Farmland Conversion Study

for

Approximately 314.31 Acres
Located at the Northeast Corner
Houghton Road & Highway 99

Section 7, T.31S., R.28E.

Prepared for:

99 Houghton, LLC
50 So. Jones Blvd. #101
Las Vegas, NV 89107

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1.0 Project Setting

1.1 Introduction

As the United States continues to urbanize, one of the many challenges facing the City of Bakersfield and Kern County is blending the need to preserve agricultural land and open space with the demand for development in metropolitan edges. Projects involving changes in land use sometimes convert agricultural lands to non-agricultural uses. Conserving productive agricultural lands requires a careful project-specific evaluation of the direct and indirect effects, as well as the cumulative effects, of agricultural land conversion. This study provides a checklist of items that should be considered by those analyzing the proposed project site. In order to analyze the proposed project's potential impact to agricultural lands, this study utilized factors identified in the Metropolitan Bakersfield General Plan (MBGP), Kern County General Plan (KCGP), and the California Department of Conservation's *California Agricultural Land Evaluation and Site Assessment (LESA) Model* (Appendix "J").

1.2 Project Description

This Farmland Conversion Study addresses the conversion of approximately 314.31 acres of agricultural land located south of the City of Bakersfield to industrial uses. The subject property is located within the County of Kern and State of California within a portion of Section 7, Township 31 South, Range 28 East, Mount Diablo Meridian (refer to Appendix "A").

The property is identified as Assessor's Parcel Number 185-140-06. The property is located between Di Giorgio Road to the north and Houghton Road to the south, between Highway 99 and South Union Avenue (Hwy 204) to the west and east, respectively. According to the United States Geological Survey (USGS) Gosford and Conner 7.5-minute quadrangle maps and visual inspection of the property, a majority of the topography of the site is flat, but slopes slightly from northwest to southeast. The property elevation ranges from approximately 331 to 340 feet above mean sea level at the center of the site.

The subject property is presently and has historically been used for agriculture. The property is mostly vacant with a structure located in the eastern portion of the site. The structure appears to be used as a storage building and is associated with agricultural activities. The project site is adjacent to agricultural uses and a small cluster of single-family residential homes to the east. It is adjacent to vacant land and agricultural uses to the north. Highway 99 is adjacent to the west. There is an automobile wrecking yard (Higgins Auto Wrecking, 12825 South Union Avenue) located adjacent to the property in the southeast.

According to the MBGP, the current land use designation for the subject property is R-IA (Resource-Intensive Agriculture). According to the County of Kern Zoning Ordinance (2003), the entire subject property is currently zoned A (Exclusive Agriculture). The

property owner is proposing to change the zoning and amend the MBGP to change the property land use designation as follows:

Table 1 Proposed Land Use and Zoning

Proposed Land Use and Zoning					
General Plan Amendment			**Zone Change**		
From	***To***	***Acres***	***From***	***To***	***Acres***
R-IA -(Resource Intensive Agriculture)	LI (Light Industrial)	129.73	A - (Exclusive Agriculture)	M-1 (Light Industrial)	129.73
	SI (Service Industrial)	184.58		M-2 (Medium Industrial)	184.85

1.3 Purpose of Study

This Farmland Conversion Study addresses the conversion of approximately 314.31 acres of agricultural land to non-agricultural uses, and identifies impacts, mitigation, and significance after mitigation. The subject property is within the MBGP planning area and is subject to the California Environmental Quality Act.

The Lead Agency (County of Kern) typically bases a determination of agricultural resources significance on the thresholds established by the CEQA Guidelines. The Environmental Checklist Form of the CEQA Guidelines (Appendix "G"), contains a list of impacts that may be deemed potentially significant. The lead agency should address questions from this checklist that are relevant to a projects environmental effects. The questions from Appendix "G", pertaining to agricultural resources follow:

Agricultural Resources - In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland.

Would the Project:

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b. Conflict with existing zoning for agricultural use or a Williamson Act Contract?

c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?

2.0 Regulatory Setting

2.1 Land Conservation (Williamson) Act

The California Land Conservation Act of 1965, also known as the Williamson Act, was established with the basic intent of encouraging the preservation of the state's agricultural lands in view of the increasing trends toward their "premature and unnecessary" urbanization. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments, which are much lower than normal because they are based upon farming and open space uses as opposed to full market value. Local governments receive an annual subvention of forgone property tax revenues from the state via the Open Space Subvention Act of 1971.

The State Department of Conservation passed legislation in 1998 that would allow individual counties to establish an additional program for farmlands to enter into contract with the State to receive a similar benefit as the Williamson Act contract. The Farmland Security Zone is a 20-year self-renewing contract that allows property owners with qualifying parcels to receive an additional 35 percent in tax savings above that which is received under the Williamson Act land use contract.

The total acres of prime and nonprime farmland reported to the State Department of Conservation with the Kern County annual Subvention Report for 2008 were 1,471,498.20 acres of prime and nonprime land under a California Land Conservation (Williamson) Act contract, and 145,150.08 acres enrolled in Farmland Security Zone contracts. (Kern County Planning – Kathe Malouf, March 30, 2009)

Both of these contracts require that lands be within an established agricultural preserve. Agricultural lands that are not under contract face the greatest threat for conversion, as they are assessed higher property taxes due to their proximity to urbanization.

According to the Kern County Planning Department, the property is within the boundaries of Agricultural Preserve No. 13, with portions of the property excluded. None of the subject property is subject to a Williamson Act land use contract. A petition for exclusion of the remainder of the property from the boundaries of Agricultural Preserve No. 13 was submitted to the County of Kern on July 8, 2008.

2.2 Trends of Farmland Conversion in the County

According to the California Land Conservation (Williamson) Act 2006 Status Report, prepared by the Department of Conservation, May 2006, the following is a breakdown of contracted lands receiving benefit of decreased property taxation for 2005 (See Table 2).

Table 2 Land receiving benefit of California Land Conservation (Williamson) Act 2005

California Land Conservation (Williamson) Act 2005		
Williamson Act Contract	Prime	636,660 acres
	Non-Prime	924,419 acres
Non-contracted *	Prime	19,055 acres
	Non-Prime	29,282 acres
Farmland Security Zone Contract - Urban	Prime	22,884 acres
	Non-Prime	0 acres
Farmland Security Zone Contract – Non-Urban	Prime	127,390 acres
	Non-Prime	0 acres

* These lands have requested non-renewal of their contract and are in the process of "backing out" of the 9-year contract.

2.3 Metropolitan Bakersfield General Plan Provisions

The City of Bakersfield, in collaboration with Kern County, prepared the MBGP. This document establishes policies to provide decision-makers with long-range guidance affecting the future character of the Bakersfield planning area. The MBGP also acts to clarify and articulate the relationship and intentions of local government to the rights and expectations of the general public, property owners and prospective investors. Through the Plan, the City and County can inform these groups of its goals, policies and development standards, thereby communicating what must be done to meet the objectives of the MBGP.

The MBGP provides for the continuation of historical growth patterns in the western Bakersfield region by allowing for the greatest growth potential in this area. The land use goals of the MBGP provide for the accommodation of:

- New development which captures the economic demands generated by the marketplace and establishes Bakersfield's role as the capital of the southern San Joaquin Valley;
- New development which provides a full mix of uses to support its population;
- New development which channels land uses in a phased, orderly manner and is coordinated with the provision of infrastructure and public improvements;
- New development, which is compatible with and complements existing land uses.

The Elements within the MBGP that provide policies and implementation measures for the conservation and/or improvements on agricultural lands include the Land Use, Conservation, and Open Space Elements. Below is an outline of the applicable goals within these Elements:

- Allow for the continuance of agricultural uses in areas designated for future urban development;
- Provide for the planned management, conservation, and wise utilization of agricultural land in the planning area;
- Promote soil conservation and minimize development of prime agricultural land as defined by the following criteria:
    - Capability Class I and/or II irrigated soils;
    - 80-100 Storie Index rating;
    - gross crop return of $200 or more per acre per year;
    - annual carrying capacity of one animal unit per acre per year
- Establish urban development patterns and practices that promote soil conservation and that protect areas of agricultural production of food and fiber crops, and nursery products.

The Land Use Element of the MBGP outlines residential policies and implementation measures regulating how the land will be utilized.

2.4 Kern County General Plan Provisions

The KCGP is a policy document designed to give long-range guidance to those County officials making decisions affecting the growth and resources of the unincorporated Kern County jurisdiction, excluding the Metropolitan Bakersfield planning area.

According to the KCGP, agriculture has been, and will continue to be, vital to the economy of Kern County. The development of major water projects has greatly increased the amount of land in agricultural production during the last two decades. However, conflicts over the use of agricultural land frequently occur. As is the case for other urbanizing regions, the loss of valuable agricultural lands to urban development is a prime concern. Land division; even where actual development does not take place, can adversely affect the County's agricultural resource base. This is particularly a problem in extensive agriculture areas, such as rangeland, where land values can be significantly increased beyond values based on agricultural productivity.

The KCGP provides goals, policies, and implementation measures for the conservation and/or improvements on agricultural lands. Below is an outline of the policy that addresses General Plan Amendment proposals for agricultural land (KCGP, Land Use, Conservation, and Open Space Element, Section 1.9 - Resource Land Use Designation):

- When evaluating General Plan Amendment proposals to change a Map Code 8.1 (Intensive Agriculture) designation to accommodate residential, commercial, or industrial development, the County shall consider the following factors:
    a. Approval of the proposal will not unreasonably interfere with agricultural operations on surrounding lands.

b. Necessary public services (fire, sheriff, etc.) and infrastructure are available to adequately serve the project.
c. There is a demonstrated need for the proposed project location based upon population projections, market studies and other indicators.
d. The requested change in land use designation is accompanied by a zone change and other implementing land use applications for a specific development proposal.
e. The site is contiguous to properties that are developed or characterized by nonagricultural land uses.
f. Past agricultural use of the site has led to soil infertility or other soil conditions, which render the property unsuitable for long-term agricultural use.
g. Approval of the proposed project outweighs the need to retain the land for long-term agricultural use.
h. Where adjacent or within proximity (½ mile) to existing urban areas, the County shall discourage agricultural conversion that is discontinuous with urban development.

2.5 Additional Provisions

According to the most recent Farmland Conversion Report: 2002 to 2004, prepared by the staff of the Farmland Mapping and Monitoring Program in the Department of Conservation, Farmland of Local Importance is classified as:

> *"Farmland of Local Importance is land of importance to the local economy, as defined by each county's local advisory committee and adopted by its Board of Supervisors.*
>
> *Farmland of Local Importance is either currently producing, or has the capability of production, but does not meet the criteria of Prime Farmland, Farmland of Statewide Importance, or Unique Farmland. Authority to adopt or to recommend changes to the category of Farmland of Local Importance rests with the Board of Supervisors in each county."*

The FMMP states "The Kern County Board of Supervisors determined that there will be no Farmland of Local Importance in Kern County".

2.6 Department of Conservation

In Section 4.3 of this study, prime farmland is defined and discussed. Prime farmland, as defined by the United Stated Department of Agriculture (USDA), are soils that are best suited to producing food, seed, forage, fiber, and oilseed crops. In addition, prime farmland produces the highest yields with minimal units of energy and economic resources, and farming theses soils results in the least damage to the environment.

Prime farmland soils commonly get an adequate and dependable supply of moisture from precipitation or irrigation. Temperature and growing season are favorable, and the level of acidity or alkalinity is acceptable. The soils have few rocks and are permeable to water and

air, not excessively erodible or saturated with water for long periods and are not flooded during the growing season. Approximately 314.31 acres or 100 percent of the project site would meet the requirements for prime farmland if undeveloped and water for irrigation is available. The prime farmland soils in the project site are KsA – Bakersfield fine sandy loam (170.22 acres), and CaA - Cajon sandy loam (144.09 acres).

2.7 California Agricultural Land Evaluation and Site Assessment Model – (LESA)

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of the California Agricultural LESA Model is the result of Senate Bill 850 (Chapter 812/1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, to develop an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095).

The California Agricultural LESA Model is composed of six different factors: two Land Evaluation (LE) factors are based upon measures of soil resource quality; four Site Assessment (SA) factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points, The projects score becomes the basis for making a determination of a projects potential significance, based upon a range of established scoring thresholds.

3.0 Environmental Setting

3.1 State of California Agricultural Production

According to the most recent 2006 California Agriculture Highlights prepared by the California Department of Food & Agriculture, California had 76,500 farming operations for the year 2005 (the most recent year available). This number represents less than 4 percent of the nation's total farming operations; however, these farms account for 13.3 percent of the national gross cash receipts from farming. California land in farms totaled 26.3 million acres for the year 2006, and the number of farms decreased by 0.4 percent from the year 2005. The average size farm in California is 346 acres, and approximately 350 crops are recognized in the state, including seeds, flowers and ornamental grasses. The 2006 total value of agricultural products sold that were produced in California was $25,737,173,000. Modern agricultural practices in the United States have greatly increased the productivity of an acre of land. One acre can produce 42,000 pounds of strawberries, 25,400 pounds of potatoes, 11,000 heads of lettuce, or 640 pounds of cotton lint. California's top 20 crop and livestock commodities account for 74 percent of the state's gross farm income.

3.2 Kern County Agricultural Production

The valley region of Kern County is highly suitable for agricultural cultivation. A review of the California Department of Food and Agriculture Crop Reports indicates a history of high agricultural production for many crops over the years and continuing to the present. Factors that influence high agricultural activity today are climate, availability of water, dependable market demand, good soils, and most importantly, proper management. Agriculture in Kern County has been extensive since the introduction of livestock in the 1860's. Livestock raising on large land grants and some production of grain under dry-farming methods were the primary agricultural pursuits until about 1880. Rapid agricultural development occurred after 1880 due to the development of irrigation, inexpensive land, favorable crop yields, the arrival of two railroads, the development of the petroleum industry, and access to markets.

The most recent 2007 Agricultural Crop Report prepared by the Kern County Agricultural Commissioner's Office states that Kern County contains 923,022 acres of harvested land. Within that acreage, 92,874 acres were harvested for vegetable crops and 513,529 acres for field crops. The 2007 total value of agricultural commodities produced in Kern County was $4,092,166,180, an increase of approximately 15.10 percent over the 2006 crop value. The total harvested acreage increased approximately 3.20 percent. The 2007 top six commodities were milk, grapes, citrus, almonds, and carrots.

3.3 Agricultural Production - Subject Property

The subject property includes approximately 314.31 acres of agricultural land. Doug Kaiser Farms (DKF), Permit No. 1500666 is the grower from 2007 to the present. Jerry P. Mitchell Family Partnership, L.P., Permit No. 1502896, was the grower for the years 2003 through 2006. Historically the site has been used for alfalfa and grain production, and sheep grazing. Agricultural crops grown on the subject property from 2003 to 2008 are listed in Table 3.

Table 3 Crops Grown on Subject Property for the years 2003-2008

Agricultural Crops - 2003-2008 Portion of Section 7, Township 31S., Range 28E., M.D.M.					
Year	Permit and Permitee	Crop	Acres	Yield Per Acre (Ton)	Total Yield (Ton)
2008	Doug Kaiser Farms Permit No. 1500895	Wheat	65	2008 crop information not available at this time	
		Alfalfa	150		
		Corn /Fod	20		
		Fallow	60		
2007	Doug Kaiser Farms Permit No. 1500895	Alfalfa	120	8.1	970
		Corn /Fod	60	3.9	233
		Grain	40	2.8	113
		Fallow	80	--	--

Agricultural Crops - 2003-2008 Portion of Section 7, Township 31S., Range 28E., M.D.M.					
Year	Permit and Permitee	Crop	Acres	Yield Per Acre (Ton)	Total Yield (Ton)
2006	Jerry P. Mitchell Family Part. L.P. Permit No. 1502896	Alfalfa	300	8.2	2460
2005	Jerry P. Mitchell Family Part. L.P. Permit No. 1502896	Grain	160	3.1	499
		Alfalfa	140	7.9	1100
2004	Jerry P. Mitchell Family Part. L.P. Permit No. 1502896	Grain	140	5.8	816
		Alfalfa	160	9.1	1461
2003	Jerry P. Mitchell Family Part. L.P. Permit No. 1502896	Alfalfa	300	8.6	2586

3.4 Pesticide Usage - Subject Property

The project site has been utilized for agricultural purposes from at least the 1940s to the present. Doug Kaiser Farms (DKF) is the present grower, and possesses a Restricted Materials Permit No. 1500666 for applications of pesticides and herbicides, which expires on December 31, 2008.

Information pertaining to pesticide use within the subject property has been provided by the Kern County GIS Mapping System, Kern County Department of Agriculture records, and the property owner, 99 Houghton LLC.

According to property owner, Round-up was the only pesticide/chemical used on the subject site from 2003 to present. However, information obtained from the Kern County Agricultural Commissioners pesticide permit records indicated that the following pesticides, herbicides, fertilizers, and general soil amendments have been licensed and were applied to the project site from 2003 to 2008. (See Table 4)

Table 4 Chemicals / Pesticides Permitted for Use on the Project Site

Chemicals / Pesticides Permitted for Use on Project Site 2003-2008		
Name	**Type**	**Years Applied**
Trifluralin	Herbicide	2005
Boric Acid	Insecticide	2003, 2004, 2006, 2007, 2008
MCPA, Dimethylamine Salt	Herbicide	2008
Bromoxynil Octanoate	Herbicide	2008
Ammonium Sulfate	Herbicide	2004
Glyphosate, Isopropylamine Salt	Herbicide	2003, 2004
Mepiquat Chloride	Regulator	2003, 2004, 2006, 2007
Thidiazuron	Defoliant	2003, 2004, 2006, 2007

Chemicals / Pesticides Permitted for Use on Project Site 2003-2008		
Name	**Type**	**Years Applied**
Fenproatin	Insecticide	2002
Avermectin	Insecticide	2003, 2004, 2005, 2006, 2007
Bifenthrin	Insecticide	2004
Pyrithiobac-Sodium	Herbicide	2006, 2007
Pyriproxyfen	Regulator	2004
Dicamba, Diglycolamine Salt	Herbicide	2008
Prometryn	Herbicide	2004
Indoxacarb	Insecticide	2003
Acetamiprid	Insecticide	2003, 2004, 2006, 2007
Glyphosate, Potassium Salt	Herbicide	2007
Pyraflufen-Ethyl	Herbicide/Defoliant	2007
Prowl	Herbicide	2003, 2006, 2007
Roundup	Herbicide	2003, 2004, 2005, 2006, 2007
Leaf Life	Foliar Nutrient	2003

3.4 Agricultural Production - Adjacent Property

The crops grown on adjacent properties for the years 2003-2007, and the land uses for the adjacent property are presented in the Tables 5 and 6 below.

Table 5 Crops Grown on Adjacent Properties 2003-2007

Crops Grown on Adjacent Properties 2003-2007		
Year	**Location**	**Crops**
2003	North	Alfalfa, Cotton
	East	Alfalfa, Cotton, Corn/Fod, Lettuce
	South	Corn/Fod, Wheat
	West	Alfalfa, Corn/Fod, Oat/Fod, Wheat
2004	North	Cotton
	East	Cotton, Corn/Fod, Lettuce
	South	Cotton
	West	Alfalfa, Cotton, Wheat
2005	North	Cotton, Corn Seed, Wheat/Fod
	East	Cotton
	South	Corn/Fod, Wheat/Fod
	West	Wheat
2006	Information not available	
2007		

Source: Kern County GIS 9-11-08

Table 6 Adjacent Properties Land Use

Adjacent Properties Land Use, General Plan and Zoning			
Location	**General Plan**	**Current Land Use**	**Zoning**
North	R-IA (Resource Intensive Agriculture) LMR (Low Medium Residential; ≤ 10 D.U./net acre) RR (Rural Residential; minimum 2.5 gross acres/unit)	Agricultural	A (Exclusive Agriculture) A-1 (Limited Agricultural) C-2 (General Commercial) CH (Highway Commercial) E(1/2)RS (Estate ½ acre Residential Suburban Combining) E(1)RS MH (Estate 1 acre Residential Suburban Mobile Home Combining) E(2 ½)RS (Estate 2 ½ acres Residential Suburban Combining) R-2 (Medium Density Residential)
South	R-IA (Resource Intensive Agriculture) RR (Rural Residential) HC (Highway Commercial)	Agricultural, rural residential	A (Exclusive Agriculture) A-1 (Limited Agriculture) C-2 PD (General Commercial)
East	R-IA (Resource Intensive Agriculture) RR (Rural Residential) SI (Service Industrial) HC (Highway Commercial)	Agricultural, commercial, rural residential	A (Exclusive Agriculture) A-1 (Limited Agriculture) M-2 PD (Medium Industrial Precise Development Combining) E(10)RS (Estate - 10 acres)
West	R-IA (Resource Intensive Agriculture)	Highway 99, agricultural, fallow land	A (Exclusive Agriculture)

Source: Metropolitan Bakersfield General Plan - December 2007 (County Maintained)

Dairy Locations

The dairy closest to the project site is Richmar Farms #2, owned by Rich Tillema, is located approximately 1.25 miles southeast of the site at the northeast corner of South Union Avenue and Shafter Road. Existing dairies are generally located more than two miles east and southwest of the subject property.

