which means a place abounding with rushes. These rushes were found in extensive wetlands along the Sacramento River, fed by the waters of Cache Creek.

By 1829, trappers from the Hudson Bay Company had discovered the bountiful nature of what the Spanish referred to as the "Rio de Jesus Maria." Since there was a convenient storage site near the creek~~stream~~ for their beaver pelts, they dubbed it "Riviere la Cache," or Cache Creek. This area was one of the first in the Sacramento Valley to be settled by Americans, beginning in the 1840's. Several ranchos were granted to local residents by the Mexican government over the next decade. Soon, agriculture flourished along Cache Creek, especially the raising of livestock. The town of Cacheville (now Yolo) was established in 1857 and the water from Cache Creek was ~~being~~ used to power mills and irrigate nearby fields.

Several ditches were constructed to divert water from Cache ~~c~~Creek in the 1850's and 1860's, diversifying the agricultural base of the area by expanding the production of wheat, barley, and alfalfa. In fact, irrigation diversions on Cache Creek are some of the earliest recorded in the state's

history. Technological advances in water pumps during the 1880's led to widespread use of groundwater irrigation and the expansion of orchard crops, especially in the Capay Valley. As both surface irrigation and the groundwater pumping improved, agriculture intensified in areas previously dry farmed. The development of efficient land leveling equipment and continual improvements in water delivery systems after World War II created a shift from grain and orchard crops to irrigated field crops, such as sugar beets and tomatoes.

With the booming postwar economy came rapidly growing subdivisions in the urban areas, dam construction, and the building of the interstate highway system. Consequently, the 1950's saw a dramatic increase in the demand for high-quality sand and gravel for use in concrete and in road construction. Due to its unique hydraulic and geologic characteristics, Cache Creek soon proved to be an important source of construction grade aggregate. In-stream mining expandedgrew to meet the demand and several new gravel operators moved into the area. The amount of sand and gravel removed from the channel rose sharply over the next two decades, generating public interest in the environmental effects caused by mining. Concerned over the noticeable degradation of Cache Creek, Yolo County began to turn its attention towards taking better care of this long-neglected and highlymost-valued natural resource.

Aggregate Resources Advisory Committee

Yolo County began working on a regulatory solution for concerns related to aggregate mining in Cache Creek in the mid-1970shas 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 nose 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 are recommended.

The ARAC sought the assistance of Woodward Clyde Consultants 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 also contributed, including flood control structures (dams, levees, channelization, etc.), the construction of bridges with piers in the channel, and removal of riparian vegetation. Widening through increased meandering was also determined to

~~be a result of in-stream mining, although the consultants thought that natural processes might have also played a role.~~

Several of the recommendations described in the Woodward Clyde report were~~have been~~ incorporated into the CCRMP, including; the construction of sills, check dams, and jetties within the channel, to reduce the potential or erosion~~; limiting the amount and depth of aggregate extraction, to minimize scour;~~ and the additional protection of bridge structures (although the CCRMP recommends bio-engineering methods, rather than traditional techniques depending on the extensive use of concrete and steel). While recommending that in-channel excavation be significantly reduced, this~~e~~ early 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 creek~~stream~~. These concepts have similarly been applied in the policy framework of the CCRMP.

One of the primary recommendations of the ARAC was to update the County surface mining and reclamation ordinances, and require that all in-stream mining operations existing at the time obtain new use permits and reclamation plans consistent with the new ordinances. This was accomplished in 1980. The permits were analyzed in a program-level Environmental Impact Report (EIR), prepared by Environ. In the~~ir~~ EIR, Environ also analyzed~~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; encouragement of off-channel mining; and maximization of net benefits from the aggregate industry (similar to the CCRMP's concept of "net gain"). In addition, Environ recommended~~suggested~~ that the County reexamine its policy with regard~~s~~ to agriculture lands, to 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 Resource 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 Resource 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, as follows:

1. Eliminate in-channel mining and allow off-channel excavation;

2. Same as Item 1, except dedicate a corridor for the establishment of riparian vegetation;

3. Continue existing permits, as approved, and allow off-channel mining;

4. Repeal existing mining regulations and review in-stream mining on a case-by-case basis;

5. Create a channel of sufficient capacity to convey flood events, with in-channel mining restricted for maintenance and allow off-channel mining;

6. Same as Item 5, except sills would be installed downstream from local bridges to protect the structures against future scour;

7. Same as Item 5, except a low-flow channel would be designed within the floodway to convey smaller flood flows;

8. Same as Item 5, except channel banks would be armored with concrete or riprap;

9. Construct check dams within the channel and mine the materials that would be deposited behind them, as well as permit off-channel excavation;

10. Allow in-stream mining down to a predetermined elevation and prohibit off-channel mining; and

11. Prohibit all mining within the plan area.

After comparing the various benefits and problems of each method of creek~~stream~~ management, the AgTAC decided that Alternative No. 5 was the one that would best accomplish the committee's goals, as well as being the most practical and the 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 County's agricultural zone categories~~A-P (Agricultural Preserve) Zone~~ with future mining reclamation, as well as a need to revise the County mining and reclamation ordinances.

A Draft EIR was authorized for the Draft Resource Management Plan by the firm of Dames and Moore in 1989. The document looked at seven different mining alternatives, as follows:

1. Continue existing permits, as proposed, and allow off-channel mining;

2. Rescind the County mining and reclamation ordinances, and allow both in-channel and off-channel mining depths and amounts to be set on an individual basis;

3. Implement the floodway channel concept described in the plan recommended by the AgTAC (Recommendation 5);

4. Implement off-channel wet pit mining, as long as it minimizes groundwater lowering and prevents levee breaches. (Note: This alternative and Item 3 together constituted the recommended AgTAC plan);

5. Allow off-channel mining, but restrict it to depths above the water table;

6. Allow in-stream mining below the maximum allowed depth (the theoretical thalweg);

7. Prohibit all mining within the study area.

The environmental impacts of each alternative were examined 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~~f~~ 1991.

Over the next two years, a series of public workshops were held by the Community Development Agency in order to develop a consensus project description to form the basis of a new Resource 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 CCRMP~~Cache Creek Resources Management Plan~~.

Cache Creek Area ~~Resources Management~~ Plan

The Cache Creek Area Plan (CCAP) is comprised of the OCMP and CCRMP. The OCMP is a scientifically based aggregate resource management plan that allowed for off-channel mining adjacent to Cache Creek. It facilitated the development of a sufficient supply of aggregate to meet current and future market needs, while greatly increasing the level of environmental protection and monitoring. It provided a planning area boundary, and restricted mining to certain areas within that boundary for a 50-year period. It identifies specific goals, objectives, and actions to guide mining activities that go well beyond the state-mandated requirements of the State Mining and Reclamation Act (SMARA). The OCMP was adopted July 30, 1996) Board Resolution 96-117), and underwent a comprehensive update in 2017.

The CCRMP is a scientifically-based river management plan that eliminated in-channel commercial mining, established an "improvement program" for implementing on-going projects to improve channel stability, encouraged restoration along the creek banks pursuant to a carefully developed policy and regulatory framework, and established a framework for future recreation along the Creek. The CCRMP was adopted August 20, 1996 (Board Resolution 96-132), underwent a focused update July 23, 2002 (Board Resolution 02-130), and a comprehensive update in 2017. An historic overview of the development of the two plans is provided below.

In June of 1994, the Board of Supervisors adopted a framework of goals and objectives for the CCRMP[1]. The document ~~adopted a comprehensive outlook that was reflected in overall goals, which were~~was based on the key premise~~assumption~~ that "the Creek must be viewed as a total system, as opposed to a singular focus on the issue of mining." As a result, the conceptual plan offered a far broader scope than previous efforts. It was composed of seven elements, covering agriculture, aggregate resources, riparian and wildlife resources, water resources, floodway and channel stability, open space and recreation, and the cultural landscape. Specific goals and objectives were adopted for each of the elements, with suggested policies for their implementation.

A work schedule was also approved by the Board in~~during the~~ June 1994 ~~meeting~~, outlining the interrelationships between four primary tasks: (1) adoption of a resource management plan to protect and restore the creek; (2) adoption of an off-channel mining plan and implementing ordinances; (3) processing of long-term off-channel mining and reclamation applications; and (4) processing of temporary off-channel mining and reclamation applications to allow operations to continue while the necessary plans are being developed. This schedule was further refined by staff in order to provide a clear guide for both decision-makers and the public throughout the overall planning process.

In addition to adopting the conceptual framework, the Board also directed the preparation of the "*Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan*" (1995 Technical Studies). The 1995 Technical Studies provided baseline and historical information about the streamway fluvial morphology, groundwater resources, and riparian habitat, so that an accurate assessment could~~can~~ be made of the creek's ~~present~~ condition and appropriate management strategies. Constraints and opportunities for activities such as channel stabilization, habitat restoration, flood control, groundwater management, and mining were also identified in the report. The 1995 Technical Studies include an extensive list of recommendations on improving the natural resources of Cache Creek. On October 24, 1995, the Board of Supervisors accepted the 1995 Technical Studies and directed staff to utilize them as the basis for preparing both the CCRMP and OCMP.

~~The framework provided a working outline for development of both the OCMP and the CCRMP. Portions of the framework, such as the cultural landscape element, did not easily lend themselves to specific implementation. Similarly, some of the objectives, such as those requiring certain percentage increases in types of habitat, were not supported by the Technical Studies and have therefore been modified or eliminated. The conceptual framework was intended to be a guide for development of the CCRMP, subject to the conclusions of the Technical Studies. Staff has followed the intent of the framework as closely as possible in developing this plan and balancing the diverse resource needs of the Cache Creek area.~~

[1] The Yolo County Cache Creek Resources Management Plan (CCRMP) was adopted August 20, 1996 with an update July 23, 2002. In 2002, the BLM released a draft of their Cache Creek Coordinated Resource Management Plan (CCCRMP). The BLM CCCRMP was adopted December 14, 2004. Though similarly named these plans are completely independent.

Throughout 1995 and the first half of 1996, the CCRMP, Cache Creek Improvement Program (CCIP), OCMP, and various implementing ordinances were drafted. Program EIRs were prepared and certified for both plans and accompanying ordinances. The entire program was adopted the Board of Supervisors in 1996, and subsequently placed by the Board before the voters on the November 1996 ballot against an opposing citizen's initiative. Over 60 percent of the voters supported the CCAP and that same proportion voted against the citizen's initiative. Moreover, the CCAP carried in every supervisorial district. Implementation of the plan began in earnest in 1997.

The entire CCAP program (sometimes referred to as the "gravel program") is now administered through the following local regulations:

- CCRMP implemented by the CCIP (Appendix A) and In Channel Ordinance (Appendix B and County Code Title 10, Chapter 3)

- OCMP implemented by the Off-Channel Surface Mining Ordinance (County Code, Title 10, Chapter 4) and the Surface Mining Reclamation Ordinance (County Code, Title 10, Chapter 5)

- Other important ordinances include (but are not limited to):

    - Gravel Mining Fee Ordinance (County Code, Title 10, Chapter 11)
    - Sand and Gravel Combining Zone County Code, Title 8, Chapter 2, Article 23.1)
    - Sand and Gravel Reserve Combining Zone (County Code, Title 8, Chapter 2, Article 23.8)
    - Development Agreements Ordinance (County Code, Title 8, Chapter 5)
    - Flood Protection Ordinance (County Code Title 8, Chapter 4)

1.2 STUDY AREA

The definition of a waterway is always subject to varied interpretation. Some agencies use the floodplain as the definition, although they may differ on what size event to use, covering everything from a 2-year flood to a 200-year flood. Other jurisdictions define a creek~~stream~~ according to its navigability. Still others look at the extent of riparian vegetation, or its suitability for support fish species. The confusion regarding how a creek is defined extends to the literature of channel dynamics. References are made to ordinary high water, active channel, and bank full elevation, all of which may or may not mean the same thing. The CCRMP uses a definition, based on floodplain boundaries and streambank locations~~,~~ 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 Regulations for Yolo County (see Figure 1). The extent of the channel 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 landowners were also taken into consideration with defining the channel boundary. Within this~~

~~area, commercial mining is 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.~~

~~**Figure 1.** 1979 Regulatory In-Channel Boundary~~

~~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 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. New definitions must be used, to more accurately reflect the nature of the creek.~~

The CCRMP Channel Boundary

~~The Technical Studies provided recommended channel slopes and sinuosity rations to replace the theoretical thalweg, but no specifics were given as to how the channel should be defined.~~ The authors of the 1995 Technical Studies, as well as other consultants, recommended that the CCRMP use two measures for determining the extent of the channel. One wasis the existing channel bank, as shown in recent aerial photographs taken of Cache Creek. The other wasis the 100-year floodplain boundary. There wereare several flood boundaries for Cache cCreek at the time, developed by the Federal Emergency Management Agency, the U.S. Army Corps of Engineers, and the State Reclamation Board, each of which variedy slightly from the others. On the recommendation of the County's technical consultants, the floodplain used to determine the original channel boundary for the CCRMP wasis 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 areas within both the present channel bank and the 100-year floodplain were then merged, and the outermost limit of these areas became the channel boundary for the Cache Creek Resources Management Plan (see Figure 2).~~ The area within the channel boundary originally encompassed 4,956 acres.~~; however,~~ As recommended in the Program EIR for the CCRMP, the boundary was modified to eliminate anthe off-channel mining pit operated by Solano Concrete at the time.~~, as recommended in the Program EIR for the CCRMP.~~ In addition, the large floodplains located downstream of County Road 94B were deleted,~~. from the CCRMP boundary~~ because it was determined that t~~T~~hese farmlands didde not have a direct impact on the dynamics of the channel, except to serve as overflow areas during severe flood events. In this downstream reach, the boundary wasis defined by the ~~present~~ channel bank line, as delineated in the 1995 Technical Studies. The revised channel boundary, comprising 2,324 acres, servedes as the plan area for the CCRMP.

In 2017, as part of the CCAP Update, the CCRMP channel boundary (also referred to as the in-channel area or the active creek channel) and the more narrow CCRMP plan area boundary were

updated to reflect the best available information including 2011 LIDAR topography and two-dimensional hydraulic modeling using this topography, 2015 aerial photography, and the 2012 FEMA regulatory 100-year floodplain (see Figures 1, 2, and 10). As redrawn, the in-channel area totals 5,109 acres and the CCRMP plan area totals 2,266 acres.

Although the CCRMP concentrates on those issues that most directly affect Cache Creek, management of the ~~stream must be done in~~creek requires a comprehensive approach~~manner~~ that recognizes the interrelationships between the creek and its regional setting. The Streamway Influence Zone~~Boundary~~ (see Figure 3) described in the 1995 Technical Studies shows the approximate area subject to these interrelationships, based on the extent of the channel's historical meander migration zone. Because off-channel mining within the Streamway Influence Zone ~~Boundary ware~~ could be especially prone to the effects of erosion and groundwater lowering caused by the creek, appropriate engineering is required to account for potential pit capture and fluctuating water levels.

The Off-Channel Mining Plan

SMARA includes provisions to encourage the production and conservation of minerals to ensure that a sufficient supply will be available for the state's future growth. In order to assist local jurisdictions in the identification of significant aggregate resources near urbanizing areas, the State Geologist is assigned the responsibility of classifying the extent and quality of mineral deposits within metropolitan regions around the state. As a part of this program, the State Department of Conservation prepared Special Report 156, *"Mineral Land Classification: Portland Cement Concrete-Grade Aggregate in the Sacramento-Fairfield Production Consumption Region"* in 1988 (Note: Staff at DOC have begun an update to this special report). Included within this report is an analysis of the sand and gravel resources located along Cache Creek.

The planning area for the Off-Channel Mining Plan (OCMP) is defined as those areas designated as potentially containing sand and gravel resources (i.e. Mineral Resource Zones), according to Special Report 156, minus the planning area for the CCRMP~~in-channel area of the creek system, as defined above~~ (see Figure 2). The~~is~~ MRZ area includes approximately 28,130 acres in a broad band of varying width along Cache Creek, between the Capay Dam and the town of Yolo. As described in the OCMP, however, only 4,727~~less than 3,000~~ acres or less than 17 percent of the total plan area are identified~~is being considered~~ for off-channel mining over the next fifty years.

Horizon Year

The horizon year for this plan is 2068. Similar to the use of this term in other long-range planning efforts, this reflects how far into the future the plan guidance extends. It also defines the period for consideration of cumulative effects for purposes of environmental impact analysis.

1.3 RELATIONSHIP TO OTHER REGULATIONS AND PLANS

The CCRMP recognizes that management of the creek cannot occur within a vacuum. Implementation of the CCRMP must take into consideration other policies and plans of the

County, as well as the applicable requirements of local, state, and federal agencies of jurisdiction. This section briefly describes compliance of the proposed plan with those regulations of primary relevance.

The Surface Mining and Reclamation Act

Two of the primary recommendations of the CCRMP were~~Cache Creek Resources Management Plan are~~: (1) that the amount of in-stream excavation be significantly reduced from present levels; and (2) that future excavation within the channel be restricted to those "channel smoothing and shaping" activities which reduce erosion and improve flow dynamics. Even though large-scale commercial mining was~~would be~~ prohibited with adoption of the plan, it was recognized that sand and gravel would~~will~~ still need to be removed from the channel in order to enhance channel stability. It was~~is~~ envisioned that future channel improvement projects would~~will~~ be directed by the County based on the review of the~~an~~ independent Technical Advisory Committee (TAC).

The California Surface Mining and Reclamation Act (SMARA) establishes a regulatory framework, which requires all new excavations to obtain the following: a mining permit, a reclamation plan describing the methods to be employed in returning the site to a beneficial use once operations have been completed, and financial reassurances that provide funds for guaranteeing that the reclamation work is carried out as approved. Lead agencies are required to annually inspect each mine located within their jurisdiction to monitor permit compliance. In addition, the State Mining and Geology Board has adopted specific standards to ensure that reclamation is performed in a consistent manner.

However, because the activities anticipated under the CCRMP would be performed for the primary purpose of improving channel stability, the Plan originally envisioned that implementation of the CCRMP might ~~may~~ not be subject to SMARA. Provisions in SMARA allow exceptions for those activities which would restore land following a flood, or which are a necessary part of a construction project approved by the lead agency for land improvements, or which involve minor surface disturbances of an infrequent nature. These exceptions were identified as~~are~~ consistent with the intent of the CCRMP. In-channel excavation would only be permitted for the purpose of improving channel stability, maintaining flood control, or preventing the erosion of adjoining lands. Aggradation would be encouraged, with the removal of sand and gravel not exceeding the previous year's deposition. ~~In fact, in-stream extraction is expected to decrease as channel improvements are completed. More importantly, the CCRMP would prohibit future commercial mining within Cache Creek, and all existing mining permits within the active channel would be withdrawn.~~

~~If the CCRMP is found to be subject to SMARA, a single mining permit and reclamation plan covering the entire plan area would be requested from the Department of Conservation and administered by the County.~~ In the fall of 1998, the County requested a ruling from the State Mining and Geology Board regarding whether implementation of the CCRMP/CCIP would be subject to or exempt from SMARA. The Board determined that the CCRMP/CCIP did not qualify for an exemption from SMARA due to the amount of sand and gravel expected to be removed

over the 30-year horizon of the plan. Subsequent to that action, special legislation was passed to amend SMARA to recognize the CCRMP/CCIP as the functional equivalent of a Reclamation Plan for purposes of SMARA compliance (Assembly Bill 297, H. Thomson, Statutes of 1999). This law had a five-year sunset date, but was subsequently reauthorized every five years. The history of this legislative exemption is as follows: 1) First authorization Chapter 869 of the Statutes of 1999 (AB 297, Thomson), sunset December 31, 2003; 2) Second authorization Chapter 173 of the Statutes of 2004 (AB 1984, Wolk), sunset December 31, 2008; 3) Third authorization Chapter 604 of the Statutes of 2007 (AB 646, Wolk), sunset December 31, 2012; 4) Fourth authorization Chapter 145 of the Statutes of 2011 (SB 133, Wolk), sunset December 31, 2017; 5) Fifth authorization Chapter 235 of Statutes of 2016 (SB 1133, Wolk), sunset removed. On August 29, 2016, Governor Brown signed Senate Bill 1133 (Wolk) which removed the sunset clause and made this statute permanent.

With the amendment of SMARA for the CCRMP, this opened a path for implementation of the CCIP. Individual projects could move forward based on County issuance of Flood Hazard Development Permit and consistency with the CCRMP. Those working in the channel ~~under this permit would likely be~~are required to post financial assurances to ensure restoration ~~reclamation~~ is performed in accordance with the approved plan.~~and offset a portion of the County's reporting fees to the State Department of Conservation.~~ They are also required to be compliant with the In-Channel Ordinance adopted in June 2008. ~~In return, this arrangement would streamline permit processing and allow for emergency work to be performed in a timely manner. Regardless of whether the CCRMP is subject to SMARA, a revised channel ordinance(s) will be required to implement the Cache Creek Resources Management Plan. The ordinance(s) will include standards to carry out the policies of the CCRMP, as well as provisions to ensure compliance with SMARA, if necessary. In order to avoid duplication and strengthen the County's enforcement abilities, the standards listed in the CCRMP will be deleted and subsequently incorporated into the in-channel ordinance, when it is prepared. This procedure is similar to that which occurred with the preparation of the OCMP and its implementing ordinances.~~

As discussed earlier, the State Department of Conservation released Special Report 156 in 1988. This report classified the sand and gravel deposits along Cache Creek (including the CCRMP plan area) as being regionally significant mineral resources. Section 2762.(a) of SMARA requires that the lead agency (Yolo County) incorporate mineral resource management policies into its general plan within twelve months after receiving a mineral land classification report prepared by the State Geologist. These policies must accomplish the following:

1. Acknowledge the information provided by the State Geologist regarding the extent of mineral resources within the jurisdiction.

2. Coordinate the management of land uses within and surrounding areas of statewide and regional significance to restrict the encroachment of incompatible uses.

3. Emphasize the conservation and development of identified mineral deposits.

In addition, Section 3676 of the State Mining and Geology Board Reclamation Regulations requires that mineral resource management policies incorporate, but not be limited to, the following:

1. A summary of the information provided by the classification study, including, or incorporated by reference, maps of the identified mineral deposits as provided by the State Geologist; and a discussion of state policy as it pertains to mineral resources.

2. Statements of policy as required in Section 2762~~.~~(a) of SMARA.

3. Implementation measures that:

    a. Discuss the location of identified mineral deposits and distinguish within those areas between resources which are designated for conservation and those which may be permitted for future extraction.

    b. Provide appropriate maps to clearly define the extent of identified mineral deposits, including those resources designated for conservation and those, which may be permitted for future extraction.

    c. Include at least one of the following:

        i. Adopt appropriate zoning that identifies the presence of identified mineral deposits and restricts the encroachment of incompatible land uses in those resource areas that are to be conserved.

        ii. Require that a notice describing the presence of identified mineral deposits be recorded on property titles within the affected area.

        iii. Impose conditions of approval upon incompatible land uses in and around areas, which contain identified mineral deposits, in order to mitigate any significant land use conflicts.

Policies regarding the conservation and development of classified mineral deposits, in accordance with the above requirements, are contained in the OCMP. ~~As discussed earlier, t~~The CCRMP restricts ~~sand and gravel removal~~ extraction of material within the Cache Creek channel to those activities, which: maintain flood flow capacity;~~control,~~ protect existing structures, infrastructure, and/or farmland; minimize~~prevent~~ bank erosion;~~, or contribute to channel stabilization~~ implement the Channel Form Template (described further below); enhance creek stability; establish riparian vegetation; and/or result in recreation and open space uses consistent with the Parkway Plan. In addition, in-channel aggregate extraction is limited to the average annual amount deposited since the last prior year of removal~~during the previous year~~. Those aggregate resources remaining within the channel will be conserved and maintained, with Open Space zoning to restrict the encroachment of incompatible uses.

