2012 CACHE CREEK ANNUAL STATUS REPORT

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CHAPTER 1 - EXECUTIVE SUMMARY

1.1 PURPOSE OF THE REPORT

The Cache Creek Resources Management Plan (adopted August 20, 1996 and amended August 15, 2002) eliminated in-channel commercial mining (mining inside of the actual creek channel) and established an improvement program for implementing ongoing projects to improve channel stability and restore riparian habitat. The CCRMP provides a policy framework for restoration of 14.5 miles of lower Cache Creek and includes specific implementation standards. The Cache Creek Improvement Program (CCIP) is the implementation plan for the CCRMP and identifies specific categories of projects that include: bank stabilization, channel maintenance, revegetation, and habitat restoration.

As a management plan that recognizes Cache Creek and its resources as a dynamic system, the CCRMP is not a static vision of management of the creek. The program is designed to evolve and adapt in response to new creek conditions and improved understanding of creek processes.

Information gathering and landowner participation are critical components in the implementation of the CCRMP and CCIP. The monitoring mandated by the CCIP provides data on stream flow, water quality, erosion, and vegetation that guides creek management recommendations made by the three-member Technical Advisory Committee (TAC). The requirements for this annual monitoring report are contained in the CCIP (Chapter 6).

The CCIP requires that the TAC complete a physical inspection of Cache Creek each year at the end of the runoff season (p. 36). This annual inspection is frequently referred to as the "Creek Walk". The CCIP also provides the following description of the role of the TAC in the production of this annual report and clearly identifies the report's intended purpose.

> "The TAC will produce an annual report in January of each year for the Board of Supervisors that describes the data collected and analysis conducted as part of the monitoring program. The annual report serves as a regular opportunity for the TAC to step back and take a larger perspective in looking at both the creek and at the CCRMP with a critical eye for improvement. Although this is a complex and ambitious project, it is designed to be adaptive, so that monitoring requirements and management techniques can appropriately address the ever-changing riparian environment. In order to be effective, the annual report should not be seen as a chronicle of success or a lackluster recitation of dry data, must reflect thoughtful self-evaluation. Is information being used? Are other forms of monitoring needed? Is there unnecessary or less-than-useful monitoring that can be eliminated or consolidated? Given

> the limited budget of the CCIP, are activities being carried out in a cost-effective manner and are the most important priorities being emphasized? Are objectives being met? Are the policy and technical assumptions still valid? Fundamental questions such as these should underlie the annual report, so that recommendations made by the TAC take into account the long-term benefit of both the creek and the community. Review of the report by the Board of Supervisors will provide the necessary policy direction, as well as provide an ongoing public forum for focusing the County's attention on the unique issues that concern Cache Creek."
>
> *-Cache Creek Improvement Program, page 41*

1.2 ACCOMPLISHMENTS

Yolo County has implemented an annual monitoring program since 1997. A number of activities were undertaken or completed in 2012 that implement the CCRMP and CCIP. These activities included monitoring work, public meetings, permitting, and program activities. Brief descriptions of major activities are given here:

1. Six (6) public **Technical Advisory Committee (TAC) meetings** were held during 2012. TAC meetings were attended by TAC members, County staff, members of various agencies, stakeholders, and the public.

2. County staff continued the process of seeking **reauthorization of general permits** required for the efficient implementation of the CCRMP, including a Section 404 Discharge Permit from the US Army Corps of Engineers, a Streambed Alteration Agreement (Section 1600) from the California Department of Fish and Game, and a Section 401 Water Quality Certification from the Central Valley Regional Water Quality Control Board. In October 2012, a Public Notice of Intent was issued by the US Army Corps of Engineers for reissuance of a Regional General Permit. Soon after the expiration of the public notice, the US Army Corps of Engineers initiated a Section 7 consultation with the US Fish and Wildlife Service in obtaining a Biological Opinion for project effects on federally-listed species. County staff anticipates that the RWQCB will reissue the 401 certification in the spring of 2013.

3. County staff and TAC members **participated in regional partnerships** related to the San Francisco Bay/Delta including the Bay Delta Conservation Plan and the Delta Methylmercury TMDL Nonpoint Sources Workgroup. These groups meet periodically to coordinate regulatory and ecological issues in the San Francisco Bay/Delta region. Yolo County is an important stakeholder in these groups because of water quality and sediment issues in the Cache Creek watershed.

4. The TAC conducted its **2012 Creek Walk** on May 9, 10, and 11th. The Creek Walk is the annual physical inspection of the creek to document channel conditions, as required

by the CCIP (p. 36). Ten or more participants walked each day and covered the length of CCRMP area over the three day period. Participants included the TAC, gravel producers, community stakeholders, and County staff. The TAC produced Creek Walk reports for each discipline, and recommendations from the Creek Walk reports are included in this annual report. The Creek Walk reports are contained in appendices A-C.

5. **HEC-RAS model development** for the entire CCRMP area has been in progress with the TAC Geomorphologist collaborating with the California Department of Water Resources and Wood Rodgers in building this model.

6. There was **one (1) surface water quality sampling** event in the 2012 water year. The samples were collected on January 25, 2012. Samples collected at Capay Bridge, Stephens Bridge, upstream of Gordon Slough, I-5 bridge, and in Gordon Slough were analyzed for a suite of water quality constituents. The results are discussed in detail in Chapter 3 of this report.

7. The Yolo County Water Resources Association developed a **Water Resources Information Database (WRID)**. The WRID project used grant funding to create a repository for data collected regarding ground water levels that includes Cache Creek Area Plan (CCAP) data. The WRID became available for limited public use in 2012. Work to include a surface and ground water quality component to the WRID and improve its functionality will continue into 2013.

8. The County contracted with Dr. Darrel Slotton (UC Davis) to **study ambient mercury levels** in fish and invertebrates in both Cache Creek and several mining pits. This study may provide useful data related to overall creek health and in support of one of the 2011 recommendations related to methylmercury monitoring and analysis. (Recommendation 2011.B.A6.10, see Chapter 6) The results of this study will be available in 2013 and will be included in next year's annual report.

9. County staff, the TAC, and various stakeholders **reviewed current monitoring and programmatic protocols**. Many of the recommendations included in this annual report are the result of this effort.

10. The County continued **partnerships** with the Yolo County Sheriff's Department and Cache Creek Conservancy to reduce problems associated with illegal Off-Highway Vehicle use in Cache Creek.

1.3 SUMMARY OF SIGNIFICANT FINDINGS

Based on monitoring, analysis, and professional experience the TAC has made the following findings. Further information can be found in the Creek Walk notes for each discipline (appendices A-C).

1.3.1 Hydrologic and Water Quality Findings

Chapter 3 of the CCRMP (p. 44, 3.4-3) describes surface water quality testing measures. The information collected as a result of these measures will assist in habitat restoration efforts and allows the County to monitor water quality trends within the planning area.

Hydrologic and hydraulic conditions in 2012 were mostly consistent with the trends of previous years. This can be attributed to the relatively dry conditions in 2012. One new finding was reported:

1. Total and dissolved mercury concentrations were one order of magnitude higher than in previous years.

The levels of mercury detected were well under generally accepted water quality standards. This is discussed in further detail in Chapter 3.

1.3.2 Geomorphology Findings

1. Estimates of sediment transport suggest that the sediment load in 2012 was 2% of the average annual load (over the past 8 years), which is the second smallest since 2005.

2. There were no significant changes in channel conditions near the bridges.

3. Minor levee and bank erosion near RM 19.5 was observed and is recommended for repair.

1.3.3 Biological Resource Findings

There were no new significant findings related to biological resources to report.

1.4 SUMMARY OF 2012 RECOMMENDATIONS

There are a number of new recommendations identified below. Recommendations from the 2011 Cache Creek Annual Status Report also remain applicable. If accepted by the Yolo County Board of Supervisors, the 2012 recommendations will be merged with previous year's recommendations and the TAC will be tasked with prioritizing all the recommendations for review and/or implementation going forward. Chapter 6 of this report provides a complete listing of the 2011 recommendations as well as the implementation status of each recommendation.

1.4.1 Hydrologic and Water Quality Recommendations

Because conditions in 2012 were consistent with previous years' trends, hydrologic and hydraulic recommendations for 2012 focus mostly on observations made during the 2012 Creek Walk (see Appendix B, Hydrology Creek Walk Notes).

1. The increased mercury concentrations detected in the 2012 surface water quality

sampling need to be communicated to ongoing mercury studies in the Cache Creek Watershed and evaluated in the 2013 surface water quality monitoring to determine if elevated concentrations have persisted and warrant further, more detailed, investigation.

2. In the Capay reach, a historical analysis should be completed using available aerial photography to document the past and present distance of the "vehicle boneyard" (RM 26.6) to the south bank of Cache Creek. This analysis should then be used to calculate an average migration rate of the south bank towards the vehicle boneyard, and to recommend a buffer width between the south bank and the vehicle boneyard. When the buffer is encroached on-site inspection of vehicle conditions should be required to assess their potential impact on water quality.

3. More systematic methods should be implemented to guide water quality observations on future Creek Walks based on the types and locations of water quality concerns documented in the 2012 and previous creek walks (e.g. abandoned car bodies, storage drums, drainage pipes, eroding infrastructure, tributaries, etc.). The TAC Hydraulic Engineer recommends that a water quality impact catalogue and associated source and contaminant potential assessments be completed during the 2013 Creek Walk. To that end, a catalogue of potential water quality impacts should be created. All of the following should be included in the catalogue:

    a. Source assessment of the pond drain pipe in the Madison reach
    b. Source assessment of the perched drain pipe in the Guesisossi reach
    c. Source and contaminant assessments for the vehicles and perched drain pipes in the Dunnigan Hills reach
    d. Source and contaminant assessments for the vehicle, storage drum, and perched drain pipe in the Hoppin reach

4. In the Madison reach, the potential benefits and impacts of bar skimming in the vicinity of RM 21.6 should be considered and assessed for consistency with the CCIP.

5. A high-flow triggered channel and vegetation monitoring plan for the I-505 Bridge should be established in the Guesisosi reach.

6. A high-flow triggered bank stability monitoring plan for the south bank at the Cemex Slope Protection Project should be established in the Guesisosi reach.

7. In the Rio Jesus Maria reach, a channel maintenance project in the vicinity of RM 12.35 should be completed to prevent the additional recruitment of foreign materials into Cache Creek. There is an abandoned building on the creek bank that is disintegrating into the creek. The debris should be pulled back from the edge of the creek to prevent further material from entering the creek.

8. A channel maintenance project at Huff's Corner (RM 11.6) should be completed to prevent downstream unraveling of existing bank protection.

9. The spatially referenced photo log generated by the TAC Hydraulic Engineer during the 2012 creek walk should be used to brief the TAC immediately prior to future Creek Walks, and to create a key map based on the photo log and the compiled notes of the TAC that clearly depicts reach-by-reach conditions. The spatially referenced photo log should be repeated on subsequent Creek Walks to create a historical record of on-the-ground conditions in Cache Creek.