According to the most recent Kern County Dairy List (November 15, 2005), provided by the Kern County Planning Department, existing dairies are located within the following Section, Township, and Ranges: (Refer to Table 7 and Appendix "I-3"):

Table 7 Existing Dairy Farm Locations

Existing Dairy Farm Locations					
Location	**Name**	**Section**	**Township**	**Range**	**Zone Map**
1	Miersma Dairy *(Old Rodney Palla Farms)*	26	30S	28E	124
2	Ansonea Dairy (Echeverria Bros) **	2	31S	28E	143
3	Kootstra Dairy Dewey Kootstra **	16	31S	28E	143
4	Richmar Farms (New) Rich Tillema	20	31S	28E	143
5	Palla Rosa Dairy #2 Livio Palla **	22	31S	27E	142
6	Richmar Farms Dairy	26	31S	28E	143
7	Skyview Dairy Brian VanderPoel **	14	31S	27E	142
8	Palla Rosa Dairy #1 Livio Palla **	10	31S	27E	142
9	T & W Dairy Brian Wynn/Maynard Troost **	13	31S	27E	142
10	Ralph Te Velde Dairy Ralph & Carolyn TeValde	28	31S	27E	142
11	Petrissans Dairy Petrissans Brothers	27	31S	27E	142
12	Bear Mountain Dairies Ramon & Eduardo Echeverria	26	31S	27E	142
13	T & W Farms	32	31S	27E	142
14	Western Sky Dairy	31	31S	27E	141
15	Wilgenburg Dairy Ed Wilgenburg	7	31S	26E	141
**	Designates dairy that predates zoning				

3.5 Historical and Current Aerial Photographs

The historical and current aerial photographs were reviewed to help establish the history of the subject property. Historically, the majority of the site has been used as agricultural land. The following aerial photographs are provided as listed below (Refer to Appendix "G"):

1937 - Undeveloped land

The project site is visible as fallow land. South Union Avenue is visible along the east boundary. Small farms and rural residences are visible to the northeast, east, and south.

1952 - Agricultural land

A grove of trees is visible adjacent to South Union Avenue in the northeast corner of the easternmost portion of the project site. Two parcels appear to be under cultivation. Houghton Road is visible along the south boundary. Offsite, two small farms/rural residences are visible in the parcel currently occupied by Higgins Auto Wrecking in the S/2 of the SE/4 of the SE/4 of Section 7. Another small farm is visible due north of the easternmost portion of the project site; this rural residence stands to day with corrals immediately adjacent to the project site. Agricultural land is visible to the north, south, east, and west.

1963 - Agricultural land

The State Highway 99 freeway is visible along the west boundary of the project site, having opened in 1961. The "cloverleaf" on/off ramps at Houghton Road that are adjacent to the southwest corner of the project site appear to be under construction. Conditions on the project site and other adjacent properties appear relatively similar to those noted in the 1952 aerial photograph.

1975 - Agricultural land

The trees are no longer visible in the easternmost portion of the project site; they have been replaced by plowed/cultivated land. A clearing with a small structure, possibly a small shed or shop, is also visible in the east portion. The south tailwater pit located near Houghton Road is visible. Offsite, the Houghton Road cloverleaf/overpass has been completed, and a dairy appears to be visible on the west side of State Highway 99 opposite the south half of the project site. The original PG&E natural gas pipeline station is visible adjacent to South Union Avenue. Conditions on other adjacent properties appear relatively similar to those viewed in the 1963 aerial photograph.

1981 - Agricultural land

The large oak tree where the domestic well is located is visible in the small clearing in the west part of the easternmost portion of the project site. The north portion of the project appears fallow. Offsite, rows of wrecked automobiles are visible at the location of Higgins Auto Wrecking. Conditions on the project site and other adjacent properties appear relatively similar to those noted in the 1975 aerial photograph.

1990 - Agricultural land

The steel shop building is visible in the small clearing in the west part of the easternmost portion of the project site. Conditions on the project site and other adjacent properties appear relatively similar to those noted in the 1981 aerial photograph.

2000 - Agricultural land

Mobile home lots are visible offsite that are situated due north of the easternmost parcel. Several residential subdivisions are visible one-half mile to more than one mile north of the project site. Conditions on the project site and other adjacent properties appear relatively similar to those noted in the 1990 aerial photograph.

2006 - Agricultural land

Conditions on the project site and other adjacent properties appear relatively similar to those observed on the 1995, 2000, aerial photographs. Approximately 50% of the land comprising the project site appears to have been cultivated with alfalfa.

3.6 Agricultural Crops and Yields for the Year 2007 - 2008

According to the farmer, the agricultural crops grown on the subject property for the years 2007 through 2008 consisted of wheat, alfalfa, corn, and grain crops. The 2008 growing year was incomplete during the preparation of this document, instead crop data from 2007 will be used as it is the last complete growing year for which data is available.

The yield per acre, cost to produce, and net value of each year's crop is listed in Table 8.

Table 8 Agricultural Crops and Yields for the Year 2007 - 2008

Agricultural Crops - 2007-2008 Portion of Section 7, Township 31S., Range 28E., M.D.M.								
Year	**Crop**	**Acres**	**Yield Per Acre (Ton)**	**Total Yield (Ton)**	**Unit Value**	**Cost to produce per acre**	**Net Value**	**Net Value Per unit**
2008	Wheat	65	2008 crop information not available at this time					
	Alfalfa	150						
	Corn /Fod	20						
	Fallow	60						
2007	Alfalfa	120	8.1	970	$169.00	*$995.00	$44,462.40	$45.86
	Corn/Fod	60	3.9	233	$135.00	*$966.00	($26,532.00)	($113.97)
	Grain	40	2.8	113	$142.00	*$250.00	$6,074.40	$53.66
	Fallow	80	--	--	--	--	--	--
*	Based upon University of California Cooperative Extension, Cost and Return Studies							

Alfalfa – Alfalfa was ranked number seven of the top twenty crops grown in Kern County for the year 2007. The typical yield of alfalfa is 8.1 tons per acre and the cost to produce alfalfa is estimated at $995.00 per acre.). The alfalfa crop value is estimated at $169.00 per ton per Kern County 2007 Crop Report. Therefore, the net crop value is approximately $45.86 per ton, or$44,462.40 for the 120 acres of alfalfa crop.

Corn –Corn was not among the top twenty crops grown in Kern County for the year 2007. The typical yield of corn is 3.9 tons per acre and the cost to produce corn is estimated at $966.00 per acre.). The Corn crop value is estimated at $135.00 per ton per Kern County 2007 Crop Report. Therefore, the net crop value is approximately ($113.97) per ton, or ($26,532.00) for the 60 acres of corn crop.

Grain – Grain was not among the top twenty crops grown in Kern County for the year 2007. The typical yield of grain is 2.8 tons per acre and the cost to produce grain is estimated at $250.00 per acre). The grain crop value is estimated at $142.00 per ton per Kern County 2007 Crop Report. Therefore, the net crop value is approximately $53.66 per ton, or $6,074.40 for the 40 acres of grain crop.

3.7 Agricultural Crops and Yields for the Year 2003-2006

Agricultural crops grown on the subject property for the years 2003 through 2006 consisted of alfalfa and grain crops. The yield per acre, cost to produce, and net value of each years' crop is listed in Table 9.

Table 9 Agricultural Crops 2003-2006

Agricultural Crops - 2003-2006 Portion of Section 7, Township 31S., Range 28E., M.D.M.								
Year	Crop	Acres	Yield Per Acre (Ton)	Total Yield (Ton)	Unit Value	Cost to produce per acre	Net Value	Net Value Per unit
2006	Alfalfa	300	8.2	2460	$115.00	*$995.00	($15,600.00)	($6.34)
2005	Grain	160	3.1	499	$91.50	*$250.00	$5,676.80	$11.37
	Alfalfa	140	7.9	1100	$131.00	*$995.00	$4,852.40	$4.41
2004	Grain	140	5.8	816	$99.30	$250.00	$46,048.66	$56.42
	Alfalfa	160	9.1	1461	$120.70	*$1,021.00	$12,958.56	$8.87
2003	Alfalfa	300	8.6	2586	$89.50	$1,021.00	($74,853.00)	($28.95)
*	Based upon University of California Cooperative Extension, Cost and Return Studies							

2006

Alfalfa – Alfalfa was ranked number eight for the top twenty crops grown in Kern County for the year 2006. The typical yield of alfalfa is 8.2 tons per acre, and the cost to produce alfalfa is estimated at $995.00 per acre.). The alfalfa crop value is estimated at $115.00 per ton per Kern County 2006 Crop Report. Therefore, the net crop value is approximately ($6.34) per tonor ($15,600.00) for the 300 acres of alfalfa crop.

2005

Alfalfa – Alfalfa was ranked number eight for the top twenty crops grown in Kern County for the year 2005. The typical yield of alfalfa is 7.9 tons per acre, and the cost to produce alfalfa is estimated at $995.00 per acre.). The alfalfa crop value is estimated at $131.00 per ton per Kern County 2005 Crop Report. Therefore, the net crop value is approximately $4.41 per ton, or $4,852.40 for the 140 acres of alfalfa crop.

Grain – Grain was not among the top twenty crops grown in Kern County for the year 2005. The typical yield of grain is 3.1 tons per acre and the cost to produce grain is estimated at $250.00 per acre.). The grain crop value is estimated at $91.50 per ton per Kern County 2005 Crop Report. Therefore, the net crop value is approximately $11.37 per ton, or $5,676.80 for the 160 acres of grain crop.

2004

Alfalfa – Alfalfa was ranked number eight for the top twenty crops grown in Kern County for the year 2004. The typical yield of alfalfa is 9.1 tons per acre. The cost to produce alfalfa is estimated at $1,021.00 per acre.). The alfalfa crop value is estimated at $121.70 per ton per Kern County 2004 Crop Report. Therefore, the net crop value is approximately $8.87 per ton, or $12,958.56 for the 160 acres of alfalfa crop.

Grain – Grain was not among the top twenty crops grown in Kern County for the year 2004. The typical yield of grain is 5.8 tons per acre. The cost to produce grain is estimated at $250.00 per acre based on information provided by the grower. The grain crop value is estimated at $99.30 per ton per Kern County 2004 Crop Report. Therefore, the net crop value is approximately $56.42 per ton, or $46,048.66 for the 140 acres of grain crop.

2003

Alfalfa – Alfalfa was ranked number eight for the top twenty crops grown in Kern County for the year 2004. The typical yield of alfalfa is 8.6 tons per acre. The cost to produce alfalfa is estimated at $1,021.00 per acre based on information provided by the grower. The alfalfa crop value is estimated at $89.50 per ton per Kern County 2004 Crop Report. Therefore, the net crop value is approximately ($28.95) per ton, or ($74,853.00) for the 120 acres of alfalfa crop.

3.8 Soils

As defined by the United Stated Department of Agriculture (USDA), prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. Prime farmland soils produce the highest yields with minimal units of energy and economic resources, and farming in these soils result in the least damage to the environment.

The USDA Soil Survey of Kern County, California - Southwestern Part were utilized to determine the soil units occurring within the proposed site and are listed in Table 10.

Table 10 USDA Soil Survey

USDA Soil Survey of Kern County, California - Southwestern Part					
Map Unit	**Map Unit Name**	**Capability Classification**		**Total Acres in Kern County**	**Acres in Site**
		Irrigated	**Non-irrigated**		
KsA (101)	Bakersfield fine sandy loam, drained, 0 to 1 percent slopes	IIs-0	VIIe	13,155	170.22
CaA (123)	Cajon sandy loam, 0 to 2 percent slopes, overwash	IIIs-4	VIIs	7,025	144.09

The number and symbol following each soil type represent the index symbol and number of the Soil Conservation Service Soil Survey map unit.

KsA (101) Bakersfield fine sandy loam, drained, 0 to 1 percent slopes:

Very deep, poorly drained soil with 0 to 1 percent slopes. It is formed in alluvium weathered from granite. The typical profile of this soil unit includes a 0 to 16 inch deep surface layer, grayish brown and dark grayish brown fine sandy loam. The underlying material includes a layer located at a depth of 16 to 66 inches with stratified grayish brown, light brownish gray dark grayish brown, and light gray sandy loam, silt loam, and fine sand. Potential rooting depth is 60 inches or more.

Permeability is moderately slow and available water capacity is high. Surface runoff is slow. The hazard of water erosion and wind erosion is slight to moderate respectively. The hazard of flooding is rare. The shrink-swell potential is low and the corrosivity class is high for steel and moderate for concrete.

Current uses of areas on this type of soils are irrigated crops, rangeland, and home site development. Commonly grown crops are cotton, alfalfa, dry beans, carrots, lettuce, corn, barley, and wheat. If this unit is used for irrigated crops, the major management factor is soil stratification, deep leaching, and dust hazards. Approximately 170.22 acres of the proposed project site are in this category. These soils are in capability class IIs-0 irrigated and capability class VIIe non-irrigated (Refer to Tables 11 and 12). It is considered prime farmland where water for irrigation is available. (USDA Southwest Kern Soil Survey).

CaA (123) Cajon sandy loam, 0 to 2 percent slopes, overwash:

Very deep, somewhat excessively drained soils that formed in sandy alluvium from dominantly granitic rocks. The typical profile of this soil unit includes a 0 to 12 deep surface layer of pale sandy loam. The underlying material includes a layer located at a depth of 12 to 60 inches with light yellowish brown loamy sandy, very pale brown sand. Potential rooting depth is 60 inches or more.

Permeability is moderate and available water capacity is low. Surface runoff is very slow. The hazard of water erosion and wind erosion is slight to severe respectively. The hazard of flooding is rare. The shrink-swell potential is low and the corrosivity class is high for steel and low for concrete.

Current uses of areas on this type of soils are irrigated crops and home-site development. Commonly grown crops are cotton, alfalfa, dry beans, carrots, lettuce, barley, wheat. If this is used for irrigated crops, the major management factor is wind erosion, low available water capacity, and deep leaching. Approximately 144.09 acres of the proposed project site are in this category. These soils are in capability class IIIs-4, irrigated, and capability class VIIs, non-irrigated (Refer to Tables 11 and 12). This soil type is considered prime farmland if water for irrigation is available. (USDA Southwest Kern Soil Survey)

The USDA Southwest Kern Soil Survey states which soil units meet the requirements for prime farmland if water for irrigation is available. According to the Southwest Soil Survey, the entire site, approximately 314.31 acres is classified as prime farmland if water for irrigation is available.

However, as defined by the California Land Conservation act (G.C. § 51201), prime agricultural soils include Class I and II soils, storie index 80-100 soils, vineyards and orchards, and soils which yield a minimum of $200 an acre per year. As previously noted in Section 2.3 of this study, the MBGP – Conservation/Soils and Agriculture Element – states among its Goals to "Promote soil conservation and minimize development of prime agricultural land as defined by the following criteria:

- Capability Class I and/or II irrigated soils;
- 80-100 Storie Index rating;
- gross crop return of $200 or more per acre per year;
- annual carrying capacity of one animal unit per acre per year"

The proposed project site is comprised of KsA-Bakersfield sandy loam (170.22 acres) and CaA-Cajon sandy loam (144.09 acres) which, as classified by the United States Department of Agriculture Soil Conservation Service, are Class IIs and IIIs soils respectively. This soil unit is also classified as a prime farmland soil by the Kern County Soil Survey, Southwest Kern. Therefore, the entire site is considered prime per the California Land Conservation Act and the MBGP definition. Approval and implementation of the land use change will result in a loss of approximately 314.31 acres of prime agricultural land.

3.8.1 Land Capability Classifications

As defined by the United Stated Department of Agriculture (USDA), *the land capability classification shows the suitability of soils for most kinds of field crops. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management.*

In the Capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Capability subclasses are soil groups within a class. They are designated by adding a, e,w,s, or c to the class number, for example IIe. The letter e shows the main limitation as erosion unless close-growing plant cover is maintained; w shows that water in or on the soil interferes with plant growth or cultivation; s shows that the soil is limited mainly because it is shallow, droughty, or stony; and c, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are designated by adding an Arabic numeral to the subclass symbol, for example, IIe-1 or IIIe-8. The numbers used to designate units within the subclass are as indicated in Table 12 below:

Table 11 USDA Land Capability Classifications

United Stated Department of Agriculture (USDA) Land Capability Classifications	
Class	**Definition**
Class I	Soil has few limitations that restrict their use
Class II	Soil has moderate limitations that reduce the choice of plants or that require moderate conservation practices
Class III	Soil has severe limitations that reduce the choice of plants or require special conservation practices, or both
Class IV	Soil has severe limitations that reduce the choice of plants or that require very careful management, or both.
Class V	Soils are not likely to erode but have other limitations, impractical to remove, that limit their use.
Class VI	Soil has severe limitations that make them generally unsuitable for cultivation
Class VII	Soil has severe limitations that make them unsuitable for cultivation
Class VIII	Soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production

Table 12 Land Capability Units

United Stated Department of Agriculture (USDA) Land Capability Units	
Number	**Definition**
0	Indicates limitations caused by stony, cobbly, or gravelly material in the substratum.
1	Indicates limitations caused by slope or by an actual or potential erosion hazard.
2	Indicates a limitation of wetness caused by poor drainage or flooding.
3	Indicates a limitation of slow or very slow permeability of the subsoil or substratum is caused by a clayey subsoil or by a substratum that is semi-consolidated.
4	Indicates a low available water capacity in sandy or gravely soils.
5	Indicates limitations caused by a fine textured or very fine textured surface layer.
6	Indicates limitations caused by salts or alkali.
7	Indicates limitations caused by rocks, stones, or cobblestones.
8	Indicates that the soil has a very low or low available water capacity because the root zone generally is less than 40 inches deep over massive bedrock.
9	Indicates limitations caused by low or very low fertility, acidity, or toxicity that cannot be corrected by adding normal amounts of fertilizer, lime, or other amendments.
10	Indicates a high organic matter content, peats, and mucks.

No unit designations are shown for class I soils because the soil characteristics are similar for all soils in the class. Unit designations are not given for soils in classes V through VIII because these soils normally are not intensively managed as cropland.

3.9 Water

The most recent data provided by the California Department of Water Resources indicates that the unconfined water table is approximately 100 to 105 feet below ground surface (bgs) beneath the project site. Two active, (150 hp) diesel-powered irrigation wells are situated on the project site. The west well is located adjacent to State Highway 99 where a concrete-lined ditch also serves as an identifying landmark. The northwest well is located near the northwest corner of the project site. The main sources of water for irrigation are the two water wells located on the site. In addition, water from the Kern Island Canal, located on the west side of Highway 99 is used when available. The methods of irrigation used on the subject property is flood irrigation.

3.10 Climate

Bakersfield's climate is considered Mediterranean and is characterized by hot, dry summers and cool, wet winters. Bakersfield's temperature exceeds 100 degrees for an average of 38 days a year and drops below freezing approximately 12 days annually. The precipitation averages 36 days a year. Bakersfield has an average of 223 sunny days per year and 86 cloudy days per year. The average rainfall (30-year period) is 6.49 inches per year.

4.0 Impacts of Farmland Conversion

4.1 Methodology

This study utilizes a combination of the analysis of factors provided in the MBGP and the California Agricultural Land Evaluation and Site Assessment Model (LESA, California Department of Conservation – Office of Land Conservation, 1997) to identify the proposed project's potential impact to agricultural lands.

4.2 Metropolitan Bakersfield General Plan, and Kern County General Plan Factors

The MBGP recommends that certain factors be evaluated when determining the appropriateness of proposed agricultural conversions (MBGP, page V-13). These factors include:

- Soil quality
- Availability of irrigation water
- Proximity to non-agricultural uses
- Proximity to intensive parcelization
- Effect of properties subject to Williamson Act land use contracts
- Ability to be provided with urban services such as sewer, water, roads, etc.
- Ability to affect the application of agricultural chemicals on nearby agricultural properties
- Ability to create a precedent-setting situation that leads to the premature conversion of prime agricultural lands
- Demonstrated project need
- Necessity of buffers such as lower densities, setbacks, etc.

According to the KCGP, when evaluating General Plan Amendment proposals to change a Map Code 8.1 (Intensive Agriculture) designation to industrial development, the County shall consider the following factors:

- Locations for new industrial activities shall be provided with adequate infrastructure (water, sewage disposal systems, roads, drainage, etc.) to minimize effects on County services.
- Provide for the clustering of new industrial development adjacent to existing industrial uses and along major transportation corridors.
- Require that industrial uses provide design features such as screen walls, landscaping, increased height and/or setbacks, and lighting restrictions between the boundaries of adjacent residential land use designations so as to reduce impacts on residences due to light, noise, sound, and vibration.
- Requests for new Map Code 7.2 (Service Industrial) and Map Code 7.3 (Heavy Industrial) designations should be discouraged on sites contiguous to or located within ¼ mile of residentially designated property.
- All industrial development equal to or greater than 40 acres in a rural area will require the adoption of a Specific Plan prior to development approval.

- Where feasible, locate future industrial activities in close proximity to railroad facilities and inter- and intra-State transportation corridors to minimize extensive travel through urban areas and to promote alternative transportation of goods.

This section includes a general discussion of the above-mentioned factors. This study's findings regarding these factors are included in Section 6.0 Conclusions.

