4.5 AGRICULTURE

4.5 AGRICULTURE

INTRODUCTION

This section examines impacts to agricultural resources related to implementation of the OCMP and alternatives. The main issues addressed in this section include:

- consistency with the State Mining and Reclamation Act (SMARA) Regulations;
- potential impacts caused by permanent conversion of agricultural lands;
- potential impacts caused by the temporary loss of agricultural productivity;
- permanent loss of agricultural soils due to wind or water erosion;
- potential impacts to agricultural capability caused by soil management during removal, stockpiling, and reuse; and
- potential cumulative loss of productive agricultural lands.

SETTING

The following agricultural section presents background information on the agricultural industry in Yolo County, discusses the farmland designations and soil types within the planning area, and describes the different methodologies and definitions used by agencies to identify "prime" and "non-prime" agricultural soils.

Description of the Regional Environment

The planning area is located on the western margin of the Sacramento Valley, one of the most productive agricultural regions of the United States. The combination of a favorable climate, topography, fertile soils, and available water resources attracted farmers to the region in the mid-1800s. Plentiful native grasslands encouraged early stock raising. By the late 1800s, the development of irrigated agriculture supported production of alfalfa, barley, and wheat (NHC, 1995). Continued agriculture has been the dominant land use in the lower Cache Creek basin.

The California Department of Conservation (CDC, 1994) reported that Yolo County had approximately 427,481 acres of "important farmland" and 135,602 acres of grazing land in 1992. The total of 565,178 acres of agricultural land represents approximately 85 percent of the total acreage in the County (661,760 acres). Of the "important farmland" in the County in 1992, 271,534 acres were identified as "prime farmland" by CDC.

According to the latest Agricultural Crop Report published by the County Agricultural Commissioner, there were approximately 490,900 acres in Yolo County in agricultural production in 1994 (Table 4.5-1). Agriculture accounts for about 74 percent of the total

TABLE 4.5-1: Agricultural Acreage in Yolo County by Crop or Use	
Agricultural Crop or Use	**Harvested Acres**
Rangeland and Crop Stubble	126,612
Tomatoes (canning)	69,700
Wheat	59,031
Safflower	40,005
Screenings, Baled and Oat Straw	36,741
Hay Alfalfa	31,775
Seed Crops	22,633
All Fruits and Nuts (walnuts, almonds, prunes,	21,436
grapes)	21,650
Corn	20,917
Rice	19,492
All Other Field Crops	13,000
Irrigated Pasture	5,057
All Other Vegetable Crops	443
Nursery Products	
TOTAL	**490,858**

Source: Yolo County Agricultural Commissioner, *1994 Agricultural Crop Report*.

[1] Some double counting exists due to multiple crops so this number is approximate. Acreage for some agricultural uses, such as poultry, are not included.

acreage in the County.[1] The average annual revenue from crops in 1994 was $607 per acre. The predominant crops, in terms of acreage, are rangeland for livestock, tomatoes for canning, wheat, safflower, straw, alfalfa, all fruits and nuts, corn, and rice (Table 4.5-1). The most important crops in 1994, in terms of value, were tomatoes, wheat, seed, rice, safflower, English walnuts, corn, melons, and almonds (Table 4.5-2). These ten crops accounted for almost $247 million in gross receipts, or four-fifths of the $297.9 million agricultural industry in Yolo County. Tomatoes accounted for almost 40 percent of the total revenues in 1994. The average 1994 revenue for tomato crop production was $1,695 per acre.

[1]The agricultural acreage estimate is based on crop reports. Production of more than one crop from individual agricultural fields results in recounting of the acreage of each crop that is added to the total acreage. Acreage for some minor agricultural uses, such as poultry, is not included.

TABLE 4.5-2. Gross Value of Most Important Crops in Yolo County	
Crop	**Value**
Tomatoes	$118,121,000
Alfalfa Hay	20,986,000
Wheat	18,702,000
Seed	17,487,000
Rice	14,643,000
Safflower	12,488,000
English Walnuts	12,349,000
Corn	11,009,000
Melons	10,809,000
Almonds	10,416,000
All others	50,895,000
TOTAL	$297,905,000

Source: Yolo County Agricultural Commissioner, *1994 Agricultural Crop Report.*

Description of Local Environment

The planning area is located within an east-west trending alluvial valley formed along Cache Creek, a major regional stream. The planning area extends through a broad alluvial plain, called Hungry Hollow, between the Capay Dam at the western margin of the area to the western flank of the Dunnigan Hills. This portion of the valley is filled with a thick sequence of alluvial sediments that are mantled by highly productive agricultural soils. The agricultural fields in this area are irrigated with surface water supplied by the West Adams Canal, located north of the creek, and numerous irrigation water supply wells.

The valley of Cache Creek narrows as the channel cuts through the Dunnigan Hills. Agriculture is limited in this reach of the creek. As the creek flows eastward out of the hills, the Cache Creek Valley enters the greater Sacramento Valley and forms a broad alluvial surface on which agriculture flourishes. The southern margin of this eastern portion of the study area is supplied irrigation water from the Moore and Magnolia Canals; the northern area is served by the East Adams Canal.

Agriculture is the dominant land use within the planning area. These farmlands are generally flat land composed of irrigated prime and non-prime soils, much of which is currently under intensive row crop or orchard cultivation. Prime agricultural lands are generally considered to consist of lands that do not present significant limitations to agricultural production; these lands have the highest agricultural value. Non-prime agricultural lands are farmlands within agricultural areas that are limited by less than

optimal soil conditions, drainage problems, or incompatible adjacent land uses, or a combination of these factors.

Different public agencies use various criteria for designating agricultural land as "prime farmland." Applicable definitions of prime farmland include those employed by 1) the U.S. Department of Agriculture Natural Resources Conservation Service (USDA), 2) the California Department of Conservation (CDC) Prime Farmland Mapping and Monitoring Program, 3) the State of California in the Williamson Act of 1965, and 4) Yolo County Surface Mining Reclamation Ordinance.

U.S. Department of Agriculture

The soil capability classification system developed by the U.S. Department of Agriculture is perhaps the most widely known and cited. The USDA has prepared county-level Soil Surveys for most agricultural counties in the United States. The USDA uses a soil classification system based on eight primary capability classes, which can then be further defined in terms of capability "subclasses" and capability "units."

The USDA county soil surveys classify farmland by capability and suitability for agricultural use, according to soil types and cropping limitations. While the USDA soil surveys do not designate any land as "prime farmland," both the State Mining and Geology Board (SMGB) Reclamation Regulations (Section 3707 of CCR Title 14) and the Yolo County Interim Criteria reference the USDA definition of prime agricultural soils. Past practice may have been to consider lands in Capability Classes I and II as prime farmland; however, the USDA has recently been using a list that identifies prime farmlands in Yolo County by soil type, qualified by whether or not the lands are irrigated or drained.

The USDA soil classification system further defines all of the soil classes (except for Class I) with one or more capability subclasses, which are represented with a small letter immediately following the class Roman numeral. Each of the subclass designations indicates a general characteristic that limits the use of the soils. For example, a Class IIe soil is limited by a risk of erosion. The most commonly found capability subclass letters used to describe Yolo County soils are described below:

- **"e"** shows that the main limitation is a risk of erosion unless close-growing plant cover is maintained;
- "w" shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); and
- **"s"** shows that the soil is limited mainly because it is shallow, droughty, or stony.

The USDA soil classification system also designates a capability "unit" for similar soil types within the same subclass. The capability unit is expressed as an Arabic number, following the class Roman numeral and small letter subclass, such as IIs-3. The capability unit

number gives further soil limitation information, which allows soils to be more specifically characterized as to common management practices.

The most commonly used capability unit numbers in Yolo County soils include:

0 – A problem or limitation caused by sand or gravel in the substratum.
1 – An actual or potential erosion hazard.
2 – A problem or limitation of wetness caused by poor drainage or flooding.
3 – A problem or limitation caused by slow or very slow permeability of the subsoil or substratum.
4 – A problem or limitation caused by coarse soil texture or excessive gravel.
5 – A problem or limitation caused by moderately fine or fine textured soil.
6 – A problem or limitation caused by salt or alkali.
7 – A problem or limitation caused by cobblestones, other stones, or rock outcrops.
8 – A problem or limitation caused by a shallow depth to soil bedrock or hardpan.
9 – A problem or limitation caused by low fertility, acidity, or toxicity (including excess boron).

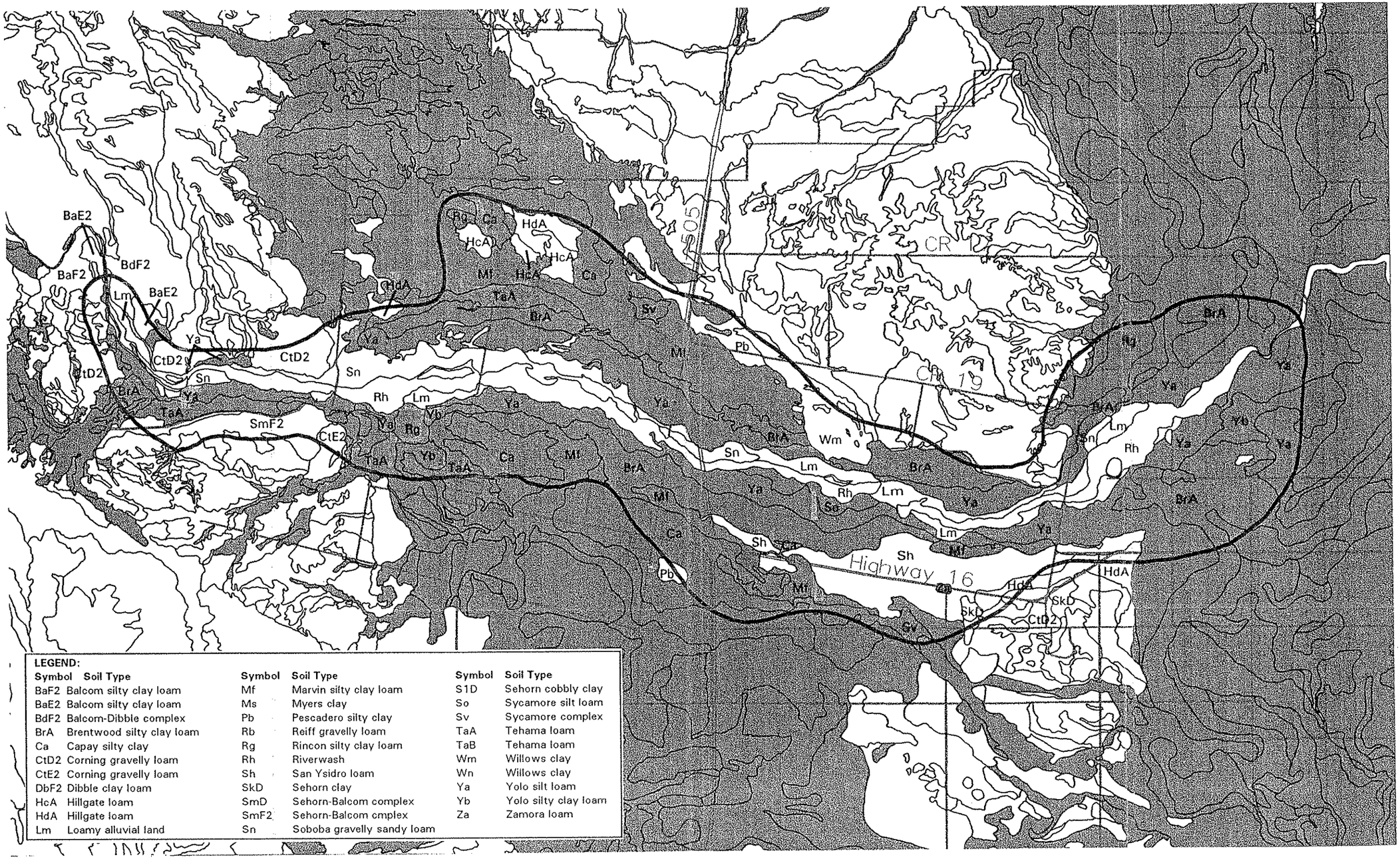
Finally, the USDA employs a similar, but separate, soil classification system that is based on a 100-point scale. The Storie Index was developed to indicate relative suitability of a soil for intensive agriculture. The Storie Index is analogous to the soil capability classification, except that only soil characteristics, not outside factors such as flooding or erosion, are described. Grade 1 soils (Storie Index of 80 to 100) have few or no limitations that restrict their use for crops; grade 2 soils (Storie Index of 60 to 80) are suitable for most crops but they have minor limitations that narrow the choice of crops and have few special management needs. Other grades with lower ratings have progressively greater limitations.