1.4.2 Geomorphology Recommendations

There are a number of new recommendations related to geomorphology:

1. Reconsider the adopted CCRMP boundary once the HEC-RAS model is complete

2. Continue monitoring for bank retreat at the following locations:
    a. RM 26.9
    b. RM 26.4
    c. RM 25.4 -25.5
    d. RM 22.0
    e. RM 21.6
    f. RM18.2-18.0
    g. RM 15.4
    h. RM 15.0

3. Repair levee and bank erosion near RM 19.5

4. Remove berm/cement barrier at Correll-Rodgers (RM 13.8 -14)

5. Create a Creek Walk protocol that develops strategies for meeting the annual inspection goals as listed in the CCIP (p. 36). The strategies will be based on expert technical analysis of prior creek walk observations and should be flexible and able to adapt to changing conditions.

6. Eliminate annual inspection goal #4, which requires the TAC to note the “degree of channel armoring and bed material imbrication”. Incorporate this change into the proposed Creek Walk protocol until such time that an update to the program documents is made.

7. The annual inspection goals need revision. Recommended changes are discusses in Chapter 2.

8. Mid-channel bars have formed in selected areas. Bar-skimming for channel maintenance is recommended in the following locations:
    a. Near RM 25.5
    b. Near RM 21.6

c. Near RM 20.3-20.5

1.4.3 Biological Resource Recommendations

There were no new recommendations related to biological resources identified in 2012.

CHAPTER 2 - ANNUAL MONITORING REPORT

This section describes the data collected and analysis conducted as part of the annual monitoring program. The TAC provides recommendations below based on data and trend analysis, and field observations. The CCRMP and CCIP recommendations are designed to be adaptive, so that monitoring requirements and management techniques can appropriately address the ever-changing riparian environment.

This annual report uses the monitoring data collected, critical analyses of those data, and TAC collaboration to evaluate the program objectives, methods, and results. Where previously-specified monitoring, technical assumptions, or policy guidelines are no longer appropriate, changes are recommended; and monitoring priorities are critically evaluated in order to maximize efficiency. The recommendations made by the TAC take into account the long-term benefit of both the creek and the community.

This section includes brief descriptions of annual monitoring activities (including results from previous years, review of in-channel FHDPs, and review of habitat restoration proposals), and changes from previous years.

2.1 REVIEW OF FLOOD HAZARD DEVELOPMENT PERMITS AND RESTORATION PROPOSALS

In January 2012, Pacific Gas and Electric Company (PG&E) applied for a Flood Hazard Development Permit from the Yolo County Planning and Public Works Department for in-channel maintenance and repair work to stabilize the Palisades gas pipelines (RM 26.9). PG&E owns and operates Gas Lines 400 and 401, which together supply approximately 70 percent of the natural gas for PG&E's customers in northern and central California. These gas lines, which parallel each other as they cross under Cache Creek, have become exposed and are susceptible to corrosive damage and possible rupture from flood debris. The project consists of installing one high-load hanger pipe support on each gas line to ensure the pipeline remains in place and stable during peak creek flows.

The Technical Advisory Committee (TAC) members individually reviewed the project and provided comments relative to their area of expertise. The TAC comments were considered as part of the permit process and incorporated into the final project approval. PG&E has complied with all applicable requirements of other state and federal jurisdictions, including the California Department of Fish and Game, State Water Resources Control Board, and United States Army Corps of Engineers. The County Floodplain Administrator approved the Flood Hazard Development Permit on October 5, 2012.

There were no habitat restoration proposals reviewed in 2012. However, the Cache Creek Conservancy continued both invasive species removal and revegetation efforts as summarized

below in Chapter 5, Biological Resources (Section 5.2).

2.2 CHANGES FROM PREVIOUS YEARS

The only significant water quality change from previous years was that total and dissolved mercury concentrations were one order of magnitude higher during surface water quality sampling. Further discussion and recommendations are provided in Chapter 3.

In 2012 there were no significant changes in channel geomorphology. This was in large part due to the fact that the sediment transport was about 2% of the average annual load (over the past 8 years).

There were also no significant changes in the condition of vegetation observed in the CCRMP area based on the field reconnaissance survey conducted as part of the 2012 Creek Walk.

2.3 RECOMMENDED CHANGES TO MONITORING PROGRAM

This section includes recommendations for changes in the monitoring program in the coming year to ensure effectiveness and minimize cost, including recommendations for periodic updates and refinements of existing protocols, and recommended changes in the intensity and location of data collection activities as the channel adjusts over time.

2.3.1 Change in Monitoring Protocols (CCIP/CCRMP)

The CCIP (p. 35-36) calls for noting the degree of channel armoring, bed material sampling, and bed material imbrication**.**

Based on conversations with prior TAC members and a review of all prior annual status reports, there is no record of these samples being taken since 1995, when the original Technical Studies were prepared. (1995 Technical Studies and Recommendations for the Lower Cache Creek Resource Management Plan, Yolo County: 1995 Technical Studies) The TAC discussed the value of these data related to the effort required to acquire the data and recommends that this monitoring protocol be removed from the annual monitoring requirements.

2.3.2 Annual Inspection Goals Protocol

In the spring of each year, the annual inspection (Creek Walk) is guided by goals established in the CCIP (p. 36). The TAC recommends that an Annual Inspection Goal Protocol be created to afford the TAC the flexibility to react to and investigate ever-changing creek conditions. This protocol will serve as a running list of recommended changes to the CCRMP/CCIP protocols that may be incorporated into the next CCAP update in 2016.

As a basis for the recommended protocol, the TAC suggests revisions to the existing Annual Inspection Goals (CCIP, p. 36). Revisions to the scope of vegetation monitoring have also been recommended. The proposed revisions will align the protocols with what can realistically be accomplished during the annual creek walk. Suggested edits appear below in bold italic

underline, and cross-outs.

1. ***Having been identified by pre-walk analyses,*** evidence of changes in channel dimensions or bank erosion ***will be validated in the field inspection***.

2. ***Having been identified by pre-walk analyses,*** evidence of bed degradation or aggradation***, will be validated in the field inspection;***

3. ***Having been identified by pre-walk analyses,*** significant changes in the locations or sizes of bars and other channel features ***will be validated in the field inspection;***

~~4. Degree of channel armoring and bed material imbrication~~

~~5.~~ ***4.*** Vegetation located within the center portion of the channel (within approximately 100 feet of the low flow channel), including substantial changes in type, density, and size;

~~6.~~ ***5.*** Conditions at bridges along levees and other major infrastructure;

~~7.~~ ***6.*** Potentially hazardous conditions involving public safety or property damage;

~~8.~~ ***7.*** General hydraulic condition of the channel based on qualitative comparison with previous years (e.g., restrictions due to vegetative growth, changes in bed form, etc);

~~9.~~ ***8.*** General evaluation of channel and bank stability on a reach-by-reach basis;

~~10.~~ ***9.*** Identification of areas where vegetation may be getting so thick as to adversely alter flow direction or reduce channel capacity; and

~~11.~~ ***10. Having been identified by pre-walk analyses with an appropriate hydraulic model,*** areas where the existing capacity of the channel can no longer contain a 100-year flood event, or is nearing the loss of such capacity, ***will be validated in the field inspection.***

2.3.3 Working Study Area Boundary

The CCRMP (p. 35, 2.4-5) acknowledges that Cache Creek has historically been subject to meandering. Map analyses done prior to the Creek Walk, with field verification during the inspection, showed areas where the CCRMP boundary (as adopted in 1996) no longer

corresponds with areas that should define the boundary. The TAC verified in the field where these areas were located and considered the implications for the CCIP and CCRMP. Most locations were small and are not significant in terms of implementation of program goals. A more definitive analysis, in order to consider a formal revision of the CCRMP boundary, is proposed when the HEC-RAS hydraulic model is available for use.

Until that time, the TAC has proposed an interim boundary which can be used for monitoring and analyses. This "Working Study Area Boundary" is based on criteria discussed at the October TAC meeting and was drawn to include areas that would be dynamic over, approximately, the next decade. The TAC Geomorphologist used the existing CCRMP boundary line and a 300 foot buffer, adjusting the line as necessary to exclude mining activity and include areas that are particularly dynamic for use in the study area. This will provide a standardized basis for technical analyses. Detailed discussion is provided in Appendix D.

2.3.4 Surface Water Quality Protocol Recommendations

Based on the stability of water quality trends over a relatively long sampling period (1999-2012), the TAC initiated discussions in 2012 of modifying the surface water quality sampling protocol that has been in place for the past several years. The TAC Hydraulic Engineer developed recommended changes to the sampling protocol based on these discussions and analysis of the past water quality monitoring data. All of the proposed revisions meet the criteria provided in the CCRMP (p. 44, 3.4-3). These recommendations are discussed in detail in Appendix E of this report and are summarized below.

Table 1 - Summary of Proposed Surface Water Protocol Recommendations

	Proposed Protocol	**Existing Protocol**	**CCAP Requirement**
Sampling frequency	One sampling event: • First flush *(additional sampling events if necessary)*	Three sampling events: • First flush • Base flow • Peak flow	One sampling event • First flush
Sampling locations	Three sites: • Capay • Gordon Slough • Yolo (I-5 Bridge)	Five sites: • Capay • Upstream of Gordon Slough • Gordon Slough • Stevens Bridge • Yolo (I-5 Bridge)	Two sites: • Capay • Yolo (I-5 Bridge)

2.3.5 Aerial Survey Reduction Recommendations

It was determined that the aerial survey of Cache Creek, which was previously conducted annually, should be conducted once every five years, or after a "major event". A major event was defined by the TAC as "an event with peak flows of 25,000 cubic feet per second (cfs) or more". The TAC proposes to review other potential sources of aerial data and images during

2013. The reduced frequency of the aerial survey will also result in a reduction in corresponding GIS work, and an overall cost-savings to the program.

CHAPTER 3 – HYDROLOGY

3.1 WATER QUALITY

The CCRMP requires water quality sampling at least once per year at the upstream and downstream ends of the CCRMP area during the "first flush" flow event (p. 44, 3.4-3). Because flow conditions in 2012 were very low, only one sampling event occurred in 2012. There were three sampling events in water year 2011. The 2012 sampling event occurred on January 25, 2012, two days after the first flush in water year 2012 at the upstream end of the CCRMP area and one day after the first flush at the downstream end. Water quality sampling was not conducted at peak flow or base flow conditions in 2012. Proposed changes to the surface water quality sampling protocols are summarized in Chapter 2 and discussed in detail in Appendix E.

The 2011 Cache Creek Annual Status Report summarized water quality trends from 1999 through 2011 for constituents that have been detected in Cache Creek. Notable water quality trends in last year's annual status report included no detection of herbicides or pesticides since 1999, periodic low dissolved oxygen in Gordon Slough, elevated summer temperatures, highly variable ammonia nitrogen concentrations with some historical exceedances of standards and a possible source near Gordon Slough, slightly elevated mineral nitrogen concentrations, orthophosphate phosphorus concentrations that exceeded standards in Gordon Slough in 2009-2011, high background levels of boron, abundant coliforms, and high turbidity during high flows.