In California, the nation's leading farm state, the issue is complicated by widely varying numbers about the extent of conversion and by contrasting opinions about the causes and consequences of farmland loss. The Metropolitan Bakersfield General Plan area has been experiencing intense urbanization for the last two decades, and is actively annexing properties by providing the infrastructure needed to serve more densely populated communities. Urbanization in farming areas typically begins with conversion of one or a few parcels adjacent to the city limit line. The encroachment of urban uses on existing agricultural areas is prevalent adjacent to the City, where both farmers and urban neighbors operate with both negative and positive consequences. The challenge is to minimize the negative interactions and create the conditions for a long-term and mutually beneficial coexistence between farmers and urban residents. The negative interactions can be divided into the impacts that farmers can have on urban neighbors and the impacts that urban neighbors can have on farmers.

Farming operations can affect urban neighbors by creating inconveniences or discomforts such as equipment noise, odors from manure and other chemicals, and dust or smoke. Farming operations may also result in impacts such as traffic of farm machinery on the streets. The introduction of adjacent residential uses creates a greater number of land use conflicts than non-residential urban uses such as commercial and industrial uses.

The introduction of urban uses in existing agricultural areas can affect farming operations. Urban uses can create adverse impacts such as the introduction of pests, disease and weeds, increased flooding and siltation, and increased traffic, vandalism, and trespassing. In Kern County, a farmer must receive a "Restricted Materials Permit" to apply chemicals to the crops, and the Kern County Department of Agriculture monitors the application by permits, to ensure that it is applied within regulations. For example, there are restrictions on the application of cotton harvest aides (DEF, Folex, Paraquat) during the cotton defoliation season. DEF, Folex and Paraquat shall not be applied within 1/8 mile of any school. Paraquat should not be applied within 1/8 mile of any residential zoned or inhabited area, or within 1/4 mile if applied by air. DEF or Folex shall not be applied within 1/2 mile of any area zoned as residential or any school in session or due to be in session within 24 hours. Restrictions to chemical and pesticides application are an additional impact on farming operations resulting from residential developments near existing agricultural areas.

The proposed project may have an impact on local growers. Farmers near the proposed project will inevitably be affected by the planned development. Substantial planned urban development on properties near the proposed project site indicates that this site is in the logical path of development. In addition, Highway 99 would provide a buffer between uses within the project site and agricultural activities west of it. The future

South Beltway would provide a buffer on the south side, Di Giorgio Road on the north side, and Highway 204 (South Union Avenue) on the east side.

The conversion of this property from agricultural use to industrial use is not expected to create cumulative or growth-inducing impacts to other nearby farmlands. Existing land use designation of properties to the northwest, northeast, west, and southeast, as well as, proposed and pending land use designation amendments and planned future development of properties to the east and south (shown in Appendix "B") demonstrate that the project is along the logical path of urban development and the proposed project in itself will not induce further growth.

The impact of the proposed industrial development on local growers is considered minimal because of the restrictions and limitations that are already in place as a result of rural residential development near the project site.

Existing and planned urban development on properties directly adjacent to, and near the proposed project site indicates that this site is in the logical path of development. The following factors indicate that the proposed project area and adjacent properties will be affected by future urban development:

- The Proposed South Beltway Alignment is located along the southern project boundary.
- General Plan Amendment and Zone change is proposed for 28.67 acres west of the project site to allow for Light Industrial uses.
- General Plan Amendments located northwest of the site to allow for Service Industrial uses.
- General Plan Amendment located at the northeast corner of Hosking Road and Highway 99 to allow for retail commercial center with approximately 1 million square feet of leasable commercial space and a 300-room hotel (140,000 square feet) on 109 acres
- General Plan Amendment located at Taft Highway and Chevalier to allow for General Commercial, Office Commercial and High Density residential.
- Zone Change located South of Taft Highway and Chevalier to allow for Commercial and Residential development.

Planned future development (shown in Appendix "B", Proposed Projects near the Subject Property) and planned roadway system expansion near the proposed project site demonstrate that the project is along the logical path of urban development.

4.3 California Department of Conservation - Factors

In this section, prime farmland is defined and discussed, and the prime farmland soils in the project site are listed in Table 10. As defined by the USDA, are soils that are best suited to producing food, seed, forage, fiber, and oilseed crops. In addition, prime farmland produces the highest yields with minimal units of energy and economic resources, and farming theses soils results in the least damage to the environment.

Prime farmland soils commonly get an adequate and dependable supply of moisture from precipitation or irrigation. Temperature and growing season are favorable, and the level of acidity or alkalinity is acceptable. The soils have few rocks and are permeable to water and air, not excessively erodible or saturated with water for long periods and are not flooded during the growing season. The project site (314.31 acres) would meet the requirements for prime farmland if undeveloped and water for irrigation is available.

4.3.1 Seven Categories of Important Farmland

The California Department of Conservation has determined seven categories of Important Farmland:

Prime Farmland - This has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing seasons and moisture supply needed to produce sustained high yield crops when treated and managed, including water management, according to current farming methods. Implementation of the proposed project will result in a loss of approximately 314.31 acres of soil considered prime farmland soil by the Kern County Soil Survey, Southwest Kern if water for irrigation is available.

Farmland of Statewide Importance - This is land other than prime farmland that has a good combination of physical and chemical characteristics for the production of crops, and has been used for the production of irrigated crops within the last three years. None of the project site is in this category.

Unique Farmland – This is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance, and land that is currently used for the production of specific high economic value crops. It has the special combination of soil quality, location, growing season and moisture supply needed to produce sustained high quality or high yields of specific crops (i.e. oranges, olives, avocados, cut flowers) when treated and managed according to current farming methods. This category excludes abandoned orchards or vineyards. None of the project site is in this category.

Farmland of Local Importance – This land produces crops or has the capability of production, or is used for the production of confined livestock. It is other than Prime, Statewide Importance or Unique Farmland. It may be important to the local economy due to its productivity. A local advisory committee set up by the SCS in each county initially identified farmland of Local Importance. The Kern County Board of Supervisors has determined that there will be no Farmland of Local Importance in Kern County. None of the project site is in this category.

Grazing Land – This is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock. It is identified in minimum mapping units of 40 acres and does not include land previously identified above. None of the project site is in this category.

Urban and Built-up Land – This land is used for residential, industrial, commercial, construction, institutional, public administrative purposes, etc. None of the project site is in this category.

Other Land – This is land not included in any of the other mapping categories and generally includes rural development with a density of less than one structure per 1.5 acres, marginal agricultural lands, brush, timber, roads and other rural land uses.

4.4 Buffer Zones

Buffer zones are well-defined strips of land located between farmland and urban development used to minimize possible conflicts between these uses. Buffers essentially create a separation between agricultural and urban uses, which minimize negative impacts on both sides of an edge boundary, especially the effects of chemical drift from farming activity. Agricultural buffers come in different forms—natural barriers created by landscape features such as waterways, roads, landscaping, walls, residential setbacks, open space greenbelts, and combinations of various types. Key issues in their design and creation are their permanence, maintenance, and which of the landowners—developer/homeowner or farmer will provide the land or barrier.

If developments adjacent to agricultural fields do not include buffer zones in their design, the burden falls upon the grower to provide a buffer between these uses. This often means the grower must allocate a portion of their land to the creation of a buffer zone. As an example, growers might be required to refrain from spraying or harvesting the outside rows of their crops. In those cases, buffer zones represent a loss to the farmer of both crop production and income. However, with commercial development, a buffer zone may include a parking lot or landscape area. Farmers can utilize their entire site for crop production if the adjacent development is commercial or industrial in nature, as these types of uses are not considered to be sensitive receptors.

The MBGP policy implementation for the Land Use Plan states that "Suitable land use buffers, such as transitional lot sizes, shall be planned so as to intervene between existing agricultural uses and planned urban uses."

The roadway rights-of-way will serve as buffers for the proposed development along some of the subject site's boundaries, such as adjacent to Houghton Road and South Union Avenue. In addition, State Route 99 on the west boundary provides a buffer between the project site and adjacent agricultural land.

4.5 Water Supply

Water is an important input in crop production. It has been the most important factor responsible for yield increases in the past 20 years. Some water districts have limits on the amount of water they can deliver to agricultural crops. Water demands change somewhat when croplands are converted to urban uses. Net irrigation requirements give the average amount of water required by specific crops at given locations in addition to the amount of water normally received there in the form of precipitation. Urban water

consumption depends on the land use established. Some industrial users, such as food processors, require very large volumes of water. Commercial uses require less water than industrial uses, but more water than residential uses.

Vegetable irrigation in a drought year with potential periods of power outages and the announcements of reduced water supply can severely reduce vegetable yields. Growers have seen increases in water supply costs for their crops, which are attributed to the higher costs on energy to run the pump.

The agricultural water wells on the project site will be abandoned when the agricultural production ceases in anticipation of the pending residential development.

4.6 Water Quality

The amount and type of water contamination generated in urban areas differ from those generated in farmlands. Urbanization usually results in increased surface water concentrations of fecal coliforms, oil, grease, and heavy metals. Most farmers systematically apply a variety of pesticides and fertilizers to their crops. Some of these chemicals reach the soil and eventually leach into the groundwater. Soil and groundwater contamination also occur where chemicals are mixed or stored, where wells are constructed or abandoned, and through rainwater infiltration. Agricultural application of pesticides accounts for approximately 92 percent of all pesticide use in California (including chlorine).

Conversion of farmlands to urban use decreases the area whereon which vegetation is treated with chemicals decreases due to the addition of impervious surfaces associated with non-agricultural uses.

4.7 Competition for Water

California has a relatively abundant supply of water, but the state's Mediterranean climate and varied geography results in an uneven spatial and temporal distribution of water supply. The Sierra Nevada Mountain range that lines the eastern edge of the State capture and store precipitation that occurs in the winter that can be used for summer irrigation in the Central Valley. Average annual statewide precipitation is about 23 inches, corresponding to a volume of 200 million acre-feet. About 65 percent of this precipitation is consumed through evaporation and transpiration by trees, plants, and other vegetation. The remaining 35 percent comprises the state's average annual runoff of about 71 million acre-feet.

The DWR projects a decline in California's irrigated acreage by 2020, due in part to urbanization of agricultural lands in the San Joaquin Valley. Potential changes in water use resulting from land use conversion is of concern by local agencies responsible for land use planning or for providing water supplies.

Changes in water usage depends on the types of crops grown, and the density and type of urban development in an area. In the case of single-family dwellings, applied water use varies with housing density. Numerous studies have shown that dwellings on larger lots

use more water per dwelling unit due to the larger landscaped areas. However, higher density developments have the greater applied water use per acre of land. A recent DWR study showed that applied water use of single-family dwellings and agricultural crops were similar at low housing densities (four or five units per acre). However, higher density single-family dwellings (six units or more per acre) that have become common in today's new home construction market tended to have greater applied water requirements than some crops. See Table 13.

Table 13 Water Requirements – Urban and Agricultural

Water Requirements Urban and Agricultural	
Type of Use	**Applied Water Use (af/acre)**
Urban	3.2
Agricultural	3.35
Source: California Department of Water Resources Bulletin #160-98	

Table 14 Crop Irrigation Requirements for Subject Property

Project Site - Crop Irrigation				
Year	**Crop**	**Acres**	**H_20-AcFt /Ac.**	**Total AcFt**
2003	Alfalfa	300.00	4.5	1,350.0
2004	Alfalfa	160.00	4.5	720.0
	Grain	140.00	1.6	224.0
2005	Alfalfa	140.00	4.5	630.0
	Grain	160.00	1.6	256.0
2006	Alfalfa	300.00	4.5	1,350.0
2007	Alfalfa	120.00	4.5	540.0
	Corn/Fod	60.00	4.0	240.0
	Fallow	80.00	0.0	0.0
	Grain	40.00	1.6	64.0
2008	Alfalfa	150.00	5.2	774.0
	Corn /Fod	20.00	4.0	80.0
	Fallow	60.00	0.0	0.0
	Wheat	65.00	3.0	195.0
Source: http://coststudies.ucdavis.edu/				

Continued growth has caused expansion of urban development onto adjoining agricultural lands in the area. The DWR urban water usage (urban water use includes residential, commercial, and industrial purposes) is equivalent to about 3.2 af/acre. The typical agricultural applied water use for alfalfa is 4.5 af./acre.

As agricultural conversion replaces agricultural water users with urban water usage, the average fixed costs of maintaining and operating agricultural water delivery systems

increase. Agricultural water consumption could eventually decrease below the minimum threshold necessary to operate delivery systems economically.

4.8 Effects on Other Agricultural Properties or Operations

Other changes in the existing environment could affect adjacent agricultural land by limiting the agricultural feasibility of the land. The following types of effects from agricultural conversion could generally reduce agricultural feasibility:

- Conversion of farmland may affect nearby growers by placing restrictions and limitations on pesticides, fungicides, and herbicides used on the crops. Restrictions could also be placed on noise, burning, and dust.
- Vehicle emissions from adjacent transportation routes and increased roadways can impact the health and survival of the crops.
- Because of increased residential and commercial development, the farmers' share of the water supply could decline as competition for water increases. Agricultural water consumption could eventually decrease below the minimum threshold necessary to operate delivery systems economically.
- As urbanization proceeds in Bakersfield, land prices may increase above the land's value for agricultural production.
- Increased traffic congestion reduces the efficiency and increases the hazards of moving crops and farm machinery along rural roads. Road congestion also increases the amount of time required to transport crops, which in turn increases shipping costs and the risk of spoilage.
- Croplands and nearby agricultural lands that support farming are important sources of food, water, and cover for some native plants and animals. These resources are largely eliminated when farmlands are converted to urban use.
- Vandalism is on the rise in the Metropolitan Bakersfield area. Fields adjacent to highways experience unauthorized entry most frequently. Trespass, crop pilferage, and damage to irrigation equipment have become common problems in Kern County. Farmers often incur major costs when farm equipment has to be left unguarded overnight and is damaged from vandalism.

Planned development near the proposed project site and planned roadway system expansion near and within the proposed project site demonstrate indicate that the subject property is along the logical path of urban development. Planned development adjacent to the proposed project site shows that restrictions and limitations will inevitably be placed on the grower with the proximity of urban uses. In addition, planned roadways will contribute to create a buffer between the proposed project and adjacent farming operations. The proposed project impact on other agricultural properties is considered minimal.

With respect to cumulative growth-inducing impacts, the conversion of this property from agricultural to commercial and industrial uses would increase the total acreage of urban uses.

4.9 California Agricultural Land Evaluation and Site Assessment Model – LESA

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of the California Agricultural LESA Model is the result of Senate Bill 850 (Chapter 812/1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, to develop an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095).

A LESA Model is created by defining and measuring two separate set of factors. The first set, Land Evaluation (LE), includes two different factors (Land Capability Classification Rating and Storie Index Rating) that are intended to measure the inherent, soil-based qualities of land as they relate to agricultural suitability.

The second set, Site Assessment (SA), includes factors that are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land. This second set includes four different factors to provide measures of a give project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands.

For a given project, each of these six factors is separately rated in a 100-point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. This final project score becomes the basis for making a determination of a project's potential impacts level of significance, based upon a range of established scoring thresholds.

4.9.1 Land Evaluation Factors

The California Agricultural LESA Model includes two LE factors that are separately rated:

a. **The Land Capability Classification Rating (LCC).** The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops and the risk of damage to soils when used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receiving the highest rating (Class I). Specific Subclasses are also utilized to further characterize soils (refer to Table 1A and Table 2 in Appendix "J").

b. **The Storie Index Rating.** The Storie Index provides a numeric rating (based upon a 100 scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are considered in the Storie Index rating. The factors are: profile characteristics, texture of the surface layer, slope, and other factors such as drainage or salinity (refer to Table 1A in Appendix "J"). In some situations, only the USDA's LCC information may be available. In those cases, the Storie Index ratings can be calculated from information contained in soil surveys by qualified soil scientists. If, however, limitation of time and/or resources restrict the derivation of the Storie Index rating for a given project, it may be possible to adapt the LE by relying solely upon the LCC rating.

4.9.2 Site Assessment Factors

The four SA factors that are separately rated and included in the California Agricultural LESA Model are:

a. The Project Size Rating. The Project Size rating is based upon identifying acreage figures for three separate grouping of soil classes within the project site, and then determining with grouping generates the highest Project Size score. The Project Size Rating relies upon acreage figures that were tabulated under the Land Capability Classification Rating (refer to Table 1B and Table 3 in Appendix "J").

b. The Water Resources Availability Rating. The Water Resources Availability rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non drought (refer to Table 4 and Table 5 in Appendix "J").

c. The Surrounding Agricultural Land Rating. Determination of the Surrounding Agricultural Land rating is based upon identification of a project's Zone of Influence (ZOI), which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced, by the agricultural land use of the subject project site. The Surrounding Agricultural Land rating is designed to provide a measurement of the level of agricultural land use for lands in close proximity to a given project. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has relatively small percentage of surrounding land in agricultural production. The definition of the ZOI that accounts for surrounding lands up to a minimum of one quarter mile from the project boundary is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use (refer to Table 6 in Appendix "J").

d. The Surrounding Protected Resource Land Rating. The Surrounding Protected Resource Land rating is essentially an extension of the Surrounding Agricultural Land rating, and it is scored in a similar manner (refer to Table 7 in Appendix "E"). Protected resource lands are those lands with long-term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as a park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban and industrial uses.

4.9.3 Final LESA Scoring

A single LESA score is generated for a given project after all the individual LE and SA factors have been scored and weighted. The California Agricultural LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the LE factors and 50 percent from the SA factors. Individual factor weights are listed in Table 12, with the sum of the factor weights required to equal 100 percent. For the subject property, the final LESA score is determined to be 82 points. (See Table 16)

Table 15 Land Evaluation and Site Assessment Factors

Land Evaluation and Site Assessment Factors	
Land Evaluation Factors	
Land Capability Classification (LCC)	25%
Storie Index Rating	25%
Land Evaluation Subtotal	**50%**
Site Assessment Factors	
Project Size Rating	15%
Water Resource Availability Rating	15%
Surrounding Agricultural Lands Rating	15%
Surrounding Protected Resource Lands Rating	5%
Site Assessment Subtotal	**50%**
TOTAL LESA FACTOR WEIGHTING	**100%**

For the subject property, the final LESA score was determined to be as follows:

Table 16 Land Evaluation and Site Assessment Final Score

Land Evaluation and Site Assessment			
Factor Name	**Factor Rating (0-100 Points)**	**Factor Weighting (Total=1.0)**	**Weighted Factor Rating**
Land Evaluation			
Land Capability Classification	62.55	0.5	31.28
Storie Index Rating	--	-	-
Site Assessment			
Project Size	100	0.15	15
Water Resource Availability	100	0.15	15
Surrounding Agricultural Lands	93	0.15	13.95
Protected Resource Lands	0	0.05	0
	Total LESA Score		**75.23**

The Kern County California Soil Survey for the Southwestern region does not include the Storie Index for each soil unit, therefore the LE portion of the analysis accounts for 50 percent of the LESA Score.

4.9.4 Threshold of Significance

The California Agricultural LESA Model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the Initial Study phase of the CEQA process. Scoring thresholds are based upon both the total LESA score and the component LE and SA separate subscores. In this manner the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high LE score but a very low SA score, or vice-versa). The California Agricultural LESA Model scoring thresholds are as follows:

Table 17 LESA Model Scoring Thresholds

LESA Model Scoring Thresholds	
Total LESA Score	**Scoring Decision**
0 to 39 points	Not considered significant
40 to 59 points	Considered significant only if LE and SA subscores are each greater than or equal to 20 points
60 to 79 points	Considered significant unless either LE or SA subscore is less than 20 points
80 to 100 points	Considered Significant

According to the California Agricultural LESA Model Threshold of Significance, the total score of 75.23 points for the subject property would be considered a significant environmental impact resulting from the conversion of agricultural properties to non-agricultural uses (LE and SA are both more than 20 points). This is due to the project size, water resource availability, soil quality, and surrounding agricultural lands.

5.0 Mitigation

The applicant may be required to mitigate the loss of agricultural lands, on a one-to-one basis, by selecting one of the items described below. Prior to recordation of a grading or building permit, whichever occurs first, the applicant shall submit written verification of the applicant's compliance with this mitigation measure to the Planning Director's satisfaction. Compliance with this condition may be phased as the project is developed. The amount of agricultural land to be mitigated shall be equal to the amount of land being developed as each phase is developed.

a. Funding and/or purchase of agricultural conservation easements. Such easements shall be accepted or purchased and monitored and enforced by a land trust or another appropriate entity. Funds may be used for easement purchases, ongoing monitoring and enforcement, transaction costs, and reasonable administrative costs.

b. The developer shall record irrevocable conservation easements on qualifying agricultural land with in the San Joaquin Valley.

c. Contribution of agricultural land or equivalent funding to an organization that provides for the preservation of farmland in California. Funds may be used for purchases, ongoing monitoring and enforcement, transaction costs, and reasonable administrative costs.

d. Purchase of credits from an established agricultural farmland mitigation bank approved by applicable government authority.

e. During the life of the project, if the County of Kern or other responsible agency adopts an agricultural land mitigation program that provides equal or more effective mitigation than measures listed above, the applicant may choose to participate in that alternate program to mitigate the loss of agricultural land impacts. Prior to participation in the alternate program, the applicant shall obtain written approval from the Kern County Planning Department agreeing to the participation, and the applicant shall submit written verification of compliance with the alternate program at the same time described above in the first paragraph.