Prior to adoption of the CCRMP, review and comment by the State Mining and Geology Board wasis required, as stated in Section 2762.(a) of SMARA. Any fFuture proposed amendments to the CCRMP and its policies must also be sent to the State Mining and Geology Board for review and comment, prior to their adoption, to ensure that the above requirements are being met. Similarly, if the channel maintenance activities under the CCRMP are determined to be subject to SMARA, then Section 2774.3 of SMARA requires that the in-channel mining and reclamation ordinances also be reviewed by the State Mining and Geology Board, and certified as being in accordance with State policy.

Yolo County General Plan

The County of Yolo 2030 Countywide General Plan includes goals, policies and actions that guide Yolo County in ensuring continued productivity and conservation of the County's mineral reserves while balancing the preservation and enhancement of the Cache Creek channel and corridor.

Goal CO-3: Mineral Resources. Protect mineral and natural gas resources to allow for their continued use in the economy.

Policy CO-3.1: Encourage the production and conservation of mineral resources, balanced by the consideration of important social values, including recreation, water, wildlife, agriculture, aesthetics, flood control, and other environmental factors.

Policy CO-3.2: Ensure that mineral extraction and reclamation operations are compatible with land uses both on-site and within the surrounding area, and are performed in a manner that does not adversely affect the environment.

Action CO-A37: Designate and zone lands containing identified mineral deposits to protect them from the encroachment of incompatible land uses so that aggregate resources remain available for the future. (Policy CO-3.1)

Action CO-A39: Encourage the responsible development of aggregate deposits along Cache Creek as significant both to the economy of Yolo County and the region. (Policy CO-3.1)

Action CO-A40: Encourage recycling of aggregate materials and products. (Policy CO-3.1)

Action CO-A41: Regularly review regulations to ensure that they support an economically viable and competitive local aggregate industry. (Policy CO-3.1)

Action CO-A42: Implement the Cache Creek Area Plan to ensure the carefully managed use and conservation of sand and gravel resources, riparian habitat, ground and surface water, and recreational opportunities. (Policy CO-3.1)

Action CO-A43: Monitor updates to the State Mineral Resource classification map and incorporate any needed revisions to the County's zoning and land use map. (Policy CO-3.1)

Action CO-A44: Coordinate individual surface mining reclamation plans so that the development of an expanded riparian corridor along Cache Creek may be achieved. (Policy CO-3.1)

Action CO-A46: Maintain standards and procedures for regulating surface mining and reclamation operations so that potential hazards and adverse environmental effects are reduced or eliminated. (Policy CO-3.1, Policy CO-3.2)

Action CO-A47: Ensure that mined areas are reclaimed to a usable condition that is readily adaptable for alternative land uses, such as agriculture, wildlife habitat, recreation, and groundwater management facilities. (Policy CO-3.1)

Action CO-A48: Regularly update surface mining and reclamation standards to incorporate changes to State requirements, environment conditions, and County priorities. (Policy CO-3.1)

Action CO-A54: Implement the Cache Creek Area Plan. (Policy CO-3.2)

Goal CO-1: Natural Open Space. Provide a diverse, connected and accessible network of open space, to enhance natural resources and their appropriate use.

Policy CO-1.1: Expand and enhance an integrated network of open space to support recreation, natural resources, historic and tribal resources, habitat, water management, aesthetics, and other beneficial uses.

Policy CO-1.2: Develop a connected system of recreational trails to link communities and parks throughout the county.

Policy CO-1.3: Create a network of regional parks and open space corridors that highlight unique resources and recreational opportunities for a variety of users.

Policy CO-1.7: Support efforts by willing landowners and non-profit groups to provide new opportunities for outdoor recreation. (Policy CO-1.29)

Policy CO-1.8: Encourage responsible stewardship of private lands. Promote increased opportunities for public access to waterways and other natural areas.

Policy CO-1.9: Promote the conservation of environmental resources in new and existing park and open space facilities.

Policy CO-1.11: Coordinate the development of recreation areas and public open space with regional trail planning.

Policy CO-1.15: Support efforts to acquire either fee title or easements on additional open space areas adjoining existing protected natural resource areas to increase the size, connectivity, and buffering of existing habitat.

Policy CO-1.23: Increase public access and recreational uses along waterways wherever feasible, particularly Cache Creek, Lower Putah Creek, the Yolo Bypass, and the Sacramento River.

Action CO-A4: Pursuant to the Cache Creek Area Plan, develop a recreation plan for the Cache Creek Parkway including a range of public activities and uses. (Policy CO-1.24)

Action CO-A6: Connect the future Bay Delta Trail system, the future trail system in lower Yolo Bypass, and the future Cache Creek Parkway system, and link those trails to the American River Bikeway system in Sacramento County. (Policy CO-1.1, Policy CO-1.3, Policy CO-1.12, Policy CO-1.19, Policy CO-1.28)

Action CO-A11: Provide recreational uses that are river or creek dependent in locations directly on Cache Creek, Putah Creek, and the Sacramento River. Examples include fishing, canoeing, boating, and nature observation. With the exception of boat launches and docks, more active uses, such as parking, restrooms, and picnic areas, shall be located in areas away from the river and sensitive riparian habitat. (Policy CO-1.1, Policy CO-1.24, Policy CO-1.27, Policy CO-1.28)

Action CO-A12: Cluster recreational improvements at various locations along Cache Creek, Lower Putah Creek, and the Sacramento River, to reduce habitat disturbance and provide efficient and cost-effective management by the County. (Policy CO-1.10)

Action CO-A15: Combine parks and trails with open space and wildlife conservation areas where appropriate. (Policy CO-1.1, Policy CO-1.10)

~~In its final report in 1977, the aggregate Resources Advisory Committee (ARAC) stressed the need for a coordinated approach to resource management, stating that "the adoption of a Countywide (resource) management policy and plan should maximize the benefits of an aggregate industry in the County." This recommendation lead to the adoption of Conservation Policies 34 and 35, as follows:~~

~~CON 34 Mineral Resources~~
~~Yolo County shall adopt a Minding Ordinance to implement these policies as they apply to mineral resources, including sand and gravel.~~

~~CON 35 Cache Creek~~
~~Yolo County shall adopt a Cache Creek Management Program for the carefully managed use and conservation of Cache Creek and its sand and gravel resource, its riverside environment, its relationship to ground and surface water characteristics and its value as a fishery and recreation resource.~~

~~In addition, the following General Plan policies are relevant:~~

~~CON-2 Yolo County shall foster conservation of its resources and avoid natural hazards by planning, encouraging, and regulating the development and use of these resources and the areas where they exist.~~

~~CON-5 In order to avoid conflict with this General Plan, as amended, or to avoid environmental hazards, Yolo County shall require the conservation of natural resources, in their development and managed utilization including:~~

- ~~Regulations of the use of land in stream channels and other areas required for the accomplishment of the General Plan; and~~

- ~~The location, quantity and quality of rock, sand, and gravel resources.~~

~~CON-6 Yolo County shall plan, encourage, and regulate to ensure that natural resources are maintained for their long-term ecological values as well as for their more direct and immediate benefits.~~

~~CON-9 Yolo County shall ensure the protection, maintenance, and wise use of the State's natural resources, especially scarce resources and those that require special control and management.~~

~~CON-10 Yolo County shall plan, encourage, and regulate public and private agencies to prevent the wasteful exploitation, destruction or neglect of the State's resources.~~

~~OS-1 Yolo County shall preserve appropriate open space land through available means of land use controls, regulations, and advice or guidance and through coordination with other elements of this General Plan, as amended, and with other agencies.~~

~~OS-2 Yolo County shall use the Land Use Element policies, together with Specific Plans, zoning, use permits, site plan review, building permits, subdivision maps, the Agricultural Preserve Land Conservation Act of 1965, assessment practices, coordination with the Soil Conservation Service and other available means to preserve all lands defined as Open Space.~~

~~OS-8 Recreation, bikeways, trails, and other public areas shall be integrated with open space plans and the provision of open space areas and corridors; and conformance with such plans shall be mandatory for all new development or redevelopment.~~

~~OS-9 Yolo County shall plan to maintain scenic highways and waterways or riverbank corridors or scenic value as part of its open space preservation program and shall use persuasion and regulation to that end.~~

~~OS-11 Yolo County shall safeguard existing and encourage additional areas of wildlife habitat as part of its open space preservation program.~~

~~REC 6 Development of riverfront recreation areas shall offer recreational facilities, visual aesthetics and open space amenities, while insuring access to the river for all residents.~~

The CCRMP has been evaluated and determined to be consistent with the various goals and policies of the County General Plan. The CCRMP, together with the OCMP, ~~will~~ constitute the Cache Creek Area Plan (CCAP), which ~~will~~ provides the policy framework ~~necessary structure and policies~~ for implementing this~~a~~ program to manage the wide variety of resources associated with the creek, including habitat, water resources, aggregate, agriculture, and recreation.

The County's off-channel surface mining ordinance, reclamation ordinance, and in-channel maintenance ordinance all implement the policy framework. These ordinances include specific performance standards that ensure that the goals and objectives spelled out in the OCMP and CCRMP are achieved. Although each plan was prepared as a stand-alone document, they were adopted as two co-equal parts of the CCAP and have been implemented in concert with one another since adoption.

Cache Creek Area Plan

An "area plan" is a focused planning policy document that is part of a general plan. The CCRMP meets all the requirements of a State land use law to function as an area plan or the channel boundary area defined herein. It addresses all of the elements specified in Section 65302 of the California Code of Regulations, to the extent that the subject of the elements exists in the planning area. As allowed by State law, the degree of specificity and level of detail of the discussion of each such statement reflects local conditions and circumstances. A brief summary of how ~~all~~ the General Plan requirements are satisfied is provided below.

Planning Area

By taking in the entire channel area as determined by topographic features and flood flow calculations, and by recognizing the Streamway Influence Zone~~Boundary~~ as defined in the 1995 Technical Studies, the CCRMP addresses all land and resources which bear a relationship to streamway planning along the creek.

~~*Time Horizon*~~

~~The Plan is based on 50- and 100-year projections of channel conditions, and provides for accelerating stabilization conditions projected to otherwise occur over a longer term. Due to the continually changing nature of the creek, the Plan contains a policy to require that it be updated a minimum of every ten years.~~

Diagrams and Implementation Programs

The Plan contains appropriate diagrams and specific discussion regarding implementation under the ~~Cache Creek Improvement Program (~~CCIP~~)~~.

Consistency

The Plan has been examined for consistency and found to be both internally consistent and consistent with appropriate federal and State policies and regulations.

Land Use Element Issues

The Plan contains data, analysis, policies, and programs related to the intensity, location, and type of channel maintenance and riparian restoration activities within the planning area. The Plan clearly specifies where and under what circumstances in-stream extraction is allowed, species of plants to be used in habitat restoration, cross-section profiles and standards for reshaping the channel, and the authority and responsibilities of the TAC~~Technical Advisory Committee~~.

It examines the current distribution of habitat and agricultural land, specifies areas where channel widening/narrowing should occur, as well as average levels of sediment discharge and water levels expected from the creek. It also addresses potential recreational facilities and opportunities associated with creek restoration. A program has been provided to ensure that channel stabilization and maintenance activities do not adversely affect downstream flooding.

Other typical Land Use Element issues such as educational facilities, public buildings and grounds, as well as solid and liquid waste facilities are addressed only in the context of having relevance to the maintenance and stabilization of the creek.

Consistency with the California Surface Mining and Reclamation Act has been addressed in the environmental analysis and found not to be an issue.

Circulation Element Issues

The Plan identifies the location and extent of major thoroughfares, transportation routes, and other local public utilities and facilities in the planning area. The proposed levels of aggregate production from creek maintenance activities would not generate any significant changes in traffic volumes.

Housing Element Issues

The Plan identifies nearby housing for purposes of assessing the potential impact from channel maintenance and recreational activities. Regulations are provided, where appropriate.

Conservation Element Issues

The Plan addresses programs for the conservation, management, and protection of natural resources within the Cache Creek channel, including surface water quality, biological resources, and the erosion of soil resources.

Open Space Element Issues

The Plan includes identification of areas required for the preservation of plant and animal life, including sensitive habitat. The areas within the channel are identified as requiring ongoing monitoring and study. The Plan also contains a program for the ~~encouragement~~ protection and enhancement of riparian habitat and the use of biological elements to control erosion and flow velocities. Land within the CCRMP boundary has been designated as Open Space (OS) in the County General Plan.

Scenic resources and cultural resources have been identified in the Plan. The area located within the channel is designated as Open Space in the Plan, in order to preserve it for future habitat and recreational uses. This ~~will~~ compliments the OCMP, which designates future recreation nodes that would provide access to areas targeted for future open space and passive recreation.

Noise Element Issues

Noise identified with in-stream excavation and recreational uses has been identified and is regulated in the Plan.

Safety Element Issues

The effects of dam failure, flooding, and channel instability are discussed. Policies and specific regulations to address these concerns are provided, when necessary.

Other

Coastal issues and timber harvesting plans are not relevant to the CCRMP plan area and have not been addressed in the Plan.

Yolo County Mining and Reclamation Ordinances

Commercial ~~i~~in-stream surface mining ended with the adoption of the OCMP and CCRMP in 1996 and the subsequent relinquishment of vested in-stream rights by all operators along Cache Creek. On June 24, 2008 the County Board of Supervisors adopted the CCAP In-Channel Ordinance (Yolo County Code Title 10, Chapter 3) to regulate in-stream extraction activities that implement the bank stabilization, channel maintenance, and habitat restoration necessary to carry out the CCRMP and CCIP. ~~is presently governed by Chapter 3 of Title 10 of the County Code. "The Interim In-Channel Surface Mining Regulations of Yolo County" apply only to in-stream mining within Cache Creek. These regulations were intended to be a temporary three-year set of regulations, to be revised by the Resource Management Plan being drafted by the Aggregate Technical Advisory Committee in the early 1980s. As subsequent planning efforts resulted in stalemate, however, the interim regulations were never revised. They continue to remain the standards by which in-stream mining is regulated at the time this Plan has been adopted. However, they are modified by the restrictions and requirements of the Cache Creek Improvement Program (CCIP) which has been adopted as a component part of this CCRMP. As a subsequent clean-up action in~~

~~1997, the County will revise the in-stream regulations to be consistent with and carry out the full spirit and intent of the CCRMP and CCIP.~~

The in-stream mining regulations for Yolo County, prior to adoption of the CCRMP and CCIP, allowed excavation within the channel down to the "theoretical thalweg." This ~~i~~was a specific elevation, below which in-stream mining was prohibited~~may not occur~~. In addition, in-channel mining ~~i~~was prohibited within three hundred feet of any County bridge along Cache Creek and nine hundred feet from any State bridge. These measures were established to protect local bridge structures from being undermined and to minimize streambed lowering. ~~The regulations also have designated an in-channel boundary, defined in County ordinance, based on the patterns of erosion and deposition. However, this boundary sometimes extends well outside of the active stream channel, which causes confusion for both miners as well as adjoining landowners, and makes effective management of the creek difficult.~~

Conclusions reached in the 1995 Technical Studies recommended that these regulatory mechanisms be revised to take new information and research into account. In place of the theoretical thalweg, a series of reach-specific slopes and sinuosity ratio~~n~~s (comparing the channel width to its length) were~~have been~~ adopted, which provide standards for maintenance excavation that would improve the channel flow. Commercial mining was~~ould be~~ prohibited~~.~~ and ~~T~~the prohibition against working near local bridges ~~i~~was removed ~~identified as inappropriate, so that~~ to allow for restoration activities including the construction of ~~effective~~ transitions ~~can be constructed~~ to improve flow efficiency through these portions of the creek. Additionally,~~Finally,~~ the in-channel boundary ~~h~~was ~~been~~ revised to more accurately reflect the active flow of Cache Creek, as defined by the existing channel banks and the 100-year floodplain (as determined by the U.S. Army Corps of Engineers).

~~Chapter 5 of the County Code is entitled the "Yolo County Surface Mining Reclamation Law" and is referred to as the "Reclamation Ordinance."~~ The 1996 policy and regulatory changes ~~proposed change in~~changed the focus ~~emphasis~~ away from aggregate mining within Cache Creek to channel stabilization and flood conveyance capacity ~~floodway~~ management. ~~also requires a significant shift in the way in-stream areas are restored. Up until now, in-channel mining reclamation has largely consisted of minimal grading and resoiling standards, with provisions for grass seeding, in order to minimize erosion.~~ Restoration under the ~~proposed~~ CCRMP~~, however, is primarily aimed at~~ focuses on reestablishing a riparian vegetation corridor along the length of Cache Creek, as well as ensuring a stable channel system that allows for flood flow conveyance and erosion protection. ~~New standards are recommended that reflect this change in priorities, by~~ The plan provides~~ing~~ guidance on habitat creation and ensures~~ing~~ that in-stream restoration is ~~more~~ sensitive to channel flow dynamics.

Yolo County Flood Protection~~Damage Prevention~~ Ordinance

~~In addition to having responsibilities for monitoring aggregate operations and coordinating with other agencies in implementing this Plan, the Community Development Director also serves as the County's Floodplain Administrator.~~ The County has no obligation or responsibility under either the CCRMP or CCIP to manage or maintain flood flow conveyance capacity in Cache Creek.

However, both the CCRMP and CCIP include monitoring and reporting tasks to provide interested landowners and agencies information relevant to flood management that is derived from the program.

All projects located within the floodplain, as defined by the Federal Emergency Management Agency (FEMA), requires review by the County's Floodplain Administrator, to ensure that development such as grading, fill, construction, etc. does not significantly raise flood levels for surrounding property. This authority applies to all flood zones throughout the County, including those associated with Cache Creek. The Director of Community Services serves as the Floodplain Administrator; however, the Natural Resources Manager (NRM) may be the designee for the Floodplain Administrator, for consideration of Flood Hazard Development Permits within the boundaries of the CCRMP. The scope of the Floodplain Administrator's authority and the approval process are contained within the County Flood Damage PreventionProtection Ordinance (Chapter 4 of Title 8 of the Yolo County Code).

Implementation of the CCRMP iswill be carried out through the CCIP (Appendix A), which establishes a regulatory framework for stabilizing the channel. Central to this approach is the Technical Advisory CommitteeTAC., which will The TAC is charged with identifying and establishing as prioritypriorities for channel improvement projects, monitoring various issues related to the hydraulic flowcharacteristics of flow of in the creek, and reviewing and commenting on proposed projects within the channel area. Channel improvements made pursuant to the CCRMP and CCIP will require a Floodplain Flood Hazard Development Permit. The TAC will review all permit applications for projects within the CCRMP boundary prior to their issuance by the Floodplain Administrator (or designee) and provide recommendations on design, and whether the permit is consistent with the Plan, the implementing ordinances, and other programmatic"blanket" permits issued by jurisdictional agencies. Thus, the requirements of the CCRMP and CCIP will be implemented through the Floodplain Flood Hazard Development Permit. Unlike the past, where individual property owners modified the creek independently, with sometimes adverse consequences, the CCIP provides a consistent means for coordinating activities along the channel.

The Cache Creek Improvement Program

The CCIP was developed to implement the goals, objectives, actions, and performance standards of the CCRMP as it relates to the stabilization and maintenance of Cache Creek. It hwas been adopted as a component part of the CCRMP, and generally, where the acronym CCRMP is used it is intended to include the CCIP. The CCIP has three primary components, including the identification of major channel stabilization projects, a description of expected channel maintenance activities, and the establishment of a hydrologic monitoring program. Overall management of the CCIP is the responsibility of the County NRMResource Management Coordinator (RMC). Scientific analysis of the creek and recommendations will be provided by the a Technical Advisory Committee (TAC), in coordinationwho would coordinate with the NRMRMC. In addition, an optional Cache Creek Stakeholders Group (CCSG) maywill be establishedestablished to provide input on how the creek should be managed. Funding for the

CCIP will primarily be provided by the aggregate industry through a per ton surcharge on gravel produced within the County.

In-channel c~~C~~ommercial mining is~~would be~~ prohibited under the CCIP. Aggregate excavation within the channel may only occur to install or maintain habitat restoration, ~~to~~ maintain flood control, protect existing structures, minimize bank erosion, or implement the Channel Form Template.~~Test 3 boundary.~~

Under the CCIP, ~~all~~ applicants proposing to modify the creek channel within the CCRMP boundary must~~will be required to~~ submit applications to the Community ~~Development Agency~~Services Department for a ~~Floodplain~~ Flood Hazard Development Permit. The permit is~~will be~~ reviewed by the TAC, which~~who~~ will provide recommendations to the Floodplain Administrator (or designee) prior to permit approval. The program is supported by ~~County will also pursue general "blanket"~~programmatic permits from agencies of jurisdiction (e.g., Regional Water Quality Control Board, Army Corps of Engineers, and Department of Fish and Wildlife~~Game~~) for channel shaping and maintenance activities. Flood Hazard~~plain~~ D~~d~~evelopment P~~p~~ermits within the CCRMP boundary must be consistent with the CCIP and CCRMP, comply with appropriate ~~"blanket"~~programmatic permits, protect sensitive biological resources, and ensure that flood~~ing problems at~~ risk for downstream communities such as Woodland are not~~'aren't~~ worsened.

Channel improvement and maintenance projects must~~will have to~~ comply with design guidelines, target channel characteristics, and typical cross-section profiles, as described in the CCIP. These reach-specific guidelines incorporate baseline~~are based on~~ information ~~developed in~~from the 1995 Technical Studies, and the findings from the 2017 Technical Studies and CCAP Update. ~~and~~These guidelines will be periodically updated according to the information obtained through creek monitoring program. The results of the monitoring program are~~will be~~ included in the annual report prepared by the TAC for review by the Board of Supervisors. The annual report ~~will~~ also include~~s~~ program costs, an evaluation of streambed and streambank stability in the CCRMP area, recommended changes in the prioritization of channel improvement projects, and ~~any~~ proposed changes in the monitoring program for the following year.

The Off-Channel Mining Plan

The CCRMP is ~~Cache Creek Resources Management Plan is being prepared as~~ a companion document to the ~~Off-Channel Mining Plan (~~OCMP~~)~~, which primarily governs the mining of sand and gravel aggregate outside the present channel banks and 100-year floodplain. The two plans, which together comprise the CCAP~~Cache Creek Area Plan~~, recognize that in-channel and off-channel environments are different and require unique approaches that address their varying needs. At the same time, however, the County also recognizes that Cache Creek and its surrounding areas form an integrated system, and that activities that occur in one environment affect the other. Thus, although the planning areas for the two plans are mutually exclusive, both plans include goals and policies that acknowledge the connections between in-channel and off-channel concerns where they occur.

1.4 REQUIRED APPROVALS

The CCRMP is a complex plan~~project~~ and its emphasis on comprehensive and integrated resource ~~e~~ management ~~will~~ required consideration by the County of several additional actions (described below) for its implementation. These actions ~~will~~ provided the County with a regulatory framework for carrying out the various policies described within the CCRMP. ~~It should be noted, however, that approval of these actions is just the beginning.~~ Ongoing ~~I~~implementation of the CCRMP ~~will~~ requires continuing efforts by the County, including public outreach and education programs, monitoring and technical analysis, negotiation with other agencies of jurisdiction, and coordination with volunteer community groups.