Planning Area Soils

The soil types that have been identified within the planning area by the Yolo County Soil Survey (USDA, 1972) are listed in Table 4.5-3. The table contains two lists, the first of predominant soil types, and the second list of less frequently found soil types. Each of the soils' Capability Class, its common name, and its Storie Index are indicated. A generalized soil map of the planning area is presented in Figure 4.5-1.

Of the sixteen most prominent soils within the planning area, seven are identified by the USDA as Class I or II. The predominant Class I and II soils include Brentwood silty clay loam (BrA), Yolo silt loam (Ya), Marvin silty clay loam (Mf), Tehama loam (TaA), and Capay silty clay (Ca).

The highest quality soils in the area (Class I-1) are represented by the Brentwood silty clay loam (BrA) and Yolo silt loam (Ya) soil groups. Both of these loams are rated as Class I prime soils, with few limitations for agricultural use. Their Storie index is 81 (BrA) and 100 (Ya). These Class I-1 soils consist of very fine sandy loams to silty clay loams formed on fans in alluvium derived from mixed sources. They are well drained and fertility is moderately high to high. Soils in this unit are well suited to a wide range of row crops, forage crops, orchards, and dry farmed grain. Sugar beets, tomatoes, alfalfa, almonds, and barley are among the main crops.



LEGEND:

Symbol	Soil Type	Symbol	Soil Type	Symbol	Soil Type
BaF2	Balcom silty clay loam	Mf	Marvin silty clay loam	S1D	Sehorn cobbly clay
BaE2	Balcom silty clay loam	Ms	Myers clay	So	Sycamore silt loam
BdF2	Balcom-Dibble complex	Pb	Pescadero silty clay	Sv	Sycamore complex
BrA	Brentwood silty clay loam	Rb	Reiff gravelly loam	TaA	Tehama loam
Ca	Capay silty clay	Rg	Rincon silty clay loam	TaB	Tehama loam
CtD2	Corning gravelly loam	Rh	Riverwash	Wm	Willows clay
CtE2	Corning gravelly loam	Sh	San Ysidro loam	Wn	Willows clay
DbF2	Dibble clay loam	SkD	Sehorn clay	Ya	Yolo silt loam
HcA	Hillgate loam	SmD	Sehorn-Balcom complex	Yb	Yolo silty clay loam
HdA	Hillgate loam	SmF2	Sehorn-Balcom cmplex	Za	Zamora loam
Lm	Loamy alluvial land	Sn	Soboba gravelly sandy loam		

Scale in Miles

0 1 2

N

Capability Class I and II Soils

Figure 4.5-1 Site Soils

SOURCE: USDA, 1972

Commonly found Class II soils within the area include Capay silty loam (Ca), Marvin silty clay loam (Mf), Rincon silty clay loam (Rg), Sycamore silt loam (So), and Tehama loam (TaA). These Class II soils generally consist of silt loams to silty clay loams. These soils formed on fans and in basins in alluvium derived from mixed sources. Fertility is moderately high to high. The Storie index of these soils ranges from 50 (Capay) to 76 (Sycamore). Soils in this unit are suited to row crops, forage crops, orchards, and dry farmed grain. Sugar beets, tomatoes, alfalfa, almonds, and barley are the main crops. Class II soils in the planning area are somewhat limited in their agricultural productivity by either shallow or strong soils, slow permeability of the subsoil, and poor drainage.

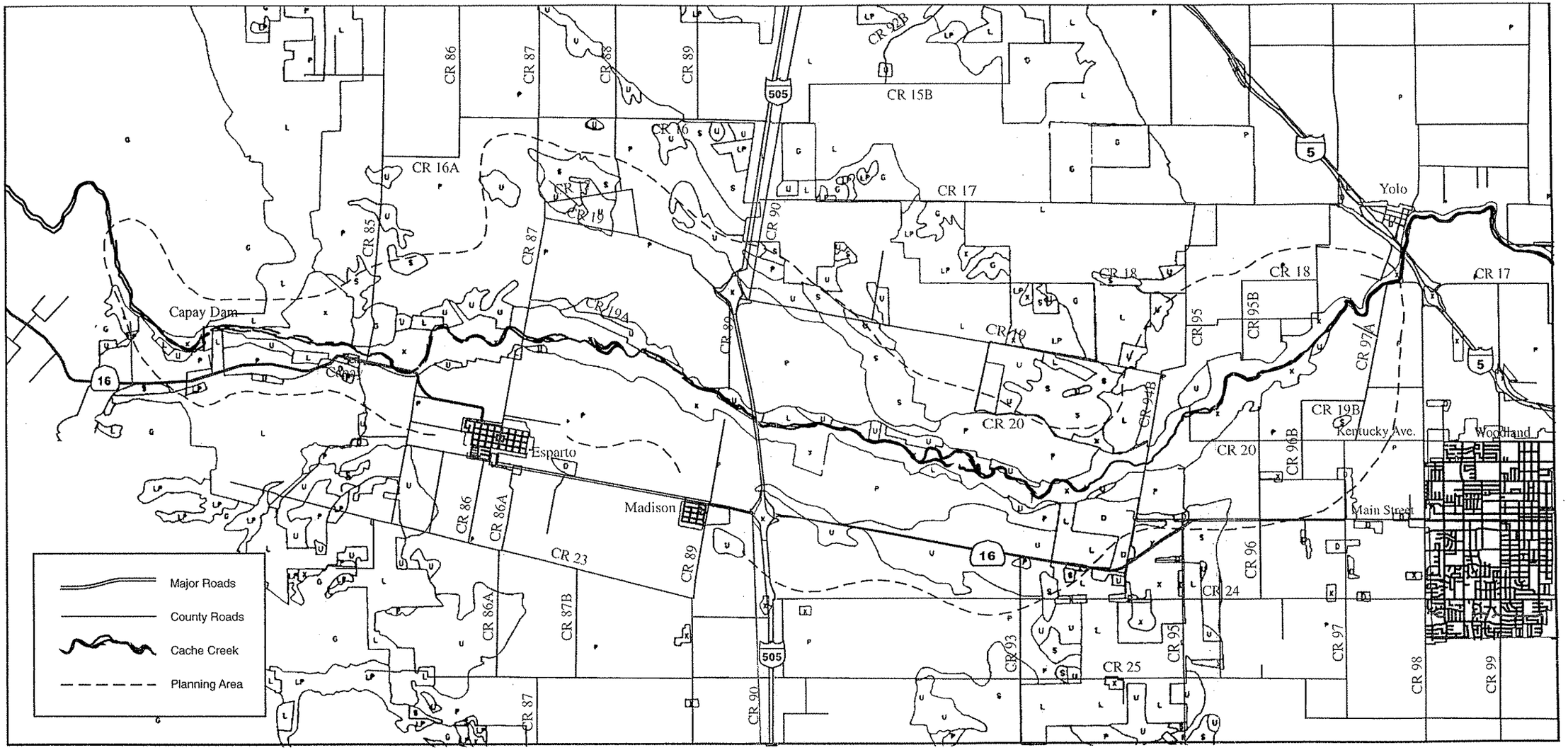
As already noted above, the USDA soil surveys do not designate any land as "prime farmland," although both the State Mining and Geology Board Reclamation Regulations (Section 3707 of CCR Title 14), and the Land Conservation (Williamson) Act, reference the USDA definition of prime agricultural lands. The draft Yolo County Surface Mining Reclamation Ordinance defines "prime agricultural land" as "all land zoned Agricultural Preserve and all land which meets the definition of prime agricultural set forth in Section 51201 of the Government Code of the State," which is the Williamson Act.

Past practice has been to consider all lands in Capability Classes I and II as "prime" farmland, as well as well as some Class III soils. According to the broad definition of "prime farmland" under the Williamson Act, all Class I and II soils found identified within the planning area by the USDA Soil Survey would be considered prime, plus all farmed soils that meet the criteria of $200 per year in annual gross revenues. Thus, some Class III or IV soils that have been planted with high value tree crops such as almonds could be considered prime under the Williamson Act.

According to the Yolo County Soil Survey, much of the soil within the planning area boundary is categorized as Capability Class I and II soils (Figure 4.5-1). Large expanses of Class I and II soils are found in the middle reaches of the Cache Creek drainage, on both the north and south side outside the channel designated in the Cache Creek Resource Management Plan. It is estimated that over 14,000 acres of the planning area are composed of these Class I and II soils.

There are also significant areas composed of non-prime soils within the planning area (Figure 4.5-1). The lesser quality soils found in the planning area include Willow clay (We), a Class III soil, and several Class IV soils, many of which are limited due to stony or gravelly conditions, slow permeability, and other factors.

The largest areas of non-prime soils are concentrated in the western end of the Cache Creek drainage, where the elevation begins to rise into the foothills and in the area east of the I-505 freeway along SR 16 to Jacob's Corner and the Woodland Airport. The predominant non-prime soils in the western end of the OCMP are Sehorn-Balcom complex (SmF2), Corning gravelly loams (CtD2 and CtE2), rated Class IV and VI soils. Along SR 16 the predominant soil is San Ysidro loam (Sh), which is rated a Class IV soil. There is



P PRIME FARMLAND
Land with the best combination of physical and chemical features for the production of agricultural crops.

S FARMLAND OF STATEWIDE IMPORTANCE
Land with a good combination of physical and chemical features for the production of agricultural crops.

U UNIQUE FARMLAND
Land of lesser quality soils used for the production of the State's leading agricultural cash crops.

L FARMLAND OF LOCAL IMPORTANCE
Cultivated farmland having soils which meet the criteria for Prime or Statewide, except that the land is not presently irrigated, and other nonirrigated farmland.

