4.10 AESTHETICS

#### 4.10 AESTHETICS

#### INTRODUCTION

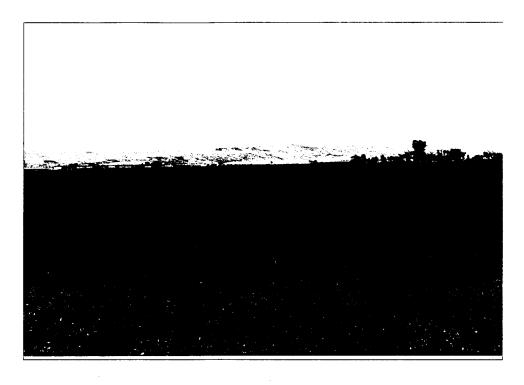
The following section describes the existing landscape character in the lower Cache Creek area with emphasis on the Cache Creek corridor, and discusses various groups of the viewing public in terms of their locations and relative numbers. Existing visual resources within the CCRMP planning area are identified. A brief description of the methods by which the CCRMP and project alternatives are evaluated for their affect on and compatibility with the visual character of planning area is provided. Consistency with relevant aesthetic policies of the Yolo County General Plan is also discussed. Photographs representing typical views and visual conditions within the planning area are provided in Figures 4.10-1 through 4.10-8.

#### **SETTING**

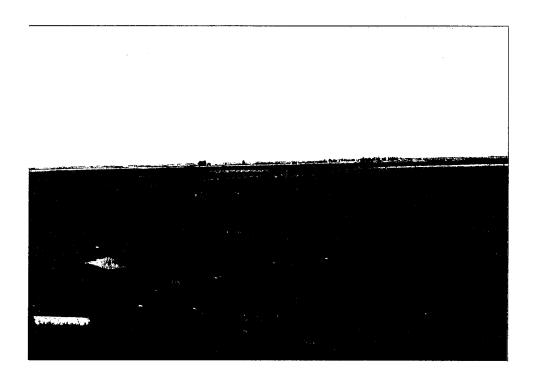
## **Landscape Character**

The regional landscape of the planning area consists of broad, generally flat agricultural lands in the Sacramento Valley. Occasional rolling terrain and winding creeks are also part of this landscape. Expansive farm fields are dominant visual forms, including cultivated crop fields, pasture, or orchards. Non-agricultural tree cover is relatively sparse. The gently- to steeply-sloped hillsides of the Coastal range can be seen in long-range views as they rise to form the western horizon several miles to the west. The Sierra Nevada Mountains can be seen on clear days in very long-range views to the east. The planning area is dominated by agricultural land uses, with low-density residential development located in the communities of Esparto, Madison and Capay. These features contribute to the predominantly rural character of the area.

Farming operations in the planning area typically involve the use of heavy equipment (tractors, cultivators, harvesters, trucks, etc.) in a seasonal cycle of field preparation, planting, growing, and harvesting. The appearance of large farm equipment operating within the fields and traveling on local or county roads is common. The appearance of the fields themselves evolves annually, depending on the type and number of crops produced during a season. In the case of cultivated crops, fields appear as barren earth after harvesting and prior to planting. As the growing season progresses and the crops mature, the fields yield a dense, green cover mechanically arranged into evenly spaced rows which gives the ground a highly ordered and organized appearance.



View looking west from within the planning area (State Highway 16 near Rd. 89)



View looking east from within the planning area (Rd. 85 north of Cache Crekk)

Figure 4.10-1 Typical Views of the Planning Area (Photographs 1 and 2)

**SOURCE: EDAW** 



Farm fields along State Highway 16 east of I-505

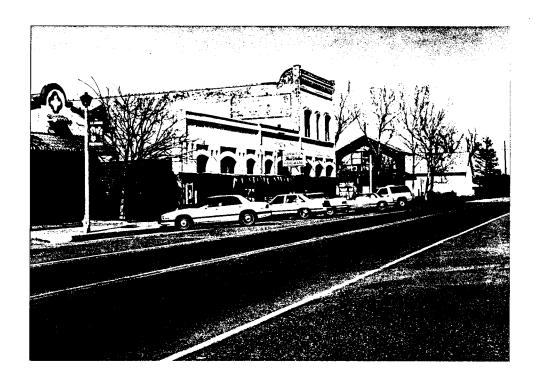


Orchards along Rd. 87

Figure 4.10-2 Typical Views of the Planning Area (Photographs 3 and 4)