Certification of the Program EIR

Section 15168 of the California Environmental Quality Act (CEQA) provides for the preparation of a Program EIR. A Program EIR may serve as an environmental document for a series of individual projects that are located within the same geographical area, or are sequentially related, or have similar environmental effects. There are several advantages to a Program EIR. It provides a more thorough consideration of potential environmental impacts, especially cumulative effects, and encourages a broader discussion of project alternatives. Program EIRs also reduce redundancies in the environmental review process, as well as allow for greater County flexibility in dealing with policy issues.

Subsequent projects approved pursuant to the Program EIR still require additional environmental documents. However, Program EIRs allow subsequent environmental documents to focus on issues unique to the site, that were not specifically addressed in the Program EIR. This allows decision-makers and interested parties to concentrate on the primary issues associated with a particular project, without revisiting other issues on which there is general agreement. Although they help to streamline the process, Program EIRs and any subsequent focus~~s~~ed project-level EIRs do not restrict public participation. They still require circulation of the documents and a comment period, notification of interested parties, and public hearing.

A~~The~~ Program EIR ~~h~~was ~~been prepared~~certified for the CCRMP~~Cache Creek Resources Management Plan~~ in 1996. ~~The Draft EIR was made available for public comment on April 8, 1996. The Response to Comments document was released on July 1, 1996. Together, these two volumes constitute the Final EIR for the CCRMP.~~ The Program EIR ~~h~~was ~~been~~ written to fulfill the federal National Environmental Protection Act (NEPA) standards, so that the EIR could~~may~~ be used to support the 404 Permit required by the U.S. Army Corps of Engineers for work within the channel, as well as permits for jurisdictional State agencies (e.g., the Regional Water Quality Control Board, the Department of Conservation, and the Department of Fish and Wildlife~~Game~~).

~~The Program EIR identifies twelve general areas of potential environmental impact, including: land use, geology and soils, hydrology and water quality, agriculture, biological resources, air quality, traffic and circulation, noise, aesthetics, cultural resources, hazards, and public services.~~ The CCRMP EIR also serve~~s~~d as a project-level EIR for the CCIP, in order to enable the subsequent

implementation of the specific channel stabilization and maintenance actions required by the program.

Adoption of the Cache Creek Resources Management Plan

The CCRMP~~Cache Creek Resources Management Plan~~ and the CCIP~~Cache Creek Improvements Program~~, as well as the companion ~~Off-Channel Mining Plan~~OCMP are intended to be evolutionary documents that adjust and change in response to new creek conditions. Adoption of the CCRMP in 1996~~will~~ allowed the County to begin taking the first steps towards managing the resources of Cache Creek in a more balanced and sustainable manner. However, the plan ~~should~~was not ~~be~~ seen as a static vision of what the ultimate disposition of the creek will be in the future. ~~As such,~~Rather, it ~~i~~was expected that the CCRMP would~~will~~ undergo periodic review and updating as additional data is gathered through monitoring and the success of habitat restoration projects and channel stabilization are known. The CCRMP is required to be~~should be~~ updated every ten years, at a minimum, in order to allow sufficient time for trends to become evident, yet still be early enough to change any policies that are having an unexpectedly adverse effect on resource management.

~~A Supplemental Program/Project-Level Environmental Impact Report (SEIR) was prepared and certified in 2002 to inform public agency decisionmakers and the public of the environmental effects of the CCRMP and CCIP on Cache Creek since their implementation. The SEIR was also necessary prior to the County seeking new permits from the appropriate Government agencies.~~

Adoption of the Surface Mining and Reclamation Ordinances

In order to simplify the administration of managing the resources along Cache Creek, in-channel management requirements and off-channel mining regulations have been given separate chapters within Title 10 of the County Code: Chapter 3, In-Channel Ordinance; Chapter 4, Off-Channel Surface Mining Ordinance; Chapter 5, Surface Mining Reclamation Ordinance).

In the fall of 1998, the County requested a ruling from the State Mining and Geology Board regarding whether implementation of the CCRMP/CCIP would be subject to or exempt from SMARA. The Board determined that the CCRMP/CCIP did not qualify for an exemption from SMARA due to the amount of sand and gravel expected to be removed over the 30-year horizon of the plan. Subsequent to that action, special legislation was passed to amend SMARA (PRC Section 2715.5) to recognize the CCRMP/CCIP as the functional equivalent of a Reclamation Plan for purposes of SMARA compliance (Assembly Bill 297, Statutes of 1999). This law had a five-year sunset date, but was subsequently been reauthorized every five years. On August 29, 2016, Governor Brown signed Senate Bill 1133 (Wolk) which removed the sunset clause and made this statute permanent.

In June of 2008 the County's In-Channel Ordinance was adopted to regulate in-stream extraction activities that implement the bank stabilization, channel maintenance, and habitat restoration necessary to carry out the CCRMP and CCIP.

~~If the CCRMP is found to be subject to SMARA, planned revisions to the in-channel regulations, as well as the already amended reclamation ordinance, will be adjusted as necessary. These ordinances would then be sent to the State Mining and Geology Board for certification. Should this be the case, in-channel and off-channel mining regulations would be given separate chapters within the County Code. The reclamation ordinance would continue to govern both types of mining. Regardless of whether the CCRMP is subject of SMARA, performance standards developed through the recommendations of the Technical Studies prepared for Cache Creek, as well as the experience and practices of other jurisdictions, would be incorporated into the new regulations.~~

Approval of Zone Changes

~~At present, the majority of the area within the CCRMP plan boundary is zoned with the S-G (Sand and Gravel) overlay, reflecting its recent history of commercial in-stream mining. Under the existing ordinance, the S-G Zone may be combined with either the A-1 (General Agriculture) or A-P (Agricultural Preserve) Zones, within the 1979 Cache Creek Channel Boundary. However, the CCRMP will change the primary focus within the channel from commercial mining to multiple resource management. To reflect this new emphasis~~ In 1996, the area within the CCRMP plan boundary ~~will be~~was rezoned to ~~add~~ the Open Space (OS) designation. ~~as an integrated zone. Integrated zoning, as allowed under Section 8-2.301.4 of the Zoning Code, is similar to combining zoning, except that where used, both attached zones are "base" zones that would apply while and equally to the subject land. The OS zone would be added to the existing A-1 and A-P Zones (e.g., A-1+OS and A-P+OS), in order to ensure that existing Williamson Act contracts on land within the In-channel boundary are not adversely affected. The SG overlay would be deleted from the area within the CCRMP plan boundary, to preclude commercial mining from occurring in the future.~~ The OS Zone is specifically designed for resource management, including agriculture, groundwater recharge, habitat, recreation, flood control, sand and gravel extraction, and riparian areas. As such, it provides the flexibility needed to meet the various resource needs of Cache Creek.

2002 CCRMP Update and Supplemental EIR

The CCRMP underwent a focused update July 23, 2002 (Board Resolution 02-130). A Supplemental Program/Project-Level Environmental Impact Report (SEIR) was prepared and certified in 2002 to support proposed modifications and clarifications to the CCRMP and generally inform public agency decision-makers and the public of the environmental effects of the CCRMP and CCIP on Cache Creek since ~~their~~ implementation. The SEIR was also determined to be necessary to support~~prior to~~ the County's ~~seeking~~request at the time to renew programmatic ~~new~~ permits from the State and the US Army Corps of Engineers, pursuant to under Sections 401 and 404 of the federal Clean Water Act and Section 1602 of the State Fish and Game Code. ~~appropriate Government agencies.~~

1.5 ORGANIZATION OF PLAN

~~As mentioned earlier, t~~The CCRMP contains seven chapters comprised of six elements, each dealing with a specific resource associated with the Cache Creek area. The elements contained within the CCRMP are as follows:

Chapter 2.0 Floodway and Channel Stability
Chapter 3.0 Water Resources
Chapter 4.0 Biological Resources
Chapter 5.0 Open Space and Recreation
Chapter 6.0 Aggregate Resources
Chapter 7.0 Agricultural Resources

Each element begins by briefly describing the past and current status of the resource under consideration. Next is a summary of the general direction proposed by the CCRMP to manage this resource in the future. Following these initial discussions are a series of goals, objectives, actions, and standards that explain how the general direction will be carried out and what measures will be used to ensure its success. Although each element has its own goals and objectives that address management of the specific resource, the plan was written so that these policy statements are mutually supportive and coordinated to minimize conflict.

The CCIP comprises Appendix A.

CHAPTER 2.0 FLOODWAY AND CHANNEL STABILITY ELEMENT

2.1 INTRODUCTION

Present Conditions

The Cache Creek system is very dynamic. ~~s of a river system involve~~It is shaped by a complex relationship between four primary factors: the amount of water, the amount of sediment in the water (including sand and gravel), the average size of the sediment, and the slope of the channel. If any one of these factors is altered, either naturally or artificially, the other factors will adjust until a new equilibrium is established. If there is too much water and not enough sediment, the river will erode the streambed and adjoining banks in order to obtain more sediment. If the sediment is too large and the slope of the channel too flat, the river will aggrade. Although this relationship may appear simple, flow dynamics are very complex and difficult to analyze and predict. Adjustments are constantly being made in a river system, not only from one flood event to the next, but ~~even between stages within each~~from smaller flows in between large flood ~~event~~events.

In perennial (year-round) ~~rivers~~creeks, these adjustments are often made in a slow and steady fashion. Cache Creek is ~~an~~ ephemeral ~~stream~~. It does not flow year-round naturally or under existing conditions. Further~~more~~, ~~it~~ Cache Creek is an episodic system ~~that is~~ characterized by brief, intense flows that ~~create~~ can cause dramatic changes in creek conditions ~~in~~ over ~~a~~ relatively short ~~period~~periods of time. These changes may result in an imbalance between the factors described above. Historically, ~~the creek~~Cache Creek would have adjusted itself to correct for imbalances during the low flows of later spring and early fall, but a number of artificial constraints have been imposed on Cache Creek which prevent it from achieving a balanced condition.

The ~~bridge structures~~ bridges over Cache Creek were originally designed ~~for a~~to accommodate a relatively narrow channel width ~~that must be maintained with extensive~~ and often required bank protection measures~~.~~ to prevent excess erosion of channel banks. These ~~constructions~~ bridge crossings confine ~~bind the creek~~Cache Creek, resulting in ~~faster~~ higher flow velocities and ~~significantly~~ increased erosion and scour potential. Flood control improvements along Cache Creek have had an effect as well. ~~At the same time that the capacity of Cache Creek has increased, levees!~~Levees ~~have been~~ constructed throughout the plan area ~~to create new agricultural land and to prevent floods from inundating nearby residences and communities.~~further increase channel confinement and the resulting elevated flow velocities increase erosion and scour potential. ~~Thus, more water is being forced into a narrower channel, changing the character of flood peaks and travel time. The diversion of surface water for irrigation during the summer months does not allow for the establishment of the low flow channel to provide stability during average years. Without this partial control, larger floods become even more unpredictable.~~

Extensive in-stream mining prior to 1996 ~~has~~ also contributed to the destabilization of Cache Creek. The average annual sediment supply to the plan area (measured at Capay) ~~is~~ was estimated in the 1995 technical studies to be approximately 927,600~~928,000~~ tons, of which about 210,000~~163,000 tons is~~ was estimated to be sand and gravel that settled in Lower Cache Creek,

with the remaining 771,600 tons assumed to be fines traveling through the system to the settling basin. The sand and gravel tonnage number was ultimately adopted as a cap on annual in-channel extraction for maintenance purposes, except where excavation was determined to be necessary to widen the channel as part of implementing the Test 3 Run Boundary.

Based on the analysis conducted for the 2017 Technical Studies, between 1996 and 2011, an average of approximately 690,800 tons per year of sediment was actually deposited in the CCRMP area, of which 156,400 tons is estimated to be sand and gravel and 534,400 is estimated to be fines. This estimate of deposition was calculated by comparing topographic maps of Cache Creek in 1996 and 2011. It differs significantly from the original estimate in that it appears much more fine sediment is depositing in Lower Cache Creek than originally predicted. ~~in-stream excavation of sand and gravel has averaged some two million tons, however, which has resulted in a cumulative deficit of nearly 80 million tons since mining intensified in the 1950s. At the natural rate of replacement it would take over 500 year to replenish the material removed~~. ~~In addition, gravel bar skimming disturbs the formation or armor materials and removes riparian vegetation that allow the channel to readjust, thus increasing the potential for erosion.~~ While it is unclear whether the current rate of deposition will continue into the future, it appears likely that at least some portions of Cache Creek are recovering faster than expected in 1996. Based on this information, the cap for in-channel extraction for maintenance purposes should be increased from 210,000 tons annually on average to 690,800 tons annually on average to reflect actual conditions. In addition, in recognition that the creek may in reality deposit no tonnage in a given year or double the tonnage in another (depending on flow conditions) the cap shall be based on the annual average deposition since the last prior year that extraction occurred, not to exceed 690,800 tons annually.

In addition to the constrictions described above~~these artificially imposed changes~~, Cache Creek has periods of natural instability. The upper watershed is narrow and steep~~., so that~~ As a result, flood events carry with them a great deal of force that impacts the channel over~~in~~ a short span of time. In addition, the coastal mountains in this area contain areas of highly erosive materials that can provide ~~a significant level~~very large volumes of sediment to the creek. The combination of energetic flood flows and large sediment supplies create the potential for ~~dramatic~~ large, rapid changes in Cache Creek. ~~Thus, in flashy, episodic systems such as Cache Creek, the stream is constantly lurching from one imbalance to the next after large flood events.~~

Continuous long-term simulations of Cache Creek conducted as part of the 1995 Technical Studies indicated that if all in-stream mining were prohibited for 100 years the channel would achieve a substantially more stable configuration but would remain ~~in~~ sediment deficient at the bridges. With intervention, such as recommended in the CCIP, however, this repair can be hastened. In fact, since 1996, significant sediment deposition has occurred in the CCRMP area and the sinuosity of the active channel has increased in most of the creek reaches. This geomorphic change has been accompanied by a significant increase in riparian vegetation along the creek. It should be noted, ~~though~~however, that it is not possible to return the ~~stream~~ creek to the conditions of 100 years ago without making significant changes to other influencing factors, including the elimination and/or relocation of flood control levees, reductions in the amount of water diverted to irrigation, the reconstruction of County and State bridges, and

reestablishment of the ~~historic~~historical width of the channel, which approaches one mile in some areas. ~~These are radical~~ Such extreme requirements ~~, which~~ are ~~obviously~~ not feasible and do not reflect the reality of multiple public and private land uses and interests in the CCRMP area.

Trying to assign proportional responsibility for the degradation of Cache Creek to each of these influences is difficult. As discussed earlier, ~~waterways~~ creek systems are complex ~~systems~~ with many interrelated influences that are not easily separated and categorized. Similarly, anticipating how the channel may react to new changes is also uncertain. Nevertheless, ~~there are opportunities~~as evidenced by the changes in Cache Creek observed since 1996, ~~through~~ careful management~~,~~ can continue to help the ~~river~~ creek repair itself and further improve its present condition.

CCRMP Vision

At the same time, implementation of the CCRMP has resulted in more natural channel forming processes that have deposited gravel bars and eroded the channel bed and banks in certain areas as Cache Creek adjusts to a rising bottom elevation. Implementation of the Test 3 Run Boundary since 1996 has mostly occurred passively as sediment deposited in the CCRMP area has not been extracted. Significant regrading of the streambed to create a series of terraces and low-flow channel as well as creek bed hardening at bridges, both envisioned under the Test 3 Run Boundary, have not been implemented. However, the net deposition of sand and gravel in the CCRMP area has allowed Cache Creek to operate more like a natural river system. Going forward, findings from the evaluation of channel change since 1996, coupled with the new hydraulic modeling tool developed for the CCRMP area, will guide targeted channel improvements that further reduce channel bottlenecks, minimize erosion, and support riparian restoration.

There were~~are~~ several actions ~~that need to be taken in order~~intended to assist Cache Creek in attaining a more stable condition that were inherent in adoption of the CCRMP. One of the most important measures was~~is~~ to significantly reduce the amount of aggregate removed from within the channel. In-stream extractions allowed under the CCRMP ~~mining should~~ cannot exceed the average annual replenishment of sand and gravel (including associated fines) since the last prior year of removal, excluding implementation of channel reshaping pursuant to the Channel Form Template described below.~~, and, in fact, should be far less than that amount in most years in order to allow the creek to aggrade and reduce the amount of scour.~~ Since 1996, extractions have been far less than annual replenishment, and approximately 10.4 million tons of sand and gravel have aggraded in the CCRMP area. At the same time, the CCRMP has~~would~~ resulted in the reshaping of portions of Cache Creek according to the conceptual design provided in the Test 3 Run Boundary~~ (see Figure 4)~~. The Test 3 Run Boundary~~This proposal requires~~ envisioned regrading the streambed to create a series of terraces and low-flow channel. These actions ~~will~~ stabilize the channel and allow it to operate more like a natural system. In addition, selected banks and levees may~~will~~ be excavated to provide gentle transitions into and out of the channel bottlenecks created by the bridge structures. In some areas, jetties may~~will~~ be constructed to encourage expansion of the banks, through sediment deposition and/or the encouragement of riparian vegetation. The overall goal of the Test 3 Run Boundary was~~is~~ to smooth the abrupt width and slope changes that occur along Cache Creek.

Since adoption of the CCRMP in 1996, the County's ability to implement the Test 3 Run Boundary has been limited to those requests by private property owners to undertake projects in or adjacent to Cache Creek for which a FHDP has been required.

For off-channel mining applications implementation of the Test 3 Run Boundary was been linked to Section 10-4.429(d) of the Mining Ordinance which requires that off-channel excavations be set-back a minimum of 700 feet from the channel bank, unless an engineering analysis can demonstrate that measures incorporated into the project can ensure that a lesser setback will provide similar protection against channel destabilization. The minimum setback under the code is 200 feet from the existing channel bank. Where a setback of less than 700 feet has been allowed, the County has required the applicant to also implement the Test 3 Run Boundary along the creek frontage of their operation.

The Test 3 Run Boundary was intended to be a dynamic tool for management of the active creek boundary, that would be updated and modified as appropriate based on data collected in the field and modeling conducted pursuant to the program. As the program has been administered over time, the County has allowed for "technical corrections" of the boundary to reflect site-specific conditions and engineering. As a part of the 2017 Technical Studies the Test 3 Run Boundary was evaluated based on 2011 creek topography, over 20 years of recent monitoring data, and the results of new two-dimensional hydraulic modeling of Cache Creek. The result was an update to the Test 3 Run Boundary called the Channel Form Template (see Figure 4). The Channel Form Template replaces the Test 3 Run Boundary, and provides similar guidance for smoothing abrupt channel width transitions.

~~Supplementing these efforts~~ The CCRMP also envisioned~~would be~~ the provision of a regular flow of surface water in Cache Creek through much of the year. While this has not yet been accomplished as of the 2017~~6~~ plan update, this remains a goal of the plan to be achieved if feasible. This ~~would~~ could create a more stable low-flow channel that would ~~reinforce the regrading~~support the goals of the Channel Form Template~~performed in the Test 3 Run~~. In addition, increased surface flows would accelerate recovery of native vegetation and benefit native species of wildlife, invertebrates, and fish. Continued engagement with the YCFCWCD will be undertaken to determine the options for increasing surface flows, especially in warmer times of the year.

~~Although commercial in-stream mining would be precluded, sand and gravel removal would not be prohibited altogether.~~ Cache Creek will continue to be a managed system in order to protect agricultural land, off-channel mining operations, and nearby communities from the effects of floods and erosion. Under the CCIP, the County ~~would~~ takes a strong role in providing this management, based on the recommendations of the TAC. ~~a Technical Advisory Committee~~. ~~To reflect this shift in priorities, changes will be required in the operating concepts that currently regulate mining within Cache Creek. As discussed earlier, both the theoretical thalweg and the present in-channel boundary do not accurately represent existing channel conditions and it is recommended that they be replaced by new standards based on concepts provided in the Technical Studies.~~

Future in-channel modifications ~~will be limited to the 100-year floodplain and~~ must consider~~take not only~~ the elevation and slope of the streambed, as well as~~ into account, but the slope of the streambed and the ratio of~~ the width to depth ratio of the channel. In-channel work will continue to generally be guided by specific channel slope standards and typical design cross-section~~s profiles that have been~~ developed for ~~each reach of~~ the creek. Since one of the primary goals of the CCRMP is to allow aggradation of the streambed, channel reshaping activities will preserve the upstream and downstream ~~remain six feet above the~~ existing thalweg elevation, unless local channel stability, desired habitat creation, or ~~maintenance of the existing 100-year~~ flood flow capacity requires otherwise. In addition, off-channel mining must~~will have~~ continue to consider the potential for the streambank to move, either through erosion related to the rising bottom elevation of Cache Creek or as a result of channel reshaping according to the Channel Form Template~~Test 3 Run Boundary~~ or as a result of maintenance extraction of gravel.

~~Maintenance of the creek will have a number of goals, several of which are competing and will require careful management. Retaining 100-year flood capacity will be a high priority. Flood insurance policy is changing, as the federal government expects local communities to take a more pro-active role in preventing flood damage from occurring. As a part of this effort, the regional flooding problem associated with Cache Creek must be resolved. A coordinated approach involving the County, the Yolo County Flood Control and Water Conservation District, the City of Woodland, the U.S. Army Crops of Engineers, and local property owners is vital in this regard. One jurisdiction cannot divert its floods to the next jurisdiction and consider the problem solved. Each group must be willing to shoulder its share of the burden so that all may benefit.~~

Although flood flow conveyance capacity ~~control~~ is important, ~~the County is not interested in converting Cache Creek into a concrete-lined drainage. Management~~Mmanagement of the Creek has to consider other values as well. Conditions must be created to allow native riparian vegetation to ~~flourish~~reestablish, as long as it does not adversely affect streamflow. Growth along the banks is especially encouraged, both for erosion control and to ~~contain~~ direct the highest flow velocities ~~within~~ towards the center of the creek. Streambank transitions and scour reduction measures should continue to be implemented to protect structures along Cache Creek, especially bridges, which represent a major public investment. Groundwater management is also ~~a concern~~extremely important as compliance with the Sustainable Groundwater Management Act (SGMA) proceeds.~~, and~~ ~~t~~The CCRMP encourages coordination with YCFCWCD~~the Flood Control District~~ to enhance groundwater recharge, where possible, in order to ~~provide more~~ increase water supply reliability for both urban and agricultural users in the County.

Implementing these programs will require extensive monitoring and ~~factual~~ analysis. The County will ~~take advantage of the data already available, however new resources of information will need to be developed. These may include re-installation of the stream gauge at Capay, surface water quality testing, riparian vegetation surveys, and aerial photography~~continue to leverage the data collected through annual creek inspections described in Chapter 6 of the CCIP, the ongoing water quality monitoring program, and periodic updates to the CCAP. The 2017 Technical Studies resulted in an organized database that should be maintained and added to in the future to guide continued adaptive management. ~~This~~ The information in this database

isw~~ould be~~ reviewed by ~~a~~the TAC. ~~Technical Advisory Committee~~ The TAC is tasked with making recommendations to the County on the types and extent of maintenance activities necessary to maintain and enhance the diverse resources associated with Cache Creek~~make Cache Creek more healthy and productive~~. As a part of this monitoring, the CCRMP is required to ~~would~~ be updated a minimum of every ten years. This ~~would~~ allows the County regular opportunities to review the success and/or failure of past efforts and to set new goals that reflect changing environmental conditions and social priorities. The first update occurred in 2002 and the second in 2017.