LP LOCAL POTENTIAL FARMLAND
Prime or Statewide soils which are presently not irrigated or cultivated.

G GRAZING LAND
Land on which the existing vegetation is suited to the grazing of livestock.

D URBAN AND BUILT-UP LAND
Land occupied by structures or infrastructure to accomodate a building density of at least one unit to one and one-half acres, or approximately six structures to ten acres.

X OTHER LAND
Land which does not meet the criteria of any other category.

W WATER
Water bodies of 40 or more acres in size.

N

Scale in Miles
0 1 2

Figure 4.5-2 Important Farmlands Map

SOURCE: CALIFORNIA DEPARTMENT OF CONSERVATION, AND FARMLAND MAPPING AND MONITORING PROGRAM, 1994

- Land that supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the USDA.

- Land planted with fruit or nut bearing trees, vines, bushes or crops that have a nonbearing period of less than five years and that will normally return during the commercial period on an annual basis from the production of unprocessed agricultural plant production not less than $200 per acre.

- Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than $200 per acre.

The only low value crops cultivated on agricultural soils in Yolo County that would not meet the $200 per acre gross annual receipts criteria are some grain crops, such as barley, oats and volunteer hay, according to the per acre yield data published by the Yolo County Agricultural Commissioner.

Regulatory Setting

SMARA and Related Regulations

The State of California regulates reclamation of surface-mined areas through the Surface Mining and Reclamation Act (SMARA) of 1975, as amended. While SMARA does not contain detailed provisions concerning the reclamation of mined land for agricultural purposes, Section 2712 states:

> It is the intent of the Legislature...to assure that...mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses.

Section 2773 specifies that site-specific reclamation plans are required and also mandates that statewide reclamation standards be established, including standards for "[p]rime and other agricultural land reclamation" and standards for "[t]opsoil salvage, maintenance, and redistribution." The section further states that "[t]hese standards shall apply to each mining operation, but only to the extent that they are consistent with the planned or actual subsequent use or uses of the mining site."

Guidelines for implementation of the surface mining and reclamation provisions contained in SMARA were promulgated by the State Mining and Geology Board (SMGB) in CCR Title 14. The regulations provide detailed requirements pertaining to reclamation, including performance standards for prime agricultural land reclamation and performance standards for other agricultural land. The OCMP and related mining ordinances are consistent with SMARA by requiring (Action 5.4-3) conformance of all mining projects with SMARA and the SMGB reclamation requirements.

Yolo County General Plan

Several goals and numerous policies and elements of the Yolo County General Plan are relevant to the proposed OCMP. In particular, the General Plan's stated goals include:

- Wise land use based on both physical and social characteristics of the County;
- Protection of prime and other agricultural land from urban development; and
- Establishment of natural and wildlife areas (preserves).

Land use policies of the General Plan that are especially relevant to the proposed OCMP are listed below. The majority of the policies are provided verbatim; some lengthy policies are summarized and, if so, are indicated as such.

LU 6 It is the policy of Yolo County to vigorously conserve and preserve the agricultural lands in Yolo County. Yolo County shall protect and conserve agricultural land use especially in areas presently farmed or having prime agricultural soils and outside of existing planned urban communities and outside of city limits.

The OCMP and accompanying ordinances contain policies and regulations that require lands disturbed by mining to be reclaimed to agricultural and open space uses. The productivity of the mined lands reclaimed to agriculture would be monitored to ensure that it equals or exceeds the productive capacity of the land before mining commenced.

LU 7 Non-agricultural land use activities are prohibited from agriculturally designated areas in Yolo County except as defined in policies LU 12, LU 17, LU 18, LU 19 (reserved for future use), and LU 46.

LU 8 (Williamson Land Conservation Program) and LU 9 (Agricultural Preserve Zoning). In summary, these policies provide for adoption by the County of the Williamson Act Land Conservation Program, and for application of Agricultural Preserve (A-P), zoning to all lands which qualify for an agricultural preserve contract.

The exceptions defined in policies LU 12, LU 17, LU 18, and LU 46 do not directly apply to the OCMP. Aggregate mining is a permissible use for agricultural lands zoned General Agriculture. Mining is currently restricted in areas zoned Agricultural Preserve to mining operations necessary for erosion control.

The OCMP contains policies that recommend amendments to the Agricultural Preserve (A-P) zoning regulations to allow mining.

Open space policies of the General Plan that are particularly relevant to the proposed project include:

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

OS 2 In summary, this policy states that Yolo County shall use diverse policies and other regulatory means to preserve open space. This policy defines "open space" to include areas used for managed resource production including agricultural land and areas containing major mineral deposits, including sand and gravel clays.

OS 3 Yolo County shall preserve agricultural land as the principal component of open space.

The OCMP contains several policies to ensure that agricultural lands would be returned to agricultural use, or other open space uses, under an approved reclamation plan. Agricultural or open space uses of the reclaimed lands would conform with these policies.

Conservation policies of the General Plan that are particularly relevant to the OCMP include:

CON 5 This policy states, in part, that "Yolo County shall require conservation of natural resources in the development and managed utilization including... the reclamation of lands and waters."

CON 11 Yolo County shall encourage the highest agricultural use of good agricultural soils and the development of acceptable agricultural industry.

CON 12 Yolo County shall regulate land use and encourage and cooperate with appropriate agencies to conserve, study, and improve soils. Prime soils shall be preserved outside of designated urban areas.

Mining allowed under the OCMP would result in temporary and long-term disturbance of prime soils in portions of the off-channel mining area. Required reclamation plans must include measures to preserve and reuse agricultural soils. Potentially significant impacts on prime farmland are described in Impacts 4.5-1, 4.5-2, and 4.5-7.

CON 13 This policy states, in part, that "Yolo County shall regulate development to avoid degradation of land forms through non-agricultural grading..."

The OCMP and the accompanying reclamation ordinances require specific measures for reclamation of agricultural lands disturbed by grading during mining and reclamation.

Yolo County Zoning Ordinance

The main issue of consistency of the OCMP with the Yolo County Zoning Ordinance with regards to agricultural zoning deals with the need to revise the Agricultural Preserve (A-P) zoning district requirements to allow mining on lands under active Williamson Act contract. The current zoning code restricts mining on A-P lands to aggregate extraction required for erosion control only. Off-channel mining operations under the OCMP would not generally be performed for erosion control. Therefore, for mining to be permitted on these lands, a change in the zoning code is needed.

IMPACTS AND MITIGATION MEASURES

Standards of Significance

The project would have a significant impact on agricultural resources if it would:

- Permanently convert prime agricultural soils to a non-agricultural use;

- Cause the loss of agricultural productivity or crop values that represent a major proportion of the County's production or value of crops;

- Impair or degrade the existing productivity of agricultural soils, or adversely affect agricultural resources and operations, in the planning area or county; or

- Conflict with adopted plans or policies of State and other agencies that seek to preserve or protect agricultural soils, lands, and operations.

Impact 4.5-1
Consistency with the California Land Conservation Act of 1965 (Williamson Act) Regulations

The Williamson Act is a State program that allows agricultural landowners to pay reduced property taxes in return for their contractual agreement to retain the land in agricultural and open space uses for period of ten years. The legal contract is signed between the landowner and the County. The specific land uses that are allowed on agricultural lands under Williamson Act contracts are regulated by State law (Government Code Section 51200 et seq). In general, uses on Williamson Act-contracted lands must be consistent with the intent of the law to conserve agricultural, open space, and natural resource lands.

A recent legislative amendment to the Williamson Act (AB 2663, Sher) was enacted in 1994. The new law added Section 51238.2 to the Government Code, which specifically addresses surface mining of contracted lands. The new requirements of Sections 51238.1 and 51238.2 restrict the types of uses that may be allowed on Williamson Act lands. Section 51238.1 states:

> Uses approved on contracted lands shall be consistent with all of the following principles of compatibility:
>
> (1) The use will not significantly compromise the long-term productive agricultural capability of the subject contracted parcel or parcels or on other contracted lands in agricultural preserves.
>
> (2) The use will not significantly displace or impair current or reasonably foreseeable agricultural operations on the subject contracted parcel or parcels or on other contracted lands in agricultural preserves. Uses that significantly displace agricultural operations on the subject contracted parcel or parcels may be deemed compatible if they relate directly to the production of commercial agricultural products on the subject contracted parcel or parcels or neighboring lands, including activities such as harvesting, processing, or shipping.
>
> (3) The use will not result in the significant removal of adjacent contracted land from agricultural or open-space use.

Section 51238.2 states:

> Mineral extraction that is unable to meet the principles of Section 51238.1 may nevertheless be approved as compatible use if the board or council is able to document that (a) the underlying contractual commitment to preserve prime land as defined in subdivision (c) of Section 51201, or (b)

the underlying contractual commitment to preserve nonprime land for open-space use as defined in subdivision (c) of Section 51201, will not be significantly impaired.

Conditions imposed on mineral extraction as a compatible use of contracted land shall include compliance with the reclamation standards adopted by the Mining and Geology Board pursuant to Section 2773 of the Public Resources Code, including the applicable performance standards for prime agricultural land and other agricultural land, and no exception to these standards may be permitted.

Draft OCMP and Implementing Ordinances

The off-channel mining applications being processed under the draft OCMP would result in disturbance of 2,256 acres of land, including 45 acres of borrow area. Within the area proposed for mining, approximately 1,523 acres are currently under Williamson Act contract and are zoned by Yolo County as Agricultural Preserve (A-P). The draft OCMP contains the following action, which addresses the need to revise agricultural zoning to permit mining in A-P zones:

Action 5.4-2: Revise the A-P (Agricultural Preserve) Zone to allow for the operation of surface mining on contracted land, in accordance with the provisions of the California Land Conservation (Williamson) Act. The primary purpose of the Williamson Act is to preserve open space, including agriculture, scenic areas, wildlife habitat, and recreational uses. Where surface mining operations propose to reclaim sites to one of the above uses, the land may remain in contract.

The implementing draft Surface Mining Reclamation Ordinance proposes specific uses that are compatible with Agricultural Preserves, in compliance with Sections 51238.1 and 51238.2 of the Williamson Act. One of the purposes of the draft Surface Mining Reclamation Ordinance is stated as follows:

The continued protection of agriculture and open-space uses is essential. As such, all off-channel, prime agricultural land and/or off-channel lands zoned Agricultural Preserve (A-P) shall either be reclaimed to an agriculturally productive state equal to or greater that which existed before mining commenced, or shall be reclaimed to those uses which are declared by the County to be compatible within agricultural preserves. Such uses include, but are not limited to, the following:

(1) Agriculture and range land;
(2) Groundwater storage and recharge areas;
(3) Fish, wildlife, and plant habitat;
(4) Watercourses and flood control basins;
(5) Recreational or open space lands.

The long-term mining applications that have been submitted to the County propose to reclaim mined lands to agriculture (row or tree crops), to open water areas, or to wildlife habitat. Perimeter slopes created as the result of land surface lowering of reclaimed agricultural fields caused by mining are generally identified as vegetated areas in reclamation plans. Approximately 830 acres of prime farmland, most of which is currently under contract, would be converted to non-agricultural uses under the long-term mining and reclamation plans. The non-agricultural uses proposed for reclaimed lands would be consistent with the uses that would be allowable under Action 5.4-2. The draft OCMP also

includes Action 5.4-3 that encourages the use of agricultural preserves and/or conservation easements. This Action statement could be modified to require mitigation for conversion of contracted agricultural land to non-agricultural uses through temporary conservation easements on other agricultural lands, or the enrollment of non-contracted lands within the planning area, or the County, into the Williamson Act.