Completion of the selected mitigation measure, or with the Planning Director's approval, a combination of the selected mitigation measures, can be on qualifying agricultural land within the San Joaquin Valley (San Joaquin, Stanislaus, Merced, Fresno, Madera, Kings, Tulare, Kern), or outside the San Joaquin Valley with written evidence that the same or equivalent crops can be produced on the mitigation land.

6.0 Conclusions

It is assumed that further development of the MBGP Planning Area will occur, and most likely on "prime" agricultural soils that exist on the valley floor. The MBGP concludes that conversion of prime agricultural lands to urban uses will result in a reduction of the regional agricultural economy and is considered a significant adverse impact. However, a statement of overriding conditions for this impact was adopted when the MBGP was certified. With implementation of mitigation measures found in Section 5.0 Mitigation, impacts would be less than significant.

While conflicts between urban and farming uses may exist, diminishing the edge relationships and exposures between the two, as well as adopting policies and regulations to mitigate their mutual impacts can minimize them. State and Federal Law restricts pesticide use in certain areas, and "right-to-farm" ordinances alone would not diminish the impact of the restrictions on pesticide use on farming operations. The project site will be adjacent to residential uses along its eastern boundary. The proposed project would be separated from adjacent properties by existing and planned roadways, which would contribute to minimize land use conflicts. Highway 99 would provide a buffer between uses within the project site and agricultural activities west of it. The future South Beltway would provide a buffer on the south side, DiGiorgio Road alignement on the north side, and South Union Avenue on the east side.

Implementation of the proposed project will result in a conversion of approximately 314.31 acres of farmland to urban uses. These 314.31 acres include approximately 170.22 acres of soil capability Class II irrigated prime agricultural land and approximately 144.09 acres of soil capability class III. The lost crop value for 2007 is theoretically estimated at $44,462.40 for 120 acres of alfalfa, $6,074.40 for 40 acres of grain, and ($26,532.00) for 60 acres of corn-silage

According to the California Agricultural LESA Model Threshold of Significance, the total score of 75.23 points for the subject property would be considered a significant environmental impact resulting from the conversion of agricultural properties to non-agricultural uses (LE and SA are both more than 20 points). This is due to the project size, water resource availability, soil quality, and surrounding agricultural lands.

Implementation of the proposed project would result in a significant impact from the conversion of approximately 314.31 acres of land currently used for agricultural uses to urban uses. A statement of overriding considerations for this impact was adopted when the MBGP was certified. However, with implementation of mitigation measures found in Section 5.0 Mitigation, the project would be considered insignificant.

Detailed findings according to the MBGP requirements (Chapter V - Conservation/Soils and Agriculture Element, Policy 14) are presented below.

Soil quality

Finding: The proposed project site is comprised of KsA-Bakersfield sandy loam (170.22 acres) and CaA-Cajon sandy loam (144.09 acres) which, as classified by the United States Department of Agriculture Soil Conservation Service, are Class IIs and IIIs soils respectively. This soil unit is also classified as a prime farmland soil by the Kern County Soil Survey, Southwest Kern. The entire site is considered prime per the California Land Conservation Act and the MBGP definition. Approval and implementation of the land use change will result in a loss of approximately 314.31 acres of prime agricultural land.

Implementation of the proposed project will result in a conversion of approximately 314.31 acres of farmland to urban uses. These 314.31 acres include approximately 170.22 acres of soil capability Class II irrigated prime agricultural land and approximately 144.09 acres of soil capability class III. The lost crop value is theoretically estimated at $44,462.40 for 120 acres of alfalfa, $6,074.40 for 40 acres of grain, and ($26,532.00) for 60 acres of corn-silage

The MBGP states that conversion of prime agricultural lands to urban uses will result in a reduction of the regional agricultural economy and is considered a significant adverse impact. However, statement of overriding considerations for this impact was adopted when the MBGP was certified Implementation of the proposed project would result in a significant impact from the conversion of approximately 314.31 acres of land currently used for agricultural uses to urban uses. However, with implementation of mitigation measures found in Section 5.0 Mitigation, the project would be considered an insignificant impact.

Availability of irrigation water

Finding: The property has two water wells located on the site used solely for crop irrigation. In addition, water is available from Kern Delta Water District (KDWD). If water is unavailable from the District, the main sources of water for irrigation are the water wells.

Water well locations are as follows:

- Site 1: one water well located near the northern corner of the site, 150 hp diesel
- Site 2: one water well located near the center of the site, 150 hp diesel

Water demands change somewhat when croplands are converted to urban uses. Urban water consumption is higher in most industrial uses, however commercial and residential consume less water. Irrigation in a drought year with potential periods of power outages and the announcements of reduced water supply can severely reduce vegetable yields. Growers have seen increases in water supply costs for their crops which are attributed to the higher costs on energy (electrical and diesel) to run the pump.

Agricultural wells will be abandoned when the agricultural production ceases in anticipation of the pending commercial and industrial development.

No Impact

Proximity to non-agricultural uses

Finding: Planned future development and planned roadway system expansion near and within the proposed project site demonstrate that the project is along the logical path of urban development.

- Future South Beltway alignment adjacent to the south boundary of the proposed project

The proposed project site is bounded by the Di Gorgio Road alignment to the north, South Union Avenue to the east, Houghton Road to the south, and State Highway 99 to west. The roadway right-of-way will serve as buffers for most of the project boundaries.

Planned future development (shown in Appendix "B", Proposed Projects near the Subject Property) and the above-mentioned considerations show that the subject property is along the logical path of urban development.

Proximity to intensive parcelization

Finding: The encroachment of urban uses on existing agricultural areas can result in negative interactions between farmers and urban neighbors. Farming operations can affect urban neighbors by creating inconveniences or discomforts such as equipment noise, odors from manure and other chemicals, and dust or smoke. Urban uses can create adverse impacts to farmers such as the introduction of pests, disease and weeds, increased complaints about noise, dust, smoke, odors, and spray drift from pesticide and fertilizer use, restrictions to the application of pesticides and chemicals, increased flooding and siltation, and increased traffic, vandalism, and trespassing.

The subject property will be significantly and unavoidably affected by the close proximity of urbanized areas. Farming practices will be more restricted as to the manner of application and type of herbicides and pesticides that can be utilized in the vicinity of these urbanized areas. The subject property, as well as others in the area, is the next logical step for urbanization in this area due to the planned urban development near the property and its significant impacts to the crop production.

Effects on properties subject to Williamson Act land use contracts

Finding: The project site is not subject to a Williamson Act land use contracts.

No Impact.

Ability to be provided with urban services

Finding: As part of the proposed project the developer will provide infrastructure services adequate for the project. Development standards and ordinances will require provisions of infrastructure and public service financing, water facility development, subdivision mapping, vesting of rights, and other matters.

No Impact

Ability to affect the application of agricultural chemicals on nearby agricultural properties

Finding: Urban encroachment impacts adjacent lands remaining in agricultural production as conflicts arise from the infringement of the new residential users, which include people and animals, into the area.

The level of significance of any impact on local growers resulting from development of the proposed project is considered minimal due to restrictions and limitations that are placed on the growers with the proximity of planned urban developments. In addition, existing and planned roadways will create buffers between the proposed project and adjacent farming operations.

No Impact

Ability to create a precedent-setting situation that leads to the premature conversion of prime agricultural lands

Finding: The conversion of this property from agricultural use to industrial and commercial use is not expected to create a precedent-setting situation that leads to the premature conversion of prime agricultural lands. Planned future development (shown in Appendix "B") demonstrates that the project is along the logical path of urban development.

No Impact

Demonstrated project need

Finding: The MBGP states that the Bakersfield Planning Department projects the population of the plan area to be 520,500 in the Year 2020. Population growth will result in the need for approximately 37,000 housing units (MBGP – Land Use Element, Page II-4). The proposed project intends to create commercial and industrial services for the rapidly growing Bakersfield community, and job opportunities in a manner consistent with the goals and policies of the MBGP. The proposed project will also ensure that the area develops in a comprehensive and coordinated fashion with adequate consideration of traffic and circulation, public safety, site and resource management and project financing.

It is assumed that future development in the MBGP Planning Area would continue to include "prime" agricultural soils that exist on the Valley floor. This loss has not limited itself to the City of Bakersfield and Kern County but has become an issue of statewide concern. The MBGP concludes that conversion of prime agricultural lands to urban uses will result in a reduction of the regional agricultural economy and is considered to be a significant adverse impact. A statement of overriding considerations for this impact was adopted when the MBGP was certified.

Planned urban development northwest of the site, and within close proximity near the proposed project site indicates that this project is on the logical path of development. The MBGP encourages the orderly outward expansion of new urban development that

maintains continuity of existing development and allows incremental expansion of infrastructure and public services. The proposal complies with the MBGP's criteria.

No Impact

Necessity of buffers such as lower densities, setbacks, etc.

Finding: If urban developments do not include buffer zones in their design, growers must sometimes allocate a portion of their land to the creation of a buffer zone adjacent to agricultural fields. As an example, growers might be required to refrain from spraying or harvesting the outside rows of their crops. In those cases, buffer zones represent a loss to the farmer of both crop production and income.

Buffer zones can consist of a road, canal, walls, easements, setbacks, etc. The proposed project site is bound by the Di Giorgio Road alignment on the north, State Highway 99 on the west, South Union Avenue on the west, and Houghton Road to the south. The roads right-of-way will serve as buffers for most of the project boundaries.

The future development of the subject property is not proposing the creation of a buffer zone. However, compliance with the Kern County Zoning and Subdivision Ordinances, and with implementation of mitigation measures found in Section 5.0 Mitigation will guarantee that adequate buffers be provided to avoid conflict between agricultural and urban uses.

No Impact

7.0 Resources

- **Air Quality Resources Board**

  (Air Quality San Joaquin Valley -2004)

- **California Department of Conservation – Office of Land Conservation**

  (California Agricultural Land Evaluation and Site Assessment Model – Instruction Manual – 1997)

- **California Department of Food and Agriculture**

  (California Agricultural Resource Directory 2006 Crop Year Production Information)

- **California Farm Bureau Federation**

  (Facts and Stats about California Agriculture - 2003)

- **California Farm Water Coalition**

  (The Water Fact Book – California Agriculture and Its Use of Water)

- **City of Bakersfield**

  (Metropolitan Bakersfield General Plan Map - 2008)

  (Farmland Conversion in Metropolitan Bakersfield - Working Paper - 1991)

- **Farmland Mapping and Monitoring Program - Department Of Conservation**

  (Farmland Conversion Report 2000 to 2004)

  (Kern County – Interim Farmland Area 2002-2004 Land Use Conversion)

  (Kern County – Important Farmland Area 2002-2004 Land Use Conversion)

  (Important Farmland in California, 2002)

- **Greater Bakersfield Chamber Of Commerce**

  (Agriculture in Kern County – 2004)

- **Kern County Planning and Development Services Department**

  (Kern County Zoning Ordinance – 2007)

  (Williamson Act Land Use Contract 2006)

  (Hazardous Wastes and Substances Site List – 2008)

  (Guidelines for Agricultural Soils/Farmland Conversion Studies)

- **Kern County Department Of Agriculture and Measurement Standards**

  (Pesticide Use Report Data – 2003, 2004, 2005, 2006, 2007, 2008)

  (Kern County Agricultural Crop Reports – Summary, Top Twenty Crops, Field Crops, and Vegetable Crops - 2003, 2004, 2005, 2006, 2007)

- **State of California**

  (California Environmental Quality Act, Sacramento - January 1991)

  (California Health and Safety Code § 11501 thru 11503)

  (California Health and Safety Code § 26569.24 thru 26569.28)

  (A.B. 645, Ch. 1135: Organic Food Act - February 21, 1991)

  (Division of Oil, Gas & Geothermal Resources –1998)

- **United States Department of Agriculture, Natural Resources Conservation Services**

  (Southwest Kern Soil Survey Maps and Information, 2006)

- **United States Department of Agriculture - Soil Conservation Service**

  (USDA Soil Survey of Kern County, California, Southwestern Part)

- **University of California Cooperative Extension**

  (Sample Cost to Establish and Produce)

  (California Production in California)

- **University of California Davis**

  (Agriculture in Urbanizing Communities – July 21, 2000)

- **Kern County Engineering and Survey Services**

  (Aerial Photographs August 3, 1956; February 8, 1975; April 5, 1985; May 22, 1990; May 2000; May 2006

- **United States Geological Survey**

  (Topographic Quadrangle Map Connor and Gosford, CA)

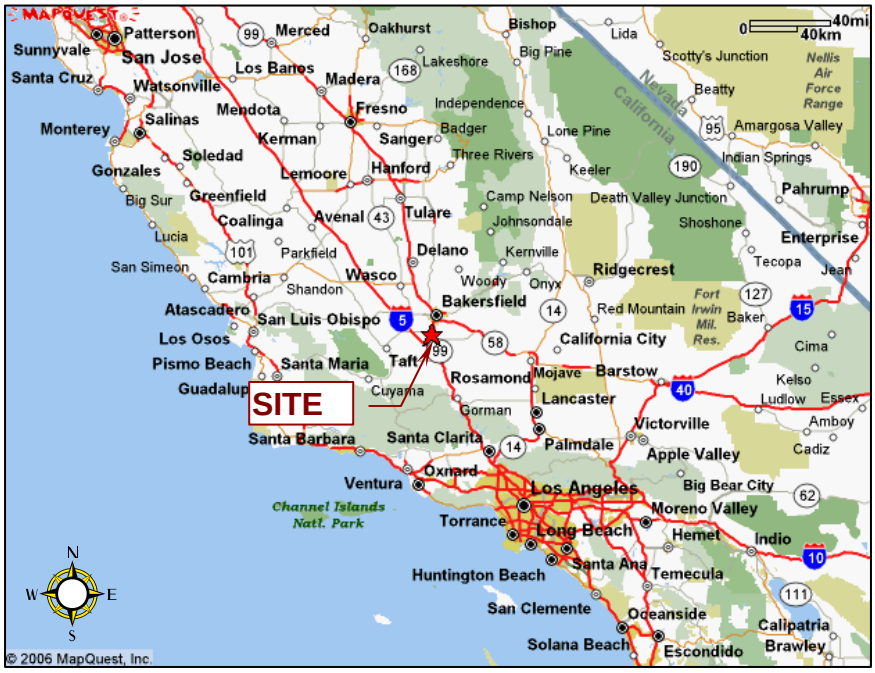
- **Federal Emergency Management Agency**

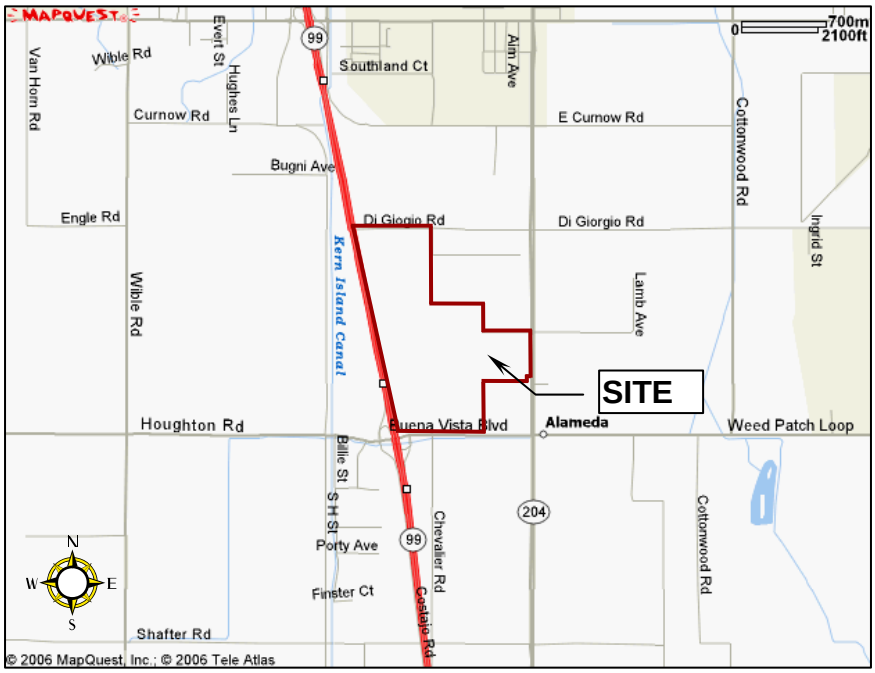
  (Flood Insurance Rate Map Community Panel 060075 1275 B)

- **Kern County Water Agency, Bakersfield, CA**

  (Water Supply Report – May 2005)

APPENDIX "A"

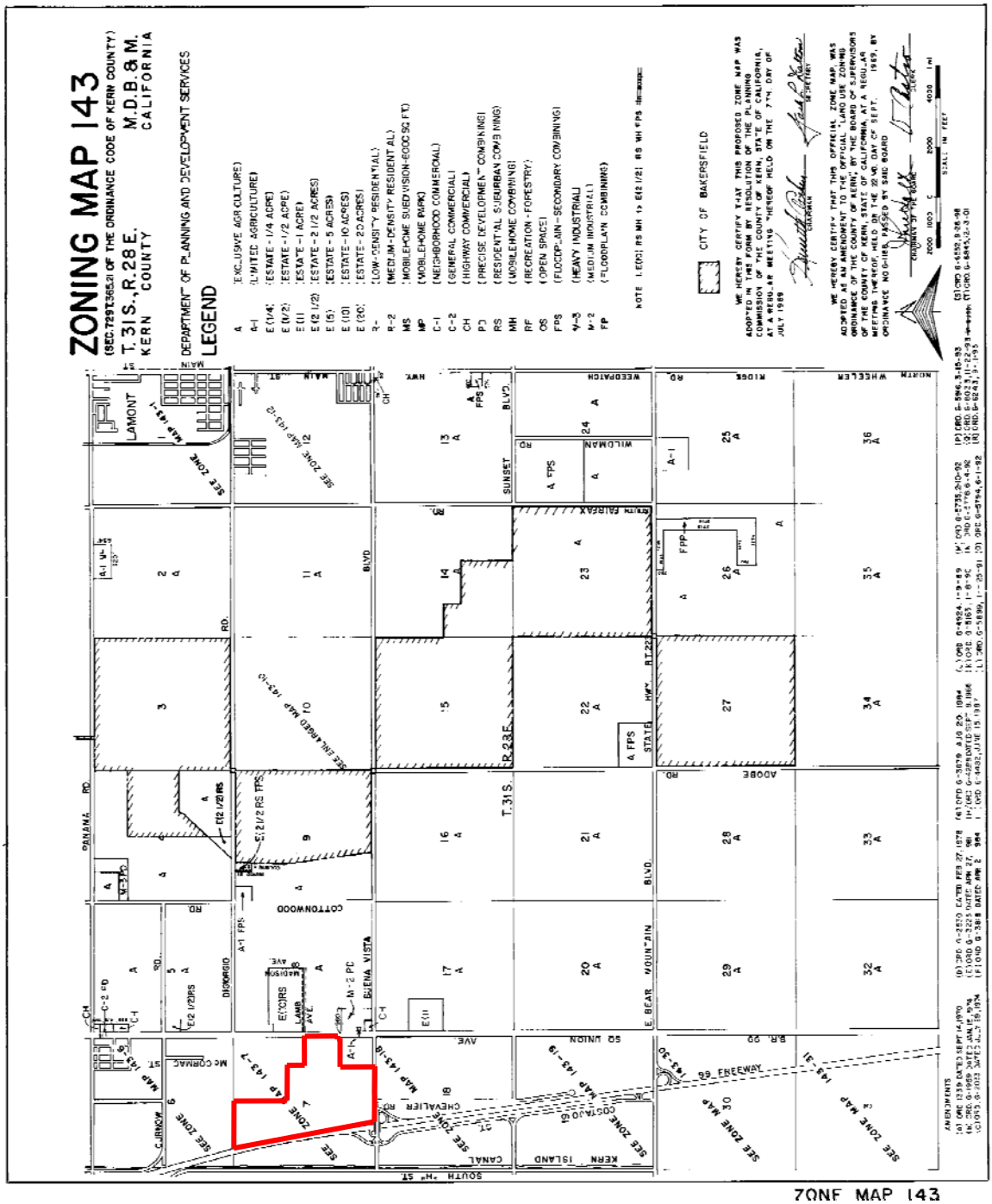




Section 7, T.31S, R.28E. M.D.M.