2.2 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, recreation, and riparian habitat~~vegetation~~, without adversely affecting flood flow conveyance capacity.

2.3 OBJECTIVES

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

2.3-2 Integrate the CCRMP~~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~~Recommend actions to create a more stable channel configuration with flood flow conveyance capacity that ~~will convey a 100-year flood event~~is consistent with regional flood management programs.

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 In order to allow the creek to aggrade and create a more natural channel system, ~~R~~restrict the amount of aggregate removed from Cache Creek, except where necessary to: increase flood flow capacity; protect existing structures, infrastructure, and/or farmland; minimize bank~~promote channel stability, prevent~~ erosion~~,~~; implement the Channel Form Template; enhance creek stability; establish riparian vegetation; or for recreation and/or open space

uses consistent with the Parkway Plan. ~~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 appropriately balanced.

2.4 ACTIONS

2.4-1 Revoke the 1979 In-Channel Mining Boundary, as defined in Section 10-3.303(a) of the Yolo County Mining Ordinance. In its place, adopt a new in-channel area based on present channel banks and the 100-year floodplain, as determined by the U.S. Army Corps of Engineers in the Westside Tributaries Study, whichever is wider. This is a more accurate measure of delineating the boundary between in-channel and off-channel uses. (Completed in 1996)

2.4-2 Limit the amount of aggregate removed from the channel to the average annual amount of sand and gravel (and associated fines) deposited since the last prior year of removal~~during the previous year~~ as estimated by the ~~Technical Advisory Committee~~ TAC based on channel topography and bathymetry~~morphology data~~ (not to exceed approximately 690,800 ~~210,000~~ ton~~e~~s annually on average), except where ~~ban~~ excavation is necessary to widen the channel as a part of implementing the Channel Form Template~~Test 3 Run Boundary~~, or where potential erosion and flood~~ing~~ flow conveyance capacity problems exist. The amount and location of in-channel aggregate removal shall be carried out according to the ongoing recommendations of the TAC~~Technical Advisory Committee~~, with the voluntary cooperation of the landowners involved.

In-channel projects are limited to projects that: maintain ~~increase~~ flood flow capacity; protect existing structures, infrastructure, and/or farmland; minimize bank erosion; implement the Channel Form Template; enhance creek stability; establish riparian vegetation; and/or result in recreation and open space uses consistent with the Parkway Plan. Landowners are responsible for applying for and financing in-channel projects unless other funding is available.

~~The County shall negotiate with the Regional Water Quality Control Board to allow 100 percent extraction of the previous year's accumulation of sand and gravel, under the 401 Water Quality Certification, if it can be demonstrated that the removal of sand and gravel is required for flood control purposes.~~

2.4-3 Implement the Channel Form Template~~Test 3 Run Boundary~~ described in the 2017~~1995~~ Technical Studies to reshape the Cache Creek channel based on best available data and

hydraulic modeling tools. ~~Continue to gather HEC-model erosion and deposition data to initiate streambed and channel alteration projects.~~Continue to collect and analyze channel topography (LiDAR) data, and update the CCRMP hydraulic model with those data. Based on outcomes of these analyses, the TAC can determine the need for streambed and channel alteration projects . Altering the channel banks and profiles will assist in returning the creek to a form that is more similar to its historical condition. This will result in reduced erosion, increased in-channel recharge, and additional riparian habitat opportunities.

2.4-4 Replace the theoretical thalweg, as defined in 10.3-221 of the Yolo County Mining Ordinance, with channel slope, width, depth, and cross-section standards specific to each reach of the creek, based on annual monitoring and periodic engineering analysis of hydraulic and sediment transport conditions. (Completed in 1996)

Develop and maintain a hydraulic model of Cache Creek capable of simulating a range of discharges and flood hydrographs up to the 100-year flood and assessing sediment transport patterns. Update this model with new topography, vegetation cover, and other available data sources. (Note: HEC-2 and HEC-6 were completed by NHC in the 1995 Technical Studies; HEC-RAS an HEC-2 were completed by MBK for the area between CR 94B and I-5 in 2001; HEC-RAS was completed by MBK for the area between CR 94B and I-5 in 2006)

~~Specific activities associated with this Action include:~~

~~A. Amend sediment-monitoring activities under the CCRMP without detracting from any existing CCRMP actions, policies or mitigation measures, to include the following:~~

- ~~Update the HEC-6 model (or equivalent model – see Item G below) developed for the CCRMP Technical Studies to reflect 2001 topographic and sediment conditions in the Cache Creek channel and compare the results with those of the 1995 model.~~

- ~~Update the HEC-6 model once ever five years or more frequently as determined necessary by review of aggradation/degradation trends evident from annual topographic mapping. Assess HEC-56 model accuracy and calibrate as appropriate using known flood hydrographs occurring over the previous year, known sediment deposition/scour and known changes in sediment size distribution over the year.~~

- ~~Use the HEC-6 model and topographic mapping to assess sediment supply and transport conditions for a range of discharges and flood hydrographs up to the 100-year flood. The HEC-6 results shall be used as a guide to estimate probable future areas of risk resulting from changes in sediment transport characteristics of the creek. Areas to be evaluated in detail~~

include, but should not be limited to, areas of known bank erosion, areas of potential degradation at bridges or other infrastructure crossings, and potential aggradation in areas where flood control capacity is limited.

B. Update the 1995 HEC-2 hydraulic model of Cache Creek, from Capay Dam to I-5, developed as a basis for the CCRMP, to evaluate hydraulic changes that have occurred as a result of channel bed elevation changes and other channel modifications since 1995. The following guidelines apply:

- In order that results be comparable, it is suggested that the same HEC-2 model prepared in 1995 be used as a basis (see Item G below). The model should be updated using the same cross-sections modified for 2001 topography, roughness conditions, encroachments, and in-channel structures. Cross-sections may be added or subtracted and other changes made as determined appropriate by a civil engineer, with the intent of maintaining continuity of the model to allow an appropriate comparison.

- Use the 1995 and 2001 HEC-2 models map the 100-year floodplain boundary as it existed in 1995 and 2001 and assess changes in floodplain extent and water surface elevation. This information should be used to assess the effect of channel aggradation, degradation, and the various CCRMP policies and projects on flood elevations.

- Model a range of discharges from 2-year to 100-year flood flow velocities and depths.

C. Use the information developed from the HEC-6 and HEC-2 models, along with appropriate local scour analysis techniques, to assess the level of risk to bridges, utilities, and other channel infrastructure of failure or exposure to scour.

D. Identify channel thalweg, slope, and cross-section goals on a reach-by-reach basis, based on the results of the HEC-2, HEC-6, and local scour analysis modeling. Identify appropriate CCRMP management activities to achieve the desired thalweg, slope, and cross-section goals, including potential skimming of accumulated bed material as appropriate to avoid loss of flood control capacity, provided that the total amount skimmed not exceed the previous year's supply nor violate any provision of Performance Standard 2.5-5 of the CCRMP.

E. Use the HEC-6, HEC-2, and local scour information to supplement streamflow, sediment inflow, topographic information, pebble count, and annual inspection information collected under CCRMP Actions 2.4-9 and 2.4-10 as a guide in making CCRMP management and policy decisions, identifying and prioritizing future projects, and in making recommendations regarding approval of proposed in-channel projects.

~~F. Have a land surveyor stake all excavations of material from the Cache Creek channel bed prior to excavation to ensure proper excavation depths, provide pre- and post excavation topographic mapping or surveying of the area to be excavated for review and inclusion in the annual TAC report.~~

~~G. The technical analysis need not be limited to HEC-6 and HEC-2. Other equivalent models may also be appropriate as determined by the County, provided that modeling consistency be maintained over time to ensure that observed changes in stream hydraulics and sediment transport are due to changes in the river system and not to the modeling methodology.~~

2.4-5 Acknowledge the streamway influence zone ~~boundary described in the 1995 Technical Studies~~ as the general area of the creek which has historically been subject to ~~meandering.~~meander migration. The streamway influence zone ~~boundary~~ also defines the area where in-stream and off-channel issues overlap and are addressed in both plans. (This concept lead to Section 10-4.429(d) of the Mining Ordinance.)

2.4-6 Work with other entities~~agencies having jurisdiction over Cache Creek~~, including, but not limited to, the YCFCWCD~~Yolo County Flood Control and Water Conservation District~~, the U.S. Army Corps of Engineers, ~~the State Reclamation Board,~~ the California Department of Water Resources, ~~and~~ the Federal Emergency Management Agency, landowners, and regional groups in developing a coordinated solution for managing ~~flood events throughout~~ the watershed of Cache Creek. (In December of 2010, the TAC identified a primary and alternate Flood Coordinator. The County Office of Emergency Services (OES) designated the position of TAC Flood Coordinator as a Technical Specialist to the County OA EOC during periods of activation.)

~~As a part of this effort, the County should coordinate with the U.S. Army Corps to make appropriate sedimentation and channel stability assessments in conjunction with the development of flood control alternatives near the downstream end of the study area. This would ensure that both agencies are using the same sets of assumptions when making recommendations about the management of Cache Creek.~~

~~The County Resource Management Coordinator shall maintain contact with the specified agencies. Interagency contact shall be initiated at least annually. The Resource Management Coordinator shall encourage coordination between the County and the other agencies.~~

~~The County shall continue to identify all regional groups, landowners, and other jurisdictional agencies involved with the Cache Creek watershed and share information gathered by the TAC and County to better coordinate regional management efforts.~~

2.4-7 Manage activities and development within the floodplain to avoid hazards and adverse impacts on surrounding properties. This shall be accomplished through enforcement of the County Flood Ordinance and ensuring that new development complies with the

requirements of Flood Hazard Development Permits~~the State Reclamation Board~~. (This is addressed through the County's requirement for a Flood Hazard Development Permit (FHDP) for any work within the 100-year floodplain of the creek. In correspondence dated July 14, 2005 the Chief Engineer of the State Reclamation Board confirmed that the Reclamation Board's authority is from I-5 downstream and the County's authority extends from I-5 upstream. In 2008 the State Reclamation Board became the Central Valley Flood Protection Board.)

~~The County Floodplain Administrator shall file for a Letter of Map Revision with the Federal Emergency Management Agency to update the Flood Insurance Rate Maps affected by channel reshaping within the planning area every ten years, or as needed.~~

2.4-8 The County shall work with the Yolo County Flood Control and Water Conservation District to explore opportunities for increasing surface flows during spring and summer. Enter into a Memorandum of Understanding with the YCFCWCD~~Yolo County Flood Control and Water Conservation District~~ to provide a regular source of surface water flow in Cache Creek throughout the year, when annual precipitation is sufficient. The timing and volume of flows should be ~~established~~ coordinated with the TAC~~consistent with the Technical Studies~~ in order to create a stable low-flow channel and allow for the natural revegetation of the streambed, where appropriate.

2.4-9 As part of ~~the~~ updating the hydraulic model~~ing of~~ of the creek channel, obtain funding to install a ga~~u~~ge at Capay and work with other jurisdictional agencies (e.g. YCFCWCD, USACE, DWR) to establish a ga~~u~~ge maintenance program. This will allow the TAC~~Technical Advisory Committee~~ to monitor the amount of streamflow and sediment coming into the plan area and compare the results with data obtained from the ga~~u~~ge at Yolo. This information is important in determining how much water is recharged within the plan area, and whether the sediment "budget" is in a net gain or deficit.

2.4-10 The County shall manage collection of the information necessary to make informed decisions about the management of Cache Creek, including: regular water and sediment discharge data at Rumsey~~Capay~~ and Yolo ga~~u~~ge sites, water and sediment discharge data at other sites during high flow events, and topographic data showing the erosion, aggradation, and the alignment of the low-flow channel within the creek. A formal integrated data management program should be developed with appropriate user access and consistent management and control. ~~This data should be maintained in the County Geographic Information System so that staff can the Technical Advisory Committee can coordinate this information with the results of other monitoring programs to develop a comprehensive and integrated approach to resource management.~~

Monitoring may, at the discretion of the County, be conducted by either consultants or trained volunteers, including landowners, public interest groups, the aggregate industry, and students, as a part of future public education programs associated with Cache Creek. However, the County shall maintain responsibility for the collection of high quality data.

2.4-11 Create a Technical Advisory Committee (TAC) to provide the County with specific expertise and knowledge in implementing the CCRMP and CCIP. The TAC will ~~also provide advice during emergency situations, such as flooding, and will~~ assist the County in carrying out its responsibilities under this plan, as well as recommending changes to the CCRMP, the CCIP, and implementing ordinances. (Completed in 1996)

2.4-12 When possible, ~~Focus efforts on~~ reshape~~ing the~~ channel banks immediately upstream and downstream of both County and State bridges to minimize scour and erosion. Work on the creek~~stream~~ banks could be accompanied by the construction of check dams or weirs within the channel, downstream of the bridges, to encourage aggradation. ~~These measures will not only create a more stable channel, but also will also help in preventing structural failure and prolong the life of local bridges.~~ The length of smoothed bridge~~the~~ transitions should generally ~~shall~~ be five times longer than the width of the channel at the bridge site, and shall incorporate guide banks, grade control structures, dikes, berms, vegetation, and other similar measures. Such methods and practices shall incorporate riparian vegetation and increase wildlife habitat values to the extent that the objective of minimizing scour and erosion are not compromised. (This was anticipated to be a significant effort in the first five years of the program. In 1997, approximately 40,000 tons were removed in-channel near the facilities now operated by CEMEX and in 1998 approximately 332,423 tons were removed near the Syar facilities although a portion of this may have come from existing stockpiles.)

2.4-13 Update the CCRMP~~Cache Creek Resource Management Plan a minimum of~~ every ten years. This will allow the plan to be amended on a regular basis so that the results of monitoring programs and reclamation efforts can be taken into account.

2.4-14 Rezone those lands within the CCRMP plan boundary to add the Open Space (OS) designation as an integrated zone. This will allow for those excavations necessary to carry out the channel widening envisioned in the 1995 Technical Studies, as well as any regular and/or emergency flood control and bank protection activities, riparian restoration, and other resource management efforts. (Completed 1996)

2.4-15 Present a request to the State Mining and Geology Board to grant an exemption from the requirements of SMARA for all channel improvement projects approved under the CCIP. If the CCRMP is found to be subject to SMARA, the County shall submit the plan, including the CCIP, to the Department of Conservation for review and comment as the mining and reclamation plan for the study area of the creek. (The request was rejected by the State Mining and Geology Board in the fall of 1998. The Board determined that the CCRMP did not qualify for an exemption due to the amount of sand and gravel expected to be removed over the 30-year life of the plan. Special legislation was passed to amend SMARA to recognize the CCRMP as the functional equivalent of a Reclamation Plan for purposes of SMARA compliance (PRC Section 2715.5). On August 29, 2016, Governor Brown signed Senate Bill 1133 (Wolk) which made this statute permanent.)

2.4-16 Adopt a County In-Channel Ordinance to prohibit commercial mining within the CCRMP planning area and specify that aggregate extraction within the area shall be limited to activities necessary to complete channel improvement projects. (Completed in June 2008. See Cache Creek Area Plan In-Channel Ordinance, Section 10-3.101 et seq.)

~~2.4-17 The County shall work with the Yolo County Flood Control and Water Conservation District to explore opportunities for increasing surface flows during spring and summer.~~

~~**2.5 PERFORMANCE STANDARDS**~~ *(These have been integrated into the CCIP and/or In-Channel Ordinance)*

~~2.5-1 All proposed grading and/or construction projects within the channel shall be subject to the Yolo County Flood Damage Prevention Ordinance.~~

~~2.5-2 Check dams or sills should be constructed within the channel to stabilize the streambed so that structures, such as County bridges, are protected from the adverse effects of channel scour. Engineered plans for dams or sills shall be submitted to the County Building Division and the County Community Development Agency for approval prior to construction.~~

~~2.5-3 Spur dikes, or similar measures, shall be installed to fill in areas to meet the Test 3 Run configuration. The dikes will deflect stream flows to produce zones of higher velocity within the low-flow channel, as well as sheltered backwater sites that will encourage the development of riparian vegetation.~~

~~2.5-4 Deleted.~~

~~2.5-5 The Technical Advisory Committee shall review topographic data and such other information as is appropriate to determine the amount and location of aggregate to be removed from the channel. Aggregate removal from the channel shall only be recommended in order to provide flood control, protect existing structures, minimize bank erosion, or implement the Test 3 Run Boundary. Except for bank excavation to widen the channel, annual aggregate removal shall not exceed the amount of sand and gravel deposited the previous year, as determined by aerial photography analysis. Recommendations shall take into consideration the desires of the property owner where excavation is to take place, as well as the concerns of property owners in the immediate vicinity.~~

~~The provisions of the CCIP shall be implemented by the County Resource Management Coordinator, with the assistance of the TAC. The CCIP shall contain provisions to ensure that Cache Creek management decisions not reduce flood capacity nor exacerbate existing flooding problems downstream through channel reshaping. This will be accomplished by annual monitoring of channel geomorphology, distribution and density of plant material within the channel, and modeling to forecast changes in base flood elevations by comparing the most current FEMA mapping with 1995 floodplain modeling~~

~~and either updating the 1995 hydraulic model to forecast changes in base flood elevations or declare the FEMA mapping acceptable.~~

~~When modeling indicates that the channel is approaching loss of 100-year conveyance capacity (or has already lost this capacity), the TAC shall identify for consideration actions by the County or landowners to reestablish capacity.~~

~~The County shall review and monitor removal of aggregate and/or plant material consistent with the CCRMP and CCIP. The County, at its discretion, may enlist the aid of gravel mining operators, other private property owners, or conduct the maintenance activities using County resources.~~

~~2.5-6 Require all channel improvement projects to comply with the requirements of the CCIP and implementing regulations.~~

~~2.5-7 Require the TAC to annually prepare a list of priority channel improvement projects which will be identified and described in an annual report to the Board of Supervisors. Projects that could improve channel stability at the location of bridges or other structures shall maintain a high priority until implementation. Following review by the Board of Supervisors, the TAC shall contact individual landowners to explain recommended channel improvements for their property and describe available resources for design and implementation of the projects.~~

~~2.5-8 The review by the TAC of all Flood Hazard Development Permit applications for Cache Creek improvement projects within the CCRMP area shall include an evaluation of potential upstream and downstream effects of the proposed channel modifications. The TAC shall evaluate data on hydraulic conditions presented in the permit application. The TAC shall also examine aerial photographs and perform a reconnaissance investigation of the site and surrounding areas to identify potential upstream and downstream effects.~~

~~The TAC shall update the HEC flood modelinghydraulic model and confirm whether the channel is capable of handling conveying a 100-year flood event as indicated in recent FEMA/USACE maps. The TAC shall then review pertinent agreements and coordinate with all parties to ensure that channel conveyance capacity and flood protection as of 1996 is maintained.~~

~~2.5-9 Existing flooding problems associated with Cache Creek near the city of Woodland shall not be exacerbated by activities conducted under either the CCRMP or the CCIP.~~

~~The County shall evaluate Muskingum and/or Modified Puls hydrologic stream routing parameters used by the U.S. Army Corps of Engineers in developing the design discharge for the potential Woodland flood control project. They shall use these routing parameters to develop floodplain encroachment guidelines, taking into account probable cumulative effects when reviewing any projects that may have an effect on downstream discharge through removal of floodplain storage areas.~~

~~A stream-routing shall be performed every five years to monitor cumulative effects of development and to adjust encroachment guidelines as necessary.~~

CHAPTER 3.0 WATER RESOURCES ELEMENT

3.1 INTRODUCTION

Present Conditions

~~The Technical Studies included a review of recent groundwaterg~~Groundwater studies ~~that~~ have show~~n~~s a consistent pattern of interaction between Cache Creek and the local aquifer. Based on the underlying geology of Cache Creek, some reaches are hydrologically considered to be "losing" (i.e., prone to percolation of surface water through the streambed) while others are considered "gaining" (i.e., elevated groundwater seeps upwards into the streambed. ~~That portion of Cache Creek located between the Capay and Esparto Bridges tends to be a losing reach. Losing reaches are those where the level of the water in the creek is higher than the groundwater table. As a result, water permeates through the streambed and recharges the aquifer. A gaining reach, on the other hand, is one where the groundwater table is higher than the level of the stream. Thus, water permeates through the channel banks and flows into the creek.~~ The portion of Cache Creek located between the Capay and Esparto Bridges tends to be a losing reach. The reach between the Esparto Bridge and the Dunnigan Hills may either be losing or gaining, depending on the amount of rain. The more rain there is, the higher the groundwater table raises, seeping water into the creek~~stream~~. In a prolonged drought, however, the level of the aquifer drops and the reach loses water. The portion of Cache Creek downstream of the Dunnigan Hills to the town of Yolo is generally a losing reach.

~~Over the past several decades, the elevation of the Cache Creek streambed has substantially lowered. In one reach, the bed has dropped thirty feet from elevations recorded earlier in the century. A report prepared by Woodward-Clyde Associates for the Aggregate Resource Advisory Committee in 1976, titled "*Aggregate Extraction in Yolo County: A Study of Impacts and Management Alternatives*" stated that this streambed lowering had resulted in a loss of groundwater storage of approximately ten feet throughout the basin. This loss would equate to between 17,000 and 38,000 acre feet of storage.~~

~~The "teacup analogy" used to describe this phenomenon suggested that future spring water groundwater levels would not be able to attain their historic highs, since any groundwater perched above the streambed would flow out into the creek and drain away. Subsequent reviews of the wells used in the Woodward-Clyde study showed that during the 1980s, after a couple of years of above-average rainfall, over half of the wells had recovered to levels seen in the 1950s. Thus, the severe groundwater declines noted by the Woodward-Clyde study were the result of intensive pumping and the drought of the 1970s, and were not caused by streambed lowering. The Technical Studies do indicate, however, that, importantly, the decline in groundwater levels can be reversed, which provides an opportunity for developing a groundwater recharge program.~~

~~The surface water of Cache Creek tends to have elevated concentrations of boron. Testing done on the North Fork of Cache Creek and lower Bear Creek during the 1950s showed high concentrations of sodium, chloride, and total dissolved solids (TDS), in addition to boron. Of great concern, the Regional Water Quality Control Board has recently designated Cache Creek as an "impaired waterway" due to the high levels of detected mercury. The Regional Board and the County Environmental Health Department are currently working on a program to monitor mercury within the creek in order to detect the source of contamination. Recent broad based data on surface water quality within the creek is not available.~~

Surface water hydrology in Cache Creek is dependent on winter rainfall – although in some cases, releases from upstream dams can influence base flow in the creek, particularly during the summer irrigation season. Rainfall generally begins in December, and peaks in January and February. Depending on number and timing of storms, surface water flows begin to recede in late spring, although gaining reaches and pools will retain water into the summer. By fall, the creek has gone completely dry.

Cache Creek is known to be impaired by mercury originating from historic mining practices upstream. Boron, nitrogen, orthophosphate, and fecal coliforms are also elevated in Cache Creek and likely originate from agricultural sources in the watershed. The CCRMP water quality monitoring program has involved sampling in the creek since 1999, and few spatial or temporal trends are evident. The CCRMP water quality sampling program has identified Gordon Slough as a major contributor of many of the agriculturally-originating pollutants detected, most notably fecal coliforms and orthophosphate.

Groundwater elevations in the Cache Creek area have been consistent over the two decades since the start of the CCRMP, exhibiting seasonal trends of depression in the summer/fall due to pumping and recharge in the winter/spring due to rains. Overall, the winter recharge has kept spring groundwater elevations near Cache Creek constant. Two exceptions are during 2009-2010, when groundwater levels were depressed due to dry conditions in 2007-2009, and from 2012 to 2016 due to the effects of the 2012-2014 California drought. Wet conditions in 2011 restored groundwater elevations after the 2009-2010 depression, but the severity of the 2012-2014 drought has meant that rains in the winter of 2015-2016 have not yet recovered pre-drought groundwater elevations.