Both the draft OCMP and the two implementing ordinances (the Surface Mining and Off-Channel Mining Ordinances) contain performance standards by which surface mining and reclamation operations will be measured. These performance standards are in compliance with the reclamation standards required by the State Surface Mining and Reclamation Act (SMARA). Thus, the OCMP and implementing ordinances allowing mining and other specific reclamation uses on contracted lands would be consistent with the Williamson Act, including the provisions of the recent amendments (Sections 51238.1 and 51238.2), following adoption of the modification of the zoning code proposed by Action 5.4-2.

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

Under Alternatives 1a and 1b, no OCMP would be adopted and surface mining would continue based on 1995 actual production levels of each producer. Under current regulations, mineral extraction is considered a compatible use in Agricultural Preserves by Yolo County only if the aggregate extraction is performed for erosion control. Reclamation to agricultural use is required for all mining on agricultural lands. None of the permitted off-channel mining will occur on lands currently zoned A-P or under Williamson Act contract.

Alternative 2: No Mining (Alternative Site)

Under Alternative 2, no OCMP would be adopted and all existing permits to mine and/or operate plants would be voided. Regional demand for PCC-grade aggregate material would be satisfied from reserves outside Yolo County. Reserves of marketable PCC-grade aggregates in alluvial environments outside Yolo County are generally located in areas of prime and other productive agricultural lands. Therefore, this alternative could induce the permanent conversion of prime and other agricultural land to non-agricultural uses outside the County.

Alternative 3: Plant Operation Only (Importation)

Under this alternative, no OCMP would be adopted, existing mining permits would be voided, but existing plants would continue to operate at approved levels. This alternative would be similar to Alternative 2 in its potential to induce farmland conversion outside of Yolo County, which could be inconsistent with the Williamson Act, depending on the local zoning regulations that have been adopted by the affected counties.

Alternative 4: Shallow Mining (Alternative Method/Reclamation)

Under this alternative, the OCMP would be modified to allow only shallow mining, and reclamation efforts would be assumed to be to primarily agricultural uses (80 percent). The remaining 20 percent would be reclaimed to habitat uses. All other proposals of the OCMP and the implementing ordinances would be adopted. Mineral extraction and reclamation to agricultural and open space uses would be considered compatible with the Williamson Act under Yolo County regulations. The permanent conversion of 442 acres under Williamson Act contract would result from this alternative. This permanent loss of contracted agricultural land could be partially mitigated by establishing temporary or permanent conservation easements on other agricultural lands, or by enrolling other non-contracted lands within the planning area, or the County, into the Williamson Act. The permanent conversion of agricultural lands to non-agricultural uses is analyzed in more detail in Impact 4.5-2 of this EIR.

Alternative 5a: Decreased Mining (Restricted Allocation)

Under Alternative 5a, the OCMP and its implementing ordinances would be adopted, but mining proposals would be restricted to one-half of the current annual allocation. It is assumed that 51 percent (564 acres) of contracted land would be converted to non-agricultural uses, including lakes and habitat restoration, due to access roads and slopes, and that reclamation of mined lands would be to agriculture, lakes, and habitat restoration. All other proposals of the OCMP and the implementing ordinances would be adopted. Mineral extraction and reclamation to agricultural and open space uses would be considered compatible with the Williamson Act under Yolo County regulations. The permanent loss of contracted agricultural land could be partially mitigated by establishing temporary or permanent conservation easements on other agricultural lands, or by enrolling other non-contracted lands within the planning area, or the County, into the Williamson Act. The permanent conversion of agricultural lands to non-agricultural uses is analyzed in more detail in Impact 4.5-2 of this EIR.

Alternative 5b: Decreased Mining (Shorter Mining Period)

Under Alternative 5b, the OCMP and its implementing ordinances would be adopted, but individual mining permits and renewal periods would be shortened. As under Alternative 5a, it is assumed that 51 percent (777 acres) of contracted agricultural land would be converted to non-agricultural uses, including open water areas, access roads, and slopes and habitat restoration. All other proposals of the OCMP and the implementing ordinances would be adopted. Mineral extraction and reclamation to agricultural and open space uses would be considered compatible with the Williamson Act under Yolo County regulations. The permanent loss of contracted agricultural land could be partially mitigated by establishing temporary or permanent conservation easements on other agricultural lands, or by enrolling other non-contracted lands within the planning area, or the County, into the Williamson Act. The permanent conversion of agricultural lands to non-agricultural uses is analyzed in more detail in Impact 4.5-2 of this EIR.

Alternative 6: Agricultural Reclamation (with Mining Operations as Proposed)

Under Alternative 6, the OCMP would require a minimum performance standard of 80 percent agricultural reclamation. All other requirements of the implementing ordinances would be adopted. Approximately 1,050 acres of contracted agricultural land would be converted to non-agricultural uses. Extensive earth-borrowing from adjacent non-mining areas would be required in order to generate pit-fill material; these earth-borrow areas themselves would require reclamation to predominantly agricultural uses. Mineral extraction and reclamation to agricultural and open space uses would be considered compatible with the Williamson Act under Yolo County regulations. The permanent conversion of contracted agricultural land could be partially mitigated by establishing temporary or permanent conservation easements on other agricultural lands, or by enrolling other non-contracted lands within the planning area, or the County, into the Williamson Act. The permanent conversion of agricultural lands to non-agricultural uses is analyzed in more detail in Impact 4.5-2 of this EIR.

Mitigation Measure 4.5-1a (OCMP, A-4, A-5a, A-5b, A-6)

None required.

Mitigation Measure 4.5-1b (A-1a, A-1b)

None warranted, since no significant impacts have been identified. Existing mining operations would continue with no changes. The existing permits would not be subject to the compatibility requirements of Sections 51238.1 and 51238.2 of the Williamson Act, since mining would not occur on contracted lands.

Mitigation Measure 4.5-1c (A-2, A-3)

None required. All responsible agencies would be responsible for adopting zoning restrictions that specify compatible mining and reclamation uses consistent with the California Land Conservation Act of 1965.

Implementation of this mitigation would reduce this impact to a less-than-significant level for Alternatives 2 and 3.

Impact 4.5-2
Potential Impact of Permanent Loss of Agricultural Land Caused by Conversion of Agricultural Land to Other Post-Reclamation Uses

The planning area is defined on the basis of the Mineral Resource Zones identified by the California Division of Mines and Geology for Portland Cement Concrete grade aggregate resources within the lower Cache Creek basin (Figure 3.2-2). Approximately 66 percent of the total planning area is classified as MRZ-2 indicating that available subsurface information confirms the presence of valuable aggregate resources.

Current and past aggregate mining in the area have focused on the extraction of sand and gravel from in-stream mining operations. Aggregate mining also is occurring in off-channel locations within the planning area. The off-channel operations are located on terrace surfaces above and along the active channel. Mining of these areas requires the removal and stockpiling of overburden sediments that overlie the sand and gravel deposits. The overbank deposits are not marketable aggregate resources. However, the fine-grained sediments, deposited during past flooding events, provide the parent material on which high quality agricultural soils have developed. These soils, combined with the favorable climate and available water supply of the area, have encouraged productive agricultural development of the terrace surfaces.

The proposed mining of the aggregate would result in the significant loss of volume of subsurface materials. The potential for reclamation of the off-channel mining pits back to agricultural use is dependent on the depth of excavation. Pits excavated to depths below the groundwater level in excess of the thickness of the overburden sediments at the site would require that either 1) the pits are reclaimed to open water uses or 2) appropriate backfill materials are imported to supplement the available on-site sediments.

If agricultural areas subject to mining are reclaimed to non-agricultural uses (such as open water), a permanent loss of agricultural productivity would occur. When mining pits are backfilled and returned to agricultural use, the previously existing ground surface is lowered (a distance dependent on the depth of mining and the position of the groundwater table). Lowering of the surface creates perimeter slopes. The gradient of the slopes proposed by the mining applications (required by SMARA to be not greater than 2:1) is generally too steep to allow agricultural activity typical of that currently practiced in the lower Cache Creek basin on the slopes. Whereas some crops, such as vineyards, could be developed on these steep slopes, the practicality of this type of agriculture is limited. The relatively small area covered by the slope and the dissimilarity of the topography and crops from conditions in adjacent areas do not promote efficient farmland management. In addition, conventional farming practices, including tilling and agricultural chemical use, can present water quality impacts for lakes surrounded by the slopes. Thus, even when reclamation is to agricultural use, a net loss of agricultural land is expected for areas occupied by perimeter slopes.

Draft OCMP and Implementing Ordinances

The proposed project would permit the excavation and reclamation of off-channel mining pits in areas currently under agricultural production. The OCMP does not require that reclamation of mining areas in agricultural areas result in these areas being returned to agricultural production. The OCMP could, therefore, result in the permanent conversion of prime and non-prime agricultural land to non-agricultural uses.

Five long-term mining/reclamation applications are currently under environmental review by the County. These applications would be approved only if they were determined to be in compliance with the OCMP and related ordinances. A sixth mining/reclamation

application, anticipated for analysis purposes to be submitted within the next five years, would also be subject to the requirements of the OCMP and its related ordinances. In addition to these proposed mining operations, the long-term applications include the re-zoning of an additional 676 acres of land, which could result in off-channel mining of these areas. The proposed projects and a possible application for off-channel mining operations at a sixth site, could potentially result in the cumulative disturbance of 2,256 acres of land during mining operations (including a 45-acre borrow area). All of these potentially mined areas, totaling 2,932 acres, are close to Cache Creek on lands that include prime (Class I and II) and non-prime (Class III and IV) soils as mapped by the Soil Conservation Service (USDA, 1972).

The two largest long-term mining applications (Syar and Solano Concrete) propose to mine 1,332 acres of farmland south of Cache Creek, east and west of the I-505 freeway. The 1,332 acres consist primarily of Class I [Brentwood silty clay loam (BrA) and Yolo silty loam (Ya)] and Class II (Capay silty loam (Ca) and Marvin silty clay loam (Mf)) soils. All of the Syar mining area (734 acres) is designated as prime farmland by the California Department of Conservation (CDC). Approximately 87 percent (522 acres) of the Solano mining area is designated by CDC as "Prime Farmland"; the remaining land (located adjacent to the Cache Creek channel) is classified as "Other Land" and "Farmland of Local Importance."

The next largest mining area is the Cache Creek Aggregates property located in the western portion of the planning area, north of Cache Creek. The 360 acres to be mined are composed of mostly Class IV soils (Soboba gravelly sandy loam and Loamy alluvial land) (Figure 4.5-1). The North central portion (approximately 38 acres) of this site contains Class I Yolo sandy loam and is designated by CDC as "Prime Farmland." The western portion is designated as "Grazing Land"; the southern margin of the site along Cache Creek is "Other Land." The remaining portions of the site are designated as "Land of Local Importance" and "Unique Farmland."