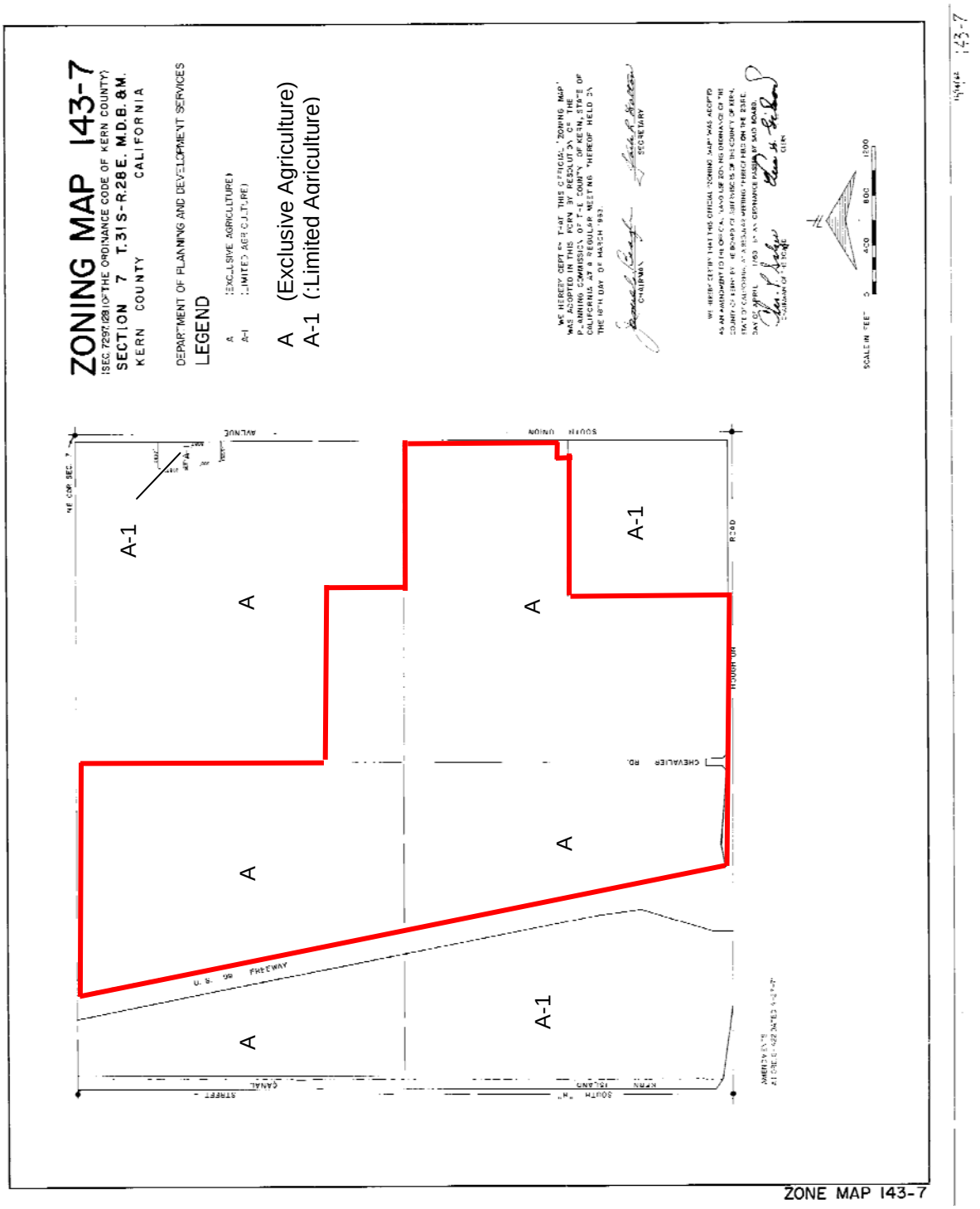
Vicinity Map

County of Kern, State of California

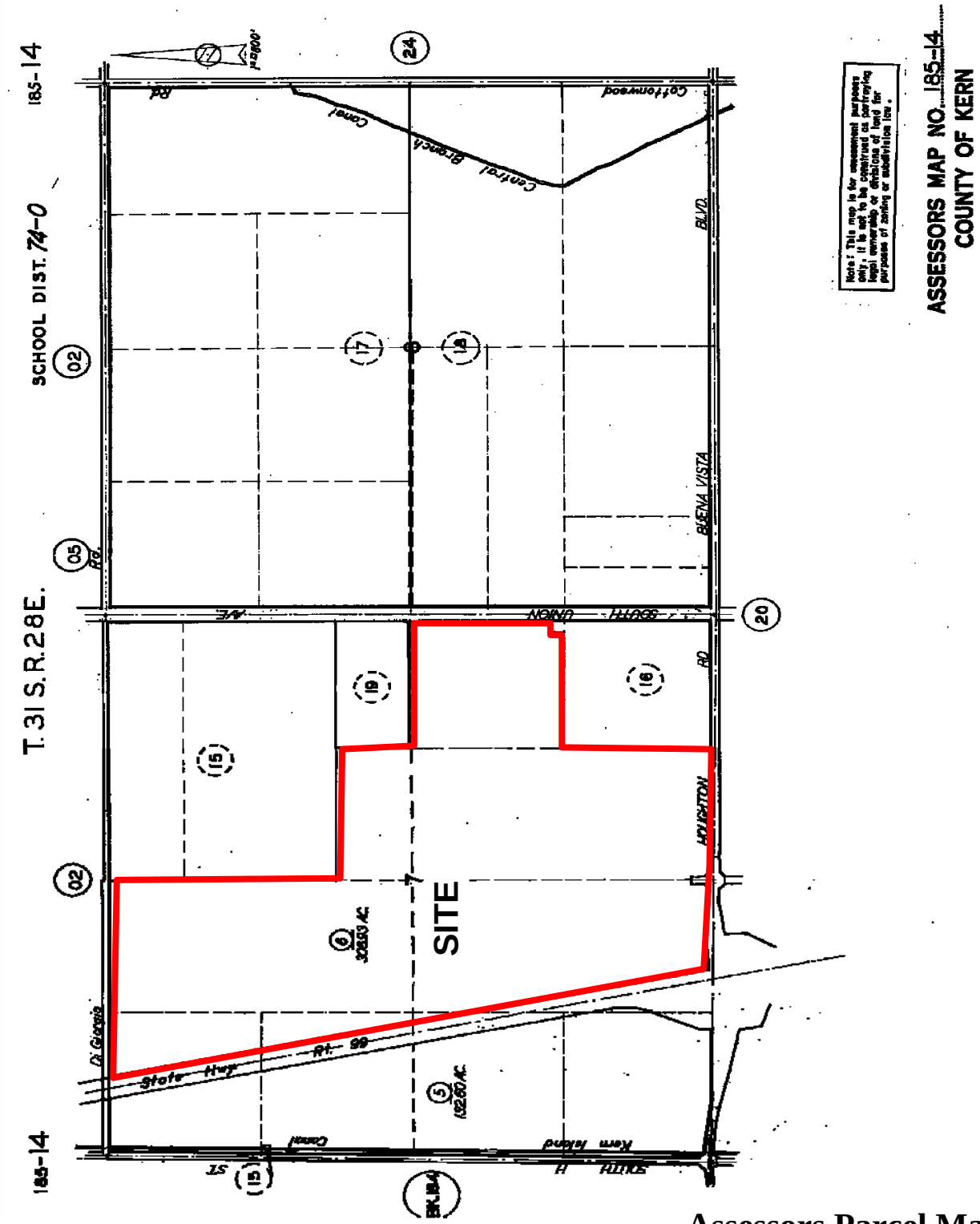


Zone Map 143

County of Kern, State of California

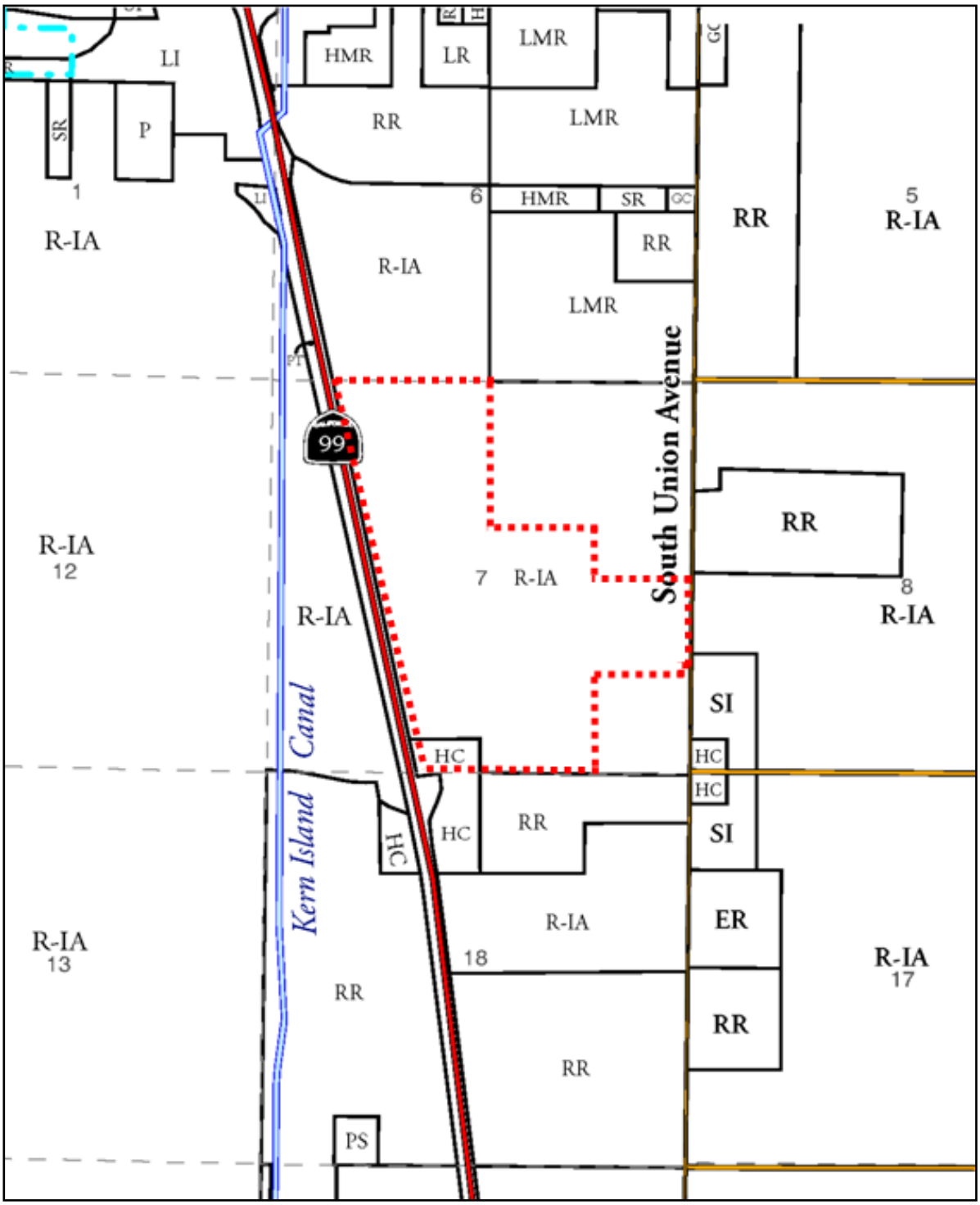


Zone Map 143-7
County of Kern, State of California

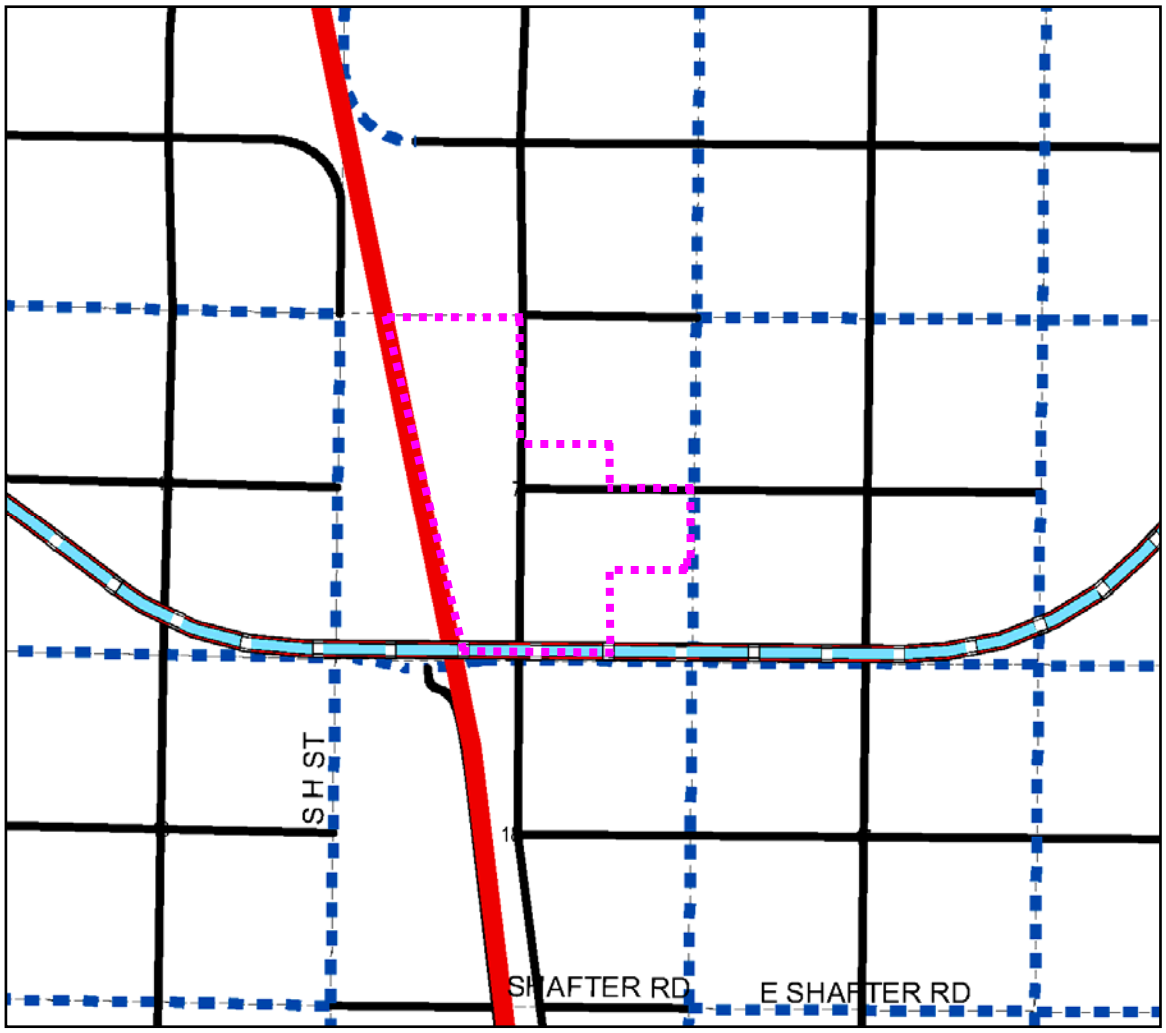


Assessors Parcel Map
No. 185-14
County of Kern

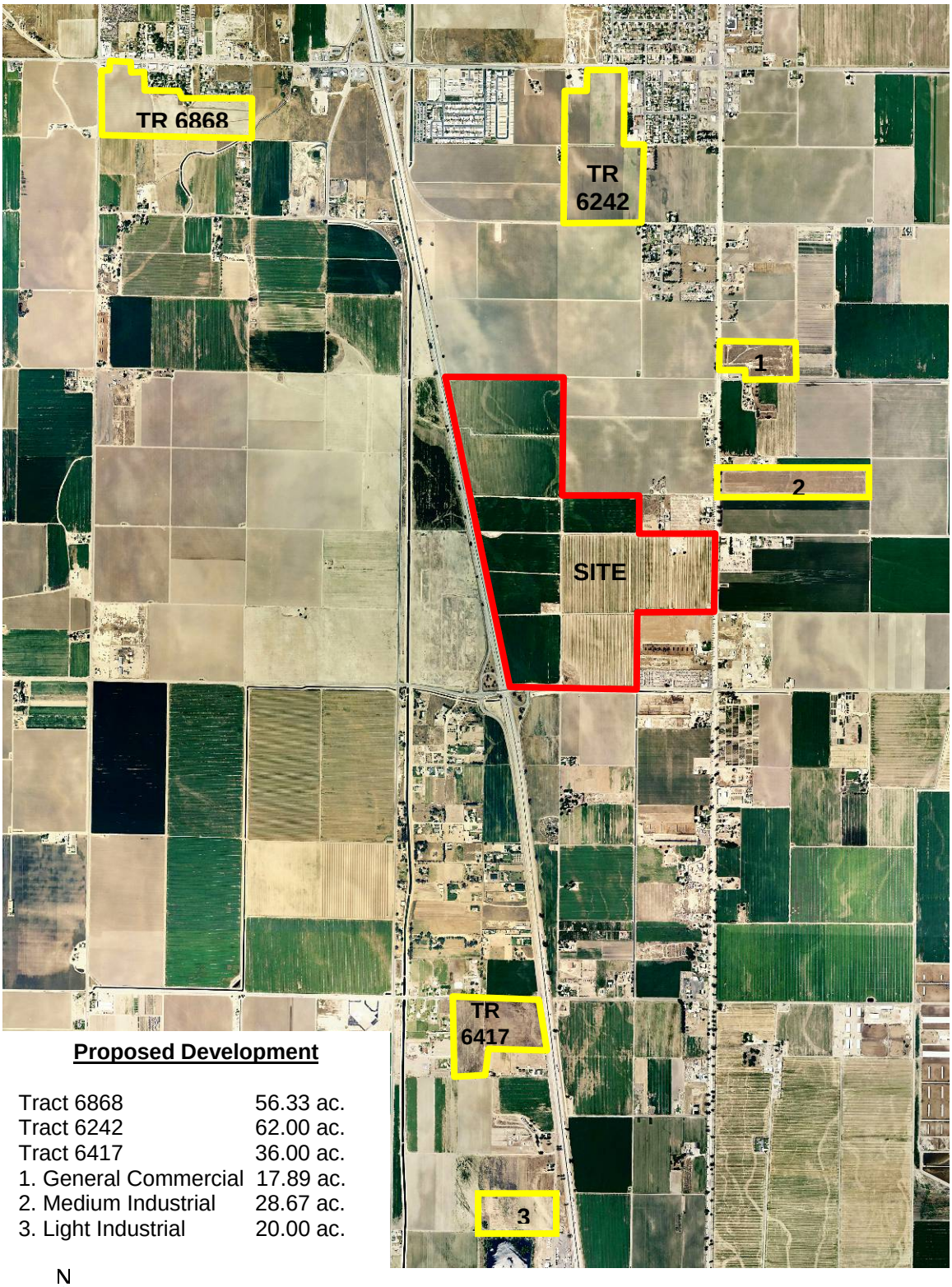
APPENDIX "B"



Metropolitan Bakersfield General Plan
(County Maintained)
Portion of Section 7, T.31S., R.28E.
County of Kern, State of California



Metropolitan Bakersfield General Plan
Circulation Element
Section 7, T.31S., R.28E., M.D.M.
County of Kern, State of California



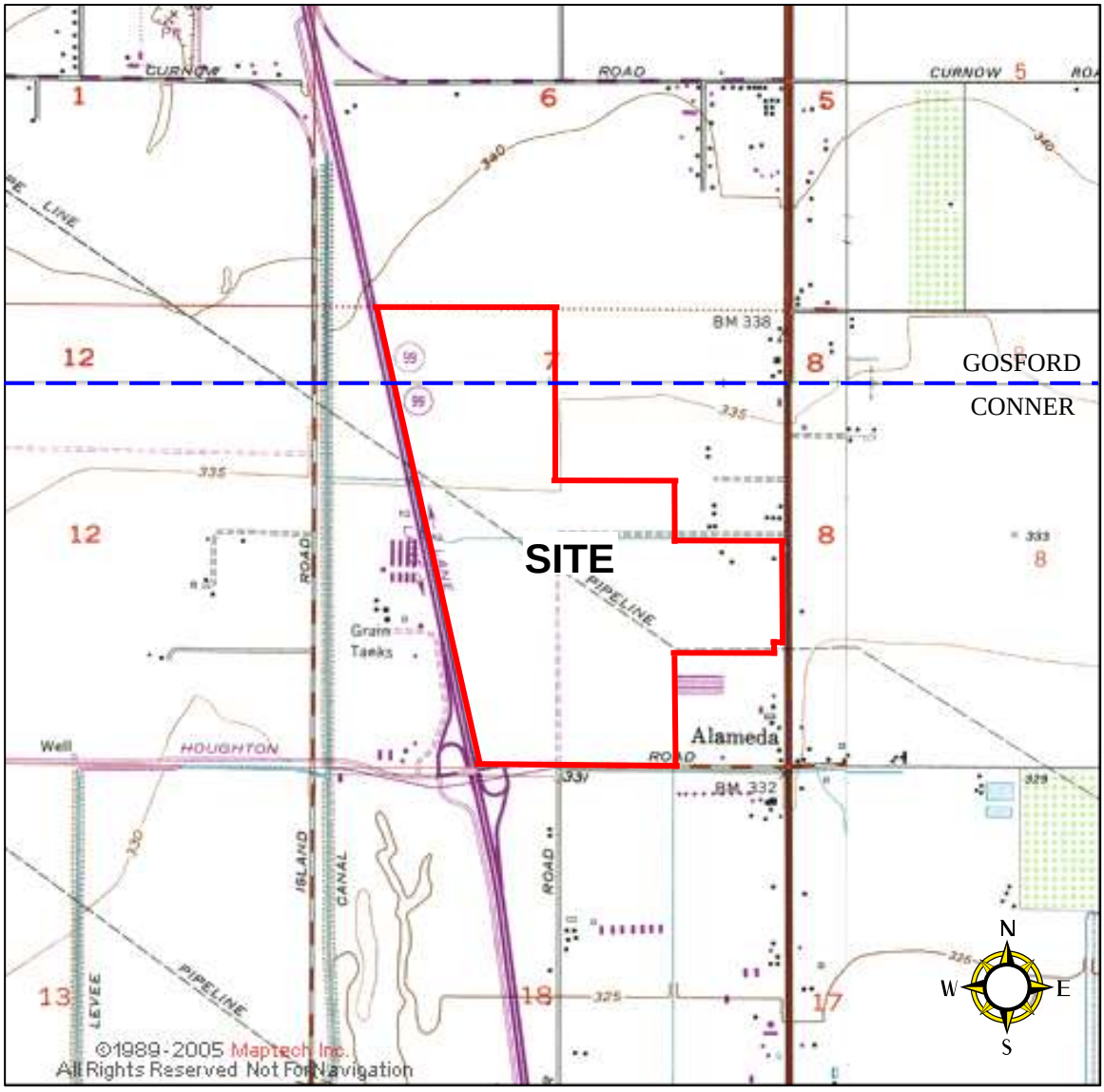
Proposed Development

Tract 6868	56.33 ac.
Tract 6242	62.00 ac.
Tract 6417	36.00 ac.
1. General Commercial	17.89 ac.
2. Medium Industrial	28.67 ac.
3. Light Industrial	20.00 ac.