Here we report only on trends and significant changes in water quality observed in the 2012 water quality monitoring data At the five sites (Capay Bridge, Stephens Bridge, upstream of Gordon Slough, I-5 bridge, and in Gordon Slough) sampled on January 25, 2012, pH, electrical conductivity (EC), temperature, color, odor, total dissolved solids (TDS), total suspended solids (TSS), turbidity, ammonia nitrogen, nitrate nitrogen, nitrite nitrogen, and total kjeldahl nitrogen remained in the ranges measured in previous years and did not exceed any recommended contaminant limits. In addition, orthophosphate phosphorus, total petroleum hydrocarbons as diesel, and total petroleum hydrocarbons as gasoline were not detected in 2012. Organic and mineral nitrogen were not monitored in 2012.

As in previous years, boron (a naturally occurring contaminant in the watershed) continued to be present in 2012 in concentrations above US EPA drinking water standards and in a range that might be harmful to plants. Similarly, fecal coliforms continue to exceed the recommended range for swimming contact and total coliforms remain relatively high.

Of note in this year's surface water sample were total and dissolved mercury concentrations one order of magnitude higher than in previous years. Based on discussions with experts conducting more detailed mercury evaluation work in the basin (McCord, personal communication) there have been no changes in watershed conditions that would result in this scale of increased delivery of mercury to Cache Creek. Because the majority of mercury is associated with sediment, the TAC Hydraulic Engineer evaluated the correlation between total suspended solids

and mercury concentrations to determine if the increased mercury concentrations detected in 2012 could be attributed to elevated suspended sediments at the time of sampling. However, no significant correlation was found.

The elevated mercury concentrations in 2012 could be attributed to either sampling or laboratory error, or to anomalously high mercury concentrations at the time of sampling. The TAC Hydraulic Engineer will evaluate mercury concentrations during the 2013 water year to confirm that the 2012 monitoring results are not indicative of a persistent change in mercury delivery to Cache Creek.

This increase in mercury concentration detected in the 2012 water quality sampling has been communicated to ongoing mercury studies in the watershed.

3.2 SUMMARY OF ANNUAL WATER AND SEDIMENT DISCHARGE DATA

Peak flows in Cache Creek are an important driver of sediment transport processes as well as water quality conditions in the CCRMP area. The CCIP requires that the TAC monitor hydrology at the upstream and downstream ends of the CCRMP area, and this annual report summarizes this monitoring, with a focus on observations and conditions not already documented in previous annual reports. The 2012 water year was relatively dry, with a peak flow of only 2,380 cfs at the downstream end of the CCRMP area and 2,916 cfs at the upstream end. Peak flows at both locations had recurrence intervals of less than 2 years. Figure 1 and 2 below compare instantaneous flows at the Rumsey (upstream) and Yolo (downstream) gages in water years 2011 and 2012, respectively. These plots clearly show how much lower both peak flow magnitude and total flow volume in the CCRMP area were in 2012 than in 2011.

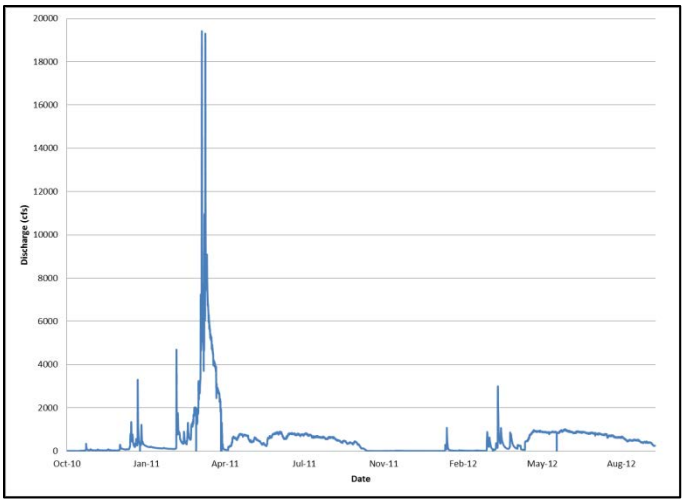

Figure 1: Instantaneous (i.e. hourly) flows in water years 2011 and 2012 at the Rumsey gage.

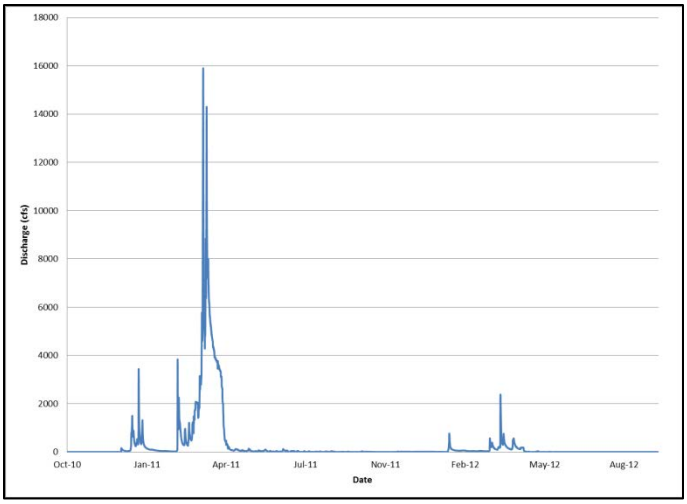

Figure 2: Instantaneous (i.e. 15-minute) flows in water years 2011 and 2012 at the Yolo gage.

Sediment transport calculations were made based on sediment transport rating curves developed for Cache Creek based on pre-1996 data (see Appendix F). These calculations are based on the annual flow rate, and sediment transport rate is correlated directly with the flow rate. Because the material of interest to the TAC is the material that can be deposited in the channel (CCIP, p. 34), the total load was also separated into fines (which wash through the system) and sand and gravel.

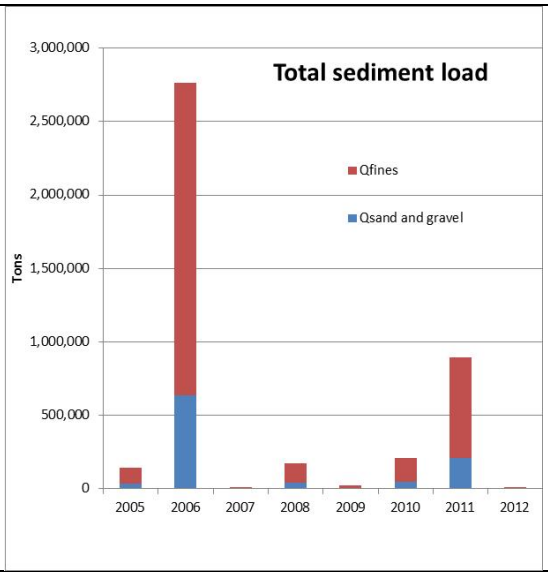

Figure 3: Total sediment transport in tons

The results (Figure 3 above and Table 2 below) show the sediment load in 2012 was 2% of the average annual load (over the past 8 years), which is the second smallest since 2005.

Because there is a great variation in observed sediment transport at specified flows, and

because actual transport in any year might differ from an empirical estimate, another useful way to consider the patterns over a number of years is to consider the **relative** total quantities from year to year. For example, the data in Figure 3 were also considered **non-dimensionally**, where each value was considered to be a percentage of the average load since 2005 (Table 2).

Water year	Total load
2005	27%
2006	524%
2007	1%
2008	33%
2009	4%
2010	39%
2011	170%
2012	2%

Table 2: **Total dimensionless sediment transport** (*Values given as a percentage of the average load since 2005)*

3.3 SUMMARY FLOOD MONITORING

Flood stage on Cache Creek is 20,000 cfs (p. 37, CCIP). The 2012 water year was relatively dry, with a peak flow of only 2,380 cfs at the downstream end of the CCRMP area and 2,916 cfs at the upstream end. No flood monitoring activities were required

CHAPTER 4 – GEOMORPHOLOGY

4.1 EVIDENCE OF CHANGES IN CHANNEL DIMENSIONS OR BANK EROSION (BANK RETREAT)

Evidence of significant change in bank dimensions was observed at the sites listed in Table 3. The 2010-2011 channel cut and fill analyses were used to consider past (2010-2011) and continued bank retreat. These sites were then checked in the field during the Creek Walk in 2012. Some bank retreat is beneficial, allowing natural channel processes to occur. Beneficial bank retreat can provide regeneration of riparian habitat and diversity of in-channel habitat that might not exist otherwise. Some of the sites identified here were observed to have no significant negative consequences, and the sites at RM 15.4 and 15.0 were considered beneficial bank retreat because they provide habitat for bank swallows.

Low flow conditions in water year 2012 resulted in no significant changes in bank retreat patterns. Tables 3-5 below provide identification of problem areas and a summary of desirable and undesirable geomorphologic trends.

Table 3: Evidence of changes in channel dimensions or bank erosion (bank retreat)

River Mile	Location description	2010	2011	2012	Recommendation
RM 26.9	(Site of PG&E pipe crossing)	Baseline	Movement	No change	Continue to monitor
RM 26.4	(Near Capay Bridge)	Baseline	Movement	No change	Continue to monitor
RM 25.4 - 25.5	(In the vicinity of the Jensen property)	Baseline	Movement	No change	Continue to monitor
RM 22.0	(Near the Old Madison Bridge)	Baseline	Movement	No change	Continue to monitor
RM 21.6	(Near the Old Madison Bridge)	Baseline	Movement	No change	Continue to monitor
RM18.2-18.0	(Upstream from the Moore Siphon)	Baseline	Movement	No change	Continue to monitor
RM 15.4	Hoppin Reach	Baseline	Minor movement	Minor movement	Continue to monitor; examine for bank swallows
RM 15.0	Hoppin Reach	Baseline	Minor movement	Minor movement	Continue to monitor; examine for bank swallows

4.2 EVIDENCE OF BED DEGRADATION OR AGGRADATION AND SIGNIFICANT CHANGES IN THE LOCATIONS OR SIZES OF BARS AND OTHER CHANNEL FEATURES

"Bar skimming" has been identified as a possible management action where there is significant aggradation taking place (CCIP p. 20). Bar skimming is the removal of material (generally gravel and sediment) that has deposited and created large mid-channel bars. Gravel bar skimming can reduce erosive effects and maintain flood capacity. The basic idea is that some areas deposit more material than is necessary for equilibrium channel maintenance.

The CCIP recognizes gravel bar skimming as a typical channel maintenance activity to maintain hydraulic capacity or reduce the probability of bank erosion. The deposit of sediments in bars in the creek channel influences the distribution of flows in the channel and can reduce the overall channel capacity. Depending on the location of the gravel bar, erosive pressure on one or both creek banks may increase. In addition, gravel bars may become vegetated, further reducing flood capacity. Gravel bar skimming is encouraged in areas where the gravel bar could potentially reduce flood capacity below the 100-year flood protection level or in areas where the bar may affect bank stability.