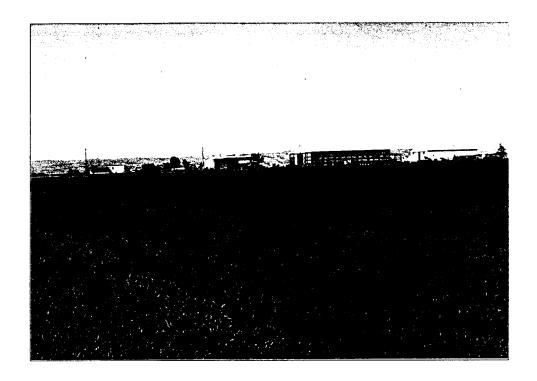


Electric power transmission lines along I-505

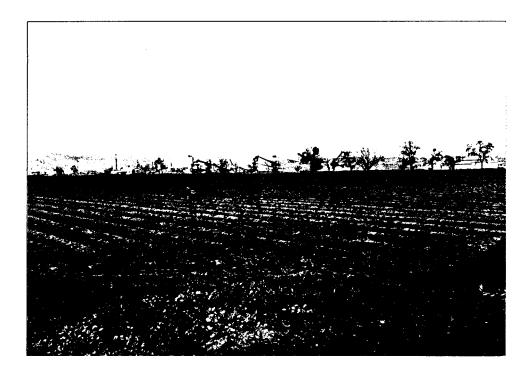


The community of Esparto

Figure 4.10-3 Typical Views of the Planning Area (Photographs 5 and 6)



Development associated with agricultural operations along State Highway 16



Development associated with aggregate mining near I-505

Figure 4.10-4 Typical Views of the Planning Area (Photographs 7 and 8)

**SOURCE: EDAW** 



Cache Creek from Rd. 85 looking west



Cache Creek from Rd. 85 looking east

Figure 4.10-5 Typical Views of the Planning Area (Photographs 9 and 10)



Cache Creek from Rd. 87 looking west

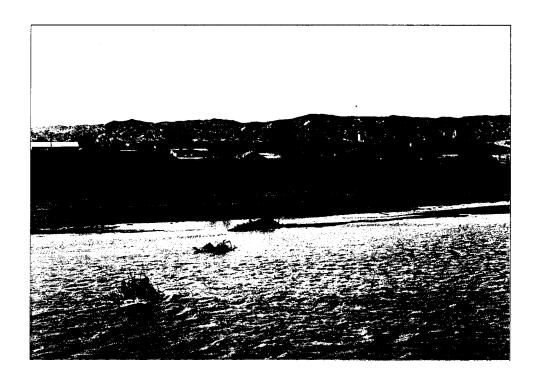


Cache Creek from Rd. 87 looking east

Figure 4.10-6 Typical Views of the Planning Area (Photographs 11 and 12)



Cache Creek from Rd. 89 looking west

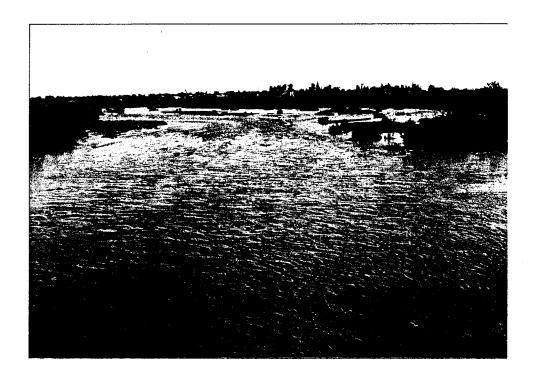


Cache Creek from Rd. 89 looking south

Figure 4.10-7 Typical Views of the Planning Area (Photographs 13 and 14)



Cache Creek from Rd. 94A looking west



Cache Creek from Rd. 94A looking east

Figure 4.10-8 Typical Views of the Planning Area (Photographs 15 and 16)

Most trees and large shrubs are found growing around pockets of rural development or along stream courses. These conditions provide for generally open, unobstructed views. In clear weather, typical views can extend for many miles. Fog is common in this region during certain times of the year (and certain times of the day), and can substantially limit viewing distances.