N
W E
S

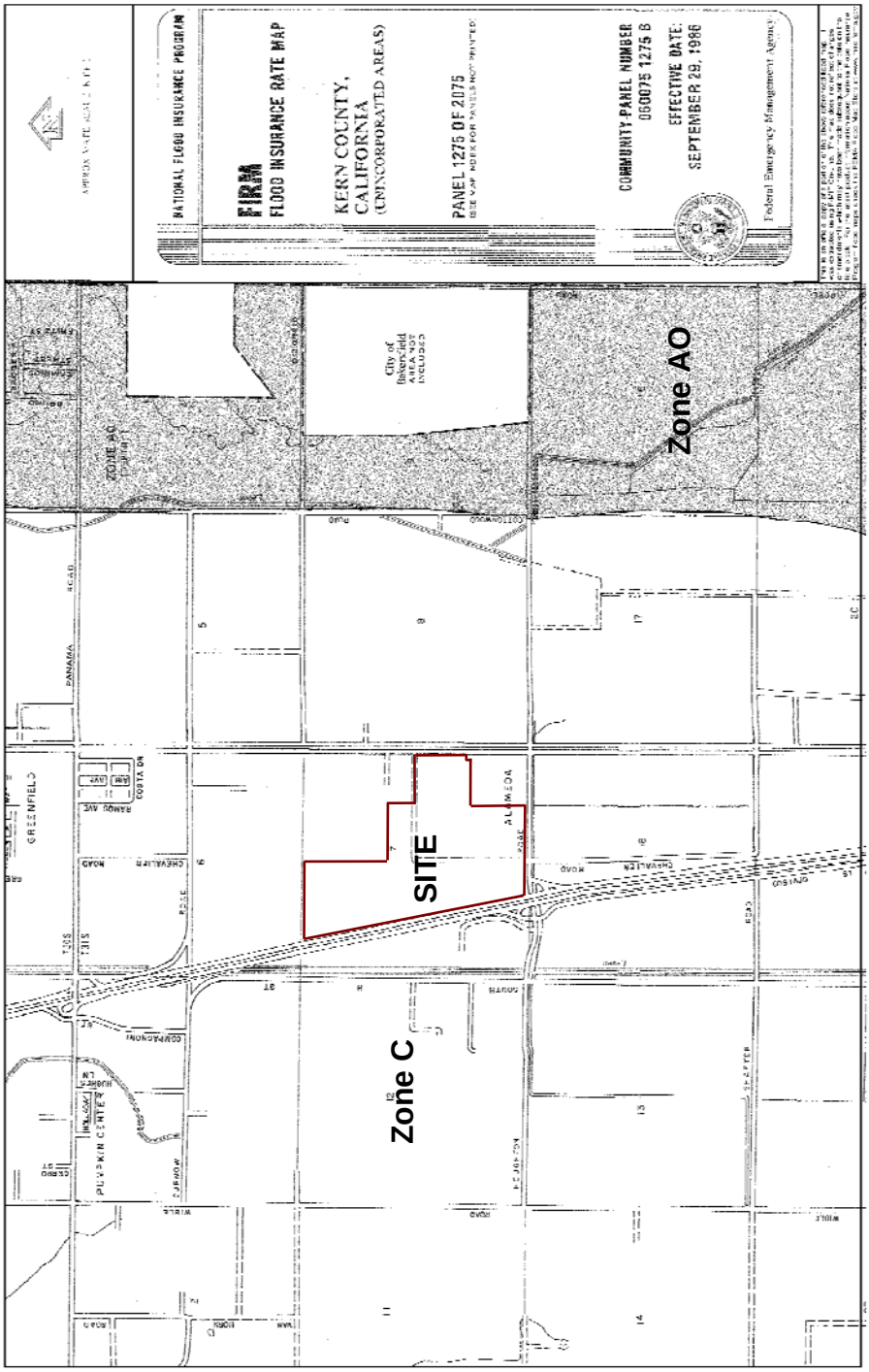
Proposed Development
County of Kern

APPENDIX "C"



Gosford & Conner Quadrangle Map
Section 7, T.31S., R.28E., M.D.M.

California, Kern County
7.5 Minute Series – 1954
Revised 1968 and 1973

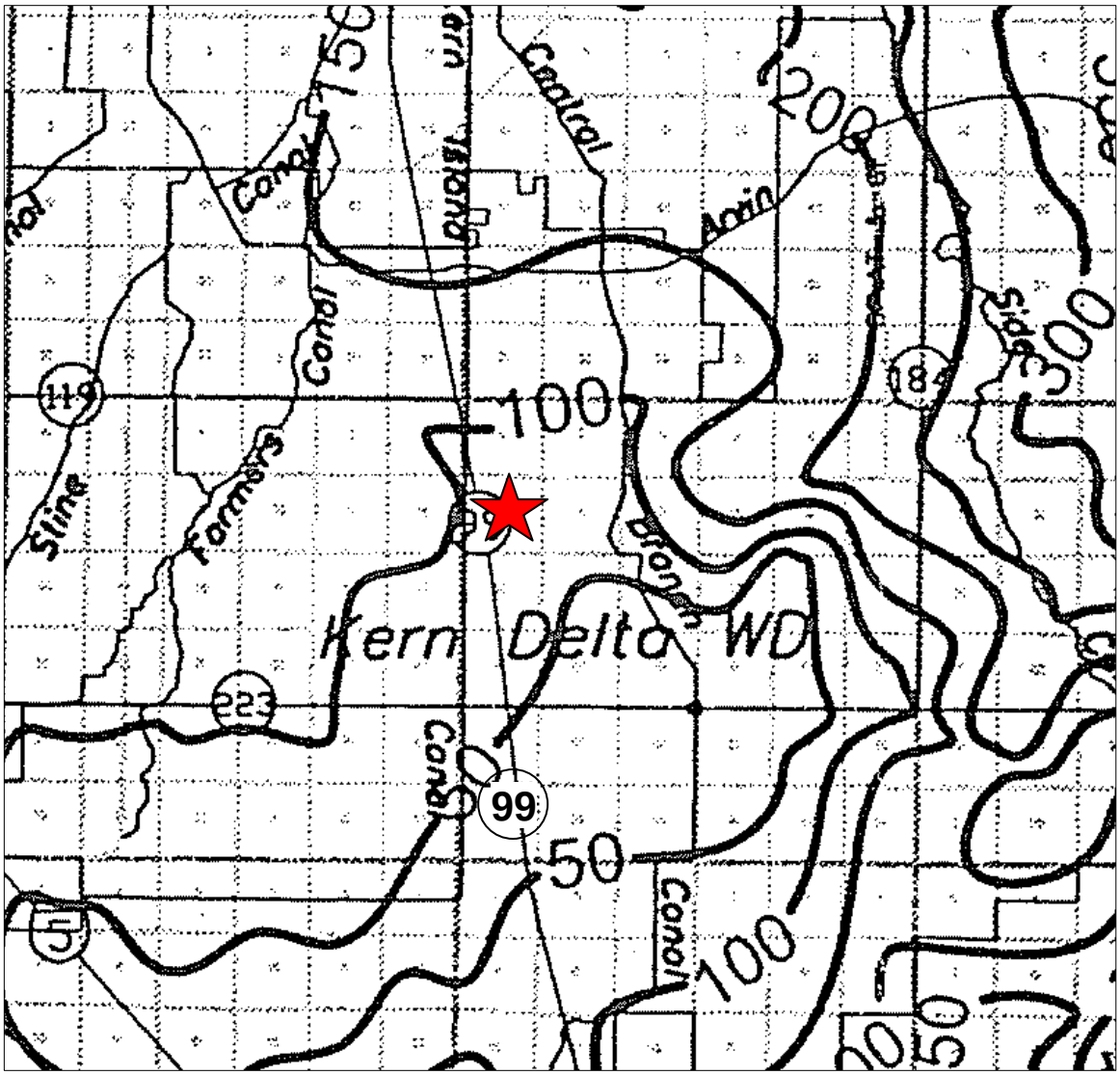


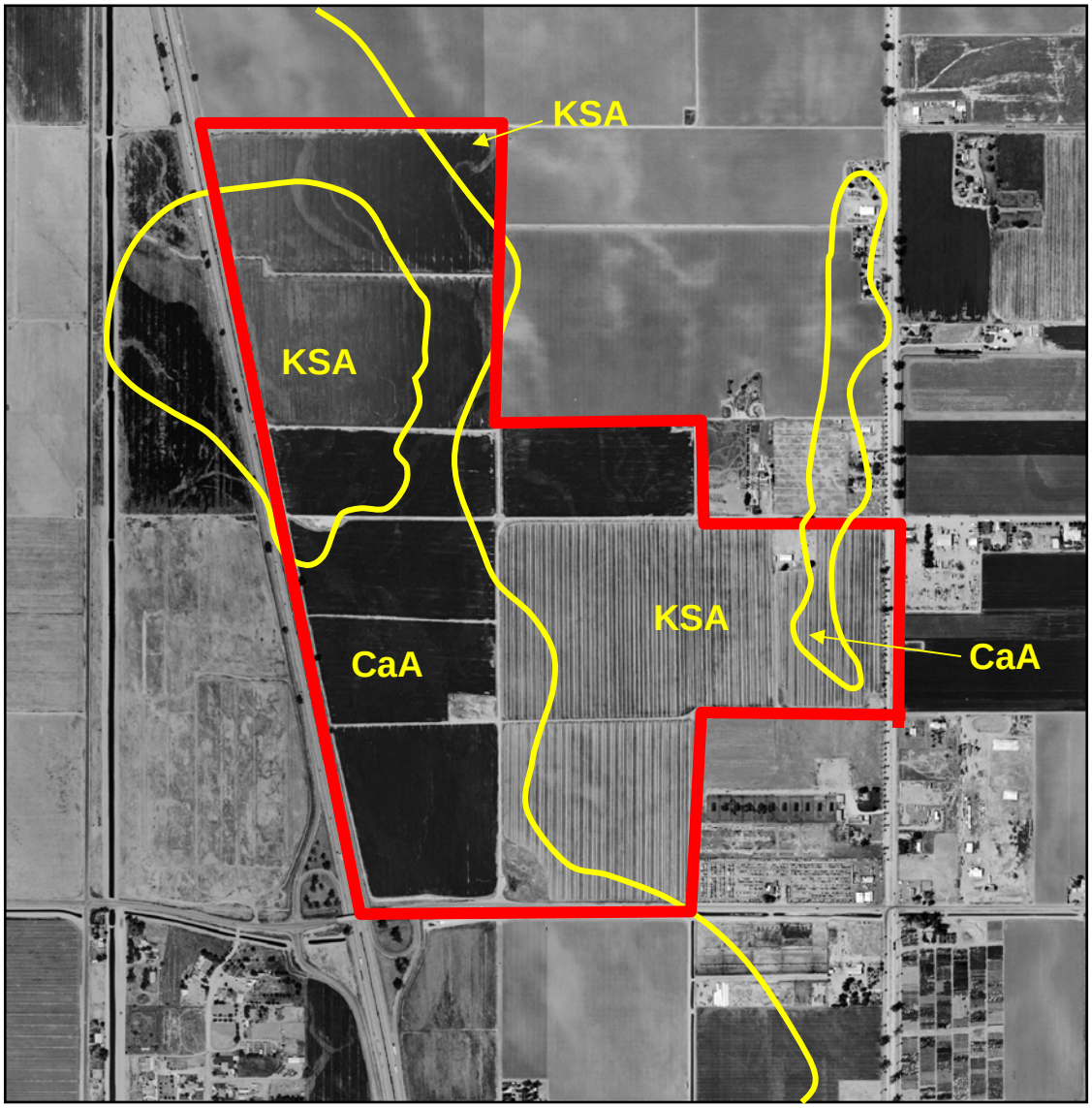
Explanation of Zone Designations

AO – Special Flood Hazard Areas inundated by types of 100-year shallow flooding where depths are between 1.0 and 3.0 feet; depths are shown, or areas of 100-yfear alluvial fan flooding, depths and velocities shown, but no flood hazard factors are determined.
C – Areas of Minimal flooding.

Firm Flood Insurance Rate Map

Community Panel – 060075 1275 B
Effective 09-29-1986


Kern Delta WD
100
50
99
119
223
5
Canal
Lateral
Main
Slide
Farmers
Slide
Canal
Canal
Canal



Section 7, T.31S, R.28E. M.D.M.

Soil Map
USDA Soil Survey
Kern County, Southwestern Part

APPENDIX "D"

TABLE A-46
KERN COUNTY - IMPORTANT FARMLAND AREA
2002-2004 Land Use Conversion

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Land Resource Protection

Farmland Mapping and Monitoring Program

PART I
County Summary and Change by Land Use Category

LAND USE CATEGORY	TOTAL ACREAGE INVENTORIED		2002-04 ACREAGE CHANGES			
	2002 (1)	2004	ACRES LOST (-)	ACRES GAINED (+)	TOTAL ACREAGE CHANGED	NET ACREAGE CHANGED
Prime Farmland	526,524	518,804	9,431	1,711	11,142	-7,720
Farmland of Statewide Importance	108,338	106,326	2,274	262	2,536	-2,012
Unique Farmland	54,753	51,095	4,023	365	4,388	-3,658
Farmland of Local Importance	0	0	0	0	0	0
IMPORTANT FARMLAND SUBTOTAL	689,615	676,225	15,728	2,338	18,066	-13,390
Grazing Land	904,760	911,708	2,061	9,009	11,070	6,948
AGRICULTURAL LAND SUBTOTAL	1,594,375	1,587,933	17,789	11,347	29,136	-6,442
Urban and Built-up Land	86,707	94,604	212	8,109	8,321	7,897
Other Land	867,934	866,479	4,925	3,470	8,395	-1,455
Water Area	976	976	0	0	0	0
TOTAL AREA INVENTORIED	2,549,992	2,549,992	22,926	22,926	45,852	0

PART II
Land Committed to Nonagricultural Use

LAND USE CATEGORY	TOTAL ACREAGE 2004
Prime Farmland	2,775
Farmland of Statewide Importance	55
Unique Farmland	0
Farmland of Local Importance	0
IMPORTANT FARMLAND SUBTOTAL	2,830
Grazing Land	225
AGRICULTURAL LAND SUBTOTAL	3,055
Urban and Built-up Land	0
Other Land	478
Water Area	0
TOTAL ACREAGE REPORTED	3,533

PART III Land Use Conversion from 2002 to 2004

LAND USE CATEGORY		Prime Farmland	Farmland of Statewide Importance	Unique Farmland	Farmland of Local Importance	Subtotal Important Farmland	Grazing Land	Total Agricultural Land	Urban and Built-up Land	Other Land	Water Area	Total Converted To Another Use
Prime Farmland (2)	to:	--	0	2	0	2	4,632	4,634	3,757	1,040	0	9,431
Farmland of Statewide Importance	to:	1	--	0	0	1	962	963	626	685	0	2,274
Unique Farmland (2) (3)	to:	85	0	--	0	85	3,306	3,391	6	626	0	4,023
Farmland of Local Importance	to:	0	0	0	--	0	0	0	0	0	0	0
IMPORTANT FARMLAND SUBTOTAL		86	0	2	0	88	8,900	8,988	4,389	2,351	0	15,728
Grazing Land (4)	to:	356	44	174	0	574	--	574	459	1,028	0	2,061
AGRICULTURAL LAND SUBTOTAL		442	44	176	0	662	8,900	9,562	4,848	3,379	0	17,789
Urban and Built-up Land (5)	to:	80	0	5	0	85	36	121	--	91	0	212
Other Land (6)	to:	1,189	218	184	0	1,591	73	1,664	3,261	--	0	4,925
Water Area	to:	0	0	0	0	0	0	0	0	0	--	0
TOTAL ACREAGE CONVERTED	to:	1,711	262	365	0	2,338	9,009	11,347	8,109	3,470	0	22,926

(1) Due to the incorporation of digital soil survey data (SSURGO) during this update, acreages for farmland, grazing and other land use categories may differ from those published in the 2000-2002 California Farmland Conversion Report.
(2) Conversion to Grazing and Other Land is primarily due to land left idle for three or more update cycles and the addition of new dairies.
(3) Conversion to Prime Farmland is due to the delineation of irrigated agriculture that had previously been mapped as potted plant nurseries.
(4) Conversion to Other Land is primarily the result of the use of improved digital imagery to delineate low-density housing (ranchettes), mining areas, and oil field boundaries throughout the county.
(5) Conversion from Urban and Built-Up Land primarily the result of the use of improved digital imagery to delineate more distinct urban boundaries.
(6) Conversion to Prime Farmland due to the addition of newly irrigated agriculture with notable additions on the Arvin, Little Buttes, and Rosamond quads.

KERN COUNTY - IMPORTANT FARMLAND AREA

Table A-46
Kern County Important Farmland

TABLE A-47

KERN COUNTY - INTERIM FARMLAND AREA

2002-2004 Land Use Conversion

CALIFORNIA DEPARTMENT OF CONSERVATION
Division of Land Resource Protection

Farmland Mapping and Monitoring Program

PART I
County Summary and Change by Land Use Category

LAND USE CATEGORY	TOTAL ACREAGE INVENTORIED		2002-04 ACREAGE CHANGES			
	2002	2004	ACRES LOST (-)	ACRES GAINED (+)	TOTAL ACREAGE CHANGED	NET ACREAGE CHANGED
Irrigated Farmland	295,415	291,327	6,103	2,015	8,118	-4,088
Nonirrigated Farmland	2,428	2,013	433	18	451	-415
INTERIM FARMLAND SUBTOTAL	297,843	293,340	6,536	2,033	8,569	-4,503
Grazing Land	873,661	877,346	1,308	4,993	6,301	3,685
AGRICULTURAL LAND SUBTOTAL	1,171,504	1,170,686	7,844	7,026	14,870	-818
Urban and Built-up Land	26,512	27,225	272	985	1,257	713
Other Land	1,464,509	1,464,614	2,160	2,265	4,425	105
Water Area	8,865	8,865	0	0	0	0
TOTAL AREA INVENTORIED	2,671,390	2,671,390	10,276	10,276	20,552	0

PART II
Land Committed to Nonagricultural Use

LAND USE CATEGORY	TOTAL ACREAGE 2004
Irrigated Farmland	7
Nonirrigated Farmland	0
INTERIM FARMLAND SUBTOTAL	7
Grazing Land	453
AGRICULTURAL LAND SUBTOTAL	460
Urban and Built-up Land	0
Other Land	39
Water Area	0
TOTAL ACREAGE REPORTED	499

PART III Land Use Conversion from 2002 to 2004

LAND USE CATEGORY		Irrigated Farmland	Nonirrigated Farmland	Subtotal Interim Farmland	Grazing Land	Total Agricultural Land	Urban and Built-up Land	Other Land	Water Area	Total Converted To Another Use
Irrigated Farmland (1)	to:	--	18	18	4,507	4,525	36	1,542	0	6,103
Nonirrigated Farmland	to:	62	--	62	371	433	0	0	0	433
INTERIM FARMLAND SUBTOTAL		62	18	80	4,878	4,958	36	1,542	0	6,536
Grazing Land	to:	626	0	626	--	626	144	538	0	1,308
AGRICULTURAL LAND SUBTOTAL		688	18	706	4,878	5,584	180	2,080	0	7,844
Urban and Built-up Land (2)	to:	65	0	65	22	87	--	185	0	272
Other Land (3)	to:	1,262	0	1,262	93	1,355	805	--	0	2,160
Water Area	to:	0	0	0	0	0	0	0	--	0
TOTAL ACREAGE CONVERTED	to:	2,015	18	2,033	4,993	7,026	985	2,265	0	10,276

(1) Conversion to Grazing and Other Land is primarily due to land left idle for three or more update cycles and the addition of new dairies.
(2) Conversion from Urban and Built-Up Land primarily the result of the use of improved digital imagery to delineate more distinct urban boundaries.
(3) Conversion to Irrigated Farmland due to the addition of newly irrigated agriculture in the interim portion of the county.