The Teichert-Esparto application proposes mining of 283 acres of land made up of primarily of Class I (Yolo silt loam) and Class IV (Loamy alluvial land) soils. The northern portion of the site (approximately 45 acres) is designated as "Prime Farmland"; the central portion is "Unique Farmland"; and the southern portion is "Other Land" along Cache Creek.

The Teichert-Woodland application includes three separate mining areas near the County Road 94B crossing of Cache Creek. The western and northern portions (approximately 91 acres) of the Muller property contain Class I Yolo and Brentwood soils; the central portion contains Class IV Soboba and Loamy alluvial land. The northwestern and central portions (approximately 123 acres) are designated as "Prime Farmland"; the eastern portion is "Unique Farmland." The entire Coors property (approximately 101 acres), located north of the creek and west of County Road 94B, contains Class I Yolo and Brentwood soils and the entire site is designated as "Prime Farmland." The majority (56 acres) of the Storz property contains Yolo sandy loam. Approximately 50 acres of the site is designated "Prime Farmland"; the remainder of the site is designated "Unique

Farmland." The three areas (totaling 676 acres) that are proposed for rezoning include a mix of prime (Class I and II) and non-prime (Class IV) soils.

The 1972 USDA Soil Survey for Yolo County provides generalized mapping of soil characteristics within the planning area. However, much more detailed soil analysis is required for individual sites within the OCMP to determine the exact composition and limitations of soils proposed for mining and reclamation. Individual mining company applicants under the OCMP would retain a qualified agricultural consultant to verify the USDA soil survey and offer more detailed analysis of the soil properties within the permit area. More detailed soil surveys, including more extensive soil sampling and chemical analysis, have been required by the County for all long-term mining applications.

The site-specific soil investigations may present information that either confirms or conflicts with the characterization of conditions presented in the SCS soil survey or the CDC farmland mapping of the planning area. The productivity of farmland is dependent on a number of factors, including soil conditions, site drainage, and availability of irrigation water. In addition to these physical conditions, agricultural productivity is dependent on appropriate farm management. Many areas that have suitable conditions for farming, but are not classified as prime agricultural land by CDC or prime soils, can meet the requirements for prime agricultural land under the Williamson Act.

The mining of the proposed projects and the Schwarzgruber property would result in the disturbance of 2,256 acres of land, the majority of which is under some form of agricultural production. The combined reclamation plans would return 1,143 acres to agricultural production following mining, including 642 acres to row crops, 456 acres to tree crops, and 45 acres to pasture land. Approximately 1,223 acres of existing farmland would be reclaimed to non-agricultural uses, including open water bodies (771 acres), habitat (273 acres), and vegetated slopes and permanent roads (179 acres). The net result would be the approximate loss of 1,223 acres of agricultural land.

The total area of prime farmland (under each of the definitions described above) that would be converted to non-agricultural use cannot be definitively determined. However, the potential loss can be approximately estimated by the expected conversion of land that is designated as containing Class I and Class II soils by the SCS. Permanent conversion of approximately 830 acres of Class I and Class II soil would be the combined effect of the five reasonably foreseeable projects. Most of these lands are designated as "Prime Farmland." The rezoning of approximately 676 acres of land for potential future mining would likely result in additional loss of Class I and Class II soils. The amount of this loss would depend on the type of reclamation proposed by mining projects on these lands.

The OCMP proposes the following policies that relate to the potential permanent conversion of agricultural land to non-agricultural uses:

Goal 5.2-1: Improve soil and water resources so that a diverse agricultural economy, supporting a variety of crops and products, is maintained.

Obj. 5.3-1: Encourage the preservation of prime and important farmland along Cache Creek, while giving consideration to other compatible beneficial uses, such as groundwater storage and recharge facilities, surface mining operations, riparian habitat, and public recreation.

These goals are supported by the following Actions:

Action 5.4-3: Provide for the protection of farmland within the planning area, including mined and reclaimed farmland through the use of agricultural preserves and/or conservation easements.

This Action is not specific as to how agricultural land would be protected from permanent conversion to non-agricultural uses. A practical Performance Standard shall be added to the OCMP that would minimize or provide offset for the conversion of agricultural land to non-agricultural use.

Action 5.4-4: Ensure that all proposed surface mining operations that include reclamation to agricultural uses comply with the requirements of the Land Conservation (Williamson) Act and the State Mining and Geology Board Reclamation Regulations.

The Williamson Act and SMGB Reclamation Regulations require that mined areas within prime agriculture land, defined most conservatively by the Williamson Act, be reclaimed to an agricultural use that is as productive as the pre-mining condition. The OCMP shall include a Performance Standard that requires conformance of reclamation plans with this requirement. The Performance Standard shall acknowledge that the removal of aggregate resources, without importation of additional backfill, results in a net lowering of the land surface during reclamation and the consequent permanent conversion of agricultural land to slopes that do not, generally, permit agricultural use. The steepness and limited area covered by the slopes restrict the practicality of returning these areas to agricultural production. The permanent loss of agricultural land would be a significant and unavoidable impact.

Alternative 1a - No Project (Existing Conditions)

Under this alternative, aggregate production within the planning area by each permitted operator would be allowed to continue at a production rate that is equal to the 1995 production until permitted reserves are exhausted. Mining in the area would include current permitted in-channel and off-channel operations. Under current regulations, reclamation to agricultural use would result in the loss of 37 acres due to perimeter slopes. Although the majority of agricultural land would be returned to agriculture, the construction of perimeter slopes and the associated permanent loss of agriculture land is expected. The permanent conversion of agricultural land to non-agricultural use is a significant and unavoidable impact.

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

This alternative would allow continued mining within the planning area under current regulations; mining would be allowed based on currently approved maximum production

allocations for each permitted operator. As described for Alternative 1a, the mining would likely occur in both in-channel and off-channel areas until permitted reserves are exhausted. This mining has already been determined to result in loss of agricultural land (approximately 37 acres) to perimeter slopes, even though current requirements to reclaim mined lands to agriculture are in effect. The permanent conversion of agricultural land to non-agricultural use is a significant and unavoidable impact.

Alternatives 2 - No Mining (Alternative Site) and
Alternatives 3 - Plant Operation Only (Importation)

Under Alternatives 2 and 3, no future aggregate mining would occur in the planning area. No permanent loss of additional agricultural land within the project area would result. However, given the general relationship of marketable PCC-grade aggregate reserves to alluvial environments, and the corresponding relationship of valuable agricultural lands to these same environments, the permanent conversion of agricultural lands to non-agricultural uses could occur in some mining areas[2] outside of Yolo County. Although the amount of agricultural land converted to non-agricultural uses cannot be accurately estimated, any permanent conversion would be a significant impact.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

The shallow mining option presented by this alternative would provide an opportunity to return more mined land to agricultural use than if deep mining were allowed. The reclaimed surfaces under this alternative would be greater than ten feet above the groundwater table, a condition favorable to agricultural reuse. However, perimeter slopes would result from the removal of the aggregate resources and the consequent lowering of the ground surface. This potential conversion of agricultural land to non-agricultural use would be a significant and unavoidable impact.

Alternative 5a - Decreased Mining (Restricted Allocation) and
Alternative 5b - Decreased Mining (Shorter Mining Period)

Under these alternatives, off-channel mining would be allowed in the project area. Both alternatives would likely result in off-channel mining on agricultural land and permanent conversion of agricultural land to non-agricultural use. Based on the assumption that 49 percent of areas disturbed by mining under these alternatives would be reclaimed to agriculture, a maximum of approximately 564 acres of agricultural land could be converted to non-agricultural uses. Any permanent conversion would be a significant and unavoidable impact.

---

[2]Aggregate reserves in Yuba County consist of tailings from historic hydraulic gold mining. Reserves at Maher Air Force Base underlie a military/industrial land use. In general, extraction of these resources would not, therefore, affect agricultural lands.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

This alternative would require that a minimum of 80 percent of mined lands would be reclaimed to agricultural use. An additional 2,994 acres would be used as borrow areas to provide sufficient overburden to reclaim mined lands to agriculture. Assuming that all mined and borrow land is in agriculture, up to 20 percent (approximately 1,050 acres) of disturbed agricultural land would be converted to non-agricultural use. This conversion would include land converted to perimeter slopes for lowered agricultural surfaces. This conversion would be a significant and unavoidable impact.

Mitigation Measure 4.5-2a (OCMP, A-4, A-5a, A-5b, A-6)

The following Performance Standards shall be included in OCMP and incorporated into the surface mining ordinances to reduce but not eliminate the impact of potential permanent conversion of prime agricultural lands to non-agricultural post-reclamation use:

Performance Standard 4.5-8: All proposed mining and reclamation plans shall provide information in permit applications to allow identification of portions of the proposed mined lands that meet the definition of "prime farmlands" as defined under the Williamson Act.

Performance Standard 4.5-9: All mining permit applications that include "prime farmlands" as defined by the provisions of the Williamson Act shall identify the location and acreage of "prime farmlands" which, as a result of reclamation, would be permanently converted to non-agricultural uses. For each acre of "prime farmland" that would be converted to non-agricultural use, the reclamation plan shall present provisions to offset (at a 1:1 ratio) the conversion of these lands. The potential offsets can include, but not be limited to one or more of the following options:

- *Identification of improvements by a qualified soil scientist to the agricultural capability of non-prime lands within or outside the project site that convert non-prime to prime agricultural conditions. These improvements can include permanent improvement of soil capability though soil amendments, reduction of soil limitations (such as excessive levels of toxins), or improvements in drainage for areas limited by flooding or low permeability soils.*
- *Placement of permanent Agricultural Preserve easements on lands meeting Williamson Act definition of "prime farmland" that are not currently under Williamson Act contract.*
- *Demonstration of the ability to provide irrigation to non-prime lands limited only by lack of irrigation water supply. The identified water supply cannot be made at the expense of "prime farmlands" currently using the same water supply.*

Mitigation Measure 4.5-2b (A-2, A-3)

None required. However, agencies regulating aggregate mining projects in agricultural areas outside Yolo County should consider adopting regulations similar to Performance Standard 4.5-9 to reduce the impacts of permanent conversion of agricultural land to non-agricultural uses.

Mitigation Measure 4.5-2c (A-1a, A-1b)

None available. The impact of loss of agricultural land would be significant and unavoidable.

Implementation of the above measures where available would reduce but not eliminate this impact for the OCMP and all alternatives. This impact would remain significant and unavoidable.

Impact 4.5-3
Potential Impacts of the Temporary Loss of Agricultural Productivity Due to Disturbance by Mining

Aggregate resources on agricultural lands within the planning area could be excavated in the future by off-channel mining operations. Although reclamation of mining areas back to agricultural uses is encouraged, the entire mining area would be disturbed during the course of mining. Reclamation to agriculture could also require excavation of "borrow" areas in lands adjacent to or near the mining sites if sufficient backfill materials are not available at the mining site to complete reclamation. The disturbance of agricultural land during mining and reclamation would preclude agricultural production on those lands during that period.