In 2007 the Water Resources Association of Yolo County comprised of the jurisdictions and water agencies of Yolo County adopted an Integrated Regional Water Management Plan (IRWMP) to look areawide at water supply, water quality, and water resources management. In 2014, significant new legislation known as the Sustainable Groundwater Management Act or SGMA was enacted relevant to groundwater management in California. This legislation established requirements for sustainable management of groundwater at the local level to protect against overdraft, subsidence, and other adverse effects of unsustainable groundwater use. This resulted in the formation of the Yolo Subbasin Groundwater Agency and ongoing efforts to develop a Groundwater Sustainability Plan by January 2022.

CCRMP Vision

Studies that preceded adoption of the CCRMP in 1996 demonstrated that ~~Although the~~ lowering of the streambed from prior commercial in-channel mining in Cache Creek did not result in a permanent loss of groundwater storage throughout the aquifer, however, it did result in a decline of groundwater levels of about ten feet near the channel. This is one of the reasons ~~In order to address this impact,~~ the CCRMP ~~proposed to~~ limits ~~future~~ in-stream activities to ~~mining to~~ those ~~activities~~ that enhance channel stability, ~~and/or the~~ establishment of riparian vegetation, and recreation and open space activities as prescribed in the Parkway Plan. Such activities are~~will be~~ restricted to no more than the average annual amount of aggregate deposited since the last prior year of removal~~during the previous year~~ (not to exceed approximately 690,800~~200,000~~ tons on average), excluding the reshaping of the channel bank to comply with the Channel Form Template~~Test 3 Run conceptual design~~. Removal of aggregate from the channel ~~will be~~may only occur ~~done~~ under the direction of the County based on the recommendations of ~~a~~the TAC~~Technical Advisory Committee~~. It is intended that the streambed aggrade over time in some areas. In most reaches of Cache Creek, within the plan area, the channel can accommodate far more than the necessary flood flow conveyance capacity~~100-year flood~~ and can aggrade without adversely affecting this~~flood~~ capacity. In areas where the rising streambed does reduce channel capacity sufficiently to encroach on necessary flow conveyance capacity, periodic maintenance may~~will~~ be advisable~~necessary~~ to restore desired ~~maintain sufficient flood~~ flow conveyance capacity~~volume~~.

The CCRMP also recognizes opportunities to develop a groundwater recharge program as a component of mining reclamation. Recharge can ~~also~~ be accomplished by converting some of the formerly mined pits along Cache Creek into groundwater recharge basins. Excavations where the pit floor is above the groundwater table are especially suitable for recharge. Where appropriate, the County will coordinate with the Yolo County Flood Control and Water Conservation District in their efforts to develop a groundwater management program.

Cache Creek is a major conveyance of stormwater and irrigation water. Landowners along the creek~~stream~~ should be encouraged to divert ~~these~~ upland stormwater runoff flows into sediment basins before the water enters the creek. This action would reduce the peak flows in Cache Creek during storm events, because sediment basins would also act as stormwater detention basins. As discussed in the Biological Resources Element, some of the formerly mined pits could be used for this purpose to deposit sediment ~~in~~carried by stormwater runoff into areas that need topsoil (provided it can be demonstrated that soil quality is acceptable), as well as to provide a ~~year-round~~seasonal source of water for riparian vegetation. At the same time, the stormwater detention/sediment basins would settle out much of the suspended sediment carried by upland stormwater runoff~~and vegetation could absorb many of the fertilizers and amendments found in agricultural tailwater~~.

~~In order to determine whether actions carried out under the CCRMP and CCIP are having an effect on the surrounding area, more information will be needed. One way in which to collect this data is to ask local landowners to submit well level monitoring results on a regular basis. Such an effort would be on a voluntary basis but would provide a clearer picture of how the aquifer operates~~

~~along Cache Creek. Similarly, it would be useful to have baseline information about the quality of water flowing down the creek. Potential problems with surface water pollution could be identified and immediate remedial measures taken. Both the groundwater level information and the surface water quality data would be integrated with the groundwater monitoring systems being established for off-channel mining operations.~~

3.2 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.

3.2-5 Provide habitat restoration without increasing the generation of mosquitoes.

3.3 OBJECTIVES

3.3-1 Encourage the development of a groundwater recharge program, where appropriate, within the Cache Creek basin. The program may specify use of reclaimed mining pits and open lakes to the greatest extent feasible, while maintaining consistency with the other goals, objectives, actions, and standards of both the CCRMP and OCMP.

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 Eliminate water quality impacts from the use of pesticides, fertilizers, and other soil amendments in the channel. 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.

3.3-5 Promote the safe use and handling procedures of hazardous materials during creek management activities.

3.3-6 Minimize mosquito generating potential in habitat restoration areas.

3.4 ACTIONS

3.4-1 Discourage activities that impact the surface water quality of Cache Creek. Although surface mining operations are regulated, other land uses along the creek are not. The County shall work with the U.S.D.A. Natural Resource Conservation Service and the Yolo County Resource Conservation District to promote alternative soil and water management practices that improve local water resources. The County NRM~~Resource Management Coordinator~~ shall initiate contact with resource conservation agencies at least annually.

Pesticides (including herbicides, insecticides, rodenticides, and fungicides) ~~and herbicides~~ shall be used within the channel boundary only under the direction of a certified pesticide/herbicide applicator. These chemicals shall not be applied prior to forecasted rainfall. Evaluate the potential for herbicides to cause aquatic life toxicity. Use herbicides with low toxicity to aquatic life (fish, zooplankton, algae). ~~Evaluate the potential for herbicide use to cause pollution of nearby groundwater wells through understanding of groundwater hydrology (i.e., transport of herbicides from creek bed to well). If the potential exists, monitor groundwater in flow path to well in conjunction with requirements of the Yolo County Department of Public Health, Division of Environmental Health.~~

Public access to County-owned land shall be allowed only at limited points within the CCRMP planning area to facilitate the control of potential releases of deleterious materials (including fuel, motor oil, household waste, and debris) that could affect water quality within the Cache Creek channel. Access to private property along the creek should be discouraged through the posting of "No Trespassing" signs.

3.4-2 Negotiate cooperative agreements with the YCFCWCD~~Yolo County Flood Control and Water Conservation District~~, U.S. Army Corps of Engineers, Regional Water Quality Control Board, Yolo County Resource Conservation District, and U.S. Bureau of Land Management, among others, to extend the provisions of the CCRMP outside of the plan area and incorporate the requirements of other agencies of jurisdiction into the County's planning efforts. Interagency contact shall be initiated by the County NRM~~Resource Management Coordinator~~ at least once per year.

3.4-3 Provide for annual ~~testing~~ (or more frequent ~~(~~if necessary) testing of surface water quality of Cache Creek at Capay and Yolo. The sample collection and testing should be conducted in the fall or early winter so that the "first flush" of runoff is evaluated for water quality. The County should, when appropriate, enlist the assistance of other government agencies in carrying out the measurements to reduce costs and provide accurate information. However, the County should not rely on others to complete the monitoring.

Testing should ~~be comprehensive and respond to all applicable regulatory requirements. It should~~ include, but not be limited to: pH, ~~total dissolved solids,~~ temperature, turbidity, total and fecal coliform, mercury, ~~total petroleum hydrocarbons,~~ dissolved oxygen, nitrogen, and orthopohosphate. ~~orus, herbicides, and pesticides (EPA Methods 8140 and 8150), suspended and floating matter, odor, an color.~~ This information willould assist in habitat restoration efforts and allow the County to monitor water quality trends within the planning area. The County NRM~~Resource Management Coordinator~~ shall be responsible for the collection, management, and distribution of all water quality data, and should coordinate all data management activities (formatting, storage, quality control) with the appropriate TAC member.

Testing (as described above) should also be conducted near in-channel projects prior to, during, and after construction/completion (i.e., at first high-flow inundation) to detect any potential non-compliance with Regional Water Quality Control Board (RWQCB) Water Quality Objectives. ~~The testing program(s) should be designed to measure all constituents for which there are RWQCB numeric and/or narrative regulatory limits. If non-compliance is found, modify future projects of similar type to eliminate such non-compliance.~~

3.4-4 E~~stablish an outreach program to e~~ncourage landowners adjoining Cache Creek to participate in a groundwater monitoring program, so that ~~an~~ ongoing groundwater information can be integrated into the Water Resources Information Database (WRID) created since the CCAP was originally adopted in 1996. ~~database can be developed for this area. This information would be used as reference material for the Water Resources Agency and other regional water planning efforts. The County shall attempt to coordinate with other relevant jurisdictional agencies to educate landowners regarding ground/surface water interactions and the importance of developing a comprehensive groundwater database, with technical assistance forom the TAC.~~

3.4-5 Deleted.

3.4-6 ~~Establish operating standards for the use and handling of hazardous materials in and near the Cache Creek channel.~~ Work with agricultural land owners within the CCRMP boundary to develop agricultural drainage ponds or wetlands to reduce loads of contaminants present in these discharges before they enter Cache Creek.

3.4-7 Coordinate all habitat restoration efforts with the Sacramento-Yolo Mosquito and Vector Control District.

~~**3.5 PERFORMANCE STANDARDS**~~ *(These have been integrated into the CCIP and/or In-Channel Ordinance)*

~~3.5-1 All heavy equipment used for channel improvement projects shall be kept in good working order to reduce emissions and preclude the leakage of oils and fuels. Fueling and maintenance activities shall not occur within one hundred (100) feet of the active channel. All procedures for handling, storage, and disposal of hazardous materials shall~~

~~be described in a Storm Water Pollution Prevention Plan if required for the projects. Any long-term project (e.g., extensive erosion control, gravel removal) shall have a chemical spill prevention and emergency plan filed and approved by the appropriate local agency. The plan must include training of the equipment operator and workers in spill reporting and how to minimize environmental damage.~~

~~3.5-2 Firms or individuals performing work within the channel shall immediately notify the Community Development Director of any events such as fires, explosions, spills, land or slope failures, or other conditions at the site which could pose a hazard to life or property outside the permitted area. Upon request by any County agency, the firm or individual shall provide a written report of any such event within thirty (30) days, which shall include, but not be limited to, a description of the facts of the event, the corrective measures used, and the steps taken to prevent a recurrence of the incident. This condition does not supersede nor replace any requirement of any other government agency for reporting incidents.~~

~~A copy of the approved Business Emergency Response Plans and the approved Spill Prevention Control and Countermeasure Plans, if required, shall be filed with the Yolo County Health Department prior to the commencement of work within the channel.~~

~~3.5-3 Wastewater should not be directly discharged to Cache Creek. Measures such as berms, silt fences, sediment ponds, hay bales, and/or revegetation should be used to control erosion. Agricultural tailwater should be diverted to catchment basins prior to release to the creek.~~

~~3.5-4 Sediment fines generated by aggregate processing of in-channel sand and gravel shall be used for agricultural soil enhancement or -stream revegetation projects. In-channel sediment fines shall not be used as backfill material in off-channel habitat restoration due to potential high mercury content.~~

~~3.5-5 All internal combustion engine driven equipment and vehicles shall be kept tuned according to the manufacturers specifications and properly maintained to minimize the leakage of oils and fuels. No vehicles or equipment shall be left idling for a period of longer than ten (10) minutes.~~

~~3.5-6 Water quality data collected from Cache Creek shall be regularly evaluated by a trained professional to determine whether the use of chemicals in the habitat restoration areas is affecting water quality. If chemicals are used and a correlation between chemical use and the degradation of water quality is established, the use of chemicals in the habitat restoration areas shall be reevaluated.~~

~~3.5-7 For bank repair projects using fill, conduct appropriate leaching tests on fill materials to determine if it contains leachable constituents at concentrations of potential concern.~~

CHAPTER 4.0 BIOLOGICAL RESOURCES ELEMENT

4.1 INTRODUCTION

Present Conditions

In California's Central Valley, intact riparian ecosystems are critically important habitat for numerous native wildlife, fish, and invertebrate species. Riparian forests are particularly valuable for both common and special-status species of birds, mammals, insects, and other species seeking food, shelter, dens, or nesting sites. Riparian areas also provide many important ecosystem services for people including hiking, bird-watching, hunting, fishing, education, and carbon sequestration that reduces the effects of climate change.

~~Riparian woodland generally provides significant amounts of cover, roosting and nesting opportunities, and food for wildlife.~~ Prior to the 1850s, Cache Creek was likely bordered by extensive riparian forests composed of cottonwoods, willows, and oaks, spanning a broad vegetated floodplain. Much of the forest was eliminated in the early to mid-1900s, largely as the result of cattle grazing, timber harvesting, clearing of fields for agriculture and homesteads, and water diversion. In-stream mining that began with small operations in the early 1900s, and which grew to industrial-scale operations in subsequent decades, further decreased riparian forests and native vegetation in general.~~However, the riparian habitat along Cache Creek has been severely reduced since historic times. The extent of the riparian forest prior to 1850 is not well documented for Cache Creek, but it has been estimated that there may have been between 800,000 and 900,000 acres throughout the entire Sacramento Valley, indicating that this habitat was fairly widespread prior to intensive settlement.~~

Based on hand-drawn maps at the scale of the entire CCAP, the 1995 Technical Studies estimated that approximately 125 acres of riparian forest remained along lower Cache Creek within the present-day CCRMP area. ~~Substantially more willow scrub and herbaceous (non-woody) vegetation was estimated to have remained, yet large stretches of the Creek were devoid of any significant vegetation. However,~~ A more refined re-analysis of the 1995 vegetation data as part of the 2017 Technical Studies revealed that riparian forest area was substantially underestimated in 1995. The 2017 Technical Studies provided refined estimates that in 1995 there was an estimated 263 acres of riparian forest, 36 acres of oak woodland, 331 acres of willow scrub, and 218 acres of herbaceous vegetation, ~~However, the actual area of oak woodland was likely more on order of 2.5 acres,~~ with significantly more oak woodland present within the OCMP area, outside the CCRMP boundary.

As of 2015, there was an estimated 252 acres of riparian forest, 3 acres of oak woodland, 213 acres of willow scrub, and 475 acres of herbaceous vegetation within the CCRMP area. Changes in these values from 1995 to 2015 represent actual changes in vegetation in addition to significant differences in methodology used to classify vegetation and estimate acreage between the two time periods. The acreage of riparian forest could have potentially been higher; however, recent brush fires and forest die-back from drought resulted in some degradation and loss of forest habitat from 2010 to 2015.

Herbaceous vegetation has increased significantly to 475 acres in 2015 balanced by a decline in willow scrub to 213 acres. Assuming the area of oak woodland was approximately 2.5 ac. in 1995, a slight increase to just under 3 acres has also occurred. The most extensive riparian forests are found in the Dunnigan Hills reach, in which large patches of gallery forests comprised of cottonwoods, willows, oaks, black walnuts, buckeyes, and other species of trees and shrubs. Bands of dense willow/mulefat scrub line the channel, interspersed with patches of wetland herbaceous vegetation. Large patches of riparian forest are also found in the Capay, Guesisosi, and Hoppin reaches. Herbaceous vegetation has increased significantly along the channel banks in the Dunnigan Hills and Hoppin reaches, primary in the form of dense stands of cattails and tules. Within the Hungry Hollow, Madison and western portion of the Guesisosi reaches, riparian vegetation has begun to recover from previous mining activities, albeit slowly due to gravelly soils, relatively deep groundwater, and lack of surface water. While a slight increase in native vegetation has been observed from 1995 to 2015, most of these areas remain exposed and largely unvegetated, providing only minimal habitat for wildlife and other species.

Numerous threats to remaining native vegetation were identified in the 1995 Technical Studies, including: the narrow stream channel, lack of surface water, invasive plant species (tamarisk and giant reed), and lowered groundwater levels. These factors are still present in 2016. The narrow width of the channel increases the velocity of the streamflow, making it more likely that native plant seedlings are scoured away during high flows. The diversion of surface water often occurs during the growing season for riparian vegetation and removes the primary source of water in losing reaches of the creek. Lowered groundwater levels leave tap roots withered and reduces colonization by new native seedlings, especially in riparian forest patches on upper terraces. In addition, the invasion of aggressive non-native species inhibits the recovery of diverse native habitat.

However, additional threats to native vegetation have arisen since 1996, including: OHV use, brush fires, numerous new invasive species, and the lack of active revegetation after fires and invasive species treatment. Rampant OHV use along lower Cache Creek damages or removes native vegetation, potentially promotes invasive species, and likely has negative impacts on wildlife such as nesting birds, reptiles, and amphibians. Fires set by landowners to clear brush in forested areas have spread to encompass entire forest stands, resulting in large-scale damage to riparian forests. Numerous new invasive non-native species have established along lower Cache Creek since 1996, including Ravenna grass, perennial pepperweed, tree of heaven, nonnative thistles, tree tobacco, Himalayan blackberry, edible fig, poison hemlock, barbed goatgrass, and medusahead. These species compete directly with native plants and generally have little value for native wildlife. Finally, the lack of active revegetation with native species after fires and invasive species treatment has allowed many of these invasive species to rapidly increase and spread across the area. It is estimated that over 95 percent of the understory vegetation within the CCRMP is nonnative, consisting of naturalized annual grasses and forbs in addition to invasive species noted above. Some patches of arundo, Ravenna grass, and tamarisk (formerly widespread in large, continuous patches) have either persisted along backwater channels or under dense forest canopy or have resprouted after being treated in previous years. More recent invasive species, such as perennial pepperweed and Himalayan blackberry, are widespread and

often occur in large, homogeneous patches that exclude native vegetation. These species provide only minimal value to native wildlife and invertebrates, while using vast amounts of water and growing dense enough to inhibit channel flows.

~~The Technical Studies identify that there are only about 125 acres remaining along Cache Creek within the plan area. The riparian woodland around Moore's Crossing is the most important habitat remaining within the plan area due to the abundance of native plant species and wildlife cover. This habitat is characterized by relatively young trees that do not reflect the mature riparian forest that has historically dominated this region, and many of the mature trees are in poor condition. Valley oak woodland, usually found on the upper terraces of Cache Creek, plays a similarly significant role to that of the riparian forest, but much of this habitat has been eliminated by land clearing. Approximately 76 acres remain along Cache Creek within the plan area. Together, these habitats account for some six percent of the total area of the channel. Much of the remaining habitat has a fairly low diversity of species, lowering its wildlife utility even further.~~

~~A substantial portion of the mature forest is threatened by a lack of readily available water. Typically dependent upon stream flow, the trees are now well above average groundwater levels due to streambed lowering, and they are unable to regenerate both the canopy and understory characteristics of a mature riparian forest. Although they continue to provide valuable nesting sites for birds that forage in the adjoining agricultural fields (especially Swainsons hawks), these areas are not fulfilling their full habitat potential.~~

~~The lack of riparian vegetation has consequences for other aspects of the creek system. Water moves promptly downstream rather than being delayed by vegetation so that the potential for groundwater recharge is reduced. High flow velocities also discourage fish populations. Marshland within the channel is limited which prevents adequate nutrient transformation for vegetation and wildlife. The absence of woody vegetation and steepness of the channel banks also contributes to the excessive erosion that is occurring in many reaches. Thus, reestablishment of the riparian corridor will not only improve conditions for wildlife, but will provide benefits for other resources that are also dependent upon the creek.~~

~~Tamarisk and giant reed are found throughout the plan area, and in some reaches of the Creek constitute the dominant plant species. These plants are not native to this area and are aggressive colonizers, thereby providing a threat to the existing riparian habitat. Although tamarisk provides some cover for quail and deer along Cache Creek, both it and giant reed provide far less food and cover for wildlife than native riparian species. Tamarisk is of special concern due to its tendency to build up salts in the surrounding soils. These weeds can also significantly alter stream flow. Both species require a large amount of water and can lower local surface and groundwater levels. In addition, they can also form dense islands in the streambed, resulting in the flooding of areas that are not usually inundated. Although found within the channel throughout the plan area, tamarisk and giant reed have primarily infested the reaches upstream of the Capay Bridge (County Road 85) and downstream of the Stephens Bridge (County Road 94B).~~

~~The reach of Cache Creek located between the Capay Bridge and the Dunnigan Hills presents several constraints to potential riparian revegetation, including: a lack of silt and organic debris, absence of a defined low flow channel, low groundwater levels and seasonal surface water supply, and extensive surface disturbance from in-stream mining. Although measures may be taken to address some of these problems, the channel flow characteristics in this reach may prevent it from becoming a riparian forest similar to that found in the Dunnigan Hills reach.~~

Wildlife and invertebrate species are also important components of the biological resources present within the ~~OCMP~~ area. The 1995 Technical Studies presented an overview of native species that are known to be present within the CCAP area, as well as those species that could be present given suitable habitat. Notable species that were present or potentially present within the CCRMP area at the time of the 1995 Technical Studies included: Swainson's hawk (*Buteo swainsoni*; present), bank swallow (*Riparia riparia*; present), tricolored blackbird (*Aegelaius tricolor*; present), Cooper's hawk (*Accipter cooperi*; potentially present), yellow warbler (*Stenophaga petechia*; potentially present), Western pond turtle (*Actinemys marmorata*; present), ring-tailed cat (*Bassariscus astutus*; potentially present), Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*; present), Sacramento anthicid beetle (*Anthicus sacramento*; potentially present), as well as numerous common species such as black-tailed deer (*Odocoileus hemionus columbianus*) and common predators, such as bobcats, badgers, coyotes, foxes, and raptors.

As of 2015, notable species observed within the CCRMP area included Swainson's hawk, tricolored blackbird, yellow warbler, golden eagle (*Aquila chrysaetos*), loggerhead shrike (*Lanius ludovicianus*), Northern harrier (*Circus cyaneus*), white-tailed kite (*Elanus leucurus*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), nonnative wild pig (*Sus scrofa*), Valley elderberry longhorn beetle, Sacramento hitch (*Lavinia exilicauda*), and Sacramento pikeminnow (*Ptychocheilus grandis*). More than 150 additional common species of snakes, lizards, birds, mammals, invertebrates, and fish also occur across the CCRMP area.

Threats to native wildlife and invertebrates include nonnative competitors, and predators, such as brown-headed cowbird (*Molothrus ater*), European starling (Sturnus vulgaris), bullfrog (*Rana catesbeiana*), and small-mouthed bass (*Micropterus dolomieu*); poaching; rodenticides that can poison native mammalian and avian predators; damage to or loss of habitat due to development, drought, or disturbances including fires and OHV use; ~~and,~~ establishment and spread of invasive plant species that reduce habitat value, and in some cases noise that can impair ability of nocturnal predators to locate prey.

CCRMP Vision

Although the CCRMP cannot reestablish the diversity and extent of riparian habitat that existed 150 years ago, there is substantial opportunity for improving the degraded situation that occurs today. One long-term goal of the CCRMP is to establish a continuous corridor of native vegetation along lower Cache Creek composed of a mosaic of riparian forests, oak woodland, scrub, and herbaceous habitat, including ephemeral species. Both passive and active restoration efforts will

be required to achieve this goal. Passive restoration involves removing barriers to habitat recovery without actually planting native species back on a site. On lower Cache Creek, such barriers include invasive plants that displace native plants, disturbances such as fires and OHV use, lack of summer flows coupled with deep groundwater, and lack of floodplain connection. Active restoration includes elements of passive restoration (e.g., invasive plant removal), but also the deliberate planting of native trees, shrubs, and herbaceous species in order to accelerate habitat recovery. Both passive and active restoration projects within the CCRMP area should have one or more habitat targets (the type of habitat to be restored). Based on existing habitat within the CCAP area, these targets will include riparian forest, oak woodlands, scrub, herbaceous grasslands and wetlands (Figures 5 through 7 below). It is critical that, for habitat types associated with woody vegetation (riparian forest, oak woodland, and scrub), native understory species (grasses, forbs, sedges, and rushes) are included in the planting palette in order to exclude invasive species, prevent soil erosion, and provide resources for pollinators and other species.