Major roads in the area include Interstate 505 (I-505) (which runs north-south through the planning area), Interstate 5 (I-5) (running north-south at the eastern margin of the planning area), and State Highway 16 (which runs east-west, south of and parallel to the planning area). State Highway 16 is a designated "Local Scenic Highway" through the Capay Valley, but not in the planning area itself. County roads and local streets which connect to the regional roadway network, form a wide, fragmented grid through the planning area. I-505 is a readily visible feature of the landscape, particularly at points where it crosses local roads.

Four major electric power transmission corridors cross the planning area in a generally north-south direction, including:

- Table Mountain-Vaca-Dixon (500 kV), which runs parallel to I-505 to a point between County Road 19 and Cache Creek, then turns in a northeast direction;
- Pit-Vaca-Dixon (230 kV), which runs also runs parallel to I-505, turning to the northwest where Table Mountain turns to the northeast;
- Shasta-Tracy (C.V.P.), which runs parallel and to the east of I-505, then turns to the northwest in parallel alignment to the Pit-Vaca-Dixon line; and
- Drum-Vaca-Dixon (115 kV), which runs in a southwest-to-northeast direction, in a parallel alignment to Table Mountain once it turns to the northeast.

These transmission lines are supported on tall, steel lattice towers of various designs, and are prominently visible from many locations in the planning area.

#### **Cache Creek**

Within the planning area where agriculture dominates the broad, open landscape, Cache Creek is an important visual feature. The 14.5 mile segment of lower Cache Creek from Capay Dam eastward to Yolo, which forms the central core of the CCRMP planning area, is in many places heavily disturbed by active and past surface mining operations within and along its banks. A total of 543 acres of the Cache Creek channel (of 4,999 acres within the planning area) are being mined, mostly under permits approved in 1980 that are based on operational and reclamation regulations adopted in 1979. The in-channel mining process includes the removal of vegetation and the alteration of natural landforms into various pits and piles that feature unnatural, engineered sides, slopes and shapes. At

active mining sites, there is the additional visual presence of heavy equipment (graders, scrapers, trucks, etc.).

Extraction of gravel from Cache Creek has been shown to affect sediment transport, bank erosion, scour, stream channelization and meandering. In-stream mining has created a sediment deficit that, among other factors, has contributed to the lowering of the streambed, which in turn increases scour and flow velocity resulting in a generally imbalanced, unstable channel. Disturbed sites often become invaded by non-native, undesirable vegetation (tamarisk and giant reed).

Degraded conditions of Cache Creek and the visual effects of in-channel mining can be seen where public roads cross the creek, including County Road 87, I-505, CR 94B, and CR 97A. CR 85 also crosses Cache Creek but is currently closed due to unsafe bridge conditions. Previously, CR 89 crossed the creek as well but has been closed since 1978 due to bridge failure. Except for these roads, there is little public access to the creek within the CCRMP planning area. There are no public roads near the banks of or parallel to the creek that provide open views.

#### **Viewers**

Residents of the communities of Capay, Esparto, Madison and the City of Woodland represent the primary viewer group in the vicinity of the planning area. Because of the extended duration and relative permanence of views from communities, the sensitivity of residential viewers (i.e., sensitivity to changes in the appearance of the landscape relative to visual quality) is generally considered to be higher than that of motorists. Near-range (direct) views of active or past surface mining sites do not occur from these population centers. There are no public recreation areas from which near-range views of existing mining operations occur. Within the planning area, public parks are located in Esparto and Madison, and a private golf course and clubhouse are located adjacent to the Watts-Woodland Airport. Mid-range and long-range views of Cache Creek occur from these vantage points.

The secondary viewer group within the planning area is made up of persons traveling on County roads and I-505. State Highway 16 remains south of and sufficiently distant from Cache Creek so that direct views of the creek or in-channel mining operations (active or past) do not occur. As I-505 passes through the planning area in a generally north-south direction, it continually provides near-range to long-range views of the surrounding area. Very brief views of Cache Creek occur at the point where I-505 gently rises and crosses the creek. Active mining operations (Solano and Syar) are visible in this area from I-505. Large numbers of persons travel I-505 through the planning area. County and local roads such as CR 87, CR 89, CR 94B, and CR 97A provide the most visual access to Cache Creek and to aggregate mining, especially where they are near active or past operations. The number of persons traveling County and local roads is relatively few as compared I-505.