Draft OCMP and Implementing Ordinances

A total of 2,211 acres of agricultural land is proposed to be mined within the planning area, according to the five long-term mining applications that have been filed with the County, plus a sixth application (Schwarzgruber) that is anticipated to be filed within the next five years (Table 4.5-4). The mining area includes approximately 1,690 acres of land with Class I and Class II soils, most of which are designated as "Prime Farmland." In addition, three requests have been filed with the County to rezone an additional 676 acres to the S-G Reserve (Sand and Gravel Reserve) zone overlay, to allow for future mining.

Under the OCMP, a total of 2,887 acres (11 percent) of the approximate 26,300-acre OCMP planning area could be available for mining proposed for aggregate mining in the foreseeable future. Essentially all of the proposed mining areas are located on lands currently supporting or potentially supporting agriculture. Although active mining of this land would not be expected to be occurring simultaneously, the mined areas would be considered disturbed until reclamation is completed. The expected mining phasing described in Section 4.2 indicates that mining and reclamation activities in the year 2016 would represent an approximate maximum area of disturbed acreage. Approximately 821acres would be disturbed during 2016 and would represented a reasonable maximum temporary loss of potentially productive agricultural land that could occur in any given year as a consequence of the OCMP. This acreage represents one percent of the approximate 566,696 acres of land that were in agricultural production in Yolo County in 1992. Assuming that all disturbed farmlands could support tomato crop production, and that the

1994 average value for tomato crops was $1,695 per acre, the maximum annual loss for prime lands removed from production would be $1.4 million.

Table 4.5-4. Anticipated Conversion of Productive Agricultural Lands Due to OCMP Projects

Name	Total Acres To Be Mined	Acres To Be Reclaimed for Agriculture	Haul Roads/Slopes	Acres To Be Reclaimed for Other Uses	Net Loss of Agricultural Land
Solano Concrete	598	346[1]	26	226	252
Syar	734	413	74	247	321
Collet	360	114	28	218	246
Teichert-~~East~~ Spurlo	148	0	19	129	148
Teichert-~~West~~ oodland	283	115	32	136	168
Schwarzgruber	88	0	0	88	0
Subtotal	2211	988	179	1044	1135
Rezonings					
Stephens	296	N/A	N/A	N/A	--
Lowe	250	N/A	N/A	N/A	--
Syar	130	N/A	N/A	N/A	--
Subtotal	676	--	--	--	--
TOTAL	2,887	988	179	1,044	1,135

N/A Acreages of reclaimed uses are not available for rezoning areas.

The OCMP presents the following policy related to the management of agricultural land:

Action 5.4-6: Encourage off-channel excavation operations to access additional aggregate reserves though the use of wet pits, in order to minimize the amount of agricultural land disturbed by mining.

This action would provide partial mitigation for the potential impact of temporary loss of agricultural land. To be more effective, the Action shall be supplemented by a performance standard that provides further practical measures for controlling the area and duration of disturbance of agricultural land.

Alternative 1a - No Project (Existing Conditions) and
Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Under Alternatives 1a and 1b, all regulations in place as of the end of 1995 would continue, including the Yolo County Reclamation Ordinance and Yolo County Resolution 94-82. Aggregate production would be limited to the 1995 production rate for each active aggregate mining operation. Under this alternative, in-channel and off-channel mining

could be performed to meet these production rates. The temporary disturbance of agricultural lands (maximum of 543 acres, Table 4.5-5) due to mining would be more than under current conditions based on approved phasing. Although mitigated to the extent feasible under previous environmental analysis, this impact remained significant and unavoidable.

Table 4.5-5. Anticipated Conversion of Productive Agricultural Lands Due to Mining Alternatives

Alternative	Acreage Mined	Mined Acreage Reclaimed to Agricultural Use	Acreage Reclaimed to Non-Agricultural Use
OCMP	2,211	998	1,223
No Project (Existing Conditions)	543[1]	202	47
No Project (Existing Permits)	543[1]	202	47
No Mining (Alternatives Site)	0	0	0
Plant Operation Only	0	0	0
Shallow Mining	2,211	1,769	442
Decreased Mining (Restricted Allocation)	1,105	541	564
Decreased Mining (Shorter Mining Period)	1,105	541	564
Agricultural Reclamation	5,250	4,200	1,050

[1] Includes 294 acres of in-channel mining that were not previously in agricultural use.

Under this alternative, all regulations in place as of the end of 1995 would continue, and the existing mining permits (mostly within the Cache Creek channel) would continue to be exercised. The anticipated disturbance of agricultural lands (maximum of 249 acres) due to mining would be more than under current conditions based on approved phasing. Although mitigated to the extent feasible under previous environmental analysis, this impact remained significant and unavoidable.

Alternative 2 - No Mining (Alternative Site)

Under this alternative, all existing mining permits would be voided. Mining would occur elsewhere outside Yolo County, and finished aggregate would be trucked into the area. Under this alternative, it is assumed that reclamation of previously mined areas would continue under existing regulations and performance standards in the Yolo County Reclamation Ordinance and Yolo County Resolution 94-82. No additional farmlands within Yolo County would be disturbed due to mining. Out-of-County locations from which aggregate materials would be obtained could experience temporary losses of agricultural production. This would be a significant and unavoidable impact.

Alternative 3 - Plant Operation Only (Importation)

Under this alternative, all existing mining permits would be voided. Mining would occur elsewhere outside Yolo County, and raw aggregate would be trucked into the area for processing. Under this alternative, it is assumed that reclamation of previously mined areas would continue under existing regulations and performance standards in the Yolo County Reclamation Ordinance and Yolo County Resolution 94-82. Off-site locations from which aggregate materials would be obtained could experience temporary losses of agricultural production. This would be a significant and unavoidable impact.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Under this alternative, the OCMP would restrict all new mining to depths of no more than ten feet above groundwater. The mining area would not be expanded relative to the proposed projects. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. This alternative would result in more disturbance to farmlands (approximately 2,211 acres) than under existing conditions. This would be a significant and unavoidable impact.

Alternative 5a - Decreased Mining (Restricted Allocation) and
Alternative 5b - Decreased Mining (Shorter Mining Period)

Under Alternatives 5a and 5b, existing mining operations would continue, but the OCMP would restrict mining. Each of the alternatives would include mining operations that would result in disturbance of approximately 1,105 acres. Most, if not all, of the mining would be in areas currently under agricultural use. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. The temporary loss of agricultural productivity would be a significant and unavoidable impact.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

Under this alternative, the OCMP would set a minimum reclamation standard of 80 percent of agricultural reclamation. Up to 20 percent of the area disturbed by mining could be reclaimed to open space uses. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. Additional agricultural lands would be disturbed as "borrow" acres to bring mined lands back to agricultural production. Relative to the mining and reclamation plans that have been submitted for the five long-term mining plans currently under review by the County, shallow mining would require an additional 2,994 acres of land to complete this reclamation. The total acreage of disturbed land (mining and borrow areas) would be approximately 5,250 acres over a 30-year period.

Mitigation Measure 4.5-3a (OCMP, A-4, A-5a, A-5b, A-6)

The following performance standard shall be added to OCMP and incorporated into the related ordinances to minimize the temporary loss of agricultural land to mining:

Performance Standard 5.5-3: All proposed mining and reclamation plans shall present a phasing plan for mining and reclamation activities. The phasing plan shall be structured to minimize the area of disturbed agricultural lands during each mining phase, and encourage the early completion of reclamation of agricultural land.

Implementation of the measure would not reduce the impact to a less-than-significant level.

Mitigation Measure 4.5-3b (A-1a, A-1b)

None available.

Mitigation Measure 4.5-3c (A-2, A-3)

None required. Agencies regulating aggregate mining projects in agricultural areas outside Yolo County should adopt performance standards, similar to Performance Standard 5.5-3 of the OCMP, to minimize the area and duration of disturbance of agricultural lands.

Implementation of the above mitigations where available would not reduce this impact to a less-than-significant level; this impact would be unavoidable and significant for the OCMP and all alternatives.

Impact 4.5-4
Permanent Loss of Agricultural Soils Due to Wind or Water Erosion

The loss of topsoil is a significant problem in agricultural areas. Topsoil is the organic-rich upper soil horizons that provide important nutrients vital to plant growth. During agricultural operations, topsoil is exposed during plowing and, in some cases, during cultivation. These disturbances can occur more than once per year. The exposed soils can be subject to erosion by wind and water. Under undisturbed conditions, the erosion potential for the majority of soils within the study area is slight to negligible. None of the soils is identified by the SCS as being susceptible to wind erosion. The low erosion potential is controlled by the cohesive nature of the surface soils and the generally flat to slightly sloping ground surface and related slow runoff rates. Potential mining within the planning area could result in the creation of slopes around mining areas that increase the potential for erosion by runoff. Soil exposed by mining, following the removal of vegetative cover, is more susceptible to erosion by wind and water. The side slopes of soil stockpiles created during mining can also be more susceptible to erosion for similar reasons. The potential impacts related to erosion were described in Impact 4.3-2. Mitigation measures to reduce erosion impacts would apply to all soils and sediments within the planning area disturbed by mining, including agricultural soils.

Exposure of the soil and sediment during mining and reclamation to trafficking by heavy equipment results in increased dust generation. The effects of mining on dust generation are described in Impact 4.7-1 in the Air Quality section of this EIR. Dust generation

represents the suspension and potential off-site transport of fine-grained soil particles. As such, the dust generation can result in wind erosion of the soil. Mitigation Measure 4.7-1a would reduce dust generation and, therefore, wind erosion of agricultural soils.

The potential for erosion of agricultural soils would also be reduced through stockpiling of these soils during mining and reclamation activities. When stored in appropriately managed stockpiles, the surface area of soil exposed to erosion would be reduce in comparison to the surface area exposed to periodic disturbance of soils in agricultural fields.

Draft OCMP and Implementing Ordinances

Aggregate mining under the OCMP would require that large amounts of topsoil be stored in large piles for extended period of time. It is difficult to quantify exactly how much topsoil would be expected to be lost due to wind and water erosion over time. The erosion would depend on the specific timing and management of soil removal and stockpiling activities proposed by individual projects. The OCMP includes a performance standard that serves to mitigate the potential soil erosion that could occur during stockpiling.

PS. 5.5-2 Topsoil stockpiles shall not exceed (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles shall be seeded with a vegetative cover to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Community Development Director.

The policy addresses only topsoil stockpiles. Loss of subsoils (B-horizon) from stockpiles could significantly impact reclamation success.

Alternative 1a - No Project (Existing Conditions) and
Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Under Alternatives 1a and 1b, all regulations in place as of the end of 1995 would continue. The requirements of these regulations for stockpile management would reduce the potential for loss of topsoil and other soils due to erosion of stockpiles. Erosion is also controlled by slope stabilization requirements. No further mitigation would be required.

Alternative 2 - No Mining (Alternative Site) and
Alternative 3 - Plant Operation Only (Importation)

Under Alternatives 2 and 3, mining would occur elsewhere outside Yolo County, and either raw or finished aggregate would be trucked into the area. Under this alternative, it is assumed that reclamation of previously mined areas would continue under existing regulations and performance standards in the Yolo County Reclamation Ordinance and Yolo County Resolution 94-82. This alternative would not result in any loss of soil to erosion related to mining activities and stockpile management within the project area. However, the potential for topsoil erosion related to agricultural activities would continue.