Figure 5 provides representative photographs of riparian forest patches from the CCAP area taken in 2015–2016. Figure 6 provides representative photographs of scrub (left) and oak woodland (right) habitat taken within the CCRMP area from 2015–2016. Figure 7 provides representative photographs of herbaceous habitat taken within the CCAP area from 2015–2016. Upper left to lower right: upland restored grassland dominated by purple needlegrass (*Stipa pulchra*), grassland on lower terrace near channel dominated by creeping wildrye (*Elymus triticoides*), wetland sedge (*Carex* sp.), and a large patch of native sky lupine (*Lupinus nanus*).

~~Eventually, the plan seeks to establish a continuous corridor of vegetation along Cache Creek throughout the plan area. One of the foremost considerations in achieving this goal is a more available supply of surface water. This may be accomplished by either coordinating revegetation efforts with agricultural drainage, or regrading the channel to create pools. Another approach would involve the Yolo County Flood Control and Water Conservation District. The District is currently applying for additional allocation rights for water from Cache Creek. An added increment of this water supply could be reserved for maintaining a summer surface flow in the low-flow channel, thus enhancing the potential for riparian habitat restoration.~~

This plan identifies a number of recommended sites along Cache Creek for habitat restoration (see Figure~~s~~ 8 ~~5 and 6~~). Figure 8 identifies priority sites for restoration of riparian forest, oak woodlands, grasslands, and wetlands within the CCAP area. Understory enhancement refers to areas with high-quality woody vegetation but with understory communities dominated by priority invasive species (e.g., perennial pepperweed, Himalayan blackberry). Due to the changing hydrological and geological conditions that exist throughout the plan area, the type and extent of habitat vary from one reach to another. In general, the recommendations may be summarized as follows:

Capay Reach: Due to the high flow velocities and widespread exposure of bedrock within the channel, there is currently little opportunity for in-stream restoration in this reach. However, there are substantial opportunities to restore oak woodlands with native understory communities on upland sites on both the north and south sides of the channel. These areas are largely open sites dominated by nonnative and invasive understory species, although some

remnant native oaks, elderberry, and other species are still present. Soils appear to be of sufficient depth and quality to support these habitat types, and the sites are reasonably accessible. Riparian forest restoration should also be undertaken within the formerly large forest patch near the downstream end of the reach on the south side of the channel. This patch burned extensively in 2015, purportedly due to a brush fire spreading out of control, and much of the forest was lost and replaced by dense invasive thistles and other undesirable species. To a lesser extent, some opportunities also exist for riparian forest restoration to expand and connect existing forest patches on upper terraces along the north side of the channel. Efforts should also focus on continuing to treat priority invasive species including arundo, Himalayan blackberry, Ravenna grass, perennial pepperweed, and tamarisk within this reach.

Hungry Hollow Reach: This reach of the creek is the main area of natural sediment deposition that results in a braided channel. Groundwater levels are lower here than in other portions of the plan area. These two factors tend to discourage extensive restoration unless irrigation is used on an ongoing basis. However, this area also forms a significant gap in the desired continuous corridor of native habitat that is the long-term goal of the plan. The exception is the upstream end of this reach, where the Capay Open Space Park is located. On the northern portion of the Park, there are opportunities to enhance the existing habitat within the Park through grassland, riparian forest, and oak woodland enhancement and restoration. On the portion of the Park on the south bank, understory enhancement in the form of invasive species treatment and replanting of native grasses and forbs is recommended. Any restoration work at the Capay Open Space Park will directly support the implementation of the Parkway Plan. Along the meandering low-flow channel, where more water is available, some natural recovery of native woody vegetation has occurred from 1995 to 2015. Although a slow process, this recovery is expected to continue in the future, especially if more surface water becomes available in late spring and throughout the summer. Just upstream of the CR 87 bridge on the north side of the channel, there are large open areas that would be suitable for oak woodland or native grassland restoration. Although there are relatively fewer priority invasive plants along this reach, monitoring and treatment efforts should continue to prevent spread within this reach and also downstream.

Madison Reach: Within a large patch of woody vegetation on the south bank in the upper third of this reach, removal of invasive species and debris could be paired with planting of native shrubs and understory species to improve habitat. Also on the south bank but further downstream, oak woodland restoration would be appropriate for a large open area on an upper terrace. In addition, a former mining pit at the midpoint of the reach on the north bank could be restored to a native wetland (e.g., a sedge meadow). Some opportunities may exist to lower, breach, or remove levees connect formerly mined pits on the north side of the channel. Areas on low terraces with good access to groundwater along this reach could potentially be restored to riparian forest habitat. Woody riparian species could also be planted along the low-flow channel itself, focusing on relatively stable areas in terms of scour and deposition. As in the Hungry Hollow reach, some native revegetation is naturally recovering along the low-flow channel and in other locations. Although not as abundant as in other reaches, continued monitoring and treatment of priority invasive species should also occur in this reach.

Guesisosi Reach: This portion of the creek serves as a transition zone between the sparsely-vegetated, braided channel upstream, and the well-vegetated, relatively narrow channel downstream. Substantial natural recovery of native woody vegetation has occurred within this reach, especially on the downstream end. In this portion of the reach, the primary opportunities are to enhance the understory within the existing patches of woody vegetation (e.g., the Hayes "Bow-Tie" property) as well as to monitor and treat priority invasive species.

Dunnigan Hills Reach: This reach already contains several sites that have naturally revegetated, and is generally characterized by well-developed and diverse habitat including substantial patches of high-quality riparian forest and a wetland-forest complex at the Cache Creek Nature Preserve. Two high-priority restoration opportunities exist within this reach, both of which have the potential to directly support the implementation of the Parkway Plan. First, the Millsap property on the northern side of the channel at the upstream end of the reach is ideal for restoration of a mosaic of oak woodlands interspersed with native grasslands and shrub communities, especially given the substantial effort put into controlling tamarisk and arundo on the site in recent years. The northwest portion of the property is currently a walnut savanna with a nonnative understory; this site is unique since it retains the natural microtopography that is presumably the result of not having been plowed in the past. Oak woodland restoration and the establishment of a diverse natural~~nature~~ understory on this site could be integrated with the creation of a nature trail and interpretive signage, resulting in a high-value Parkway site that would be open to the public. Other portions of the Millsap property require invasive species treatment and understory enhancement, such as the dense forest patch on the southeast portion of the property that is known to harbor migratory flocks of long-eared owls in some years. The second priority restoration site is the Wild Wings property on the south side of the channel near the downstream end. The upper portion of the property would greatly benefit from repair and expansion of the existing trail network in addition to interpretive signage, while additional oaks, native shrubs, and native herbaceous species would augment those that survived after past planting efforts. The lower portion of this site is highly compacted with rocky soils, and would likely be suitable for native grassland restoration using species adapted to such harsh conditions (e.g., purple needlegrass, native buckwheat species). In addition, understory enhancement is needed within existing forest patches on both the northern and southern sides of the channel at the upstream end of this reach.

Oak woodland restoration would be appropriate both upstream and downstream of the former Patterson pit, which itself should be retained as a wetland especially given the historical occurrences of tricolored blackbirds on the site. Opportunities for creating further hydrological connections between the creek and both riparian forests and wetlands that have developed on former mining sites should also be explored. Overall, this reach is characterized by abundant priority invasive species, and both monitoring and treatment should continue to be emphasized.

Hoppin Reach: Two priority restoration opportunities are found within this reach. First, most of the Granite Woodland Reiff site adjacent to the CCRMP boundary is suitable for native grassland restoration and potentially some scattered oaks. Large patches of previously-planted native grasses are thriving in the northern portion of the site. Second, the Correll and Rodgers properties are composed of a mosaic of different habitat types and have sites appropriate for grassland and

wetland restoration in addition to understory enhancement within the large forest patch on the northern edge of the property. Oaks may also establish well in the more open areas targeted for grassland restoration, as may some riparian forest species especially if the lower areas were hydrologically connected to the creek. Otherwise, irrigation might be required to ensure woody species establishment. In general, opportunities should be explored to remove embankments and implement other measures to broaden the active floodplain to accelerate vegetation recovery on former mining sites. Elsewhere within this reach, the primary emphasis should be on monitoring and treating priority invasive species that are widespread across this area.

Rio Jesus Maria Reach: The channel is relatively narrow through this reach, with generally well-developed riparian forest on the upper banks. As noted for other reaches, priority invasive species should be monitored and treated within this reach, and some open areas would benefit from grassland restoration efforts. A portion of the mature forest on the northern side of the channel on the downstream end burned sometime from between 2015 and 2016, and replanting of oaks and other woody species should be investigated.

~~County Road 91B to County Road 94B: The primary emphasis is on removing or minimizing exotic, invasive shrubs, such as the giant reed and tamarisk, in order to maintain channel stability and to allow for the development of native vegetation. This reach is especially well suited for removing existing embankments that protected former mine sites and widening the channel. However, due to the high recharge value in this area, the recommended restoration projects will be coordinated with the Flood Control District so as not to preclude future recharge opportunities. Work should focus on the restoration of old existing in-channel pits. Where groundwater recharge is not feasible, the floor of the pit should be elevated and riparian forest planted. In-channel forest should also be created along the south portion of the channel, downstream of Road 94B, to provide additional bank stabilization.~~

~~County Road 91B to County Road 94B: The Dunnigan Hills reach already contains several sites that have naturally revegetated and created well-developed and diverse habitat. Some areas could be improved, however. The former Cache Creek Aggregates (Patterson) pit should be revegetated with oak woodland habitat, while shallow depressions should be created in portions along the south bank owned by Solano Concrete to allow for the development of riparian wetlands. A riparian forest has already been established on the north bank, west of the Moore Dam Sanctuary, but it is recommended that the levee be removed so that the area can be hydrologically connected to the creek.~~

~~Interstate 505 to County Road 91B: This portion of the creek serves as a transition zone between the barren, braided channel upstream, and the well-vegetated, narrow channel downstream. Two projects are proposed here. One is to remove the levee separating one of the old Solano sites on the north side of the channel and allow the natural deposition of material from the creek to improve the existing stunted riparian forest. The other is to plant additional riparian forest along the north bank of the channel, immediately~~

~~downstream of the I-505 Bridge, to close a gap in the habitat corridor, as well as to enhance the hydraulic transition near the bridge.~~

~~County Road 87 to Interstate 505: A low flow channel should be created in this reach, along with 50 foot wide revegetated zone of cottonwoods and willows on either side, as is being proposed for the Capay reach (see below). Levees should be removed to connect formerly mined pits on the north side of Cache Creek to the channel. However, similar to the Dunnigan Hills reach, this creek segment is known to have important recharge and recovery opportunities that should be considered. Furthermore, one of the pits contains an operating gravel processing facility owned by Teichert Aggregates that will likely not be abandoned for decades. There is a small portion of streambed next to the Teichert site that is already on a low terrace with good access to groundwater that would provide riparian forest habitat.~~

~~County Road 85 to County Road 87: This reach of the creek is the main area of natural sediment deposition that results in a braided channel. Groundwater levels are lower here than in other portions of the plan area. These two factors tend to discourage extensive revegetation unless irrigation is used on an ongoing basis. However, this area also forms a significant gap in the wildlife corridor. Subsequently, restoration work will concentrate on establishing riparian vegetation along the low flow channel where more water is available. The low flow channel will meander and shift so that a series of narrow vegetation ribbons will eventually cover the floodplain in an alternating pattern of forest and open gravel bars.~~

~~Upstream of County Road 85: Due to the high flow velocities and widespread exposure of bedrock within the channel, there is currently little opportunity for in-stream revegetation in this reach. Efforts should focus on removing the extensive stands of giant reed and tamarisk within this reach. The reestablishment of native vegetation would be undertaken with the cooperation of local landowners along the south bank of the channel.~~One of the foremost considerations in accelerating and maintaining recovery of native vegetation and other biological resources within the CCRMP area is a more available supply of surface water; i.e., maintaining surface flows along the length of lower Cache Creek in the late spring and throughout summer. This may be accomplished by either coordinating revegetation efforts with agricultural drainage, or involving the Yolo County Flood Control and Water Conservation District.

Restoration recommendations for s~~S~~everal of the reaches have included~~include~~ proposals to remove levees and connect formerly mined pits to the channel. In locations where this is still feasible as of 2015, t~~T~~his could be accomplished in a series of steps~~, as shown in Figures 7 and 8~~. The first would be to backfill the pit, if necessary, with four to six feet of overburden and topsoil. A number of sources could be used for this material, including sediment runoff from adjoining agricultural fields, waste fines from off-channel aggregate processing, surplus soil from grading projects, and/or backwash from Cache Creek (if a small breach is constructed on the downstream portion of the levee). Once sufficient material had been accumulated, the area should be planted with riparian vegetation and allowed to mature for two or three years. At that time, most of the

levee would be removed, leaving a gently sloping transition from the newly revegetated terrace to the more active area of the channel.

Alternatively, a breach could be constructed in the downstream portion of the levee. The revegetated terrace would still be connected to the creek, while the remaining portion of the levee would increase the variety of natural landforms to diversify habitat opportunities. The remaining portion of the levee would be strengthened through riprap and other means to protect it from ~~stream~~ erosion. By implementing these recommendations incrementally, the vegetation is given enough time to become well established so that it can withstand the forces of large flood events. Providing a dense planting of vegetation along the toe of the streambanks will also stabilize the new banks and reduce erosion, as well as encourage higher flow velocities to remain in the center of the creek.

The ~~development~~ continued recovery of riparian habitat along lower Cache Creek will require careful consideration. In some areas, the ability of vegetation to provide erosion control will be encouraged to protect nearby property or structures, while in other areas vegetation will have to be removed when it adversely affects channel flow. Similarly, the elimination of all priority invasive ~~weeds~~ species across the CCRMP is likely an infeasible goal. Strategic investment of limited resources will be required in order optimize invasive species treatment efforts into the future.~~invasive weeds will be a high priority so that native vegetation has a chance to become established. In other areas, non-native weeds may be retained so that they can stabilize banks in some areas where native plants cannot grow. Generally speaking, the CCRMP calls for the widespread establishment of riparian woodlands. Restoration of this type of habitat would not only be consistent with historical conditions but would increase the presence of an ecosystem that is rapidly diminishing in California. Standards for developing habitat have been provided to guide revegetation projects and provide a measure of consistency in their implementation.~~

It is anticipated that much of the revegetation efforts along Cache Creek will be undertaken by ~~volunteer organizations such as~~ the Cache Creek Conservancy and other organizations. As such, the County will ~~have to~~ work closely with these groups in order to ensure that the various habitat development projects are carried out in a consistent manner and do not conflict with one another, that the projects contribute to the overall functioning of the riparian corridor, and that there is appropriate follow-up, maintenance, and monitoring to ensure success. Standards for developing habitat have been provided to guide revegetation projects and provide a measure of consistency in their implementation. ~~A similar approach will be necessary to link the efforts of individual land owners, such as those found in the Moore Dam Sanctuary and Gordon Slough area, so that gaps in the corridor can be identified and filled.~~ The County will also ~~have to~~ coordinate with other government agencies, such as the YCFCWCD~~Flood Control District~~ and the U.S. Army Corps~~Crops~~ of Engineers, so that a mutually agreed upon and coordinated approach can be implemented. Assistance will be sought to help in monitoring the results of these diverse efforts. Public service organizations and university students with ~~environmental~~ ecological expertise will be approached to perform pro bono plant and wildlife surveys to supplement existing ~~for the County's database and~~ monitoring efforts.

4.2 GOALS

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

4.2-2 Create a continuous corridor of riparian, upland, and ~~wetland~~ herbaceous vegetation ~~to link the foothill habitats of the upper watershed with those of the settling basin.~~spanning the CCRMP area

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.

4.2-6 Integrate climate-smart adaptation strategies to increase resiliency and prepare for future uncertainty.

4.3 OBJECTIVES

4.3-1 Conserve and protect existing riparian habitat within the ~~channel~~ CCRMP area to the greatest extent possible. Where channel maintenance or improvement activities result in the removal of riparian habitat, require disturbed areas to be restored~~planted.replanted.~~ Where vegetation has been removed within the channel to maintain or improve~~for~~ flood ~~protection~~ flow conveyance capacity and/or erosion control purposes, ~~replanting~~ restoration shall be done in nearby areas that do not adversely affect flood flow conveyance capacity.~~streamflows.~~

4.3-2 Establish conditions to encourage the development of a variety of natural riparian habitat types within the CCRMP area in order to support biological resources associated with Cache Creek ~~channel~~.

4.3-3 Adopt standards for planning, implementing, and monitoring ~~and developing~~ habitat revegetation and restoration projects~~areas~~ in order to ~~assure~~ ensure consistency ~~and reasonable~~, maximize success, and account for future uncertainty due to climate change. ~~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. Encourage regional mitigation to occur within the CCAP plan area, consistent with the program and the Parkway Plan. Require mitigation obligations resulting from mining applications to be implemented within the CCAP plan area, consistent with the Parkway Plan.

4.4 ACTIONS

4.4-1 Encourage the use of riparian vegetation and other "soft-engineering" methods in bank or channel protection. Methods may include willow spiling (retaining walls constructed of woven willow stems from which trees will sprout); spur dikes to deflect the current away from the bank and create areas for vegetation; and cabling dead trees along the bank to provide both bank stabilization and additional habitat. (This was incorporated into the CCIP; see various references to bio-technical techniques.)

4.4-2 Remove vegetation when it threatens channel stability. In particular, the growth of ~~tamarisk, giant reed, and willow~~invasive species, willow scrub, and other native and nonnative vegetation on mid-channel gravel bars shall be controlled to prevent streamflows from being diverted towards nearby banks. (This was incorporated into the CCIP under Typical Channel Maintenance Activities.)

4.4-3 Promote the eradication of priority invasive species~~, such as the giant reed and tamarisk, in areas where they inhibit the growth and development of native riparian vegetation~~ within the planning area. A list of priority invasive species has been developed by the Cache Creek Conservancy and should be updated as needed. Current priority woody invasive species include edible fig, tamarisk, tree of heaven, and tree tobacco. Current priority herbaceous (non-woody) invasive species include arundo, barbed goatgrass, common teasel, fennel, Himalayan blackberry, medusahead, perennial pepperweed, poison hemlock, purple loosestrife, stinkwort, Italian thistle, milk thistle, yellow flag iris, and yellow starthistle. The annual CCRMP-wide invasive species treatment program (including but not limited to the annual Creek Spray) should continue and expand to include additional priority species and treatment areas within the planning area. Spatial data from baseline invasive species mapping in 2016 and from subsequent monitoring efforts should be used to inform and prioritize invasive species treatment efforts. All treatments should be implemented in accordance with the Migratory Bird Treaty Act, the Yolo HCP/NCCP, and other regulations as appropriate. Treated areas should be marked using GPS technology and revisited the following growing season to determine if treatments were successful. Dead biomass should be removed from the planning area or burned on site. Comprehensive monitoring should be conducted at least every five years to inform adaptive management and invasive species treatment efforts. (This was incorporated into the CCIP under Typical Channel Maintenance Activities.)

4.4-4 Coordinate with the Cache Creek Conservancy, the YCFCWCD~~Yolo County Flood Control and Water Conservation District~~, Yolo Resource Conservation District, the California Department of Fish and Wildlife~~Game~~, the U.S. Fish and Wildlife Service, the U.S. Army

Corps of Engineers, the U.S. Bureau of Land Management, and ~~all~~ other appropriate agencies and organizations to ensure that habitat restoration projects within the CCAP plan area, proposed by these and other entities are consistent with the CCRMP~~Cache Creek Resources Management Plan~~ and the Parkway Plan. Restoration plans shall complement the preservation and enhancement measures in the Yolo County ~~Natural Communities Conservation Program~~HCP/NCCP.

4.4-5 Establish a series of wildlife ~~p~~reserves (see Figure 9) to provide core areas for maximizing wildlife and fish habitat, to help protect areas of high-quality habitat ~~quality~~ from future degradation, and to provide source areas and wildlife nurseries from which native plants and wildlife can colonize other reaches of the creek. Wildlife ~~p~~reserves should emphasize the preservation of high quality existing habitat, areas with high species diversity, areas supporting unique species or biotic communities, and habitat for rare, threatened, and endangered species. (This is being implemented in partnership between the County and the Yolo Habitat Conservancy pursuant to Resolution 14-126 approved December 2, 2014, and through the development of the Cache Creek Parkway Plan).

4.4-6 Favor projects that establish ~~riparian woodlands~~native woody vegetation over emergent wetlands in appropriate areas within the planning area~~Cache Creek channel~~. Riparian forest and scrub habitats have largely disappeared regionally and are much more difficult to ~~recreate~~ reestablish than are emergent wetland habitats. Emergent wetlands can also be established in a greater range of environmental conditions, whereas riparian woodlands require specific considerations in order to thrive.

4.4-7 Solicit the assistance of community groups in carrying out ongoing monitoring programs. Examples may include enlisting the local Audubon Society to perform annual bird counts at specific points along lower Cache Creek; coordinating with UC Davis to create a program whereby students could obtain class credits for performing surveying, vegetation mapping, or bed material counts; and collecting well levels from landowners in the plan area. (See also CCRMP Action 2.4-10)

4.4-8 Restore riparian habitat throughout the plan area in order to create a continuous habitat corridor along lower Cache Creek. The CCRMP includes a series of recommended restoration sites located throughout the plan area.

4.4-9 Revise the ~~Yolo County~~ In-channel ~~Reclamation~~ Ordinance to provide specific guidelines for design, implementation, and maintenance of riparian habitat. (Complete)

4.4-10 Through development agreements with mining operations, require ~~i~~integration~~e~~ of in-channel revegetation plans ~~through development of a *Comprehensive, Integrated Revegetation Plan*~~ in order to reduce fragmentation by expanding and connecting~~connect disparate wildlife~~existing habitat~~.~~ patches, optimize restoration planning, and support future funding proposals.~~.~~ Ensure that elements such as soils, drainage, slopes, and habitat types complement one another in a coordinated effort. Coordinate ~~i~~in-channel habitat areas ~~shall also be coordinated~~ with proposed wildlife mitigation and "net gain"

established as a part of the off-channel mining operations in order to create a larger riparian habitat area. Require consistency with the Parkway Plan. ~~The integrated plan should include measures to evaluate the feasibility of creating contiguous wildlife habitat by physically connecting individual wildlife areas via riparian corridors or some other connecting habitat.~~

4.4-11 Work with the aggregate industry to achieve multiple benefits,~~develop a regional Mitigation (Conservation) Banking Program,~~ whereby habitat developed as a part of a reclamation plan may be dedicated for preservation to offset development projects elsewhere. Coordinate this effort with implementation of the Parkway Plan and the Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP).~~The program shall identify priority locations and create an ecologically functional pattern of wildlife habitat within the planning area that could be enhances through mitigation funds to improve habitat for special status species or sensitive natural communities. Augmenting existing restoration/reclamation efforts through establishment of a regional Conservation Bank could accelerate achievement of CCRMP goals and objectives and integrate well with those of the Yolo County Natural Communities Conservation Program (NCCP).~~

4.4-12 ~~Standards identifying~~Recommended planting procedures and materials, soil amendments and stabilizers, and appropriate species and planting densities for marshland, oak woodland, and riparian woodland restoration efforts should be performance based~~considered guidelines~~. Variations from these guidelines shall be acceptable if alternative restoration plans have been prepared by a qualified biologist and reviewed by the TAC, consistent with the policies of the CCRMP.