## **Study Methods**

The way in which the landscape would change as a result of the project and each alternative, and the conditions under which the public would see those changes, were evaluated relative to the existing visual conditions along Cache Creek and the surrounding area. Consideration was given to whether visual evidence of landscape disturbance within the channel will be increased or decreased as a result of project actions and alternatives. Impact evaluations were based on the qualitative change in landscape appearance (positive or negative), as compared to existing conditions, and its compatibility with adjacent areas.

Locations at which public views of Cache Creek occur within the planning area were identified. The scenes (existing conditions) were photographed and examined. Expected changes in the appearance of the scenes, based on implementation of the project and the alternatives, were identified. In each case, future conditions (resulting from the project and alternatives) were compared to existing conditions to determine if visual quality would be enhanced, remain essentially unchanged, or be decreased.

#### REGULATORY SETTING

## **Yolo County General Plan**

The Yolo County General Plan contains a number of policies intended to preserve the rural scenery and aesthetics of the area, including:

OS 9	Scenic Areas. Yolo County shall plan to maintain scenic highways and waterways or riverbank corridors of scenic value as part of its open space preservation program.
CON 27	Landscaping/Screening. Yolo County shall require assured landscaping between certain uses which may otherwise conflict.
SH 6	River Roads. Yolo County shall consider designating "river roads" as designated scenic highways.
SH 7	Natural Vegetation and Landscaping. Yolo County shall require retention of existing trees and vegetation and natural landforms, and shall require landscaping to enhance scenic qualities and/or screen unsightly views.

#### IMPACTS AND MITIGATION MEASURES

#### Standards of Significance

The project would have a significant effect on visual resources if it would:

Substantially affect a scenic area, vista, or view open to the public in an adverse way.

- Create visual incompatibility with surrounding land uses.
- Introduce a negative visual element (e.g., create light or glare).
- Conflict with the applicable goals and/or policies of the Yolo County General Plan.

Impact 4.10-1
Effects on the Visual Character and Quality of Cache Creek.

#### **Draft CCRMP**

The CCRMP addresses the degradation of Cache Creek within the planning area through actions aimed at stabilizing the creek channel, establishing a more natural channel floodway capable of safely conveying floodwaters, and restoring much of the riparian ecosystem and habitat that once existed. One of the stated goals in the CCRMP is to improve scenic resources within the Cache Creek channel (CCRMP policy 5.2-1).

Toward its objectives, the CCRMP would significantly reduce the amount of aggregate removed from within the channel (but not prohibit it altogether) in order to allow the creek to aggrade and thereby reduce the amount of scour that presently occurs. Future inchannel excavations would be limited to the 100-year floodplain and existing operations that mine outside the active channel would continue as currently permitted.

Also under the CCRMP, portions of the creek between Capay Dam and the Town of Yolo would be manually reshaped. In these areas, the present channel would be sculpted to slightly widen constrictions, smooth bank lines and eliminate abrupt changes in channel widths. Selected banks and levees would be excavated to provide gentle transitions into and out of channel bottlenecks presently created by bridge structures. Jetties would be created in some areas to encourage expansion of the creek banks. These actions would smooth the abrupt width and slope changes that occur along Cache Creek. In addition to physical modifications of the channel, the County would seek to acquire a perennial flow of surface water in Cache Creek through upstream releases from Capay Dam when sufficient water supplies are available. This would create a stable low-flow channel that would reinforce the regrading work.

Primary actions of the CCRMP with direct relevance to visual resources include:

- minimizing scour and erosion around County and State bridges;
- restoring riparian woodland habitat in a continuous corridor along Cache Creek and establishing a series of wildlife preserves;
- encouraging the use of riparian vegetation in stream bank and structure protection (rather than rip rap or other hard engineering solutions);

- linking recreational uses along the upper watershed to proposed recreation nodes within the planning area;
- developing a future Open Space and Recreation Plan that provides a range of public activities and uses along Cache Creek; and
- incorporating agriculturally-related features such as row crop forage areas and irrigation drainage systems into the design of habitat areas.

These actions would affect the appearance of the landscape in the following ways.

Reducing aggregate mining within the creek would have positive visual benefits. It would largely eliminate the visual presence of heavy equipment operating continuously within the channel and would end the removal of riparian vegetation and conversion of natural landforms into pits and piles with unnatural, engineered shapes.