One of the challenges of selective bar skimming is implementation. Bar skimming requires state and federal permits, which are in the process of being renewed. In addition, the cost of bar skimming may be prohibitive. An ideal situation would be to have a gravel producer willing to remove material for channel maintenance in return for the material acquired by such activity. (CCRMP pg. 75, CCIP p. 20)

Possible sites for bar skimming are:

Table 4: Possible sites for bar skimming

Location	Description	Recommendation
Near RM 25.5	In the vicinity of Granite Construction North Bank Stabilization Project	Selective bar skimming
Near RM 21.6	Near the old Madison Bridge and Scheuring Property	Selective bar skimming
Near RM 20.3-20.5	Mid-channel bar in the vicinity of the most upstream of the CEMEX repair sites (called site F)	Selective bar skimming

4.3 BRIDGE CONDITIONS

The Cache Creek monitoring program (CCIP, p. 33, Objective 6) directs the program to "monitor bridges, levees, and other infrastructure to detect and prevent damage". Responsibility for the maintenance and repair of public bridges is held by other agencies (Caltrans or Yolo County Public Works, for example). Current conditions at the bridges were noted on the Creek Walk and observations were compared to observations made over the last two years. The results of this comparison are reported in Table 5 below. If changes are noted in the future at any of the bridge or infrastructure locations, the maintaining agency will be notified immediately.

Table 5: Bridge conditions					
Location	**General conditions**	**2010**	**2011**	**2012**	**Recommendation**
Capay Bridge at Road 85 (RM 26.35)	2007 Caltrans report: "no scour." Some erosion of the south bank upstream of the bridge in 2010, with no observable negative consequences to the bridge.	Observed condition	Continued bank retreat	No change	Monitor
Esparto Bridge at Road 87 (RM 24.35)	2006 Caltrans report: "signs of aggradation." Observed in 2010: tendency for erosion on the north side, and the northern-most pier is slightly undercut.	Observed condition	Continued bank retreat	No change	Monitor
Highway I-505 Bridge (RM 21.0)	2005 Caltrans report: "Scour holes at each pier." 2010, 2-10 feet of sediment build up (aggradation) around the two southern bridge bays, with vegetation growing on the deposited material	Observed condition	Continued bank retreat	No change	Monitor
Road 94B Bridge (RM 15.9)	2007 Caltrans report: "Abutment 1 is undermined up to 18 inches. " Relatively stable channel conditions in 2010.	Observed condition	No change	No change	Monitor

4.4 SUMMARY OF CHANGES IN CHANNEL TOPOGRAPHY AND FORM

The CCIP describes one of the objectives of the monitoring program as the monitoring of the "changes in channel form and topography…" (p. 33). This information is used to locate areas of aggradation and degradation in the stream (p. 39). A summary of changes in channel topography and form is provided below.

Because the HEC-RAS hydraulic model is not yet available, the results for 2012 do not include identification of any areas where existing channel capacity can no longer contain a 100-year flood event. Performance standard 2.5-5 of the CCRMP (p. 38) directs staff and the TAC to ensure that Cache Creek management decisions do not reduce flood capacity nor exacerbate existing

flooding problems downstream through channel reshaping. It further directs that "when modeling indicates that the channel is approaching loss of the 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 HEC-RAS hydraulic model is under development by the TAC Geomorphologist working with the State Department of Water Resources and other stakeholders.

4.4.1 Reach Specific Geomorphic Characteristics

Using the data provided in the 1995 Technical Studies as a baseline, geomorphic characteristics of the channel can be analyzed. The 1995 geomorphic analysis was done by Northwest Hydraulic Consultants (NHC). The most recent Digital Terrain Model (DTM) for Cache Creek was prepared in 2011. The TAC Geomorphologist compared those two sources of data and the following geomorphic changes are noted.

Table 6: Reach Specific Geomorphic Characteristics

	NHC		2011 DTM			
	Length (mi)	**Slope (ft/ft)**	**Sinuous Length (mi)**	**Straight line Length (mi)**	**Sinuosity**	**Slope (ft/ft)**
Capay	2.1	0.0020	2.11	2.00	1.05	0.0016
Hungry Hollow	2.8	0.0021	3.30	2.84	1.16	0.0022
Madison	2.5	0.0023	2.61	2.38	1.10	0.0018
Guesisosi	2.3	0.0012	2.37	2.16	1.10	0.0016
Dunnigan Hills	2.8	0.0019	3.02	2.70	1.12	0.0015
Hoppin	3.3	0.0014	3.77	3.16	1.19	0.0013
Rio Jesus Maria	1.4	0.0013	1.03	0.78	1.32	0.0013
Total length	17.2		18.21	16.02	1.14	
Average		0.0018				0.0016

Slopes and sinuosity are related to channel length; they will vary together, over time. Some of the reaches have changed significantly in slope since 1995. This is important because site-specific sediment transport tendencies are related to the slopes.

Table 6, above, shows a substantial discrepancy in the length of the Rio Jesus Maria reach. The length measurement differences of the Rio Jesus Maria Reach are explained by the fact that the 1995 analysis included channel length that is outside the CCRMP boundary and the 2011 DTM included only the channel length that is contained inside of the CCRMP boundary.

The data contained in this section will be used to complete an update of the geomorphic descriptions of the reaches in order to satisfy a 2011 Annual Report recommendation (2011.G.B.1.1, Chapter 6).

4.5 ESTIMATE OF LOCATION AND VOLUME OF ANNUAL SEDIMENT REPLENISHMENT

No aerial surveys of Cache Creek were flown in 2012 by consensus of the TAC. (See Chapter 7) Therefore there were no DTM analyses available for Cache Creek, nor data on which to estimate sediment replenishment. As noted in the preceding section on hydrology, 2012 was a relatively dry water year with very low peak flows. Based on this, and the estimated sediment discharge for 2012 of about 2% of the average rate in the last 8 years, it is likely that there was very little sediment replenishment this year.

4.6 EVALUATION OF BED AND BANK STABILITY

Described below are the recommended improvement projects and maintenance activities in the CCRMP area.

4.6.1 Ongoing Channel Maintenance Activities

The CCIP (Section 4.2, starting on page 20) describes typical channel maintenance activities. The TAC identified five (5) sites for various maintenance activities, including three (3) sites recommended for gravel bar skimming to maintain hydraulic capacity and reduce the probability of bank erosion.

Table 7: Channel maintenance activities

Site	Description	Recommendation
Granite Construction North Bank Stabilization near RM 25	Removal of mid-channel gravel bars could alleviate pressure on the north bank in this vicinity	Property owner should be contacted to encourage bar skimming
Active bank retreat near RM 21.6	Near the Old Madison Bridge site, we recommend cutting a channel across the gravel bar (bar skimming) in order to relieve the pressure on the north bank. It is viewed as an experimental management action that may help relieve the pressure of erosion on the north bank. Subsequent observations will help inform future management actions.	Property owner should be contacted to encourage bar skimming
RM 20.3 20.5 mid-channel bar	In the vicinity of the most upstream of the CEMEX repair sites (called site F) there is evidence of a mid-channel bar that has deposited. If the bar were removed, there would be less erosive pressure on the south bank. We recommend this location for “bar-skimming,” with subsequent observations to help inform future management actions.	Property owner should be contacted to encourage bar skimming
Levee and bank erosion near RM 19.5	Near RM 19.5, there is runoff coming off the top of the bank which has eroded into the bank, causing a gully from the top of the levee and the bank, which is a concern for bank stability. This needs to be assessed for bank stability and assessed for repair.	Property owner should be contacted to encourage repair

Rodgers Demonstration Water Recharge and Habitat Project (RM 14-13.8)	The berm/cement barrier between the two sub-basins, no longer serves a geomorphic purpose. At this time, this is a low priority, but the berm could possibly be removed for aesthetic purposes.	Serves no purpose, remove

CHAPTER 5- BIOLOGICAL RESOURCES

5.1 VEGETATION AND WILDLIFE HABITAT

Vegetation and associated wildlife habitats within the CCRMP area reflect the dynamic geomorphologic and hydrologic processes of Cache Creek, as well as past and on-going human influences. Lower Cache Creek's position in the broad Central Valley Plain, low channel gradient, annual lateral channel movement, and channel braiding provide for a limited number of riparian and upland habitat types. In general, few areas along Cache Creek remain available for riparian expansion as most of the channel is deeply entrenched, bound by levees, or restricted by adjacent land uses. High flow velocities can literally tear out riparian vegetation along the flow lines, but the exposed banks can provide important habitat features that support unique species such as the State-threatened bank swallow and scour pools can provide suitable conditions for western pond turtle, native and non-native fish and other aquatic species. Reaches in the upstream part of the CCRMP tend to lack sufficient shallow groundwater availability necessary to support large stands of native woody riparian vegetation, and most of the channel bottom is either devoid of vegetative cover or supports non-native ruderal (weedy) grasses. The remaining intact habitat along the middle and lower reaches tend to form a narrow band or exist in discontinuous patches along the edge of the active channel. These areas are dominated by Fremont cottonwoods and willow species, with scattered valley oaks and live oaks in upland locations.

Previous annual reports provide a relatively thorough description of existing vegetation for each reach in the CCRMP area. In general, the condition of the existing vegetation observed during the 2012 Creek Walk appears consistent with descriptions in previous Creek Walk notes and annual reports. The only location where dense vegetation appears to be influencing creek flows and contributing to adverse conditions is at the I-505 crossing at RM 21, which has been noted as a potential issue of concern during previous creek walks. Dense vegetation is forming along the south side of the channel bottom and contributing to concentrated flood flows at the exposed pier on the north side of the bridge. However, most of the dense vegetation is shrubs and ground cover species, and appear flexible enough to allow for storm flows to pass over the vegetated area with little resistance. No intervention appears necessary at this time.

One of the major limitations to meaningful ongoing monitoring of vegetation resources and associated wildlife habitat in the CCRMP area is that only very limited mapping of baseline vegetation conditions have been prepared in the past. Non-digitized mapping of existing vegetative cover along the Cache Creek corridor was prepared in 1995 as part of the Technical Studies, showing only broad cover types such as riparian, grasslands, and woodlands. The assumed limits of riparian vegetation were mapped in 2006 based on infrared data and assumptions on vegetative cover classes greater than about two meters in height. In 2011, a comparative analysis of vegetative cover was conducted at the 12 permanent vegetation transects (Andregg) established in the CCRMP area in 2002, but no detailed mapping of other vegetative cover types, such as grassland and oak woodland, has yet been prepared, which is

important in understanding long-term trends and evaluating the success of efforts to expand riparian cover. One of the "2011 Programmatic and Channel Improvement Priorities" (Goal 2011B.B.3, Chapter 6) was to identify the preferred method of mapping baseline vegetation conditions within the plan area, which would allow for future monitoring of changes over time. Details on the specifics of this mapping effort are still being refined with County staff, with the goal of collecting new LiDAR data in 2013 that would allow for a more comprehensive mapping product.