4.4-13 Avoid disturbance to important wildlife habitat features such as nest trees, colonial breeding locations, elderberry ~~host plants for VELB~~shrubs, and essential cover associated with riparian forest and oak woodland habitat. This should include sensitive siting of~~,~~ maintenance access~~,~~ and recreational facilities away from these features in accordance with the Migratory Bird Treaty Act and other applicable regulations. (This is a required finding of the In-Channel Ordinance in Section 10-3.505(c).)

4.4-14 A biological database search (e.g., California Natural Diversity Data Base) shall be completed prior to implementation of priority projects. The database search shall compile existing information on occurrences of special-status species and areas supporting sensitive natural communities that should be considered for preservation. In addition, the database search shall be supplemented by reconnaissance-level field surveys to confirm the presence or absence of populations of special-status species, location of elderberry shrubs, and extent of sensitive natural communities along the creek segment. Essential habitat for special-status species shall be protected and enhanced~~s~~ as part of restoration efforts or replaced as part of mitigation plans prepared by a qualified biologist and reviewed by the TAC. (Clarification regarding compliance with this action has been proposed in Section 10-3.501(c) of the In-Channel Ordinance.)

4.4-15 Coordinate with jurisdictional agencies to establish ~~"blanket"~~programmatic permits and agreements to ensure a consistent multi-agency approach to managing the creek. (These permits were first secured in the late 1990's and subsequently renewed.)

4.4-16 Modifications to the plan area shall be reviewed and approved by the TAC to ensure that sensitive biological resources are protected and enhance~~s~~d, that restoration plans are consistent with the policies of the CCRMP, and that various habitat restoration projects are compatible. (This was incorporated into the CCIP and In-Channel Ordinance.)

4.4-17 ~~Investigate the feasibility of establishing a "safe harbor" agreement between resource agencies and local farmers to encourage the creation of new wildlife habitat on agricultural lands within the CCRMP planning area. Also evaluate the feasibility of conservation easements as an alternative to a "safe harbor" strategy on private property within the planning area.~~ The ~~Yolo County Resources Manager~~NRM shall coordinate the Yolo Habitat Conservancy ~~the development of any "safe harbor" initiative with all appropriate agencies~~ to explore opportunities for broadening the program and its benefits in conjunction with the HCP/NCCP. (On December 2, 2014 the County Board of Supervisors approved Resolution 14-126 in support of a partnership with the Yolo Habitat Conservancy.)

~~4.5 PERFORMANCE STANDARDS~~ *(These have been integrated into the CCIP and/or In-Channel Ordinance)*

~~4.5-1 No new haul roads shall be constructed through established native riparian vegetation. Haul roads shall be realigned or redesigned to avoid established habitat.~~

~~4.5-2 No excavation shall take place within twenty-five (25) feet of any mature trees to be retained within the channel.~~

~~4.5-3 Oaks and drought-tolerant shrubs should be planted on streambank slopes due to the lack of water on the high elevations. Oaks and shrubs should be especially encouraged on slopes facing north or east.~~

~~4.5-4 Shallow terraces may be created along the banks of the low-flow channel from I-505 to the Capay Bridge, with cottonwood and willow pole cuttings planted on the benches. One alternative would involve digging short trenches diagonally to the low-flow channel (angled downstream), with prerooted willow and cottonwood cuttings planted on the upstream edge of the trench. Another would be to create in-channel riparian plots along this reach to trap bed materials to aid in creating the shallow terraces. These measures would allow for the development of a ribbon of vegetation to establish along the low-flow channel in this area, thereby helping to connect the riparian corridor.~~

~~4.5-5 Planting shall be conducted immediately after grading, before invasive vegetation has become established. If undesirable vegetation does become established, it should be~~

removed by mechanical means and approved herbicides, such as glyphosphate, under the supervision of a licensed applicator.

4.5-6 Dense vegetation shall be emphasized along the stream bank to create a distribution of velocities within the channel, with the highest velocities occurring within the low flow channel. To ensure adequate water supply for new plantings, secure irrigation systems should be installed for revegetation projects within the planning area as needed.

4.5-7 Habitat areas located next to grazing lands shall be fenced in order to prevent vegetation disturbance.

4.5-8 Fertilizer shall not generally be used because its application favors non-native vegetation. Where appropriate, however, trees and shrubs may be planted with a slow-release fertilizer.

4.5-9 All plant materials should be collected in the vicinity of the project site in order to maintain the genetic stock and provide the most site-adapted ecotypes. If seeding of native herbaceous species is proposed, seeds should be collected, cleaned, tested for viability, and stored appropriately by a qualified native seed supplier. Cottonwood cuttings shall be collected and contract grown at a nursery with staff experienced in the propagation of native plants. Alternatively, cottonwood cuttings can be collected from vegetation in the project vicinity and stockpiled for planting within twenty four (24) hours of collection. Willow cuttings can be collected from vegetation in the project vicinity and stockpiled for planting within 24 hours of collection. Other woody riparian species should be collected and contract-grown from local seed by a qualified native plant nursery.

4.5-10 Planting should be initiated in the fall after the first soaking rains. Container plants should be planted in holes at least twice as deep and wide as the plant container. The rootball should be thoroughly dampened before planting and the planting holes deeply irrigated prior to planting. After planting, the holes should be backfilled with native substrate material (with no mulch added) and thoroughly tamped to remove air pockets. Willow cuttings may be planted in clusters in planting holes prepared and backfilled in a similar manner. Trees, shrubs, and willow cutting clusters should be located in randomly spaced, naturally clumped patterns. Herbaceous seed mix (if used) should be hydroseeded (without hydromulch) or broadcast over planting area, , thencovered with blown rice straw meeting State "weed free" standards at one ton per acre. Soil stabilizer or tackifier, such as Ecology Controls M-Binder, shouldbe included at 150 pounds per acre. Hydromulching is not recommended because of a history of poor results with native seedings

4.5-11 Existing hydraulic conditions shall be assumed for all proposed biotic reclamation activities. The County shall work with the the Yolo County Flood Control and Water Conservation District to explore opportunities for increasing surface flows during spring and summer. The TAC would be responsible for identifying and implementing new restoration opportunities resulting from the increased water availability. All plantings

should be carefully selected based on the existing hydrology and water availability of the reclamation area.

Irrigation of tree and shrub plantings may be necessary for the first two or three summers in drier sites to allow the roots to develop sufficiently to tap into the summer ground water level. Irrigation may be necessary at least twice per month during dry periods for the first three years. Water requirements of young plantings should be evaluated as part of routine monitoring, with adjustments to the frequency and duration of irrigation made in response to indications of stress.

4.5-12 The site should be closely monitored for competing non-native vegetation. Non-native species can be sprayed or removed by hand as necessary to attain the success criteria, as defined in each site-specific plan.

4.5-13 The following guidelines shall be followed when developing wetland habitat areas:

(a) Limit dense stands of aquatic vegetation in shallow areas to lower mosquito harborage and enhance wave action. This will also serve as substrate for mosquito predators.

(b) The banks of areas that retain water after June 1 (the beginning of the optimal mosquito breeding season) shall be steep enough to prevent isolated pooling as the water level recedes, to allow for wave action and to provide access by mosquito predators. Shorelines shall be configured so as not to isolate small channels or shallow ponding areas from the main body of water, to provide continuous access by predators, especially mosquito fish.

(c) Seasonal marshes shall be designed to have at least four months of soil saturation or shallow inundation. Water depths shall not exceed two (2) feet of water.

(d) Marsh species shall be planted every six (6) feet, using plugs salvaged from marshes in the immediate vicinity or obtained from a nursery. Transplanting shall take place within twelve (12) hours after salvage and the root masses shall be kept continuously inundated from the time of transplanting.

(e) Wetland areas shall cover a minimum of one (1) acre. Side slopes shall be no steeper than 3:1 (horizontal:vertical). Small islands and complex shorelines shall be provided to create a diverse environment. Wetland designs shall include provisions for the wetlands to be partially drained periodically, in order to allow for the reseeding of aquatic plants and to promote the decay of built up organic debris.

(f) Pit bottoms should be recontoured to create areas for waterfowl nesting and depressions to provide a more permanent water feature. Islands should generally be located on the upwind side of the water body to minimize exposure to the

prevailing winds. Island slopesslops above the water level should be no steeper than 2:1 (horizontal:vertical). Emergent vegetation shall be placed around the edges of islands to reduce wave-related erosion. Shrubs shall be widely spaced. Trees and tall shrubs shall not be planted on the islands, since predators perch in them to prey on waterfowl.

(g) Appropriate species and densities for marsh restoration may include the following:

Species (common name)	Density (plugs per acre)
Creeping spikerush	200
Baltic rush	100
Tule	100
Bulrush	100
Three-square	10
Beaked sedge	5
Scouring rush	5
Buttonbush	5

4.5-14 The following guidelines shall be followed when developing riparian woodland habitat areas:

(a) Riparian woodland shall be established only where there are coarse slopes containing soil types such as cobbly loam, gravelly loam, or other loamy textures. Where slopes contain significant clay layers, open woodland sor grasslands shall be restored instead.

(b) Trees and shrubs shall be planted in clusters to create alternate patterns of open and enclosed spaces.

(c) Appropriate species and densities for riparian woodland restoration may include the following:

Species (common name)	Density (number or pounds/acre)
Wild rose	36
Valley oak	33
Fremont cottonwood	26
Black willow	23
Red willow	23
Arroyo willow	23
Sandbar willow	23
Goodings willow	23
Native blackberry	19
Box elder	18
Wild grape	16

Dogwood	16
Oregon ash	16
Western sycamore	16
Blue elderberry	12
Mugwort	10
Mule fat	6
Creeping wildrye	16 pounds

4.5-15 The following guidelines shall be followed when developing oak woodland habitat areas:

(a) Trees and shrubs shall be planted inclusters of six (6) to seven (7) individuals, typically consisting of a single species. Some mixed groupings, such as valley oak and elderberry may occur where appropriate. GrayGrayGrayGray pine, however, shall be planted singly (not in clusters) at the higher elevations of the site. Clusters of trees and shrubs shall be planted from twenty-five (25) to fifty (50) feet apart, with native grassesin-between.

(b) Appropriate species and densities for oak woodland restoration may include the following:

Species (common name)	Density (number or pounds/acre)
Valley oak	20
Wild rose	15
Blue elderberry	10
Coyote bush	10
Toyon	10
Redbud	10
Coffeeberry	10
Native blackberry	8
Interior live oak	6
California buckeye	5
Gray pine	3
Creeping wildrye	16 pounds
California brome	10 pounds
California barley	5 pounds
Pina bluegrass	5 pounds
Purple needlegrass	5 pounds

4.5-16 The following guidelines shall be followed when creating habitat areas within previously mined areas outside of the active channel:

(a) Basins that have floors close to the groundwater level should be restored to seasonal marsh and riparian wetlands. Those that are permeable, dominated by sand and gravel, should promote woodland habitat.

(b) Pit floors shall have sufficient topsoil and overburden to support the proposed habitat. Overburden and soil may be obtained from the diversion of agricultural tailwater, aggregate processing wash fines, of deposition by the creek. Areas to be planted shall be appropriately prepared prior to planting. If necessary, soils may be tested after preparation has occurred in order to determine the need for soil amendments.

(c) Pits should then be planted and irrigated until the plants have established. Agricultural tailwater is encouraged as an irrigation source. It would provide a valuable source of water for revegetation projects, and would also provide bio-filtering for the sediment and residue pesticides contained within the tailwater.

(d) Areas that will not be planted may be graded to create steep, barren slopes to provide habitat for the bank swallow.(e) Except in important recharge areas, levees may be removed, breached at the downstream end, or a culvert installed at the downstream end to allow for dynamic interaction with the variable water level in the creek. Natural flooding will provide additional water, increase the diversity of tree species through colonization, and allow for the accumulation of organic nutrients and sediment.

(f) Habitat plans shall take into account the range of expected water level fluctuations and shall adjust the siting and design of the pit accordingly.

(g) In areas where fluctuating groundwater levels may affect revegetation plots at wet pit sites, consult with the TAC hydrogeologist and biologist to develop a viable, site-specific planting area.

4.5-17 Topsoil and vegetation removed from the streambed shall be salvaged for use in restoration planting within the channel.

4.5-18 Where the low-flow channel is creating excessive bank erosion problems and its relocation becomes necessary, grading within the low-flow channel shall provide a smooth surface, without undulations. This will ensure the safe passage of fish and prevent them from becoming trapped in isolated packets of water.

4.5-19 Low weirs may be installed, outside of the low-flow channel, to provide shallow pools for encouraging the establishment of riparian vegetation. When establishing shallow pools out of the low-flow channel, but within the floodplain of Cache Creek, the County shall coordinate with the TAC and the California Department of Fish and Game to minimize the potential for native fish species mortality due to potential impediments to fish migrations.

4.5-20 The in-channel area located west of the Capay Bridge is the highest priority for tamarisk elimination. Weed control, using the most up-to-date technology, shall begin within the first year after ground disturbance in order to prevent tamarisk from outcompeting native vegetation. A combination of mulching and spraying is preferred. Chemicals should be applied to freshly cut stumps and must cover the entire cambium layer. Cut plants should be removed from the channel and either disposed of or burned. Cutting and chemical

~~treatment is most effective during from July through "first frost" (November), when the plant enters dormancy. Application should be repeated to control shoots growing from root systems. All chemical spraying must be done by a certified herbicide applicator. All cut plants should either be disposed of or burned. Monitoring and mapping of the tamarisk removal shall be coordinated with the Yolo County Weed Management Area efforts.~~

~~In marshy areas, when chemical treatments are prohibited, tamarisk may be uprooted with a backhoe or tractor. This is best performed when the plants are flowering and more visible. When the soil is moist, saplings may also be removed by hand with relative ease.~~

~~4.5-21 Giant reed shall be removed from areas of high flow velocity, using the most up-to-date technology, especially within the channel area located west of the Capay Bridge. The most effective control is the chemical application of Roundup (away from water) and Aqua Master (near water) during March and April. Optimum results are achieved with total spray coverage. Alternatively, reed may be sprayed with follow up removal of the dead plants. All cut plants should be either disposed of or burned. Applications should be repeated to treat shoots that resprout when re-growth is approximately 4 feet tall and 60% of the original stem density. All chemical spraying must be done by a certified herbicide applicator. Monitoring and mapping of the giant reed removal shall be coordinated with the Yolo County Weed Management Area efforts.~~

~~4.5-22 Where riparian reforestation is proposed in streambed areas located outside of the low-flow channel, cottonwood and willow cuttings should be placed within existing swales and other naturally-occurring low-elevation areas in order to provide them with sufficient water to survive the summer months.~~

~~4.5-23 The TAC shall evaluate the vegetative cover within the CCRMP on an annual basis. At a minimum of once every five years, the existing hydraulic model of the Cache Creek channel shall be updated based on current conditions, including estimated of channel roughness. If sensitivity analysis indicates that the existing vegetation is contributing to adverse channel roughness, the TAC shall recommend removal of vegetation within selected areas of the channel.~~

CHAPTER 5.0 OPEN SPACE AND RECREATION ELEMENT

5.1 INTRODUCTION

Present Conditions

As of 2016 the County has several open space properties along lower Cache Creek: Capay Open Space Park (41 acres), Millsap property (17 acres), Wild Wings Park (17 acres), Cache Creek Nature Preserve (123 acres), County Borrow Pit (7 acres), Rodgers Property (30 acres), and Correll Property (39 acres). ~~Currently, there are no public recreational facilities located along Cache Creek within the plan area. However, plans are underway for a 41-acre open space park on land dedicated to the County by Granite Construction Company near the junction of County Road 85 and Highway 16 (see Figure 10.). Although there are~~In the upper reaches of Cache Creek the County also owns parks near Rumsey and Guinda, and several campgrounds and whitewater rafting areas near Bear Creek~~, the lower portions of the stream are predominantly characterized by agricultural and mining uses.~~ Due to the high proportion of land in private ownership, access to the creek is ~~severely~~ limited. ~~In-stream mining has historically compounded the problem, often creating an unattractive landscape where the use of heavy equipment generates noise and hazards for visitors to the creekbed.~~ Present recreational uses are generally limited to ~~general uses, such as~~ canoeing, rafting, hunting, and fishing.

Other recreational facilities ~~There are a number of recreational areas~~ within the immediate area~~,~~ include~~ing~~: the Esparto Community Park, the Madison Community Park, and the Flier's Club (a private golf course and clubhouse). In addition, there are several private equestrian facilities on the north side of the creek, just west of County Road 94B. ~~None of these uses, however, provide direct access to the creek.~~

Recently trespass and illegal off highway vehicle (OHV) activity are significant management issues along lower Cache Creek. ~~According to local landowners, there is a great deal of unauthorized recreational usage. Off-road vehicles~~OHVs use formerly mined pits and streambanks, creating erosion~~s~~ and damaging riparian vegetation. Trespassing is frequent, including~~with people~~ poaching, camping, and loitering along the creek, resulting in~~leaving behind~~ graffiti, property damage, noise, and trash. These areas of the creek are typically found in remote locations, away from nearby residences and areas frequented by authorized visitors. The County faces important decisions about how to manage, improve, and integrate the public properties it owns, and new properties that will be dedicated to the County in the future as a result of development agreements with mining operators and implementation of the CCAP program.

Pursuant to the vision and direction articulated below, the County in 2016 started the process of drafting the Cache Creek Parkway Plan which will provide a detailed vision and integrated management plan for: 1) properties currently under public ownership and managed by the County pursuant to the CCAP; 2) properties and trail easements that will be dedicated to the County (or possibly other entities) in the future pursuant to the CCAP; and 3) additional properties accepted or purchased for management pursuant to the CCAP.

CCRMP Vision

The recreation and open space uses discussed in the CCRMP are conceptual in nature, providing some guidelines for implementation and suggesting general areas for access and future projects. The plan recommends that the County pursue an integrated system of trails and recreational areas along Cache Creek, similar to efforts occurring along the San Joaquin and American Rivers, although at a less intensive scale of development. The County has undertaken~~Such a system would require~~ a more detailed analysis of the recreational needs of Yolo County which will include consideration of any~~and the~~ resulting environmental effects (including land use conflicts) of a regional parkway. ~~Future D~~development of ~~a~~the Cache Creek P~~p~~arkway P~~p~~lan will~~would~~ allow for community involvement and provide specific proposals as well as projected costs for developing and maintaining a parkway system. It will also be valuable for ~~directly~~ addressing creek ownership and access issues. In the long run, planning efforts for this portion of Cache Creek should be coordinated with recreational plans ~~being~~ developed by the U.S. Bureau of Land Management for the upper watershed.

~~Until such time as a parkway plan is approved, however, t~~The CCRMP has resulted in several areas that will provide ~~designated six general areas for~~ future recreational use (see Figure 9~~10~~). They ~~Sites~~ are located at regular intervals of approximately two miles along Cache Creek, in order to function as trailheads or staging areas for a ~~possible~~ system of bicycle, pedestrian, and/or horse paths. These r~~R~~ecreational areas are located~~were also sited~~ on lands included for off-channel mining, where proposed reclamation is to permanent ponds. This ensures that no additional farmland would be lost, while taking advantage of the amenities associated with the bodies of water to be reclaimed through mining. Frontage to County roads and State highways is an important consideration to provide the public with adequate access to the sites and the trail system. The entire CCRMP area was designated as Open Space in the County's General Plan and zoning code in 1996. As specific Parkway sites~~When specific sites~~ are dedicated to the County (or brought into the system through other means) ~~approved~~, the CCRMP recommends that they also be designated as open space~~, in the General Plan,~~ so that subsequent surrounding land uses may account for future park development.

Future recreational sites should be acquired by the County, or other non-profit entity, so that facilities may be appropriately managed for public use. ~~Over time, Cache Creek will~~ The area supports a variety of resources, including riparian habitat, off-channel mining, flood control and groundwater management facilities, agriculture, and private homes, many of which may not be compatible with intensive recreational uses. Trespassing is already a management issue for existing landowners.~~would not only disturb nearby residents and business operations but may endanger the safety of violators.~~ Therefore, one of the primary goals of the County is to manage future public access, to minimize if not preclude ~~including any~~ undesirable activities such as vandalism, public disturbance, and unlawful conduct.

In 2016 the County adopted regulations related to Off-Highway Vehicle Use and Operation (codified in Chapter 12 of Title 10 of the County Code) which prohibits the operation of OHVs on the banks or bed of Cache Creek between the hours of 7:00 pm and 6:00am.

5.2 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 and sensitive wildlife habitat, in order to minimize adverse impacts.

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

5.4 ACTIONS

5.4-1 Continue to s~~S~~olicit the dedication of restored habitat areas and/or recreational areas to the County or an appropriate land trust, ~~such as the Cache Creek Conservancy,~~ in order to provide continuous open space along the creek. See also Action 4.4-10. This shall be a consideration in all requests for new or modified mining permits.

5.4-2 Develop a future Cache Creek Parkway~~recreation~~ Pplan ~~forfor Cache Creek,~~ in consultation with the County Parks Administrator, to provide a range of public activities and uses. Suggested recreational uses may include, but are not limited to: hiking, horseback riding, fishing, picnic grounds, boating, educational exhibits, and birdwatching.

5.4-3 Identify ~~possible~~ appropriate locations for future recreational, habitat, and educational uses along Cache Creek, such as those shown in Figure 9~~10~~. Sites shall be located at regular intervals throughout the plan area. Intensive recreational uses, such as horseback riding, picnicking, and boating shall be located away from designated habitat areas.

5.4-4 Designate identified recreational areas as "Open Space" in the CCRMP~~Cache Creek Resource Management Plan~~.

5.4-5 Coordinate with the Bureau of Land Management to investigate the eventual linkage of recreational uses located along the upper watershed of Cache Creek to

the designated recreational sites located within the plan area. (The BLM Cache Creek Coordinated Resource Management Plan was adopted in December 2004.)

5.4-6 Design and manage recreational sites so that trespassing, vandalism, and other undesirable activities are discouraged. The County, ~~TAC,~~ in consultation with the TAC, and stakeholders~~resources agencies~~, shall develop measures to control human access to sensitive wildlife habitat or other sensitive communities (i.e., wetlands) in the planning area to minimize impacts on these resources. See also Action 4.4-13.

5.4-7 Acquire future sites, through purchase or voluntary donation, so that the County can maintain and develop the areas according to the Cache Creek Parkway ~~future recreation p~~Plan.