Modification/restoration of the stream channel would eliminate adverse visual conditions associated with eroded or scoured portions of the channel or banks and protect against future erosion. It would also help restore previously modified landforms to more natural configurations. Excavating and grading necessary to modify and restore the channel would cause short term disturbance and require the visual presence of heavy equipment within the channel, but on a smaller scale than present commercial mining. The presence of water in the channel on a continuous basis (when adequate water supplies are available) would be visually beneficial.

Minimizing scour and erosion throughout the planning area would have positive visual benefits. Restoring the riparian woodland habitat in a continuous corridor along Cache Creek and establishing a series of wildlife preserves would greatly contribute to a near-natural appearance of the stream corridor and enhance visual quality. Among the various actions of the CCRMP that would benefit visual resources, this action has perhaps the greatest effect. The addition or restoration of native riparian trees and shrubs to the stream setting is itself visually beneficial. Wildlife preserves would attract various species whose visual presence would contribute to a more natural landscape character and would add visual diversity and interest.

Use of riparian vegetation in stream bank and structure protection, rather than rip rap or other hard engineering solutions, would also contribute to a more natural landscape character and would be visually preferred.

Linking recreational uses along the upper watershed to proposed recreation nodes within the planning area would facilitate recreation use of the Cache Creek corridor. This would provide greater opportunities for the public to visit the area enjoy the Cache Creek landscape. Incorporating agriculturally-related features such as row crop forage areas and irrigation drainage systems into the design of habitat areas would have little effect on visual resources since agriculture is a visually prominent and accepted part of the lower Cache Creek landscape.

In summary, the actions occurring under the CCRMP would have mostly beneficial visual effects, except for the short term adverse conditions during active modification/restoration of the channel. These would be less than significant impacts.

## Alternative 1a: No Project (Existing Conditions)

Under Alternative 1a, the County would not adopt the CCRMP and the stabilization and restoration of Cache Creek would not occur. At the same time, currently permitted inchannel mining would continue to operate based on the 1995 actual production for each producer. Degraded creek conditions within the planning area and any further degradation from ongoing in-channel mining would continue under Alternative 1a, thus perpetuating existing adverse visual conditions open to public view. This is a significant and unavoidable impact.

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

Under Alternative 1b, the County would not adopt the CCRMP and the stabilization and restoration of Cache Creek would not occur. At the same time, in-channel mining would continue based currently approved maximum annual allocations. The degraded creek conditions within the planning area and any further degradation from ongoing in-channel mining would continue under Alternative 1b, perpetuating the adverse visual conditions open to public view. This is a significant and unavoidable impact.

# Alternative 2: No Mining (Alternative Site)

Under Alternative 2, the County would not adopt the CCRMP and would not become involved with the stabilization and restoration of Cache Creek. Existing permits for in- or off-channel mining would be voided and aggregate mining in Yolo County would cease. Individual property owners would continue to have responsibilities for erosion control or other activities within the channel. The existing degraded creek conditions open to public view would continue. This is a and unavoidable significant impact.

## Alternative 3: Channel Bank Widening (Implement Streamway Influence Boundary)

Under alternative 3, local bridge structures would be extended in order to span a distance equal to the historical creek width. In-channel mining would be prohibited and natural forces would be allowed to occur without active management. Reshaping of the channel and restoration of riparian woodlands along the creek would not be carried out. Off-channel mining would be allowed.

It is expected that some degree of natural rehabilitation of the creek channel would occur without human intervention once in-channel mining ceases. However, the extent of restoration would likely be limited and the time frame over which positive changes would occur under natural forces only would be considerable. The positive visual benefits from an active creek restoration program would not occur. Therefore, the existing degraded creek conditions would continue for some time into the future, but would become less over time. This is a significant and unavoidable impact.

Mitigation Measure 4.10-1a (CCRMP)

None required.

Mitigation Measure 4.10-1b (A-1a, A-1b, A-2, A-3)

None available.

The only effective means of improving the existing degraded creek conditions open to public view is to actively restore the creek to a more natural appearance where it is visible from CR 85, CR 87, CR 89, I-505, CR 94A, and CR 97B. However, without the CCRMP or similar program, there is no enforceable means through which the County can require or undertake the restoration of Cache Creek and this impact would remain significant and unavoidable.