KERN COUNTY - INTERIM FARMLAND AREA

Table A-47
Kern County Interim Farmland

APPENDIX "E"

KERN COUNTY 2003 CROP REPORT – SUMMARY

COMMODITY	YEAR	HARVESTED ACRES	RANGE	TOTAL VALUE
Fruit and Nut Crops	2003	275,808	---	$ 1,115,963,000
	*2002	275,221	---	$ 1,244,632,000
Field Crops and Rangeland	2003	487,544	1,974,000	386,928,000
	*2002	478,684	1,989,000	376,273,000
Vegetable Crops	2003	96,976	---	505,360,000
	*2002	93,060	---	552,229,500
Nursery Crops	2003	3,959	---	100,702,000
	2002	4,224	---	115,383,000
Industrial and Wood Crops	2003	---	---	7,717,000
	2002	---	---	12,431,000
Seed Crops	2003	2,028	---	9,024,000
	2002	1,764	---	5,378,000
Livestock and Poultry	2003	---	---	81,240,000
	*2002	---	---	68,100,000
Livestock and Poultry Products	2003	---	---	256,764,000
	2002	---	---	206,632,000
Apiary Products	2003	---	---	17,018,000
	*2002	---	---	14,301,000
TOTALS	**2003**	**866,226**	**1,974,000**	**$ 2,477,716,000**
	***2002**	**852,953**	**1,989,000**	**$ 2,595,359,500**
Total value without timber	2003			$ 2,477,526,000
	*2002			$ 2,595,359,500

*Revised

**** Information provided by the Kern County Agricultural Commissioner's Office***



KERN COUNTY
2003 CROP REPORT

TOP 20 CROPS

RANKING	COMMODITY	VALUE	2002
1	Grapes, All	$ 402,802,000	1
2	Almonds, Including By-Products	280,504,000	4
3	Citrus, Fresh and Processing	278,016,000	2
4	Carrots, Fresh and Processing	269,132,000	3
5	Milk, Market and Manufacturing	230,300,000	5
6	Cotton, Including Processed Cottonseed	176,682,000	6
7	Hay, Alfalfa	115,698,000	9
8	Nursery Crops	100,702,000	8
9	Potatoes, Fresh and Processing	83,241,000	10
10	Cattle and Calves	67,868,000	11
11	Pistachios	62,847,000	7
12	Tomatoes, Fresh and Processing	36,892,000	13
13	Bell Peppers, Fresh	36,700,000	12
14	Silage and Forage	32,715,000	14
15	Apples, All	27,762,000	15
16	Wheat	17,513,000	16
17	Apiary Products	17,018,000	22
18	Onions, Fresh and Dehydrator	16,876,000	17
19	Peaches, Fresh and Processing	12,873,000	19
20	Plums	12,273,000	24

** Information provided by the Kern County Agricultural Commissioner's Office*

KERN COUNTY 2003 CROP REPORT – FIELD CROPS

* Information provided by the Kern County Agricultural Commissioner's Office

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Barley	a/2003	5,460	1.50	8,200	Ton	$ 104.00	$ 851,000
	a/2002	9,100	1.80	16,400	Ton	$ 115.00	1,889,000
Beans, Dry Edible	2003	3,539	1.63	5,780	Ton	533.00	3,078,000
	2002	4,381	1.39	6,100	Ton	540.00	3,291,000
Cotton Lint, Upland & Acala	2003	90,055	b/1,371	c/247,000	Bale	d/0.73	89,595,000
	2002	87,444	b/1,463	c/256,000	Bale	d/0.69	87,638,000
Cotton Lint, Pima	2003	42,055	b/1,109	c/93,300	Bale	d/1.20	55,994,000
	2002	43,615	b/1,364	c/119,000	Bale	d/0.86	51,257,000
Cottonseed, Processing	2003	---	---	126,000	Ton	247.00	31,093,000
	2002	---	---	133,000	Ton	213.00	28,284,000
Hay, Alfalfa	2003	150,000	8.62	1,293,000	Ton	89.50	115,698,000
	2002	148,000	8.04	1,190,000	Ton	94.30	112,180,000
Hay, Grain	2003	22,000	3.64	80,100	Ton	89.90	7,201,000
	2002	20,000	2.46	49,200	Ton	75.40	3,708,000
Hay, Other	2003	15,000	2.22	33.300	Ton	53.90	1,796,000
	2002	15,000	3.30	49,500	Ton	91.70	4,540,000
Pasture, Irrigated	2003	8,000	---	---	Acre	135.00	1,080,000
	2002	8,000	---	---	Acre	135.00	1,080,000
Pasture, Other	2003	---	---	---	Acre	---	2,791,000
	2002	---	---	---	Acre	---	3,273,000
Pasture, Range	2003	1,974,000	---	---	Acre	10.00	19,743,000
	*2002	1,989,000	---	---	Acre	10.00	19,888,000
Safflower	2003	1,150	1.22	1,400	Ton	263.00	368,000
	2002	1,160	0.82	950	Ton	248.00	236,000
Silage and Forage	2003	64,000	24.78	1,586,000	Ton	20.60	32,715,000
	*2002	58,500	24.31	1,422,000	Ton	19.70	27,961,000
Sugar Beets	2003	4,596	36.77	169,000	Ton	37.60	6,359,000
	*2002	3,251	38.76	126,000	Ton	37.90	4,774,000
Wheat	2003	74,100	2.00	148,000	Ton	118.00	17,513,000
	2002	74,000	3.16	234,000	Ton	110.00	25,674,000
Miscellaneous	e/2003	7,500	---	15,900	Ton	---	1,053,000
	*e/2002	6,200	---	11,600	Ton	---	600,000
TOTALS	**2003**	**f/487,544**	---	---	---	---	**$ 386,928,000**
	***2002**	**f/478,684**	---	---	---	---	**$ 376,273,000**

*Revised a/ May contain dryland b/ Pounds Lint per Acre c/ 500 Pounds Net Weight Bale c/ Price per Pound
e/ Includes: Clover, Field Corn (Grain), Rye, Sorghum, and Straw. f/ Does not include Range acreage.

KERN COUNTY 2003 CROP REPORT – VEGETABLE CROPS

* Information provided by the Kern County Agricultural Commissioner's Office

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Cantaloupe	2003	991	16.65	16,500	Ton	$ 353.00	$ 5,825,000
	2002	1,109	15.33	17,000	Ton	273.00	4,641,000
Corn, Sweet	2003	102	6.05	620	Ton	600.00	372,000
	2002	181	6.83	1,240	Ton	348.00	432,000
Garlic	2003	4,387	7.93	34,800	Ton	189.00	6,583,000
Dehydrator	2002	3,608	6.68	24,100	Ton	204.00	4,923,000
Garlic	2003	0	0	0	Ton	0	0
Fresh	2002	1,804	6.42	11,600	Ton	1,430.00	16,584,000
Lettuce, Head	2003	1,110	17.18	19,070	Ton	---	5,722,000
Naked Pack	2003	---	---	8,780	Ton	344.00	3,018,000
Wrapped Pack	2003	---	---	1,100	Ton	505.00	555,000
Bulk Shredder	2003	---	---	9,190	Ton	239.00	2,199,000
Lettuce, Head	2002	1,140	17.99	20,510	Ton	---	8,423,000
Naked Pack	2002	---	---	8,880	Ton	384.00	3,413,000
Wrapped Pack	2002	---	---	2,770	Ton	692.00	1,918,000
Bulk Shredder	2002	---	---	8,860	Ton	349.00	3,092,000
Melons,	2003	770	12.47	9,600	Ton	442.00	4,241,000
Other	2002	586	13.51	7,640	Ton	343.00	2,623,000
Onions,	2003	2,300	26.96	62,000	Ton	159.00	9,834,000
Fresh	2002	1,840	26.74	49,200	Ton	294.00	14,452,000
Onions,	2003	4,030	21.17	85,300	Ton	82.50	7,041,000
Dehydrator	2002	3,570	21.85	78,000	Ton	112.00	8,742,000
Peppers,	2003	1,909	18.13	34,600	Ton	1,061.00	36,700,000
Bell	2002	1,730	20.12	34,800	Ton	1,090.00	36,761,000
Potatoes,	2003	26,459	19.98	528,520	Ton	---	83,241,000
All	2002	23,050	21.90	504,800	Ton	---	104,824,500
Spring	2003	16,909	22.50	380,400	Ton	---	53,920,000
Total	2002	15,890	26.51	421,300	Ton	---	83,843,000
Fresh	2003	---	---	245,000	Ton	180.00	43,981,000
Market	2002	---	---	257,000	Ton	274.00	70,470,000
Processing	2003	---	---	74,100	Ton	130.00	9,633,000
	2002	---	---	100,000	Ton	131.00	13,052,000
Culls	2003	---	---	61,300	Ton	5.00	306,000
	2002	---	---	64,300	Ton	4.99	321,000

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Winter	2003	9,550	15.51	148,120	Ton	---	$ 29,173,000
Total	2002	7,160	11.66	83,500	Ton	---	20,981,000
Fresh	2003	---	---	118,500	Ton	$ 246.00	29,173,000
Market	2002	---	---	66,800	Ton	313.00	20,898,000
Culls	2003	---	---	29,620	Ton	5.00	148,000
	2002	---	---	16,700	Ton	5.00	83,500
Tomatoes,	2003	---	---	---	Ton	---	---
Fresh	2002	---	---	---	Ton	---	---
Tomatoes,	2003	13,600	28.75	391,000	Ton	57.20	22,365,000
Processing	2002	12,400	34.60	429,000	Ton	50.30	21,581,000
Watermelons,	2003	838	19.68	16,500	Ton	122.00	2,016,000
Seeded	2002	752	19.82	14,900	Ton	125.00	1,863,000
Watermelons,	2003	1,680	34.58	58,100	Ton	162.00	9,388,000
Seedless	2002	1,510	27.42	41,400	Ton	190.00	7,852,000
Miscellaneous	a/2003	38,800	---	1,293,000	Ton	---	308,981,000
	*b/2002	39,800	---	1,254,000	Ton	---	317,528,000
TOTALS	**2003**	**96,976**	**---**	**2,549,610**	**Ton**	**---**	**$ 502,360,000**
	***2002**	**93,060**	**---**	**2,488,190**	**Ton**	**---**	**$ 552,229,500**

*Revised

a/ Includes: Anise, Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Butter Lettuce, Cabbage (Fresh & Processed), Catus, Carrots, Cauliflower(Fresh & Processed), Celery, Chard, Chinese Greens, Cilantro, Collard, Cucumber, Daikon, Dandelion, Daikon, Dill, Eggplant, Gai Lon, Herbs, Kale, Leaf Lettuce, Leek, Mixed Vegetables, Mushrooms, Mustard, Okra, Onions (Green), Parsley, Peas, Peppers (Chili & Processed), Pumpkins, Radicchio, Radishes, Red Beets, Romaine Lettuce, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh), Turnips, and Zucchini (Processed).

b/ Includes: Anise, Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Brussel Sprouts, Butter Lettuce, Cabbage, Carrots, Cauliflower, Celery, Chard, Chicory, Chinese Greens, Cilantro, Collard, Cucumber, Daikon, Dandelion, Dill, Eggplant, Gai Lon, Gourds, Herb, Kale, Kohirabi, Leaf Lettuce, Leek, Lima Beans, Mixed Vegetable, Mushrooms, Mustard, Okra, Onions (Green), Parsley, Parsnip, Peas, Peppers (Chili & Processing), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Rutabaga, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh), Turnips, Yams, and Zucchini (Processed).

KERN COUNTY 2004 CROP REPORT – SUMMARY

COMMODITY	YEAR	HARVESTED ACRES	RANGE	TOTAL VALUE
Fruit and Nut Crops	2004	270,867	---	$ 1,518,104,000
	*2003	275,783	---	$ 1,119,789,000
Field Crops and Rangeland	2004	514,974	1,832,000	510,222,000
	*2003	487,455	1,854,000	385,726,000
Vegetable Crops	2004	99,686	---	470,687,400
	*2003	96,976	---	507,620,000
Nursery Crops	2004	4,547	---	101,850,000
	2003	3,959	---	100,702,000
Industrial and Wood Crops	2004	---	---	4,810,000
	*2003	---	---	5,793,000
Seed Crops	2004	1,502	---	12,598,000
	2003	2,028	---	9,024,000
Livestock and Poultry	2004	---	---	104,263,000
	2003	---	---	81,240,000
Livestock and Poultry Products	2004	---	---	405,487,000
	2003	---	---	256,764,000
Apiary Products	2004	---	---	14,460,000
	2003	---	---	17,018,000
TOTALS	**2004**	**891,576**	**1,832,000**	**$ 3,142,481,400**
	***2003**	**866,201**	**1,854,000**	**$ 2,483,676,000**
Total value without timber	2004			$ 3,142,481,400
	*2003			$ 2,483,486,000

*Revised

** Information provided by the Kern County Agricultural Commissioner's Office*



KERN COUNTY
2004 CROP REPORT

TOP 20 CROPS

RANKING	COMMODITY	VALUE	2002
1	Grapes, All	$ 521,870,000	1
2	Almonds, Including By-Products	442,703,000	2
3	Milk, Market and Manufacturing	382,617,000	5
4	Citrus, Fresh and Processing	248,260,000	3
5	Cotton, Including Processed Cottonseed	232,833,000	6
6	Carrots, Fresh and Processing	222,455,000	4
7	Pistachios	215,955,000	10
8	Hay, Alfalfa	165,273,000	7
9	Potatoes, Fresh and Processing	94,231,400	8
10	Cattle and Calves	90,924,000	9
11	Tomatoes, Fresh and Processing	50,858,000	12
12	Roses	45,353,000	11
13	Bell Peppers, Fresh & Processing	40,990,500	13
14	Silage and Forage	36,837,000	14
15	Wheat	32,363,000	20
16	Nursery Fruit and Nut Trees & Vines	26,096,000	16
17	Turf	24,836,000	19
18	Eggs	21,438,000	17
19	Apples, All	18,982,000	15
20	Cherries	17,294,000	27

** Information provided by the Kern County Agricultural Commissioner's Office*

KERN COUNTY 2004 CROP REPORT – FIELD CROPS

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Barley	a/2004	3,900	1.44	5,600	Ton	$ 118.00	$ 663,000
	a/2003	5,460	1.50	8,200	Ton	$ 104.00	$ 851,000
Beans, Dry Edible	2004	3,598	1.48	5,340	Ton	523.00	2,791,000
	2003	3,539	1.63	5,780	Ton	533.00	3,078,000
Cotton Lint, Upland & Acala	2004	104,285	b/1,654	c/345,000	Bale	d/0.77	133,308,000
	2003	90,055	b/1,371	c/247,000	Bale	d/0.73	89,595,000
Cotton Lint, Pima	2004	40,265	b/1,577	c/127,000	Bale	d/1.07	68,240,000
	2003	42,055	b/1,109	c/93,300	Bale	d/1.20	55,994,000
Cottonseed, Processing	2004	---	---	155,000	Ton	202.00	31,285,000
	2003	---	---	126,000	Ton	247.00	31,093,000
Hay, Alfalfa	2004	150,000	9.13	1,369,000	Ton	120.70	165,273,000
	2003	150,000	8.62	1,293,000	Ton	89.50	115,698,000
Hay, Grain	2004	25,000	5.83	145,800	Ton	99.30	14,475,000
	2003	22,000	3.64	80,100	Ton	89.90	7,201,000
Hay, Other	2004	15,000	2.27	34,000	Ton	98.20	3,340,000
	2003	15,000	2.22	33,300	Ton	53.90	1,796,000
Pasture, Irrigated	2004	8,000	---	---	Acre	135.00	1,080,000
	2003	8,000	---	---	Acre	135.00	1,080,000
Pasture, Other	2004	---	---	---	Acre	---	3,382,000
	2003	---	---	---	Acre	---	2,791,000
Pasture, Range	2004	1,832,000	---	---	Acre	5.00	9,159,000
	*2003	1,854,000	---	---	Acre	10.00	18,541,000
Safflower	2004	1,260	0.95	1,200	Ton	221.00	265,000
	2003	1,150	1.22	1,400	Ton	263.00	368,000
Silage and Forage	2004	75,000	24.32	1,824,000	Ton	20.20	36,837,000
	2003	64,000	24.78	1,586,000	Ton	20.60	32,715,000
Sugar Beets	2004	4,816	36.54	176,000	Ton	38.20	6,719,000
	2003	4,596	36.77	169,000	Ton	37.60	6,359,000
Wheat	2004	80,000	3.05	244,000	Ton	133.00	32,363,000
	2003	74,100	2.00	148,000	Ton	118.00	17,513,000
Miscellaneous	e/2004	3,850	---	11,300	Ton	---	1,042,000
	e/2003	7,500	---	15,900	Ton	---	1,053,000
Totals	**2004**	**f/514,974**	---	---	---	---	**$ 510,222,000**
	***2003**	**f/487,455**	---	---	---	---	**$ 385,726,000**

*Revised a/ May contain dryland b/ Pounds Lint per Acre c/ 500 Pounds Net Weight Bale c/ Price per Pound
e/ Includes: Clover, Field Corn (Grain), Oats, Rye, Sorghum, and Straw. f/ Does not include Range acreage.

KERN COUNTY 2004 CROP REPORT – VEGETABLE CROPS

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Cantaloupe	2004	1,023	11.24	11,500	Ton	$ 276.00	$ 3,171,000
	2003	991	16.65	16,500	Ton	$ 353.00	$ 5,825,000
Corn, Sweet	2004	---	---	---	Ton	---	---
	2003	102	6.05	620	Ton	600.00	372,000
Garlic	2004	2,478	6.74	16,700	Ton	334.00	5,586,000
Processed	*2003	4,387	7.93	34,800	Ton	340.00	11,843,000
Garlic	2004	0	0	0	Ton	0	0
Fresh	2003	0	0	0	Ton	0	0
Lettuce, Head	2004	920	17.58	16,170	Ton	---	3,553,000
Naked Pack	2004	---	---	8,560	Ton	210.00	1,795,000
Wrapped Pack	2004	---	---	3,930	Ton	312.00	1,226,000
Bulk Shredder	2004	---	---	3,680	Ton	145.00	532,000
Lettuce, Head	2003	1,110	17.18	19,070	Ton	---	5,772,000
Naked Pack	2003	---	---	8,780	Ton	344.00	3,018,000
Wrapped Pack	2003	---	---	1,100	Ton	505.00	555,000
Bulk Shredder	2003	---	---	9,190	Ton	239.00	2,199,000
Melons,	2004	494	12.97	6,400	Ton	299.00	1,913,000
Other	2003	770	12.47	9,600	Ton	442.00	4,241,000
Onions,	2004	1,460	25.89	37,800	Ton	174.00	6,595,000
Fresh	2003	2,300	26.96	62,000	Ton	159.00	9,835,000
Onions,	2004	2,980	19.50	58,100	Ton	83.80	4,869,000
Dehydrator	2003	4,030	21.17	85,300	Ton	82.50	7,041,000
Peppers,	2004	2,652	23.34	61,900	Ton	649.00	40,188,000
Bell	2003	1,909	18.13	34,600	Ton	1,061.00	36,700,000
Potatoes,	2004	25,641	21.07	540,380	Ton	---	$ 94,231,400
All	2003	26,459	19.98	528,520	Ton	---	$ 83,241,000
Spring	2004	15,565	26.15	407,000	Ton	---	57,211,000
Total	2003	16,909	22.50	380,400	Ton	---	53,920,000
Fresh	2004	---	---	244,000	Ton	$ 176.00	42,999,000
Market	2003	---	---	245,000	Ton	$ 180.00	43,981,000
Processing	2004	---	---	102,000	Ton	136.00	13,907,000
	2003	---	---	74,100	Ton	130.00	9,633,000
Culls	2004	---	---	61,000	Ton	5.00	305,000
	2003	---	---	61,300	Ton	5.00	306,000

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Winter	2004	10,076	13.24	133,380	Ton	---	37,020,400
Total	2003	9,550	15.51	148,120	Ton	---	29,321,000
Fresh	2004	---	---	106,700	Ton	346.00	36,887,000
Market	2003	---	---	118,500	Ton	246.00	29,173,000
Culls	2004	---	---	26,680	Ton	5.00	133,400
	2003	---	---	29,620	Ton	5.00	148,000
Tomatoes,	2004	1,150	28.00	32,200	Ton	783.00	25,212,000
Fresh	2003	---	---	---	Ton	---	---
Tomatoes,	2004	12,500	40.87	510,900	Ton	50.20	25,646,000
Processing	2003	13,600	28.75	391,000	Ton	57.20	22,365,000
Watermelons,	2004	928	27.48	25,500	Ton	106.00	2,695,000
Seeded	2003	838	19.68	16,500	Ton	122.00	2,016,000
Watermelons,	2004	1,860	28.33	52,700	Ton	140.00	7,366,000
Seedless	2003	1,680	34.58	58,100	Ton	162.00	9,388,000
Miscellaneous	a/2004	45,600	---	1,068,000	Ton	---	249,662,000
	b/2003	38,800	---	1,293,000	Ton	---	308,981,000
TOTALS	**2004**	**99,686**	**---**	**2,438,250**	**Ton**	**---**	**$ 470,687,400**
	***2003**	**96,976**	**---**	**2,549,610**	**Ton**	**---**	**$ 507,620,000**

*Revised

a/ Includes: Anise, Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Butter Lettuce, Cabbage (Fresh & Processed), Carrots, Cauliflower(Fresh & Processed), Celery, Chard, Chinese Greens, Cilantro, Collard, Corn (Sweet), Cucumber, Daikon, Dandelion, Dill, Eggplant, Fennel, Herbs, Kale, Leaf Lettuce, Leek, Mustard, Okra, Onions (Green), Parsley, Parsnip, Peas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Spinach, Squash, Sweet Potatoes, Tomatillo, Turnips, Zucchini, and Yams.

b/ Includes: Anise, Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Butter Lettuce, Cabbage (Fresh & Processed), Cactus, Carrots, Cauliflower (Fresh & Processed), Celery, Chard, Chinese Greens, Cilantro, Collard, Cucumber, Daikon, Dandelion, Dill, Eggplant, Gai Lon, Herbs, Kale, Leaf Lettuce, Leek, Mixed Vegetables, Mushrooms, Mustard, Okra, Onions (Green), Parsley, Peas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh), Turnips, and Zucchini.