~~5.5 PERFORMANCE STANDARDS~~ *(These have been integrated into the Cache Creek Parkway Plan)*

~~5.5-1 Only those uses that are river dependent, such as fishing, canoeing, and nature observation shall be located on the creek. More active uses, including parking, restrooms, and picnic areas should be located in areas located away from sensitive habitat, preferably on land that has been reclaimed from sand and gravel mining.~~

~~5.5-2 Recreational uses shall be clustered at locations along the creek, in order to limit public access, minimize habitat disturbance, and provide efficient and cost-effective management by the County. All access, whether by road or by trail, shall be through an entry point which can be controlled.~~

~~5.5-3 Physically control access with gates and collect user fees to support operations and deter inappropriate activities. Limited public access will also reduce impacts to sensitive habitat and adjoining private uses. Additional options include permits, volunteer docents to patrol the site, and escorted tours.~~

~~5.5-4 Recreational facilities shall be located a minimum of one hundred and fifty (150) feet from private dwellings, with a landscaped buffer provided to reduces noise and maintain privacy.~~

~~5.5-5 Educational and interpretive curricula shall be developed that will reach all segments of the community. The County shall rely heavily on compatible programs already developed by volunteers, schools, and nonprofit organizations.~~

~~5.5-6 Large-scale, high-intensity recreational uses, such as amusement parks, off-road vehicle parks, or uses involving motorized watercraft, are not compatible with land uses along Cache Creek.~~

~~5.5-7 The recreational use of off-road vehicles and all-terrain vehicles on public property shall be prohibited.~~

~~5.5-8 The hunting and/or discharge of firearms along Cache Creek shall be prohibited on public property.~~

~~5.5-9 Noise analyses shall be conducted for proposed recreational uses where medium to large groups would congregate in common use areas. The study shall identify likely sources of noise and ways to reduce levels to minimize annoyance at adjacent properties.~~

CHAPTER 6.0 AGGREGATE RESOURCES ELEMENT

6.1 INTRODUCTION

Present Conditions

In-stream surface mining ended with the adoption of the OCMP and CCRMP in 1996 and the subsequent relinquishment of vested in-stream rights by all operators along Cache Creek. Following adoption of the CCAP in 1996, commercial mining in Cache Creek was prohibited. In 1997 approximately 40,000 tons were removed from the facilities now operated by CEMEX and in 1998 approximately 332,423 tons were removed ~~associated with the final years of the Syar in-channel permit. Syar was the last operation to close their in-channel operations; they commenced off-channel operations in June of 1999~~ near the Syar facilities, although a portion may have come from existing stockpiles. There has been no in-channel commercial mining since that time. The CCRMP envisioned significant channel shaping in the first five years of the program, especially at bridge transitions, guided by the Test 3 Run Boundary. Annual in-channel maintenance was to occur thereafter, pursuant to the CCRMP and CCIP. On June 24, 2008 the County Board of Supervisors adopted the CCAP In-Channel Ordinance (Yolo County Code Title 10, Chapter 3) to regulate in-stream extraction activities that implement the bank stabilization, channel maintenance, and habitat restoration necessary to carry out the CCRMP and CCIP.

As reported in the 2017 Technical Studies, during the period from 1996 to 2015, Cache Creek has had four significant flow events (annual peak flow of 20,000 cfs or greater): 1997, 1998, 2003, and 2006. Since 2006, conditions have been relatively dry. Sediment deposition in Cache Creek between 1996 and 2011, calculated based on a comparison of topography, has averaged approximately 690,800 tons annually. Compared to predictions made in the 1995 Technical Studies this suggests that the creek is aggrading more quickly than anticipated.

While this is good news for the program, it also underscores the importance of maintaining flood flow conveyance capacity in the channel. The ability to undertake maintenance excavation in-channel has been stymied by delays securing reauthorization of regional permits by the US Army Corps and Engineers and US Fish and Wildlife Service since 2009.

~~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. At the time of adoption, the mining and reclamation ordinances were considered to be interim measures which the County would use until a more thorough revision could be made as a part of the Resource Management Plan being developed by the Aggregate Technical Advisory Committee (AgTAC). However, that planning effort later was halted and the interim regulations have remained in place ever since. As a result, many of the operational and reclamation alternatives that were adopted in 1980 are still in effect today.~~

~~Most of the in-channel mining permits were approved in 1980, with the exceptions of several Teichert operations, specifically: Reiff/Esparto (1986), Muller (1989), and Coors-Fong (1989).~~

~~Figures from 1994 show that within the plan area, approximately 70 to 75 percent of the Cache Creek channel is being mined. The conditions of approval associated with these prior permits, though typical for the time, do not adequately reflect the increased level of concern an 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 the amount of in-stream mining is significantly reduced.~~

CCRMP Vision

The key to future management of Cache Creek lies in the channel maintenance and improvement activities carried out under the CCIP. Implementation of the Channel Form Template, ~~Sand and gravel mining, operating under the guidelines~~ established in the 2017 Technical Studies and incorporated into the CCRMP, will guide the creek to a more stable shape through selected aggregate material removal and grading. The 1995 Technical Studies identified general cross-section templates to guide in-channel excavation so that terraces and a low-flow channel are provided to enhance the stability of the creek. The 2017 Technical Studies confirmed and updated the guidance provided through the CCRMP and CCIP. These activities will ~~not only~~ help ensure the creek maintains ~~the~~ capacity to adequately convey high flows~~floods~~, and~~but~~ will ~~play a determining role in forming a low-flow channel and~~ slow~~ing~~ flow velocities, which ~~in turn~~ will create more beneficial conditions for the establishment of riparian vegetation. More vegetation will provide more habitat for wildlife, as well as assist in s~~f~~lowing surface water flows ~~and encouraging aggradation in some areas,~~ which will improve in-channel groundwater recharge. Increased groundwater supplies will lower pumping costs, thereby helping local agriculture. ~~Finally, t~~The resulting improvements overall, will create a more attractive and enjoyable environment for all stakeholders~~limited use by the public~~.

It is important that these activities be managed in a way that carries out the stated objectives. To do so ~~will~~ require~~s~~ a cooperative and mutually beneficial partnership between local landowners, aggregate companies, the County, and various other regulating government agencies. ~~The first step is to allow them to excavate within the active channel. This approach is necessary to implement the CCRMP and will be required as a part 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.~~

~~The plan and its implementation may qualify for exemption from the Surface Mining and Reclamation Act. If, however, the CCRMP and CCIP are found to be subject to SMARA, the County would file as the applicant for a surface mining permit and reclamation plan for the area covered CCRMP plan boundary.~~ In an effort to streamline the permitting process, the County may file as the applicant for permits to remove in-channel material, pursuant to the CCIP and SMARA Section 2715.5, for the area covered by the CCRMP plan boundary. ~~This would allow in-channel~~

~~excavation to occur near State and County bridges. The County would not acquire the land within the channel under this permit, nor would any exercise of eminent domain occur.~~ No mining within the channel would occur without the express consent of the affected landowner. Royalties would be paid to ~~any person who~~ owners~~d~~ of land that was mined, which creates an incentive to pursue the desired in-channel work. This would save individual property owners the time and expense 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 above relationships, as well as establishing prearranged procedures for performing repairs and maintenance during an emergency. Gravel operators will enter into these agreements for maintenance of~~for~~ their own properties.

As a part of managing Cache Creek, the County must~~would~~ work with other permitting agencies to ensure that necessary approvals are in place. In order for the CCRMP and CCIP to be implemented the following regional permits are needed: Clean Water Act Section 404 Discharge Permit from the US Army Corps of Engineers, Biological Opinion for federally endangered species from the US Fish and Wildlife Service, Clean Water Act Section 401 Water Quality Certification from the California Water Quality Control Board, Section 1601/1603 Streambed Alteration Agreement from the California Department of Fish and Wildlife, and California Department fo Conservation compliance with the Surface Mining and Reclamation Act (SMARA). The County has successfully maintained these approvals since the late 1990's with the exception of the Section 404 approval. The previously issued regional general permit expired in 2009 and the County has been working with the federal government on reauthorization since that time. ~~of jurisdiction to establish "blanket" 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 Reclamation Board (Encroachment Permit), State Department of Fish and Game (Stream Alteration Agreement), and the Federal Emergency Management Agency (Letters of Map Amendment and Map Revision). Standard conditions will 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 on a project-by-project basis due to the nature of their approvals.~~

It is important to recognize ~~Finally, there is~~ the cost of doing the actual aggregate removal and channel shaping. The County does not ~~has neither~~have the funds ~~n~~or the equipment and labor to implement the required tasks, nor do most private landowners. It is the intention of the County to require the aggregate companies to perform ~~a portion of~~ this work on their mining properties, and to provide incentives for them to perform this work in cooperation with other property owners. All work would have to comply with ~~all~~ applicable regulatory requirements, as well as ~~any other~~ recommendations made by the TAC~~Technical Advisory Committee~~. In return, ~~any~~ 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 mining, without incurring significant new costs.

6.2 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.

6.3 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.

6.4 ACTIONS

6.4-1 Revise the existing ordinances contained in the Yolo County Code to incorporate performance standards to prevent hazards and reduce potential environmental impacts; programs to carry out the policies included within the CCRMP~~Cache Creek Resources Management Plan~~ and CCIP~~Cache Creek Improvements Program~~; and recent amendments to SMARA, if appropriate. (Completed in 1996.)

6.4-2 Provide for the relinquishment of existing permits for mining within the active channel before off-channel operations may commence. The reclamation of former in-channel mining areas shall be consistent with and fully implement the CCRMP and CCIP. (Completed in 1996 through the execution of development agreements with mining operators.)

6.4-3 Pursue joint regulatory efforts with other agencies of jurisdiction in order to streamline and standardize conditions for performing work within the creek. The County shall coordinate with other government agencies that have permit authority over Cache Creek to obtain ~~"blanket"~~programmatic permits for the entire length~~reach~~ of the creek~~stream~~ located within the plan area. This will give the County more local control over management of the creek, while providing certainty for the TAC~~Technical Advisory Committee~~ as to what activities may or may not occur. See also Action 4.4-15.

6.4-4 Draft the County In-Channel Ordinance to require that, upon revocation of existing in-channel mining permits, the tonnage of aggregate removed by an aggregate mining operator in the completion of approved channel improvement projects is excluded from the operator's permitted maximum annual production. These market incentives would ensure that the necessary work would be accomplished at little cost to the County, while generating royalties for the owner of any property where excavation takes place. (Complete. See Section 10-3.406(d) of the In-Channel Ordinance.)

6.4-5 Provide technical support through the TAC to mining operators, property owners, and government agencies involved with Cache Creek to provide a professional and scientific basis for making decisions regarding the removal of channel deposits that affect property and structures, the construction of flood protection and erosion control measures, and the provision of emergency labor, equipment, and materials during and/or after flood events. (This was accomplished in 1997 with the formation of the TAC. This support is ongoing through the work of the TAC and implementation of the CCIP.)

6.4-6 If the CCRMP and CCIP are determined to come under the provisions of SMARA, the County shall apply for a mining permit that would encompass the area within the CCRMP plan boundary, along the entire 14.5 mile reach of Cache Creek contained within the plan area. This will allow the CCIP to be implemented, without going through lengthy individual permit analyses and incremental environmental reviews. It should be emphasized, however, that the County would not be exercising eminent domain in applying for this permit. (Complete. See discussion under Action 2.4-15).

~~**6.5 PERFORMANCE STANDARDS**~~ *(These have been integrated into the In-Channel Ordinance or otherwise completed)*

~~6.5-1 All in-channel operations shall be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday, unless emergency conditions require otherwise.~~

~~6.5-2 If human skeletal remains are encountered during excavation, all work within seventy-five (75) feet shall immediately stop and the County Coroner shall be notified within twenty-four (24) hours. If the remains are of Native American origin, the appropriate Native American community identified by the Native American Heritage Commission shall be contacted, and an agreement for treating or disposing, with appropriate dignity, of the remains and associated grave goods shall be developed. If any cultural resources, such as chipped or ground stone, historic debris, building foundations, or paleontological materials are encountered during excavation, then all work within seventy-five (75) feet shall immediately stop and the Community Development Director shall be notified at once. Any cultural resources found on the site shall be examined by a qualified archaeologist and the information shall be submitted to the County.~~

~~Damaging effects on cultural resources shall be avoided whenever possible. If avoidance is not feasible, the importance of the site shall be evaluated by a qualified professional prior to the commencement of excavation operations. If a cultural resource is determined not to be important, both the resource and the effect on it shall be reported to the County, and the resource need not be considered further. If avoidance of an important cultural resource is not feasible, a mitigation plan shall be prepared and implemented. The mitigation plan shall explain the importance of the resource, describe the proposed approach to mitigate destruction of damage to the site, and demonstrate how the proposed mitigation would serve the public interest.~~

~~6.5-3 All unpaved roads shall be adequately watered to keep soil moist at all times, in order to control fugitive dust.~~

~~6.5-4 Operational areas and haul roads that are not required for future use of the site shall be ripped and prepared accordingly to prevent compaction and allow for revegetation.~~

~~6.5-5 Noise levels shall not exceed an average noise level equivalent (Leq) of eighty (80) decibels (dBA) measured at the outermost boundaries of the property being excavated. However, noise levels may not exceed an average noise level equivalent (Leq) of sixty (60) decibels (dBA) for any nearby off-site residences or other noise-sensitive land uses, unless emergency conditions require otherwise.~~

~~6.5-6 Final slopes for in-channel excavations shall conform with the channel slope and sinuosity guidelines shown in Figure 11 of the CCRMP. Excavations shall be sloped in a downstream direction, towards the low-flow channel. When recommended by the TAC, alternate grading plans may be approved.~~

~~6.5-7 In-channel excavations shall generally conform with the cross-section profiles shown in Figures 12 through 16 of the CCRMP. When recommended by the TAC, alternate grading plans may be approved.~~

~~6.5-8 No excavation shall take place within one hundred and fifty (150) feet of the centerline of the low-flow channel, where the creek is contained within a single channel. Where the creek is braided or contains multiple channels, no excavation shall take placed within one hundred and twenty-five (125) feet of each channel.~~

~~6.5-9 In-channel haul roads shall be located along the toe of the streambank, in order to provide additional bank stabilization and to minimize disturbance of the low-flow channel. Each operation may have no more than two (2) haul roads at one time that cross the low-flow channel. Construction of the haul roads shall not result in excavation of the toe of the streambank, and shall be designed to avoid existing or restored riparian habitat. Haul roads shall comply with all applicable requirements.~~

~~6.5-10 Approved channel improvement projects requiring excavation of channel banks and removal of riparian vegetation shall revegetate upon the completion of excavation activities or shall develop similar habitat at a suitable off-site location.~~

~~6.5-11 All work within the channel shall comply with the requirements of all agencies of jurisdiction, including but not limited to: the State Department of Fish and Game, the U.S. Army Corps of Engineers, the State Regional Water Quality Control Board, CalTrans, and the State Reclamation Board.~~

~~6.5-12 Where gravel bars are to be excavated, aggregate removal shall be limited to the downstream portion of the deposit and may not exceed seventy-five (75) percent of the length of the bar. Twenty-five (25) percent of the upstream portion of the gravel bar shall~~

~~be retained, in order to allow for the establishment of riparian vegetation. Complete removal of gravel bars may be recommended by the TAC only if hydraulic conditions related to the bar are recognized to threaten structures and property.~~

~~6.5-13 Aggregate material to be removed from the streambed shall be excavated as soon as is practicable after deposition, prior to the establishment of vegetation. No stockpiles shall be left within the channel after excavation has been completed.~~

~~6.5-14 Proposed off-channel excavations located within the streamway influence boundary shall be set back a minimum of seven-hundred (700) feet from the existing channel bank, unless an engineering analysis demonstrates that a small distance will not adversely affect channel stability within the reach. If the proposed engineering measures are demonstrated to be feasible, then the minimum setback distance shall be no less than two hundred (200) feet.~~

~~Approval of any off-channel mining project located within seven-hundred (700) feet of the existing channel bank shall be contingent upon an enforceable agreement which requires the project operator to participate in the completion of channel improvement projects, along the frontage of their property, consistent with the CCRMP and CCIP. The agreement shall also require that the operator provide a bond or other financial instrument for maintenance during the mining and reclamation period of any bank stabilization features approved for the mining project. The agreement shall also require that a deed restriction be placed on the underlying property which requires maintenance of the streambank protection by future owners of the property. Maintenance of the bank stabilization features following completion of reclamation shall be the responsibility of the property owner.~~

~~6.5-15 Streambed regrading after excavation shall leave behind an undulating surface outside of the low-flow channel, so that the resulting surface depressions expose the shallow water table and encourage the colonization of riparian trees. Features such as channels and pools maximize the diversity of environmental conditions for the establishment of riparian habitat, and are therefore encouraged.~~

~~6.5-16 Provide for the existing use permits that allow in-channel surface mining to be relinquished by the permit holders and the continued right to mine within Cache Creek terminated, prior to the commencement of newly permitted off-channel mining operations.~~

~~6.5-17 The County shall identify the costs of implementing the policies contained in the CCRMP, and determine a fair-share cost program for reimbursement by gravel operators and any other affected parties.~~

CHAPTER 7.0 AGRICULTURAL RESOURCES ELEMENT

7.1 INTRODUCTION

Present Conditions

Although there are no agricultural operations located within the Cache Creek channel, the surrounding region is largely characterized by farmland and related usesissues. The functioning of both Cache Creek and the adjoining agricultural land are closely intertwined. The rich agricultural soils found throughout the area are deposited by the creekstream when it was part of a meandering floodplain. Cache Creek has provided surface irrigation water for over 100 years, while the channel serves as a drainage conveyance for tailwater and nearby sloughs. Farmers have also constructed extensive bank improvement measures, building riprap, spur dikes, and levees to protect agricultural land and nearby homes from flooding and erosion.

CCRMP Vision

As discussed earlier, the Test 3 BoundaryThe Channel Form Template is thea conceptual model for reshaping the Cache Creek channel in order to improve streamflow characteristics and reduce erosion and scour. One of the primary purposes of this reshaping effort is to smooth and shape the channel to improve stability and reduce erosion. out the transitions into and out of bridge crossings, so that the severity of these constrictions on the creek channel is lessened. In some areas, jetties or groins will be constructed to encourage sediment deposition and extend the banks further into the creek. Other areas may require excavation, to eliminate peninsulas that interrupt the even flow of the creek. As a result of implementing the Channel Form Template over time farmland within the template boundaries will be removed for channel widening activities. It is estimated that approximately 33 acres of existing farmland (11 acres of which are prime agricultural land) lie within the Test 3 Boundary and would therefore be lost to channel widening activities. However, farmland may be expanded in those areas where the bank is extended, reducing or offsetting expected losses. In addition, tThe erosion of streambanks has resulted in substantial lossremoval of crop land in the past. The channel stabilization program proposed under the CCIP will offset the loss of adjoining agricultural land in the future.

The restoration of Cache Creek and agricultural production are not only compatible, there are several instances where each may prove beneficial to the other. As described in earlier elements, implementation of the CCRMP will involves careful management of the creekstream by the County. Two of the primary goals in carrying out this management arewill be to minimize erosion and to allow for aggradation (as long as flood flow conveyancevolume capacity is not substantially affected). A stable channel will result in reduction in the loss of farmland, while a higher streambed will provide more opportunity for groundwater recharge, which should help to offset or lower pumping costs for nearby land owners. In addition, enhancement of habitat for pollinating insects could enhance agricultural production in adjacent fields.

Conversely, there are also a number of things that agriculture can do to help out in the revegetation of Cache Creek. One of the most interesting proposals is a program that is currently

~~in the process of being developed by the State Department of Fish and Game and the U.S. Fish and Wildlife Service. The "Safe Harbor" program would encourage voluntary restoration or habitat enhancement activities, by limiting the land owner's future liability for any incidental take of listed species to that which existed at the time the agreement was reached. Thus, if a land owner agrees to create new habitat under a Safe Harbor conservation agreement, and then some years later decides to terminate the agreement and farm the created habitat, the owner would not be liable for the incidental taking of any species that had become established on the newly created habitat. This plan is still in the development stages and is currently proposed only for the San Joaquin Valley, but efforts should be made to extend the program to Yolo County.~~

~~On a more immediate level, g~~ Groups seeking to restore habitat along Cache Creek are encouraged to form partnerships~~should become partners~~ with local farmers to include existing agricultural operations in their revegetation plans. Irrigation tailwater may provide a valuable means of sustaining newly established riparian vegetation during the summer months when in-stream flows are low. These partnerships should also take into consideration the potential impacts of habitat formation on agricultural production and design projects accordingly so that features such as buffers and weed control measures are incorporated.

7.2 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.

7.3 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.

7.3-3 Manage Cache Creek to reduce the loss of farmland from erosion and increase the recharge potential of the channel.

7.4 ACTIONS

7.4-1 Work with the Yolo Habitat Conservancy~~Department of Fish and Game~~ to ensure~~investigate the feasibility of developing a "Safe Harbor" program for~~ that agricultural operations are not adversely~~potentially~~ impacted by the development of riparian habitat along Cache Creek.

7.4-2 Design and develop habitat restoration projects so that they do not adversely impact the agricultural productivity of nearby farmland.

7.4-3 Incorporate agriculturally related features, such as agricultural forage areas and drainage systems, into the design of habitat planning.

~~**7.5 PERFORMANCE STANDARDS**~~ (These have been integrated into the In-Channel Ordinance and/or CCIP)

~~7.5-1 Revegetation projects may be coordinated with agricultural drainage structures that empty into Cache Creek or previously mined areas separated from the creek, so that the sediment deposited can provide additional topsoil and so that riparian species requiring a more steady supply of water can be established.~~

~~7.5-2 Vegetated buffers should be placed between restored habitat areas and adjoining farmland in order to minimize the potential for riparian areas to serve as reservoirs for predators and insect pest. Said buffers will also reduce the effects of noise, dust, and spraying generated by agricultural operations on wildlife and riparian vegetation.~~

~~7.5-3 Species and water features included in habitat areas should be designed to discourage the intrusion of wildlife, insect pests, and weeds that would impair local crops.~~

~~7.5-4 Trees that are suitable for wildlife perching near agricultural fields dedicated to row crop production should be incorporated into habitat design in order to provide foraging habitat for Swainson's hawks and other birds of prey.~~

~~7.5-5 The Yolo County Community Development Agency, in consultation with the Yolo County Resource Conservation District Board, and with approval by the Board of Supervisors, shall present a request to the California Department of Fish and Game of initiate a "Safe Harbor" program for the CCRMP/OCMP planning area, or develop a functionally equivalent program.~~

~~7.5-6 All habitat restoration, creation, or enhancement plans proposed within the CCRMP channel boundary shall be reviewed by the County Agricultural Commissioner if requested by proponents of channel modification projects. The Agricultural Commissioner shall identify and recommend appropriate vegetative buffers between habitat areas and agricultural fields and effective management of site water resources (including appropriate integration of agricultural drainage features into habitat planning). Buffers that would result in partial or secondary loss of agricultural land shall not be recommended by the Agricultural Commissioner.~~

ACKNOWLEDGEMENTS

2018 Update

Updated acknowledgement will be inserted here

1996 Plan

The improvement of nearly fifteen miles of creekway is a tremendous undertaking that will require the participation and cooperation of landowners, aggregate companies, government agencies, public interest groups, consultants, and private citizens. The County must act as a catalyst to mobilize the resources necessary to accomplish the goals outlined in this plan. Programs, policies, and technical assistance should focus on local planning, local implementation, and volunteer monitoring for both individual parcels and the entire watershed. As such, opportunities for encouraging the participation by landowners and residents in planning and carrying out the restoration of Cache Creek are essential to the plan's success. Cache Creek has the capacity to be of enormous benefit to the people of Yolo County, but it will require the combined efforts of the community to realize its full potential. Long years of work have already been expended to produce this plan, and long years of labor lay ahead before we see its completion. Our efforts will be well rewarded, however, by the legacy of a natural streamway and healthy riparian habitat that we leave to future generations.

2002 Yolo County Board of Supervisors

Mike McGowan	District 1
Helen Thompson	District 2
Frank Sieferman	District 3
Mariko Yamada	District 4
Lynnel Pollack	District 5

2002 Yolo County Planning Commission

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Donald Peart	District 5
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To find out more about this Plan, or the process through which it was developed and updated, please contact:

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