Improper management of soil during mining and reclamation activities in other areas could result in loss of agricultural soils.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Alternative 4 assumes that the OCMP would restrict all new mining to depths of no more than ten feet above groundwater. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. This alternative would probably result in significant volumes of soil being exposed to erosion.

Alternative 5a - Decreased Mining (Restricted Allocation) and
Alternative 5b - Decreased Mining (Shorter Mining Period)

Under Alternatives 5a and 5b, off-channel mining operations would be permitted within the planning area. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. Significant removal and management of agricultural soil would occur and the impacts identified for the OCMP alternative would also apply to these alternatives.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

Under this alternative, the OCMP would allow alternative forms of reclamation, such as water recharge basins or wildlife habitat, or a maximum of 20 percent of the mined lands. The OCMP would set a minimum reclamation standard of 80 percent of agricultural reclamation. Reclamation of mined areas would occur under existing regulations and performance standards proposed in the OCMP. These requirements could increase the potential for agricultural soil loss on the 2,994 acres of borrow area necessary to provide backfill for reclamation.

Mitigation Measure 4.5-4a (OCMP, A-2, A-3, A-4, A-5a, A-5b, A-6)

OCMP Action 5.5-2 shall be amended as follows to impose similar restrictions on the stockpiling of all soils, not just topsoil. Mining plans for areas outside Yolo County should also include a similar requirement.

> *Action 5.5-2: Topsoil, subsoil, and subgrade materials in stockpiles shall not exceed (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles shall be seeded with a vegetative cover to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Community Development Director.*

Implementation of this mitigation would reduce this impact to a less-than-significant level for the OCMP and Alternatives 2, 3, 4, 5a, 5b, and 6.

Mitigation Measure 4.5-4b (A-1a, A-1b)

None required.

Impact 4.5-5
Potential Impacts on Agricultural Capability Caused by Soil Management During Removal, Stockpiling, and Reuse

The removal, handling, storage, and replacement of soil during excavation and reclamation could adversely affect the quality of the soil. Appropriate soil management is an important component of successful agricultural reclamation. Improper management soil practices can result in chemical, physical, and biological changes in soil, including loss of organic material, impairment of the microbial community, or mixing of soil horizons. In addition to these changes, the compaction of soil during mining and soil replacement can cause reduction in the permeability of soil, possibly causing drainage problems. Improper grading of reclaimed agricultural fields can adversely affect site drainage and irrigation, and thus productivity.

Draft OCMP and Implementing Ordinances

Under the OCMP, off-channel aggregate mining would occur in agricultural areas on the alluvial terrace along Cache Creek. The mining would require removal, stockpiling, and ultimate replacement of agricultural soils that overlie the aggregate resources. Proper management of these soils is critical to the success of agricultural reclamation. The management of these soils must include segregation of soil horizons to ensure that soil layering for reclaimed agricultural areas is similar to pre-mining conditions. Typical aggregate pit mining operations generally remove soil and overburden over an entire mining area, facilitating segregation of natural layering of the soil. The soil horizons can be recognized on the basis of color and pre-mining subsurface data, which indicates the depth range of individual soil horizons.

The OCMP includes the following policies that address appropriate management of soil during mining and reclamation:

Goal 5.2-1: Improve soil and water resources so that a diverse agricultural economy, supporting a variety of crops and products, is maintained.

Obj. 5.3-2: Ensure the use of appropriate agricultural management practices in reclaiming mined areas to productive farmland.

These policies, as they relate to management of agricultural soil resources, are supported by the following Performance Standards 5.5-1, 5.5-2, and 5.5-4, discussed below:

PS. 5.5-1: Soil shall be cut in maximum depths in order to minimize traffic and limit compaction. The handling and transportation of soil shall be minimized. All handling of topsoil shall be accomplished when the soil is dry in order to avoid undue compaction.

PS. 5.5-4: Where areas are to be reclaimed to agricultural usage, all A and B horizon soils shall be ripped to a depth of three (3) feet after every one (1) foot layer of soil is laid down, in order to minimize compaction.

Performance Standard 5.5-1 presents appropriate mitigation for management of soil resources by requiring that mining operations minimize the handling and transportation of soil. Performance Standard 5.5-4 provides sufficient mitigation of the potential for compaction of replaced soil and development of reduced permeability. Following completion of placement of the soil, operation of farm equipment could eventually result in the development of a compacted subsoil horizon (referred to as a "plow pan"). However, this is a problem for all agricultural fields in the area, which is not related to soil relocation. The performance standards provide adequate mitigation for the potential for compaction.

PS. 5.5-2: Topsoil stockpiles shall not exceed forty (40) feet in height, with slopes no steeper than 2:1 (horizontal:vertical). Stockpiles shall be seeded with a vegetative cover to prevent erosion and leaching. The use of topsoil for purposes other than reclamation shall not be allowed without the prior approval of the Community Development Director.

Performance Standard 5.5-2 sets appropriate guidelines for the design of soil stockpiles. The standard is supported by additional standards in SMARA (Section 3711) that require segregation of soil horizons and expedite reuse of soil. Although stockpiling of soil would be necessary for most mining operations, concurrent reclamation of mined lands during mining of other areas could reduce need to stockpile the soils. Prolonged stockpiling of A-horizon soils in thick piles can result in the adverse effects (oxygen-deficient environment) on microbial populations. Although the diversity of microbial species and their populations in soil removed from agricultural fields is typically low, expedited reuse would reduce the adverse effects on the existing populations.

Performance Standard 5.5-2, and the provisions of SMARA, would establish appropriate controls for stockpile management. The provision for restricting the use of topsoil for uses other than reclamation limits the potential for the topsoil from mining areas be removed from the area.

Alternative 1a - No Project (Existing Conditions) and
Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Under these alternatives, all regulations in place as of the end of 1995 would continue. These regulations include the Yolo County Reclamation Ordinance and Yolo County Resolution 94-82. The Resolution includes requirements for soil segregation, stockpiling, and placement. These existing requirements would effectively mitigate the potential impacts of improper soil management in the absence of an OCMP.

Alternative 2 - No Mining (Alternative Site) and
Alternative 3 - Plant Operation Only (Importation)

Under these alternative, all existing mining permits would be voided. Mining would occur elsewhere outside Yolo County, and aggregate would be trucked into the area. Regulation of soil management during mining and reclamation in Yolo County would not be required. Mitigation of potential impacts on agricultural soils caused by mining would be provided by conformance with SMARA.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

The restriction of mining depth in this alternative would not reduce the potential impacts of improper soil management. All mining, shallow or deep, requires the removal and management of surface soils. The provisions of SMARA and the OCMP would provide adequate mitigation of potential impacts related to agricultural soils.

Alternative 5a - Decreased Mining (Restricted Allocation) and
Alternative 5b - Decreased Mining (Shorter Mining Period)

Under these alternatives, additional off-channel mining operations would be permitted in the planning area. Significant soil removal would occur and the potential impacts of improper soil management would be present. The provisions of SMARA and the OCMP would provide adequate mitigation of potential impacts related to agricultural soils.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

Under this alternative, the OCMP would set a minimum reclamation standard of 80 percent to agricultural reclamation. However, the OCMP would also allow reclamation such as water basins or wildlife habitat. Soil excavation and management would occur. The policies discussed above for the OCMP alternative would also apply to this alternative. The provisions of SMARA and the OCMP would provide adequate mitigation of potential impacts related to agricultural soils.

Mitigation Measure 4.5-5a (OCMP, A-1a, A-1b, A-2, A-3, A-4, A-5a, A-5b, A-6)

None required.

Impact 4.5-6
Potential Impacts on Agricultural Production Related to Lowered Reclaimed Surfaces

Aggregate mining in the planning area could result in the removal of large volumes of subsurface materials for processing and sale as aggregate products. This would cause a net volume deficit that would result in the permanent lowering of the land surface. The lowering of the land surface would result in the formation of depressions in the existing relatively flat topography of the area. Mined areas in which the depth of mining is greater than the depth of groundwater would be permanently flooded as groundwater would fill the depression. Areas that are backfilled to above the groundwater table would have a resulting ground surface that is closer to the groundwater table than the pre-mining ground surface. These reclaimed surfaces could also collect storm water and be flooded. Inadequate drainage could cause ponding of water. The lowering of the reclaimed surface could also promote the preferential flow of cold air to these areas, possibly causing crop damage.

Draft OCMP and Implementing Ordinances

Under the OCMP, agricultural reclamation of off-channel mining areas would result in the formation of lowered agricultural fields. Five long-term mining permit applications currently under environmental review by the County would collectively result in mining of approximately 2,211 acres. The reclamation plans submitted with the applications indicate that approximately 988 acres of the mined areas would be reclaimed to agriculture. All of the reclaimed agricultural fields would be lowered relative to the existing ground surface between 8 and 19 feet. The lowering of these fields could affect the agricultural productivity in the post-reclamation period, as described below, due to high groundwater levels, poor drainage, and changes in atmospheric conditions.

Relative High Groundwater

When the lowered surfaces are reclaimed for agricultural use, the altered hydrologic and atmospheric conditions could impact agricultural productivity. If groundwater levels are too shallow in the reclaimed condition, some crops planted on the surfaces could be adversely affected. The depth to groundwater should be sufficient to prevent saturation of the roots for extended periods of time. Saturation of the roots during the growing season is particularly adverse. Temporary saturation of the roots during the winter rainy season is tolerated by most plants grown in the region. Most crops within the area have rooting depths that do not exceed five feet below the ground surface. Winter crops grown in the area, such as wheat and barley, have shallower rooting depths.

There has been some history of successful and unsuccessful reclamation programs for off-channel mining along Cache Creek. A portion of the existing Solano Concrete mining operation on the Hutson parcel has been successfully reclaimed to productive agricultural uses. Phase I of the Hutson parcel was reclaimed in 1989 and planted with wheat. The wheat yields that were monitored in 1992 and 1994 were proven to be equivalent or greater than wheat yields from nearby undisturbed farmland. In addition, another 13 acres of land, comprising Phase II and a portion of Phase III reclamation plans for the Hutson parcel, have been recently reclaimed. The wheat yields during the initial cropping season for this 13 acres were also documented as higher than yields from adjacent, unmined lands. These results suggest that Solano Concrete has been successful in implementing their reclamation plan (BASELINE, 1995).

Another mining operation has not been as successful in implementing a reclamation program. The Teichert Aggregates-Fong site attempted to reclaim lands for agricultural use. According to the proposed reclamation plan prepared by the company, approximately 22 acres of mined lands near Cache Creek were to be restored as productive farmland. However, the productivity of the lands has been impaired possibly due to high groundwater levels or discharge of water from surrounding areas. The predominant crops grown in the planning area include tree crops (orchards), tomatoes, sugar beets, almonds, safflower, and sunflower (Perkins, 1996). The unsuccessful reclamation experience at the Teichert-Fong site indicates that if aggregate wet pit mining is permitted to depths too close to the

groundwater table or in areas that collect seepage, the choice of crops for the reclaimed land may be restricted.

Inadequate Drainage

The issues of drainage and flooding are important for the crops grown in the planning area. None of the predominant crops grown along Cache Creek is resistant to damage from long-term standing water. During the rainy, winter months the predominant crop is wheat, which can be damaged from prolonged exposure to water. Tomatoes are usually planted in February, and if flooded, the crop may need to be replaced, as occurred in 1995 (Perkins, 1996).