The detailed vegetation analysis performed in 2011 concluded that significant changes in riparian density and location occurred between 2010 and 2011, and that these data suggest a trend of declining riparian vegetation coverage after a nominal two to three year flood event. This event was not very severe, yet led to what appeared to be an observed significant loss in riparian canopy coverage and overall extent according to differences observed in LiDAR data. It is unclear whether differences in the reliability of the LiDAR data from 2011 could have influenced the results of this analysis, and conclusion of an observed decline in riparian vegetation coverage. But on-going monitoring is necessary to demonstrate the reliability of the limited data, and determine whether there are notable losses of vegetative loss, localized or on a larger scale, and to determine the success of natural recovery and succession over an extended period of time.

The 2011 Annual Report described the need for a systematic means of assessing wildlife species abundance and diversity in the CCRMP area, and suggested that a five year biological trend analysis was needed to provide a more comprehensive assessment of habitat in the CCRMP area. However, the critical focus in the CCRMP efforts should continue to be on assessing vegetative cover, and enhancing the extent and complexity of riparian habitat given its known value to wildlife. This is particularly true as the County faces increasing limitations on the funds available to support implementation of the CCRMP and CCIP. But any future monitoring and assessment should be clearly defined to allow for future comparisons, as well as reliable enough to be useful as the state of the science evolves over time. It is critical to define a practical methodology with set study area boundaries, so that the reporting outcomes can lead to a common understanding of vegetation patterns and inform management decisions.

5.2 INVASIVE SPECIES MONITORING AND MANAGEMENT

Invasive tamarisk (*Tamarix sp*.), giant reed (*Arundo donax*), and ravenna grass (*Saccharum ravennae*) have been relatively well controlled within the CCRMP area due to eradication efforts by the Cache Creek Conservancy (CCC) through its annual contract with this program. Chemical treatment under CCC's Invasive Weed Control Program has had a significant positive ecological effect by reducing some of the negative impacts caused by tamarisk and giant reed, including fine sediment accumulation, vegetation restrictions, and flow redirection. The removal of invasive weeds also opens up growing space for native plants which provide better habitat for wildlife. Scattered clumps of tamarisk and arundo were observed during the 2012 Creek Walk where proximity to surface water prevented herbicide application. Young tamarisk saplings were observed along the low-flow channel where sufficient water was available to allow

establishment. Several large stands of tamarisk occur immediately adjacent to the CCRMP area and act as an on-going seed source for future invasive tamarisk establishment. These include a large stand in the Dunnigan Hills Reach on the county-owned Millsap Property between RM 18.1 and 18.6, and at the creek margins and adjacent uplands from RM 12.9 to 13.2, RM 13.5, and RM 15.4 to 15.5. County staff has made plans with the Cache Creek Conservancy to eradicate the tamarisk on the Millsap property in 2013.

White-topped perennial pepperweed (*Lepidium latifolium*), a highly invasive non-native species, is becoming a severe problem in much of the understory along the creek corridor, starting near RM 14 and continuing downstream. Dense stands were observed in numerous locations, and appear to be replacing any other understory cover. This species has not been a target under the CCC's Invasive Weed Control Program and presents major challenges because of its growing abundance and aggressive root systems.

The benefits of the CCC Invasive Weed Control Program are documented and need to be continued through coordinated weed management with upstream partners and adjacent property owners. Yolo Resource Conservation District has developed a Cache Creek Watershed Weed Management Plan in conjunction with Cache Creek Watershed Forum partners. This plan helps refine strategic weed management efforts in the CCRMP area and larger Cache Creek watershed. It describes weed control options for priority species, and points out the importance of on-going monitoring and follow-up treatment and restoration as crucial to effective eradication and control. White top-perennial pepper weed and more upland invasives, such as milk thistle (*Silybum marianum*), Italian thistle (*Carduus pycnocephalus*), and yellow star thistle (*Centaurea solstitialis),* have spread dramatically and have become dominant dry season plants in the CCRMP area. The longer-term challenges from Himalayan blackberry (*Rubus* sp.), ravenna grass, and fig (*Ficus* sp.) are found throughout the CCRMP area, but are typically left untreated and are rarely mapped. All of these species have been identified as having containment opportunities in the Cache Creek Watershed Weed Management Plan, but their control requires on-going management Highly invasive species need to be treated systematically for effective removal and control, and the treatment area revegetated with native cover to prevent disturbed conditions that prefer the reestablishment of other invasives which are adapted to colonizing disturbed areas.

Any weed management efforts should be coordinated with a revegetation program to minimize the potential for invasive weed re-colonization. As acknowledged in the CCRMP, a specific treatment, mapping, and re-planting plan should be developed as a component of a Comprehensive, Integrated Revegetation Plan (CCRMP 4.4-10, p. 59). Fast growing replacements, such as local willow species and perennial native grasses can be established readily on barren or sparsely weeded sites, with supporting irrigation as needed. It is also important that the CCC and Yolo Resource Conservation District continue to engage private landowners with significant weed problems in order to ensure that comprehensive management can be completed.

5.3 SPECIAL-STATUS SPECIES

Essential habitat or individuals of several species considered to have special-status were observed during the 2012 Creek Walk. These consisted primarily of elderberry shrubs which can serve as hosts for the federally-threatened Valley elderberry longhorn beetle (VELB). The distribution of elderberry shrubs represents an important consideration to implementing in-channel maintenance and enhancement activities, given the limitations on disturbance within 100 feet of shrubs of a certain size unless compensatory mitigation is provided. Other special-status species observed included the State-threatened bank swallow, the State-threatened Swainson's hawk, western pond turtle, and osprey. Several colonies of bank swallow were observed along the creek corridor where vertical banks are present. These include: along the north bank at RM 21.6 where this colonial nester has been observed during past creek walks; a previously unreported colony of over 50 pairs along the south bank at RM 14.9; and evidence of what appear to be former bank swallow colonies between RM 13.2 to 13.4. (See maps provided in Appendix C, Biological Resources Creek Walk Notes)

Although they are not of any particular special-status, active colonies of cliff swallow and northern rough-wing swallow are considered important wildlife resources by the California Department of Fish and Game and are protected under the federal Migratory Bird Treaty Act, as are the nests of most other birds when in active use. Construction and other disturbance that would disturb the nesting birds and lead to nest abandonment is prohibited under the Migratory Bird Treaty Act without specific authorization from the U.S. Fish and Wildlife Service. Numerous colonies of cliff swallow were observed at the underside of most bridge crossings and other vertical banks, including just downstream of the Capay Dam. Northern rough-wing swallow colonies were also observed in conditions similar to those favored by bank swallow, such as the vertical banks at RM 15.4 and RM 20.2.

CHAPTER 6 - STATUS OF 2011 PROGRAM RECOMMENDATIONS

The 2011 Cache Creek Annual Status Report provided recommendations for channel improvement priorities. These recommendations are based on physical, hydrologic, and biological assessment of Cache Creek, pursuant to the goals, policies, and actions of the CCRMP. The 2011 recommendations, combined with the physical observations and data collected in the current year formed the analytical basis for TAC recommendations regarding program priorities and projects for 2012. Recommendations from the 2011 Cache Creek Annual Status Report are listed below and the current status (as of December 2012) is provided for each recommendation. New recommendations developed as part of the 2012 annual report may be incorporated into this list once they are reviewed, and if they are accepted, by the Yolo County Board of Supervisors. Bold text in the "description" column identifies the main subject that is addressed.

Number	Description	Status	Priority Status - Recommendation
2011.G.A1.1	**HEC RAS modeling** CCRMP reach completed and analyzed, and compared with 1996 conditions if possible	Waiting for DWR	High -Carry forward
2011.G.A2.2	Estimate the **annual rate of channel bed aggradation** over time	Not this year	Moderate - Do in significant event year
2011.G.A3.3	Annual **aerial survey contract and scope of work** should be amended	Revised	High - Have ready to use when needed
2011.G.A4.4	Continue to **monitor actively migrating bends**, and use a predictive model	On going	High - Carry forward
2011.H.A1.5	Complete **review of hydrology and water quality objectives** in CCRMP	Complete	Moderate – Modify water quality sampling protocol as described in Appendix E
2011.H.A2.6	Review Cache Creek **water quality database** and identify duplication of effort	Complete	Moderate – Modify water quality sampling protocol as described in Appendix E

2011.H.A3.7	Prioritize and/or eliminate **constituent testing** based on 2011.H.A1.5 and 2011.H.A2.6 above	On going	Moderate – Modify water quality sampling protocol as described in Appendix E
2011.H.A4.8	Continue to **monitor contaminants** of concern in creek water based on water quality database review and prioritization described above	On going	High - Continue monitoring
2011.H.A5.9	Continue **groundwater monitoring** near Cache Creek, incorporating data from mining sites	On going	High – Continue monitoring
2011.B.A6.10	Complete **methylmercury** monitoring and analysis in the CCRMP study area. Consider additional partnerships to monitor and analyze methylmercury	On going	Moderate - Continue to coordinate and participate in various mercury efforts
2011.B.A1.11	Continue to work with County staff and the aerial contractor to **further refine and classify vegetation**	On going	High - Need to define scope, methodology and schedule for implementation
2011.B.A3.13	Coordinate with full TAC in 2012 to **identify areas and sites best suited for natural regeneration of riparian and upland habitat conditions**	On going	High – Identify suitable locations, explore partnerships for implementation, and pursue possible funding
2011.B.A4.14	Continue to participate in the Cache Creek Watershed Wide Invasive Management Plan	On going	High – Actively pursue partnerships for funding and implementation
2011.G.A.15	**Channel shifting patterns** near RM 26.4 should be actively monitored	On going	Low – Continue monitoring.
2011.G.A.16	**Bank erosion** at RM 26.9 on the south bank … continued engagement with PGE	On going	Low – Continue monitoring
2011.G.A.17	The bank retreat patterns near RM 25.4 -25.5, RM 22.0, and RM 20.6 for **regeneration of riparian habitat** .Site-specific small scale revegetation plantings explored.	Considered: Not appropriate at this time	Low – Continue
2011.G.A.18	**Active bank retreat near RM 21.6** (near the old Madison Bridge) but should be monitored in 2012.	Done: no movement	Low - Continue to monitor. Consider bar skimming
2011.G.A.19	Significant erosion at the I-505 crossing. should be assessed vegetation should be **removed in order to protect the bridge piers.**	Reconsidered with TAC biologist.	Low – Continue monitoring
2011.G.A.20	**Replace dead arundo and tamarisk in the Capay Reach with native plantings.**	Under consideration	Moderate – Pursue partnerships for funding and implementation

2011.G.B1.1	Update **reach descriptions** using updated values for all channel characteristics. Standardize the reach endpoint descriptions.	Values for reach-specific slopes have been updated.	Not complete. Moderate - Continue
2011.H.B1.2	Continue to pursue **partnerships** to install **continuous turbidity monitoring**	Ongoing	Moderate – If partners are identified, coordinate on development of objectives and scope of this monitoring
2011.B.B.3	Mapping protocols should be developed to define the procedure and schedule for mapping vegetative cover within the CCRMP study area	On going	High – Complete definition of scope and schedule implementation
2011.G.B.4	Complete HEC-RAS modeling of the Huff's corner area, and a comparison with the 1996 100-year flood capacity.	Preliminary un-calibrated model used to assess tendencies	High-moderate - Continue
2011.G,H.B.5	The flood conveyance at the I-505 bridge: Coordinate with CALTRANS and stakeholders, and complete hydraulic modeling to determine before- and after-skimming water surface elevations if the bar were skimmed.	On hold pending model development	Low - Continue
2011.H.B.6	**Implement water temperature** monitoring by placing water temperature data loggers in each reach.	On hold	Moderate – Assess extent of water temperature as a limiting factor and develop water temperature monitoring objectives.
2011.G.C1.1	**Sampling the bed surface material**	On hold	Recommend dropping
2011.G.C2.2	Develop a protocol and sampling schedule to measure **bed armoring**	On hold	Recommend dropping
2011.B.C.3	Undertake more detailed ancillary **wildlife assessments** in conjunction with field work.	Under consideration	Low – Vegetative mapping, monitoring, and assessment should be top biological priority with invasive species removal
2011.G.C.4	Channel **bank retreat** upstream from Moore's Siphon near RM 18.1 should be monitored.	On-going	Moderate - On-going monitoring.