# Impact 4.10-2 Introduction of New Sources of Light and Glare

#### **Draft CCRMP**

None of the actions described in the CCRMP would introduce new sources of light or glare. Under the CCRMP, night time work would only occur in response to emergencies. It is assumed that the substantial reduction of in-channel mining operations under the CCRMP would likewise reduce the present low levels of glare reflected off of equipment currently operating within the channel and from nearby facilities. Equipment used in maintenance mining under the CCRMP would be a potential ongoing source of glare. Since current operations produce little glare, this is a less than significant impact.

# Alternative 1a: No Project (Existing Conditions)

Existing in-channel mining permits prohibit work to be done at night. Glare reflected off of equipment currently operating within the channel and from nearby facilities would continue under this alternative. However, current operations produce little glare. This is a less than significant impact.

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

Existing in-channel mining permits prohibit work to be done at night. Glare reflected off of equipment currently operating within the channel and from nearby facilities would continue under this alternative. However, current operations produce little glare. This is a less than significant impact.

## Alternative 2: No Mining (Alternative Site)

Under Alternative 2, existing permits for in- or off-channel mining would be voided and aggregate mining in Yolo County would cease. Glare from equipment operating within the channel and from nearby facilities would be eliminated.

## Alternative 3: Channel Bank Widening (Implement Streamway Influence Boundary)

Under alternative 3, local bridge structures would be extended to span the historical creek width. In-channel mining would be prohibited and natural forces would be allowed to proceed without active management. Glare from equipment operating within the channel and from nearby facilities would be eliminated.

Mitigation Measure 4.10-2a (CCRMP, A-1a, A-1b, A-2, A-3)

None required.

Impact 4.10-3
Consistency with Yolo County General Plan Policies

#### Draft CCRMP

Under the CCRMP, in-channel commercial mining would be eliminated from Cache Creek. Active restoration work would stabilize the creek channel, establish a more natural channel floodway capable of safely conveying floodwaters, and restore much of the riparian ecosystem and habitat that once existed. The CCRMP would also improve scenic resources within the Cache Creek channel.

These actions are consistent with the policies of the Yolo County General Plan applicable to scenic resources.

## Alternative 1a: No Project (Existing Conditions)

Under Alternative 1a, the County would not adopt the CCRMP and the stabilization and restoration of Cache Creek would not occur. At the same time, in-channel mining would continue based on the 1995 actual production for each producer. The existing aesthetic conditions within the creek would continue.

Current in-channel mining is consistent with applicable scenic resource policies of the Yolo County General Plan.

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

Under Alternative 1b, the County would not adopt the CCRMP and the stabilization and restoration of Cache Creek would not occur. At the same time, in-channel mining would continue based currently approved maximum annual allocations. The degraded creek conditions within the planning area and any trend toward further degradation from continued in-channel mining would continue, perpetuating adverse visual conditions open to public view.

Current in-channel mining is consistent with applicable scenic resource policies of the Yolo County General Plan.

# Alternative 2: No Mining (Alternative Site)

Under Alternative 2, the County would not adopt the CCRMP and would not become involved with the stabilization and restoration of Cache Creek. Existing permits for in- or off-channel mining would be voided and aggregate mining in Yolo County would cease. Individual property owners would continue to have responsibilities for erosion control or other activities within the channel. The existing degraded creek conditions would continue.

Actions under Alternative 2 would be consistent with applicable scenic resource policies of the Yolo County General Plan.

# Alternative 3: Channel Bank Widening (Implement Streamway Influence Boundary)

Under alternative 3, local bridge structures would be extended in order to span a distance equal to the historical creek width. In-channel mining would be prohibited and natural forces would be allowed to occur without active management. Reshaping of the channel and restoration of riparian woodlands along the creek would not be carried out. Off-channel mining would be allowed.

It is expected that some degree of natural rehabilitation of the creek channel would occur without human intervention once in-channel mining ceases. However, the extent of restoration would likely be limited and the time frame over which positive changes would occur under natural forces only would be considerable. Therefore, the existing degraded creek conditions would continue for some time into the future, but would become less over time. The positive visual benefits from an active creek restoration program would not occur.

Actions under Alternative 3 would be consistent with applicable scenic resource policies of the Yolo County General Plan.