The OCMP and the draft Surface Mining Reclamation Ordinance do not set performance standards to ensure that drainage systems for the reclaimed lands are designed to enhance, and not adversely impair, agricultural productivity. The OCMP contains a general performance standard related to drainage:

PS.2.5-17: Upon the completion of operations, grading and vegetation shall minimize erosion and convey surface runoff to natural outlets or interior basins. The condition of the land shall allow sufficient drainage to prevent water pockets or undue erosion. Natural and storm water drainage shall be designed so as to prevent flooding on surrounding properties and County rights-of-way.

Similarly, the Surface Mining Reclamation Ordinance does not include any specific requirements that reclamation plans must design drainage systems to ensure no impacts on the productivity of future agricultural crops.

The OCMP and ordinances should be augmented with standards to ensure reclamation drainage systems would be designed so that uncontrolled runoff would not cause erosion or flooding of the reclaimed agricultural fields.

Atmospheric Temperatures

The potential for cold injury to farmland crops is increased for lowered reclaimed surfaces relative to the pre-mining conditions. The higher density of cold air causes it to flow to low-lying areas of the landscape. This effect is particularly apparent in calm weather. Turbulence during windy conditions causes effective mixing of cold and warm air. Cold air that settles into low lying areas can increase the potential for frost damage to crops on the lowered surface. Lower temperatures at sensitive times of crop growth could potentially increase the risk of cold injury, limit the choice of crops to be grown, or cause a delay in planting.

The concern that lowered reclaimed fields can increase the risk of cold injury was evaluated during environmental review of the short-term off-channel mining application process in 1995. The EIRs for those projects concluded that the increased risk of cold injury was a less-than-significant impact. This opinion was based on information collected

to date on agricultural productivity on the lowered surfaces at the Solano Concrete Company's Hutson parcel site, located near the center of the OCMP planning area. The elevation of the reclaimed agricultural fields at that site are 8.5 to 14 feet below the surrounding ground surface. The annual monitoring reports for the initial reclaimed acreage at Solano Concrete's Hutson parcel have not revealed any adverse impacts on cropping patterns, yields or agricultural productivity due to the lower elevation. The potential for cold damage to crops on lowered agricultural fields has not occurred and is, therefore, considered a less-than-significant impact.

Alternative 1a - No Project (Existing Conditions) and
Alternative 1b - No Project (Existing Permits and Regulatory Condition)

Under alternatives 1a and 1b, all regulations in place as of the end of 1995 would continue. These regulations include the Yolo County Reclamation Ordinance and Yolo County Resolution 94-82. The Resolution requires that wet pit mining areas be reclaimed to agriculture and that the reclaimed agricultural surfaces be a minimum of five feet above average high groundwater. The Resolution also presents requirements that the reclaimed agricultural surfaces be regraded to allow surface/furrow irrigation of crops and to allow adequate storm water drainage. These requirements would adequately minimize the impacts related to the effects of lowered surfaces on agricultural productivity. The environmental impact analysis for short-term, off-channel mining applications indicated that the impact of potential increased cold injury was a less-than-significant impact that did not require mitigation.

Alternative 2 - No Mining (Alternative Site) and
Alternative 3 - Plant Operation Only (Importation)

Under alternatives 2 and 3, all existing mining permits would be voided. Mining would occur elsewhere outside Yolo County, and aggregate would be trucked into the area. Under this alternative, it is assumed that reclamation of previously mined areas would continue under existing regulations and performance standards in the Yolo County Reclamation Ordinance, Yolo County Resolution 94-82, and the conditions of approval for the mining permits. The impacts of the potential effects of lowered agricultural surfaces on agricultural productivity was evaluated and appropriate mitigation is provided in the reclamation plans.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Alternative 4 assumes that the OCMP would restrict all new mining to depths of no more than ten feet above groundwater. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. The reclaimed agricultural surface would be greater than ten feet above the groundwater table as replacement of overburden and topsoil would raise the surface above the mining depth. The resulting height of the surfaces above the groundwater table would be sufficient to avoid any impacts on crops related to groundwater depth.

Alternative 5a - Decreased Mining (Restricted Allocation) and
Alternative 5b - Decreased Mining (Shorter Mining Period)

Under these two alternatives, off-channel mining operations would be permitted within the planning area. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. The successful reclamation of agricultural lands could be affected because the OCMP and accompanying ordinances do not include specific performance standards or regulations to ensure that agricultural lands to be reclaimed would not be adversely affected by high groundwater or lack of adequate drainage.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

Under this alternative, the OCMP would minimize alternative forms of reclamation such as water recharge basins or wildlife habitat. The OCMP would set a minimum reclamation standard of 80 percent of agricultural reclamation. Reclamation of mined areas would occur under existing regulations and performance standards in the OCMP. The successful reclamation of agricultural lands could be affected because the OCMP and accompanying ordinances do not include specific performance standards or regulations to ensure that agricultural lands to be reclaimed would not be adversely affected by high groundwater or lack of adequate drainage.

Mitigation Measure 4.5-6a (OCMP, A-2, A-3, A-4, A-5a, A-5b, A-6)

The OCMP and ordinances shall be augmented with the following standard to ensure reclamation drainage systems would be designed so that uncontrolled runoff. Mining and reclamation requirements in areas outside the planning area should also include similar requirements.

> *Performance Standard 5.5-5: Reclaimed agricultural surfaces shall be graded to provide adequate field gradients to allow surface/furrow irrigation of crops and allow for adequate storm water drainage.*

This mitigation would reduce the impact on crops related to adverse drainage conditions to a less-than-significant level.

Mitigation Measure 4.5-6b (A-4, A-5a, A-5b, A-6)

The addition of Performance Standard 3.5-16 (Mitigation Measure 4.4-2a) would reduce the potential damage to crops by high groundwater conditions to a less-than-significant level.

Mitigation Measure 4.5-6c (A-1a, A-1b)

No mitigation required. Existing requirements and conditions of approval for off-channel mining adequately mitigate these impacts related to drainage and reclaimed field height above the groundwater level.

Impact 4.5-7
Potential Cumulative Loss of Productive Agricultural Land Within Yolo County

The potential loss of agricultural land within Yolo County is the result of land development pressures related to expansion of urban development and other competing land uses. Recent agricultural land conversion rates for Yolo County tabulated by the California Department of Conservation indicate that, during the years 1990-1992, approximately 2,993 acres of "important farmland" were removed from production as the result of conversion to non-agricultural uses. Approximately 2,225 net acres of prime farmland were converted to other agricultural and non-agricultural uses. The main reason for the net decrease was the redefinition of prime lands to lesser quality lands identified by the CDC as Farmlands of Local Importance. This "downgrading" of the agricultural value of these lands was primarily the consequence of prime land being left idle for two or more cycles. During the same period, the CDC reported that 319 acres of prime farmland had been converted to urban uses and 448 acres of prime soils had been converted to "other land" (CDC, 1994).

Prime farmland loss has also been caused by aggregate mining within the OCMP project area. The approval of three short-term aggregate mining applications in 1995 resulted in the permitting of aggregate mining that would result in incremental permanent conversion of approximately 37 acres of agricultural land to non-agricultural uses (Reiff 11, Woodland 18, Solano 8). An additional 600+ acres may be converted for the possible groundwater recharge and recovery program by the Yolo County Flood Control and Water Conservation District.

The Woodland General Plan indicates that between 2,108 acres (Alternative 2) and 2,296 acres (Alternative 1) of agricultural land could be converted to urban land uses by 2015. The expected growth within the spheres of influence of the towns of Esparto and Madison could also result in the additional loss of approximately 2,200 acres of agricultural land to urban development.

Draft OCMP and Implementing Ordinances

Under the OCMP, off-channel mining would contribute to the permanent conversion of agricultural land to non-agricultural uses within the County. The reasonably foreseeable mining projects over the next 30 years could result in the conversion of 1,223 acres of agricultural land to non-agricultural uses. This incremental loss of agricultural land would be a cumulative impact that is significant and unavoidable.

Alternative 1a - No Project (Existing Conditions)

Under alternative 1a, in-channel and off-channel mining would be permitted. Off-channel mining would contribute to the loss of agricultural land. Construction of perimeter slopes around lowered reclaimed agricultural fields in approved reclamation plans would result in a loss of approximately 37 acres of agricultural land. The incremental cumulative increase in loss of agricultural land in Yolo County would be a significant and unavoidable impact.

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

Under alternative 1b, in-channel and off-channel mining would be permitted. Permitted off-channel mining would result in a loss of approximately 37 acres of agricultural land. The potential cumulative impact of loss of agricultural land in Yolo County under this alternative would be significant and unavoidable.

Alternative 2 - No Mining (Alternative Site) and
Alternative 3 - Plant Operation Only (Importation)

Under these alternatives, aggregate mining within the planning area would not be permitted. No loss of agricultural land would result. However, the loss of agricultural land could occur in mining areas outside the County as the result of the demand for aggregate resources within the County. The potential cumulative loss of agricultural land within other mining areas would be a significant and unavoidable impact.

Alternative 4 - Shallow Mining (Alternative Method/Reclamation)

Shallow aggregate mining within the planning area would be permitted under this alternative. Reclamation of a minimum of 80 percent of the mined lands to agriculture would be required. Therefore, a maximum of 20 percent of the mined areas (442 acres could be reclaimed to non-agricultural uses. The mining permitted under this alternative would contribute to the permanent conversion of agricultural land to non-agricultural uses. This cumulative loss of agricultural land within the County would be a significant and unavoidable impact.

Alternative 5a - Decreased Mining (Restricted Allocation) and
Alternative 5b - Decreased Mining (Shorter Mining Period)

Under these alternatives, off-channel mining within the OCMP would be permissible. The off-channel mining would contribute to the permanent conversion of agricultural land to non-agricultural uses. The potential cumulative impact of loss of agricultural land in Yolo County under this alternative would be significant and unavoidable.

Alternative 6 - Agricultural Reclamation (with Mining Operations as Proposed)

Under this alternative, off-channel mining within the OCMP would be permissible. The off-channel mining would likely occur on agricultural lands. Even though the reclamation of off-channel mining areas would be required to return 80 percent of the mining areas to agricultural use, the reclamation would contribute to the permanent conversion of up to 20 percent of agricultural land (1,041 acres) to non-agricultural uses. The potential cumulative impact of loss of agricultural land in Yolo County under this alternative would be significant and unavoidable.

Mitigation Measure 4.5-7a (OCMP, A-1a, A-1b, A-4, A-5a, A-5b, A-6)

Implementation of Mitigation Measure 4.5-2a would reduce the cumulative impact of permanent conversion of agricultural land to non-agricultural uses to a less-than-significant level if the mitigation results in no net loss of agricultural land. Any permanent loss of agricultural land resulting from mining activities would be a significant and unavoidable impact.

Mitigation Measure 4.5-7b (A-2, A-3)

None available.

The County does not have the jurisdiction to mitigate the loss of agricultural lands as the result of mining activities occurring outside the County. Any loss of agricultural land caused by aggregate mining in these areas would be a significant and unavoidable impact.