CHAPTER 7 – PROGRAM ADMINISTRATION

Two years after the restructuring of the Natural Resources division, the Cache Creek Area Plan (CCAP) administration has settled into its roles and responsibilities and has demonstrated its commitment to delivering a program that implements the CCAP in a responsible and efficient manner. Staff has worked cooperatively and collaboratively with program stakeholders to refine the program and adaptively respond to evolving economic and environmental conditions. The Off-Channel Mining Plan (OCMP) continues to be administered by the County Planning and Public Works (PPW) Department. PPW is also responsible for the processing of all new mining permit applications and Flood Hazard Development Permits. As in previous years, an outside consultant assisted with oversight, management, and audit services, though in a less significant capacity than in previous years. Staff continues to strengthen relationships with core partners through open communication and demonstrated accountability. The production of this Annual Report is the direct result of the on-going commitment of all the CCAP partners in meeting the intended purpose and goals of the CCAP.

7.1 CACHE CREEK TECHNICAL ADVISORY COMMITTEE

The Cache Creek Technical Advisory Committee (TAC) was established to 1) provide scientific and technical review and oversight for all projects conducted under the CCIP, and 2) collect and evaluate scientific data on hydrologic, hydraulic, sediment transport, and biological conditions within the CCRMP area.

The TAC is a three-person interdisciplinary group comprised of a hydraulic engineer, a fluvial geomorphologist and riparian biologist.

The additional responsibilities of the TAC are outlined in the Cache Creek Improvement Program (CCIP, p. 5-7).

The Natural Resources division issued a Request for Qualifications (RFQ) for all three TAC disciplines in 2012. A number of changes were made to the TAC contracts, including provisions that provide for task-based compensation instead of hourly reimbursement. In addition, staff staggered the contract expirations to ensure continuity of institutional knowledge. The panel for the interview process was comprised of County staff, aggregate producers, and restoration partners. The panel collectively recommended that the County Administrator appoint the following subject matter experts to the TAC:

Dr. Eric Larsen, Geomorphologist

Dr. Larsen has served on the TAC since 2007 and currently serves as its Chair. He completed his undergraduate education at Harvard University and obtained his

Masters' and PhD from UC Berkeley. He is currently a scientist in the Department of Environmental Design at UC Davis. Dr. Larsen's interdisciplinary training and experience in hydraulic engineering, fluvial geomorphology, and riparian habitat formation provide the foundation for strong interdisciplinary work with teams.

Jim Martin, Riparian Biologist

Mr. Martin holds a BS in Biology from UC Berkeley and has over 30 years of experience as a biologist and environmental consultant, preparing biotic resource assessments and mitigation plans for over 300 projects. In addition, Mr. Martin prepared the Biological Resource section of the 1996 EIR for the Cache Creek Resource Management Plan and Cache Creek Improvement Plan, as well as the following off-channel mining projects: Syar Industries Mining Permit EIR, Solano Concrete Interim Mining Permit EIR, the Granite Capay Mining Permit EIR, and the Teichert Schwarzgruber Mining Permit EIR.

Dr. Mark Tompkins, Hydraulic Engineer

Dr. Tompkins completed his undergraduate and Masters' degrees from the University of Illinois and earned his PhD in Environmental Planning from UC Berkeley. He is a registered Civil Engineer and has over 12 years of consulting experience in river restoration, flood management, fluvial geomorphology, hydrology, hydraulics, sediment transport, fisheries biology, environmental planning, and water resources engineering.

7.2 PROGRAMMATIC RECOMMENDATIONS

Each year County staff, program partners, and the TAC review the programmatic requirements of the CCIP and the CCRMP and identified a number of appropriate program adaptations based on what is required by the program and what is feasible and achievable from an economic and operational stand point. There were two factors that drove this year's review of the programmatic requirements:

1. The general permits from the state and federal agencies were in the process of renewal which precluded any in-channel projects in 2012, and
2. The economic downturn and corresponding decrease in aggregate sales resulted in less revenue from fees collected by the County in recent years.

The CCAP anticipates ongoing program adaptations, initiated at the staff level, to ensure continued efficient implementation based on funding and staffing realities, and conditions in and around the creek.

For 2012, the following recommendations were made by staff in consultation with interested parties and program partners and approved by the TAC. More detailed documentation supporting each of these, as well as a record of the public discussion of each item at the TAC meetings is available in the program files.

1. **CCRMP Update**
   The most recent update to the CCRMP and CCIP documents was in 2002. In addition, a "Status and Trends Report" was completed in 2006. Certain activities were undertaken in 2012 to inform the 10-year CCRMP update process. Laying the ground work for the update, the TAC and stakeholder groups identified potential programmatic and long-term adaptive monitoring improvements for consideration during 2012 and 2013.

2. **Cache Creek Aerial Survey**
   Aerial surveys of Cache Creek required under the program have traditionally been performed annually. The TAC determined, however, that this frequency was not necessary unless and until a significant storm occurs. It was determined that the program could be as effectively implemented at significantly less cost if the aerial surveys were instead performed every five years, or after a "major event". A major event was defined by the TAC as "an event with peak flows of 25,000 cfs or more". The TAC will evaluate alternate sources of aerial data in 2013. The reduced frequency of the aerial survey will result in a reduction in corresponding GIS work, and an overall cost-savings to the program.

3. **Contract Revisions For Technical Advisory Committee**
   As previously mentioned, provisions were included in both new and renewed TAC contracts that provide for task-based compensation instead of time and material reimbursement.

4. **Reduction in frequency of TAC meetings**
   The CCIP is silent as to the frequency of TAC meetings. It had generally been prior practice to hold TAC meetings on a monthly basis. Based on an analysis of the typical flow of required work of the TAC, staff determined that these meetings could be significantly reduced with no loss of effectiveness or adverse impact to the program. In 2012, staff reduced the frequency of standing TAC meetings to quarterly (four meetings per year), with the option to add additional meetings as necessary.

5. **Revised Water Quality Protocol Recommendations**
   The TAC Hydraulic Engineer made several recommendations in conjunction with the completion of the 2011 annual report recommendation 2011.H.A1.5. The 2011 recommendation called for review of the hydrology and water quality objectives in the CCRMP. The review was completed and several recommendations (reduction in frequency, reduction in number of sampling locations, etc.) were made that will decrease the overall cost of surface water monitoring for the program. The recommendations are described in greater detail in Chapter 2 and Appendix E.

6. **Property Maintenance**
   Maintenance of Capay Open Space Park was transferred to Yolo County Parks as a cost saving measure.

7. Miscellaneous

Savings of $25,000 was realized from reducing miscellaneous items in the budget such as legal services, communications, and GIS mapping (see item 2, above).

8. Contingency

The aerial survey was added as a contingency/one time item to the Long Term Reserve (LTR) at five year intervals. This increased the LTR by approximately $30,000 per year.

9. Program Vehicle (Sold)

The CCRMP program purchased a Ford Escape in 2010 for use by County staff for site inspections, on creek walks, and in carrying out other program related activities for $23,092. County staff reviewed the usage records for 2010-2012 and determined that is would be a cost savings to the program to sell the vehicle and either (a) pay staff mileage reimbursement, or (b) instruct staff to check out a County fleet vehicle on the occasions that field work is required. By coincidence, the Yolo County District Attorney's office was looking for a vehicle at the same time that Natural Resources was looking to sell one. The vehicle was transferred to the District Attorney's office for $20,000. In addition to the savings realized by selling the vehicle and by eliminating on-going maintenance costs, utilizing an in-house buyer also saved the program the cost of sale and advertising (typically around 7%).

7.3 FUNDING

The CCAP, and specifically the Cache Creek Resources Management Plan (CCRMP) and Cache Creek Improvement Program (CCIP), are funded through aggregate mining fees paid by aggregate producers within the CCAP boundary. The Gravel Mining Fee Ordinance, adopted by the Board of Supervisors in 1996 and amended in April, 2007, imposes a fee on each ton of gravel sold (not mined) within the CCAP, for monitoring and restoration of Cache Creek, as well as administration of the program.

7.3.1 Gravel Mining Fee Breakdown by Fund

Pursuant to the Gravel Mining Fee Ordinance, Section 8-11.01(a) and (c), the calculated fee split over ten years is as follows:

Figure 4: Calculated Fee Split (1997-2016)

Effective Dates	Total $ per ton	CCRMP	M/R	OCMP	CCC	Surcharge[1]
1/1/97 to 3/31/07	*0.20*	*0.10*	*0.02*	*0.03*	*0.05*	*0.10 (original)*
4/1/07 to 12/31/07	0.45	0.25	0.02	0.08	0.10	0.20
1/1/08 to 12/31/08	0.468	0.26	0.021	0.083	0.104	0.20
1/1/09 to 12/31/09	0.487	0.271	0.021	0.087	0.108	0.20
1/1/10 to 12/31/10	0.506	0.2813	0.0223	0.0901	0.1123	0.20
1/1/11 to 12/31/11	0.526	0.292	0.023	0.094	0.117	0.20
1/1/12 to 12/31/12	0.547	0.3041	0.0241	0.0974	0.1214	0.20
1/1/13 to 12/31/13	0.569	0.3163	0.025	0.1013	0.1263	0.20
1/1/14 to 12/31/14	0.592	0.3292	0.026	0.1054	0.1314	0.20
1/1/15 to 12/31/15	0.616	0.3425	0.0271	0.1096	0.1368	0.20
1/1/16 to 12/31/16	0.64	0.355	0.028	0.113	0.142	0.20

Note: Cents-per-ton fee split shown to four decimal places only where necessary to allow for exact split of collected fees.
1) No proportional annual increase on the Production Exception Surcharge
Source: TSCHUDIN CONSULTING GROUP, June 2, 2010

The Fee Ordinance identifies allowable expenditures as follows:

The **CCRMP implementation fee** is to be used to implement the CCRMP and CCIP. Specifically, it can be used for the design and construction of projects for channel stabilization and bridge protection; the design and construction of channel maintenance projects; monitoring, modeling, and flood watch activities per the CCIP; and compensation of the TAC.