Mitigation Measure 4.10-3a (CCRMP, A-1a, A-1b, A-2, A-3)

None required.

Impact 4.10-4
Contribution to Cumulative Changes in Regional Visual Quality

#### Draft CCRMP

Over the term of the CCRMP, changes will occur in the landscape of the lower Cache Creek area. Under the CCRMP, the visual environment of the lower Cache Creek corridor would be improved over time through several changes. These include a substantial reduction in in-channel mining operations, stabilization of the channel and rehabilitation of erosion and scour areas, restoring a continuous corridor of riparian woodland along Cache Creek, and establishing a series of wildlife preserves. Landscape changes related to the CCRMP would also occur from linking recreational uses along the upper watershed to proposed recreation nodes within the planning area and a future Open Space and Recreation Plan that provides a range of public activities and uses along Cache Creek.

The cumulative changes in regional visual quality under the CCRMP would not cause a significant adverse impact.

## Alternative 1a: No Project (Existing Conditions)

Under Alternative 1a, in-channel mining would continue based on the 1995 actual production for each producer. The County would not adopt the CCRMP and the stabilization and restoration of Cache Creek would not occur. As a result, the existing degraded creek conditions within the planning area and the trend toward further degradation would continue, resulting in adverse visual conditions open to public view. At the same time, commercial and residential development is expected at modest rates in and around the communities of Capay, Esparto, Madison, Yolo and Woodland.

Alternative 1a allows existing conditions to continue which contributes to adverse cumulative changes in regional visual quality. The positive visual effects of actions under the CCRMP would not occur. The cumulative changes in regional visual quality resulting from Alternative 1a would be a significant and unavoidable adverse impact.

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

Under Alternative 1b, in-channel mining would continue based currently approved maximum annual allocations. The County would not adopt the CCRMP and the stabilization and restoration of Cache Creek would not occur. As a result, the degraded creek conditions within the planning area and the trend toward further degradation would continue. In addition, commercial and residential development is expected at modest rates in and around the communities of Capay, Esparto, Madison, Yolo and Woodland.

Alternative 1b allows existing conditions to continue which contributes to adverse cumulative changes in regional visual quality. The positive visual effects of actions under the CCRMP would not occur. The cumulative changes in regional visual quality resulting from Alternative 1b would be a significant and unavoidable adverse impact.

## Alternative 2: No Mining (Alternative Site)

Under Alternative 2, the County would not adopt the CCRMP and would not become involved with the stabilization and restoration of Cache Creek. Existing permits for in- or off-channel mining would be voided and aggregate mining in Yolo County would cease. Individual property owners would continue to have responsibilities for erosion control or other activities within the channel. The degraded creek conditions within the planning area would continue while commercial and residential development in and around the communities of Capay, Esparto, Madison, Yolo and Woodland would occur at modest rates.

Alternative 2 would contribute to adverse cumulative changes in regional visual quality. The positive visual effects of actions under the CCRMP would not occur. This would be a significant and unavoidable adverse impact.

## Alternative 3: Channel Bank Widening (Implement Streamway Influence Boundary)

Under Alternative 3, local bridge structures would be extended in order to span a distance equal to the historical creek width. In-channel mining would be prohibited and natural forces would be allowed to occur without active management. Reshaping the channel and restoration of riparian woodlands along the creek would not be carried out. Off-channel mining would be allowed.

Some degree of natural rehabilitation of the creek channel would occur without human intervention. However, the extent of rehabilitation would likely be limited and would occur slowly. As a result, existing degraded creek conditions within the planning area would continue for some time while commercial and residential development is expected to occur at modest rates in and around the communities of Capay, Esparto, Madison, Yolo and Woodland. Other changes in the visual environment would result from implementation of off-channel mining. Off-channel mining would result in surface disturbances during active mining and, after reclamation, permanently altered topography including surface depressions and piles, water bodies and wildlife habitat areas.

Alternative 3 would contribute to adverse cumulative changes in regional visual quality. The positive visual effects of actions under the CCRMP would not occur. This would be a significant and unavoidable adverse impact.

Mitigation Measure 4.10-4a (CCRMP)

None required.

Mitigation Measure 4.10-4a (A-1a, A-1b, A-2, A-3)

No enforceable mitigation available, therefore a significant and unavoidable cumulative impact to regional visual quality would occur under Alternatives 1a, 1b, 2 and 3.