The **Cache Creek Conservancy** contribution is to be used for habitat restoration and enhancement along Cache Creek, and revegetation projects consistent with CCRMP creek stabilization objectives.

The **Off Channel Mining Plan (OCMP)** administration fee is to be used for the implementation of the OCMP, administration of the long-term mining permits and Development Agreements, and inspection of mining and reclamation operations.

The **Maintenance and Remediation** fee is to fund a long-tem, interest-bearing account for the following future activities: the correction of mercury bioaccumulation problems after reclamation has been completed, if necessary; clean-up hazardous materials contamination after reclamation is completed, if necessary; extended environmental monitoring of the off-channel mines, including data gathering and groundwater modeling, beyond that required in the mining permits; and maintenance

of publicly held lakes within the plan area. No expenditures may be drawn from the Maintenance and Remediation fund until January 2027, at which time the fund shall be made available for the activities identified in the ordinance.

The Twenty Percent **Production Exception Surcharge** is collected for any amount of aggregate sold in excess of annual permitted production. These funds are to be divided evenly between the CCRMP Implementation fund and the Maintenance and Remediation fund.

Fee calculations for the current year are based on tons sold during the previous year. In 2011, the aggregate sales within the CCAP totaled 1,869,151 tons, resulting in fees due in 2012 of $983,173. Tons sold in 2011 were slightly higher than tons sold in 2010 (which were the lowest in CCAP history). However, this is consistent with the economic downturn that is affecting all industry sectors. It should be noted that, at the discretion of the County, up to 35 percent of the CCRMP fee paid by aggregate producers may be offset by costs incurred from participating in channel improvement projects. However, such offsets cannot be utilized for bank protection mitigation measures required under the off-channel mining permits. There were no fee offsets in 2012.

7.3.2 Program Audits and Review

As required by the Gravel Fee Mining Ordinance, Sec 8-11.02(f), County staff initiated a review of the fee revenue and expenditures in 2012 to verify that program activities and expenditures fall within the scope of the CCAP, and to verify deposits into appropriate funds.

The Natural Resources division contracted with the Yolo County Auditor-Controller's office to perform the review, which will cover transactions during the period of July 1, 2009 through June 30, 2011. The following review objectives pertain to all fee revenue, including that paid to the Cache Creek Conservancy:

1. Determine that gravel mining fee revenue was computed correctly (based on tons sold),
2. Determine that all mining fees paid have been properly classified, and
3. Determine that expenditures incurred fall within the scope of the CCAP.

The Auditor-Controller's office will review internal controls over billing and accounts receivable to assess compliance with the both the Gravel Mining Fee Ordinance and Yolo County policies and procedures.

The results of the biennial review are not expected until the end of 2012. The results of this review will be included in the 2013 Annual Report.

The County is also required to biennially audit tonnage claims and revenue deposits (Section 8-11.05(b), Gravel Mining Fee Ordinance). The Natural Resources Division conducted an analysis comparing the MRRC-2 document to the Assessor's report, and to the CCAP required tonnage report, along with the discrepancy explanations provided by the aggregate producers. The Auditor-Controller has determined that this analysis satisfies the "tonnage claim" audit requirement. Please

note, however, that this particular ordinance section also requires auditing revenue deposits to verify that the amount collected actually reflects actual tonnages sold, and to verify that funds have been deposited correctly will be undertaken as part of the expenditure audit that is currently under way and is a requirement of section 8-11.02 (f) of the Fee Ordinance.

7.4 CCRMP BUDGET

The Cache Creek Area Plan (CCAP) budget consists of three (3) distinct funds: The CCRMP, the OCMP, and the Maintenance and Remediation funds. The portion of the fees paid by the aggregate producers that is ear-marked for the Cache Creek Conservancy is paid directly to the Conservancy and therefore is not included in the County's budget for the CCAP. For a complete breakdown of the CCAP budget, please see the Final County Budget available on line at http://www.yolocounty.org/Index.aspx?page=933.

Figure 5: Final Adopted 2012-2013 Budget

Fiscal Year 2012-13 Budget **Fund 032 BU2972 CAO-CACHE CREEK RESOURCE MGMT**		
Major Object		**FY2012-13 Adopted Budget**
SALARIES AND EMPLOYEE BENEFITS	$	201,399.00
SERVICES AND SUPPLIES	$	535,720.00
OTHER CHARGES	$	2,250.00
FIXED ASSETS-STRUCTURES/IMPS	$	43,000.00
Total Appropriation	**$**	**781,319.00**
FEES AND PERMITS-SAND & GRAVEL	$	511,353.00
INVESTMENT EARNINGS	$	18,000.00
Total Revenue	**$**	**529,353.00**

7.4.1 Expense Summary - FY2011-2012

CCAP FY 2011-12 Income and Expense Recap

	FUND 032	FUND 036	FUND 053	TOTALS
REVENUE				
Permits & Fees	$516,716.62	$ 41,340.96	$ 165,270.30	$723,327.88
Investment Earnings	$6,702.15	$ 50,423.01	$ 4,505.88	$61,631.04
Sales of Imprinter	$8,611.12			$8,611.12
TOTAL Revenue	**$532,029.89**	**$ 91,763.97**	**$ 169,776.18**	**$793,570.04**
EXPENSE				
Salaries & Benefits	$208,084.21	$ -		$208,084.21
Service & Supplies*	$432,112.01		$ 83,599.47	$515,711.48
TOTAL Expense	**$640,196.22**	$ -	**$ 83,599.47**	**$723,795.69**
net gain (loss)	($108,166.33)	$ 91,763.97	$ 86,176.71	
Ending Balance	$1,092,721.24	$ 1,522,699.01	$ 789,995.29	**$3,405,415.54**

*Breakdown of Service and Supplies will be forthcoming

Only $21,989.62 of program carryforward was utilized in FY 2011-12

Note:

Fund	Program Area
032	CCRMP
036	Maintenance & Remediation (Restricted Fund)
053	OCMP

Those expenditures above and beyond the anticipated revenue were covered by the residual program fund balance. For FY 2011-12, the program used $21,990 of the residual program fund balance.

7.5 GRANTS

7.5.1 Yolo County Sheriff's Department

This is the third year (beginning with FY 2009-10) that the Sheriff's department has been the recipient of Off Highway Vehicle (OHV) grant funds from California State Parks for OHV related patrol and enforcement activities in the CCRMP area. Not only is the illegal use of OHV's in the creek an enforcement problem, OHV use in Cache Creek can be problematic when it destroys riparian vegetation, and contributing to an increase in erosion on the creek banks (CCRMP, p. 68). For FY 2012-2013, the Yolo County Sheriff was awarded a grant of approximately $27,000. Figure 4 below provides a summary of how 2011 grant funds were utilized.

Figure 6 - Summary of 2011-2012 Grant-funded OHV Enforcement Activity

Enforcement	Training	Equipment/Repairs
Hours of enforcement: 566	Dual purpose motorcycle training course (1 deputy)	Upgrade equipment for Polaris OHV
No. of contacts: 1967	OHMV Course (2 deputies)	Additional equipment purchased
No. of citations: 25	Sound Testing course (2 deputies)	
No. of arrests: 1		
Calls for services: 11		
Total: $40,246	**Total: $2,428**	**Total: $13,073**

Source: Yolo County Sheriff's Department

7.5.2 Cache Creek Conservancy

In 2011, the Cache Creek Conservancy received a California State Parks OHV Mitigation grant for $31,662. The grant is to be used for habitat restoration to offset the effects of Off-Highway Vehicles. The grant award covers a 3-year funding period. The funding period is Sept. 1, 2011 through August 31, 2014. The grant requires a minimum match of $32,954, increasing the project total to nearly $65,000.

As of August 31, 2012 the Conservancy used about 40% of the grant allocation for restoration and mitigation work at three sites: Cache Creek Nature Preserve, Correll-Rogers Water Recharge and Habitat site, and Wild Wings Park.

The Cache Creek Conservancy also received a grant from the Yocha Dehe Community Fund in 2012. The grant will provide the Conservancy with $50,000 over the next three (3) years for improvements to the Nature Preserve's Tending and Gathering Garden. The Tending and Gathering Garden (TGG) is a collaborative effort between the Native American community and the Cache Creek Conservancy to demonstrate the traditional land and plant management practices of California's native people. Two acres have been restored with native plants found within the Cache Creek watershed. These plants are used for basketry, food, fiber, shelter, medicine, and watercraft. The TGG provides a place for "hands-on" education including plant identification, plant use, and traditional management methods. Projects like the TGG support the goals of the CCRMP including the development of high quality natural habitat (p. 56) and the establishment of a variety of educational opportunities along Cache Creek for use by the public (p. 71). The Nature Preserve is a county-owned property.

7.5.3 Yolo County, Natural Resources Division

The National Park Service renewed its 2011 award to Yolo County of the River, Trails, and

Conservation Assistance (RTCA) program for technical assistance in the development of a Cache Creek Parkway Plan. Technical assistance from the National Park Service includes providing advice, in-kind assistance, services, and/or training to Yolo County staff. The Parkway Plan will build on the vision provided in Chapter 5 (Action 5.4-2) of the CCRMP by developing a coherent use plan for the lands and lakes that will be dedicated to the County in the coming years, enhancing opportunities for land and water-based recreation, riparian habitat conservation and restoration, and increased groundwater recharge. Technical assistance through the RTCA grant will enable County staff and partner organizations to draw on RTCA's extensive experience working on conservation and trail planning projects throughout the country. On February 28th, 2012, the Yolo County Board of Supervisors approved the Scope of Work for the Cache Creek Parkway Plan. The approved Scope of Work is included as Appendix G. Staff anticipates completing the following tasks in 2013:

1. Background Report comprised of three pieces: a Property Catalog, Plan Development Overview of other planning efforts, and Property Ownership Information (for workshops, public noticing, plan development, etc.).

2. Concepts and Visions Report involving two sequential components:

    a. Identify preliminary parkway concepts and visions for each property, using the Background Report;
    b. Public Outreach -- stakeholders, agencies, property owners, the gravel producers, Planning Commission Workshop, etc.

3. Preliminary Parkway Plan circulated for public review and comment

7.5.4 Water Resources Association of Yolo County (WRA)

In 2011, the WRA of Yolo County agreed to provide $35,000 in funding to the Cache Creek Watershed Forum, with the Yolo Resource Conservation District as the implementing body, for a grant to prepare a Cache Creek Watershed Wide Invasive Species Management Plan. Finished in 2012, the plan coordinates and guides invasive removal in the Cache Creek watershed including the CCRMP area. Per the CCRMP (p. 48) invasive species have been aggressive colonizers along the creek. Certain species, such as tamarisk and arrundo, can alter stream flow as well as lower local surface and groundwater levels. The Cache Creek Watershed Wide Invasive Species Management Plan is a watershed wide effort that supports two of the CCRMP's actions related to Biological Resources: 1) The removal of vegetation, tamarisk and giant reed in particular, when it threatens channel stability (4.4-2); and 2) The eradication of invasive species (4.4-3).

In addition, the WRA, in partnership with the Yolo County Flood Control and Water Conservation District (YCFCWCD), has continued to provide grant funding in 2012 for two (2) projects of interest to the CCAP.

The first project funded, the Water Resources Information Database (WRID), is the integration of the existing Yolo County Groundwater Monitoring Program and recently developed framework for a new Yolo County Surface Water Monitoring Program. This effort supports nearly all of the goals and

objectives identified in the Water Resources chapter of the CCRMP (p. 43). The YCFCWCD currently operates an on-line database that is used to track groundwater data. This project will create an on-line database that serves as repository of county-wide data for both ground and surface water. Data on water quality and quantity can then be used by interested parties to make comparisons, track trends, and conduct more thorough analysis. Total contribution from the WRA in FY 2012-2013 is $35,000.

The second project funded is the "Mercury TMDL Impacts and Implementation Assessment" project. This project encompasses the following activities that will provide direct benefit to the Cache Creek Watershed and the CCAP:

1. Provide an inventory for all mercury TMDL-required activities and document recent, on-going, and planned activities.

2. Provide as-needed regulatory consulting services on behalf of the WRA and its member agencies.

7.6 APPLICATIONS FOR IN-CHANNEL ACTIVITIES

As required under the CCIP (p. 6-8), the TAC is responsible for "the review of the design of projects requiring Floodplain Development Permits within the CCRMP channel boundary." The recommendations are then forwarded to the Floodplain Administrator for a final decision. The TAC reviewed one (1) application for a Flood Hazard Development Permit in 2012. The application was submitted in January 2012 by Pacific Gas & Electric. The application is discussed in detail in Chapter 2.

7.7 STATUS OF PROGRAMMATIC PERMITS

The CCRMP relies on several programmatic federal and state permits/approvals that allow for annual implementation of in-channel activities and successful adaptive management. The County is in the process of seeking reauthorization of several of these permits, which streamline the process for channel improvement and habitat restoration projects in the CCRMP area. The status of each of these permits is summarized below.

7.7.1 U.S. Army Corps of Engineers (USACE)

Construction activities within wetland areas, as defined under the Federal Clean Water Act, require prior approval of a Section 404 permit from the USACE to allow for discharge into waters of the United States. The term of the original Regional General Permit No. 58 issued by the USACE was July 1997 through July 2002 for in-stream activities conducted within the CCRMP area. This permit was renewed in May 2004 for another five-year term extending through May 2009. The County applied for a third reauthorization of this permit in 2010, and has been engaged in the reauthorization process throughout 2011 and 2012. A public notice concerning the reauthorization was issued in

September 2012. Since the expiration of the public notice comment period in October, 2012, the USACE has initiated a Section 7 consultation with the US Fish and Wildlife Service (USFWS). The regional general permit is a valuable streamlined process for supporting habitat restoration and channel stabilization and maintenance activities on Lower Cache Creek, and is integral to achieving the goals and objectives of the CCAP and of multiple partner agencies.

7.7.2 U.S. Fish and Wildlife Service (USFWS)

As a part of the approval process for the Section 404 permit, the USACE is required to consult with the USFWS regarding a project's potential effects on federally listed threatened and endangered species. In September 1996, the USFWS issued a biological opinion for Valley Elderberry Longhorn Beetle (VELB), the only federally listed species to occur in the CCRMP area. This opinion was relied upon by the USACE in the original and second reauthorization of the regional general permit. As part of the process to secure the third reissuance of the USACE Section 404 permit the County submitted a new draft Biological Assessment to the USACE in August 2012 for use in the consultation process with the USFWS. Since that time, the USACE has initiated a Section 7 consultation with the USFWS and has forwarded the draft Biological Assessment for their review and use in determining potential impacts on federally-listed species.

7.7.3 California Department of Fish and Game (CDFG)

Construction activities within the defined bed and banks of stream channels require prior authorization from the CDFG through the Streambed Alteration Agreement process defined under Section 1600 of the State Fish and Game Code. The term of the original general 1600 authorization issued by the CDFG was July 1997 through June 2002. This permit was renewed in August 2002 for another five-year term extending through August 2007. An interim extension through December 2007 was subsequently granted. In August, 2008, the general 1600 authorization was replaced by a Section 1602 Memorandum of Understanding, which establishes an individual project permit template. A third reauthorization of the original general 1600 authorization will be sought in 2013.

7.7.4 Regional Water Quality Control Board (RWQCB)

Water Quality Certification, issued by the RWQCB pursuant to Section 401 of the Clean Water Act, is required in order to implement the Army Corps 404 Permit. The term of the original general 401 Certification issued by the Central Valley RWQCB was July 1999 through July 2002. This permit was reissued in August 2002 for a seven-year term extending through May 2009. In 2011, Yolo County submitted an application to the RWQCB requesting a third reauthorization of the 401 Water Quality Certification. The County has continued to coordinate with RWQCB staff in addressing their concerns throughout 2012. County staff anticipates that the 401 Certification will be issued by the RWQCB in spring of 2013

7.7.5 California Department of Conservation Compliance with the Surface Mining and Reclamation Act (SMARA)

Pursuant to CCRMP Action 2.4-15 the County presented a request in 1997 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. The Board rejected the request and determined that the CCRMP was subject to SMARA, so a legislative solution was sought. In 1999 AB 297 (Thomson) was passed to amend SMARA to recognize the CCRMP as the functional equivalent of a Reclamation Plan for purposes of SMARA compliance. This legislation expired December 31, 2003. In 2004 AB 1984 (Wolk) reauthorized the legislation with an expiration of December 31, 2008. In 2007 AB 646 (Wolk) reauthorized the legislation a third time with an expiration of December 31, 2012. In 2011 SB 133 (Wolk) reauthorized the legislation a fourth time with an expiration of December 31, 2017.

7.8 PARTNER ORGANIZATIONS

The following entities are important partners with the County in implementing the CCRMP and CCIP:

7.8.1 Cache Creek Conservancy (CCC)

The Cache Creek Conservancy (CCC) is a 501(c)3 non-profit corporation whose mission is to preserve, restore, enhance, and promote the stewardship of the stream environment along Cache Creek. The CCC, created in 1996, manages land for wildlife habitat, controls invasive plants, and provides environmental education within the lower Cache Creek. It receives fees generated by the Cache Creek Area Plan, as well as funding from state, federal, and foundation grants. CCC is staffed by three (3) full time employees: Executive Director, an Administrative Assistant, and a Habitat Restoration Manager; and two (2) part time employees: a project coordinator and an education coordinator. All staff works under the direction of an independently elected Board of Directors. The CCC and the County have collaborated on a number of joint ventures related to the creek, including management of County-owned lands such as the Correll-Rodgers property, the Milsap property, and the Cache Creek Nature Preserve.

In support of the goals listed in the CCRMP (Goal 5.2-2, p. 71 and Goal 5.5-5, p.73) the Conservancy has developed an environmental education curricula that has become increasingly popular in recent years. October 2012 was their busiest month ever, with all available tours booked for the entire month. The Cache Creek Conservancy, through its environmental education program, primarily offers these tours of the Nature Preserve to school groups.

It was noted during the extensive review of programmatic documents (contracts, agreements, etc.) that occurred this year that the Cache Creek Conservancy has been accommodating slightly larger class sizes for their educational programs than what was agreed upon in the Licensing Agreement between Yolo County, Teichert, and the Cache Creek Conservancy. Upon review by the Yolo County Attorney's office it was determined that a letter signed by all parties to the Licensing Agreement was needed for documentation. The letter formally memorializes that:

1. class sizes have increased, in general, over the last 20 years, and
2. the Cache Creek Conservancy is operating within the intent of the original agreement.

A draft of the Conservancy's 2012 Annual Report is provided as Appendix H.

7.8.2 Yolo Chapter of the California Construction and Industrial Materials Association (CalCIMA)

CalCIMA is a trade association for the construction and industrial material industries in California, which includes aggregate, industrial mineral, and ready mixed concrete producers. The members of the Yolo Chapter of CalCIMA include Granite, Syar, Teichert, and CEMEX. CalCIMA and the member Producers are active partners in the implementation of the CCAP. The County and CalCIMA meet regularly in order to enable feedback and participation in program implementation. Producer representatives regularly attend CCAP TAC meetings, the annual Creek Walk and other program related activities. The producers individually, and the trade association, are all active participants in the program. The producers initiated the original effort to develop the CCAP and subsequently paid for the entire planning process. Both the industry and the County have benefited greatly from the resulting program which continues to be a model throughout the state

7.8.3 Yolo County Flood Control and Water Conservation District (YCFCWCD)

YCFCWCD's mission is "To plan, develop, and manage the conjunctive use of the District's surface and groundwater resources to provide a safe and reliable water supply at a reasonable cost, and to sustain the socioeconomic and environmental well-being of Yolo County." YCFCWCD's boundaries cover 195,000 acres of Yolo County, including the entire CCRMP area. The District operates Clear Lake, Indian Valley Reservoir, and owns the majority of water rights for Cache Creek. As such, YCFCWCD plays a central role in determining the flow of surface water within the Cache Creek watershed. The Capay Diversion Dam, at the upstream end of the CCRMP area, provides some of the water that the District distributes through more than 150 miles of canals and laterals. YCFCWCD is an important partner in stream restoration projects. YCFCWCD manages the Water Resources Association's groundwater monitoring program that provides valuable data that helps inform the CCRMP's impacts on groundwater. As discussed in the "Grants" section above, the YCFCWCD is working with the WRA to implement the WRID.

7.8.4 Yolo County Resource Conservation District (RCD)

The mission of the Yolo County Resource Conservation District (RCD) is to protect, improve, and sustain the natural resources of Yolo County. Resource Conservation Districts were first created as a result of the "Dust Bowl" crisis. Originally focusing on soil and water issues, the mission has broadened to include fish and wildlife habitat restoration, farmland preservation, and control of invasive plant and animal species. The Yolo RCD provides technical guidance, education, and on-site expertise for private landowners and growers, cities, schools, agencies, businesses, and research institutions. The Yolo County RCD is a lead agency in managing invasive plants throughout the Cache Creek watershed. As mentioned above, in 2011, RCD was awarded a grant by the Water Resources Association of Yolo County for the development of a Cache Creek

Watershed-wide Weed Management Plan. The plan was finalized in the fall of 2012 and will articulate priorities for invasive plant management throughout the watershed.

APPENDICES

Appendix A Geomorphology Creek Walk Notes, Dr. Eric Larsen, August 2012

Appendix B Hydrology Creek Walk Notes, Dr. Mark Tompkins,

Appendix C Biological Resources Creek Walk Notes, Jim Martin,

Appendix D Cache Creek Working Study Area Boundary, Dr. Eric Larsen, October 2012

Appendix E Surface Water Quality Protocol Recommendations, Dr. Mark Tompkins, October 2012

Appendix F Sediment Transport Estimates, Dr. Eric Larsen, November 2012

Appendix G Parkway Plan Base Map and Scope of Work, approved by the Yolo County Board of Supervisors, February 28, 2012

Appendix H 2012 Draft Annual Report, Cache Creek Conservancy