KERN COUNTY 2005 CROP REPORT – SUMMARY

COMMODITY	YEAR	HARVESTED ACRES	RANGE	TOTAL VALUE
Fruit & Nut Crops	2005	274,611	---	$1,904,764,000.00
	*2004	267,135	---	$1,513,770,000.00
Field Crops & Rangeland	2005	509,189	1,847,000	$407,655,000.00
	*2004	514,974	1,825,000	$510,079,000.00
Vegetable Crops	2005	83,586	---	$445,513,000.00
	*2004	97,695	---	$470,692,000.00
Nursery Crops	2005	3,876	---	$105,728,000.00
	*2004	4,551	---	$101,850,000.00
Industrial & Wood Crops	2005	---	---	$5,544,000.00
	*2004	---	---	$9,144,000.00
Seed Crops	2005	1,743	---	$5,198,000.00
	2004	1,502	---	$12,598,000.00
Livestock & Poultry	2005	---	---	$212,346,000.00
	*2004	---	---	$175,732,000.00
Livestock & Poultry Products	2005	---	---	$441,253,000.00
	2004	---	---	$405,487,000.00
Apiary Products	2005	---	---	$18,901,000.00
	2004	---	---	$14,459,000.00
Totals	2005	873,005	1,847,000	$3,546,902,000.00
	*2004	885,857	1,825,000	$3,213,811,000.00
Total value without Timber	2005			$3,546,902,000.00
	*2004			$3,213,811,000.00

*Revised

**** Information provided by the Kern County Agricultural Commissioner's Office***



KERN COUNTY
2005 CROP REPORT

TOP 20 CROPS

RANKING	COMMODITY	VALUE	2004
1.	Almonds, Including By-Products	$ 594,378,000	2
2.	Grapes, All	536,571,000	1
3.	Milk, Market & Manufacturing	421,564,000	3
4.	Citrus, Fresh & Processing	354,700,000	4
5.	Pistachios	314,352,000	7
6.	Carrots, Fresh & Processing	209,162,000	6
7.	Cattle & Calves	200,966,000	9
8.	Hay, Alfalfa	160,059,000	8
9.	Cotton, Including Processed Cottonseed	140,519,000	5
10.	Potatoes, Fresh & Processing	96,342,000	10
11.	Roses	45,367,000	12
12.	Silage & Forage	37,719,000	14
13.	Bell Peppers, Fresh & Processing	33,835,000	13
14.	Tomatoes, Fresh & Processing	30,066,000	11
15.	Wheat	29,824,000	15
16.	Nursery Fruit and Nut Trees & Vines	29,552,000	16
17.	Turf	25,467,000	17
18.	Apples, All	21,695,000	19
19.	Apiary Products	18,901,000	22
20.	Eggs	18,428,000	18

** Information provided by the Kern County Agricultural Commissioner's Office*

KERN COUNTY 2005 CROP REPORT – FIELD CROPS

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Barley	a/2005	3,300	1.48	4,900	Ton	$ 122.00	$ 599,000
	a/2004	3,900	1.44	5,600	Ton	$ 118.00	$ 663,000
Beans, Dry Edible	2005	2,633	1.46	3,840	Ton	674.00	2,589,000
	2004	3,598	1.48	5,340	Ton	523.00	2,791,000
Cotton Lint, Upland & Acala	2005	89,900	b/1,185	c/213,000	Bale	d/0.66	70,186,000
	2004	104,285	b/1,654	c/345,000	Bale	d/0.77	133,308,000
Cotton Lint, Pima	2005	33,400	b/1,094	c/73,100	Bale	d/1.21	44,221,000
	2004	40,265	b/1,577	c/127,000	Bale	d/1.07	68,240,000
Cottonseed, Processing	2005	---	---	108,000	Ton	242.00	26,112,000
	2004	---	---	155,000	Ton	202.00	31,285,000
Hay, Alfalfa	2005	155,000	7.86	1,218,000	Ton	131.00	160,059,000
	*2004	150,000	9.13	1,369,000	Ton	121.00	165,273,000
Hay, Grain	2005	30,000	3.12	93,600	Ton	112.00	10,487,000
	2004	25,000	5.83	145,800	Ton	99.30	14,475,000
Hay, Other	2005	15,000	3.27	49,000	Ton	91.50	4,483,000
	2004	15,000	2.27	34,000	Ton	98.20	3,340,000
Pasture, Irrigated	2005	8,000	---	---	Acre	135.00	1,080,000
	2004	8,000	---	---	Acre	135.00	1,080,000
Pasture, Other	2005	---	---	---	Acre	---	3,523,000
	2004	---	---	---	Acre	---	3,382,000
Pasture, Range	2005	1,847,000	---	---	Acre	5.00	9,235,000
	2004	1,825,000	---	---	Acre	5.00	9,125,000
Safflower	2005	990	1.62	1,600	Ton	281.00	450,000
	2004	1,260	0.95	1,200	Ton	221.00	265,000
Silage and Forage	2005	80,000	20.95	1,676,000	Ton	22.50	37,719,000
	2004	75,000	24.32	1,824,000	Ton	20.20	36,837,000
Sugar Beets	2005	4,726	40.20	190,000	Ton	35.80	6,810,000
	*2004	4,816	36.54	176,000	Ton	37.60	6,610,000
Wheat	2005	85,000	2.56	218,000	Ton	137.00	29,824,000
	2004	80,000	3.05	244,000	Ton	133.00	32,363,000
Miscellaneous	e/2005	1,240	---	3,090	Ton	---	278,000
	e/2004	3,850	---	11,300	Ton	---	1,042,000
Totals	2005	f/509,189	---	---	---	---	$ 407,655,000
	*2004	f/514,974	---	---	---	---	$ 510,079,000

*Revised

a/ May contain dryland, b/ Pounds Lint per Acr, d/ Price per Pound e/ Includes: Clover, Field Corn (Grain), and Sorghum, f/ Does not include Range acreage.

* Information provided by the Kern County Agricultural Commissioner's Office

KERN COUNTY 2005 CROP REPORT
VEGETABLE CROPS

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Cantaloupe	2005	790	16.20	12,800	Ton	200.00	$ 2,555,000
	2004	1,023	11.24	11,500	Ton	$ 276.00	$ 3,171,000
Corn, Sweet	2005	---	---	---	Ton	---	---
	2004	---	---	---	Ton	---	---
Garlic,	2005	2,581	6.39	16,500	Ton	597.00	9,851,000
Processed	2004	2,478	6.74	16,700	Ton	334.00	5,586,000
Garlic,	2005	---	---	---	Ton	---	---
Fresh	2004	0	0	0	Ton	0	0
Lettuce, Head	2005	840	19.00	15,960	Ton	---	4,957,000
Naked Pack		---	---	6,740	Ton	363.00	2,446,000
Wrapped Pack		---	---	3,060	Ton	499.00	1,526,000
Bulk Shredder		---	---	6,160	Ton	160.00	985,000
Lettuce, Head	2004	920	17.58	16,170	Ton	---	3,553,000
Naked Pack		---	---	8,560	Ton	210.00	1,795,000
Wrapped Pack		---	---	3,930	Ton	312.00	1,226,000
Bulk Shredder		---	---	3,680	Ton	145.00	532,000
Melons, Other	2005	434	10.14	4,400	Ton	326.00	1,433,000
	2004	494	12.97	6,400	Ton	299.00	1,913,000
Onions,	2005	1,670	25.87	43,200	Ton	240.00	10,361,000
Fresh	2004	1,460	25.89	37,800	Ton	174.00	6,595,000
Onions,	2005	3,220	13.79	44,400	Ton	143.00	6,342,000
Dehydrator	2004	2,980	19.50	58,100	Ton	83.80	4,869,000
Peppers, Bell	2005	2,500	13.36	33,400	Ton	992.00	33,123,000
	2004	2,652	23.34	61,900	Ton	649.00	40,188,000
Potatoes, All	2005	23,930	18.42	440,800	Ton	---	$ 96,342,000
	*2004	23,650	23.07	545,700	Ton	---	$ 94,236,000
Spring	2005	12,330	24.70	304,500	Ton	---	55,703,000
Total	*2004	13,550	30.41	412,000	Ton	---	57,216,000
Fresh Market	2005	---	---	187,000	Ton	$ 244.00	45,628,000
	*2004	---	---	248,000	Ton	$ 173.00	42,999,000
Processing	2005	---	---	70,700	Ton	139.00	9,841,000
	2004	---	---	102,000	Ton	136.00	13,907,000
Culls	2005	---	---	46,800	Ton	5.00	234,000
	*2004	---	---	62,000	Ton	5.00	310,000

KERN COUNTY 2005 CROP REPORT
VEGETABLE CROPS

Crop	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Winter	2005	11,600	11.75	136,300	Ton	---	40,639,000
Total	*2004	10,100	13.24	133,700	Ton	---	37,020,000
Fresh Market	2005	---	---	109,000	Ton	372.00	40,503,000
	*2004	---	---	107,000	Ton	345.00	36,887,000
Culls	2005	---	---	27,300	Ton	5.00	136,000
	*2004	---	---	26,700	Ton	5.00	133,000
Tomatoes,	2005	---	---	---	Ton	---	---
Fresh	2004	1,150	28.00	32,200	Ton	783.00	25,212,000
Tomatoes,	2005	---	---	---	Ton	---	---
Processing	*2004	---	---	---	Ton	---	---
Watermelons,	2005	741	24.01	17,800	Ton	214.00	3,814,000
Seeded	2004	928	27.48	25,500	Ton	106.00	2,695,000
Watermelons,	2005	1,480	35.27	52,200	Ton	208.00	10,840,000
Seedless	2004	1,860	28.33	52,700	Ton	140.00	7,366,000
Miscellaneous	a/2005	45,400	---	1,453,000	Ton	---	265,895,000
	*b/2004	58,100	---	1,579,000	Ton	---	275,308,000
Totals	2005	83,586	---	2,134,460	Ton	---	$ 445,513,000
	*2004	97,695	---	2,443,670	Ton	---	$470,692,000

*Revised

a/ Includes: Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Butter Lettuce, Cabbage (Fresh & Processed), Carrots, Cauliflower, Celery, Chard, Chinese Greens, Cilantro, Collard, Corn (Sweet), Cucumber, Daikon, Dandelion, Dill, Eggplant, Fennel, Garlic (Fresh), Herbs, Kale, Kohlrabi, Leaf Lettuce, Leek, Mustard, Onions (Green), Parsley, Parsnip, Peas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Rutabaga, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh & Processed), Turnips, Zucchini, and Yams. b/ Includes: Anise, Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Butter Lettuce, Cabbage (Fresh & Dill, Eggplant, Fennel, Herbs, Kale, Leaf Lettuce, Leek, Mustard, Okra, Onions (Green), Parsley, Parsnip, Peas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Spinach, Squash, Sweet Potatoes, Tomatillo, Tomatoes (Processed), Turnips, Zucchini, and Yams.

* Information provided by the Kern County Agricultural Commissioner's Office

KERN COUNTY 2006 CROP REPORT – SUMMARY

Commodity	Year	Harvested Acres	Range	Total Value
Fruit & Nut Crops	2006	286,121	---	$1,639,222,000.00
	*2005	274,611	---	$1,908,630,000.00
Field Crops & Rangeland	2006	502,769	1,821,000	$393,819,000.00
	*2005	509,189	1,847,000	$407,383,000.00
Vegetable Crops	2006	107,028	---	$647,412,000.00
	2005	83,586	---	$445,513,000.00
Nursery Crops	2006	3,982	---	$109,329,500.00
	2005	3,876	---	$105,728,000.00
Industrial & Wood Crops	2006	---	---	$5,985,000.00
	*2005	---	---	$5,760,000.00
Seed Crops	2006	2,260	---	$5,701,000.00
	2005	1,743	---	$5,198,000.00
Livestock & Poultry	2006	---	---	$215,277,000.00
	2005	---	---	$212,346,000.00
Livestock & Poultry Products	2006	---	---	$426,099,000.00
	2005	---	---	$441,253,000.00
Apiary Products	2006	---	---	$34,119,000.00
	2005	---	---	$18,901,000.00
Totals	**2006**	**902,160**	**1,821,000**	**$3,476,963,500.00**
	***2005**	**873,005**	**1,847,000**	**$3,550,712,000.00**
Total value without Timber	2006			$3,476,800,500.00
	*2005			$3,550,712,000.00

** Information provided by the Kern County Agricultural Commissioner's Office*



KERN COUNTY
2006 CROP REPORT

TOP 20 CROPS

	COMMODITY	VALUE	2005 RANKING
1.	Almonds, Including By-Products	$ 494,302,000	1
2.	Grapes, All	492,111,000	2
3.	Milk, Market & Manufacturing	400,153,000	3
4.	Carrots, Fresh & Processing	389,735,000	6
5.	Citrus, Fresh & Processing	388,003,000	4
6.	Cattle & Calves	204,523,000	7
7.	Pistachios	156,027,000	5
8.	Hay, Alfalfa	150,692,000	8
9.	Cotton, Including Processed Cottonseed	118,678,000	9
10.	Potatoes, Fresh & Processing	116,310,000	10
11.	Silage & Forage	49,783,000	12
12.	Nursery Fruit and Nut Trees & Vines	40,844,000	16
13.	Roses	38,982,000	11
14.	Apiary Products	34,119,000	19
15.	Tomatoes, Fresh & Processing	32,896,000	14
16.	Bell Peppers, Fresh & Processing	32,388,000	13
17.	Wheat	31,841,000	15
18.	Eggs	23,595,000	20
19.	Turf	23,338,000	17
20.	Apples, All	22,031,000	18

* Information provided by the Kern County Agricultural Commissioner's Office

KERN COUNTY 2006 CROP REPORT – FIELD CROPS

Information provided by the Kern County Agricultural Commissioner's Office

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Barley	a/2006	4,200	1.53	6,440	Ton	$111.00	$712,000.00
	*a/2005	3,300	1.49	4,920	Ton	$122.00	$599,000.00
Beans, Dry Edible	2006	3,936	1.41	5,540	Ton	$746.00	$4,133,000.00
	2005	2,633	1.46	3,840	Ton	$674.00	$2,589,000.00
Cotton Lint, Upland & Acala	2006	42,655	b/1,207	c/103,000	Bale	d/0.65	$33,488,000.00
	2005	89,900	b/1,185	c/213,000	Bale	d/0.66	$70,186,000.00
Cotton Lint, Pima	2006	51,420	b/1,099	c/113,000	Bale	d/1.06	$59,772,000.00
	2005	33,400	b/1,094	c/73,100	Bale	d/1.21	$44,221,000.00
Cottonseed, Processing	2006	---	---	84,100	Ton	$302.00	$25,418,000.00
	2005	---	---	108,000	Ton	$242.00	$26,112,000.00
Hay, Alfalfa	2006	160,000	8.2	1,312,000	Ton	$115.00	$150,692,000.00
	2005	155,000	7.86	1,218,000	Ton	$131.00	$160,059,000.00
Hay, Grain	2006	32,000	2.96	94,800	Ton	$119.00	$11,252,000.00
	2005	30,000	3.12	93,600	Ton	$112.00	$10,487,000.00
Hay, Other	2006	15,000	4.66	69,900	Ton	$100.00	$6,999,000.00
	2005	15,000	3.27	49,000	Ton	$91.50	$4,483,000.00
Pasture, Irrigated	2006	8,000	---	---	Acre	$135.00	$1,080,000.00
	2005	8,000	---	---	Acre	$135.00	$1,080,000.00
Pasture, Other	2006	---	---	---	Acre	---	$2,729,000.00
	2005	---	---	---	Acre	---	$3,523,000.00
Pasture, Range	2006	1,821,000	---	---	Acre	$5.00	$9,076,000.00
	2005	1,847,000	---	---	Acre	$5.00	$9,235,000.00
Safflower	2006	1,210	0.94	1,130	Ton	$218.00	$247,000.00
	2005	990	1.62	1,600	Ton	$281.00	$450,000.00
Silage and Forage	2006	85,000	24.05	2,044,000	Ton	$24.40	$49,783,000.00
	2005	80,000	20.95	1,676,000	Ton	$22.50	$37,719,000.00
Sugar Beets	2006	3,848	34.56	133,000	Ton	$38.50	$5,123,000.00
	*2005	4,726	40.2	190,000	Ton	$34.40	$6,538,000.00
Wheat	2006	90,000	2.82	254,000	Ton	$125.00	$31,841,000.00
	2005	85,000	2.56	218,000	Ton	$137.00	$29,824,000.00
Miscellaneous	e/2006	5,500	---	16,500	Ton	---	$1,474,000.00
	f/2005	1,240	---	3,090	Ton	---	$278,000.00
Totals	2006	g/502,769	---	---	---	---	$393,819,000.00
	*2005	g/509,189	---	---	---	---	$407,383,000.00

*Revised a/ May contain dryland b/ Pounds Lint per Acre c/ 500 Pound Net Weight Bale d/ Price per Pound e/ Includes: Field Corn (Grain), Sorghum and Straw. f/ Includes: Clover, Field Corn (Grain), and Sorghum. g/ Does not include Range acreage.

KERN COUNTY 2006 CROP REPORT
VEGETABLE CROPS

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Cantaloupe	2006	808	10.61	8,580	Ton	$324.00	$2,781,000.00.00
	2005	790	16.2	12,800	ton	$200.00	2,555,000.00
Corn, Sweet	2006	------	------	------	Ton	------	------
	2005	------	------	------	Ton	------	------
Garlic, Processed	2006	3160	6.27	19800	Ton	$380.00	7,536,000.00
	2005	2581	6.39	16500	Ton	$597.00	9,851,000.00
Garlic, Fresh	2006	------	------	------	Ton	------	------
	2005	------	------	------	Ton	------	------
Lettuce, Head	2006	960	16.15	15500	Ton		4,193,000.00
	2005	840	19	15960	Ton	------	4,957,000.00
Melons, Other	2006	220	19.55	4300	Ton	$409.00	1,757,000.00
	2005	434	10.14	4400	Ton	$326.00	1,433,000.00
Onions, Fresh	2006	1660	17.47	29000	Ton	$186.00	5,403,000.00
	2005	1670	25.87	43,200	Ton	$240.00	10,361,000.00
Onions, Dehydrator	2006	3110	19.71	61,400	Ton	$156.00	9,572,000.00
	2005	3220	13.79	44400	Ton	$143.00	6,342,000.00
Peppers, Bell	2006	1920	13.44	25800	Ton	$1,240.00	31,988,000.00
	2005	2500	13.36	33400	Ton	$992.00	331,23,000.00
Potatoes, All	2006	27,490	17.31	475,800	Ton	---	$116,310,000.00
	2005	23,930	18.42	440,800	Ton	---	$96,342,000.00
Spring Total	2006	12,490	26.78	334,500	Ton	---	$65,903,000.00
	2005	12,330	24.7	304,500	Ton	---	$55,703,000.00
Fresh Market	2006	---	---	220,000	Ton	$258.00	$56,698,000.00
	2005	---	---	187,000	Ton	$244.00	$45,628,000.00
Processing	2006	---	---	59,500	Ton	$150.00	$8,930,000.00
	2005	---	---	70,700	Ton	$139.00	$9,841,000.00
Culls	2006	---	---	55,000	Ton	$5.00	$275,000.00
	2005	---	---	46,800	Ton	$5.00	$234,000.00
Winter Total	2006	15,000	9.42	141,300	Ton	---	$50,407,000.00
	2005	11,600	11.75	136,300	Ton	---	$40,639,000.00

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Fresh Market	2006	---	---	113,000	Ton	$445.00	$50,266,000.00
	2005	---	---	109,000	Ton	$372.00	$40,503,000.00
Culls	2006	---	---	28,300	Ton	$5.00	$141,000.00
	2005	---	---	27,300	Ton	$5.00	$136,000.00
Tomatoes, Fresh	2006	---	---	---	Ton	---	---
	2005	---	---	---	Ton	---	---
Tomatoes, Processing	2006	---	---	---	Ton	---	---
	2005	---	---	---	Ton	---	---
Watermelon, Seeded	2006	800	22.25	17,800	Ton	$135.00	$2,408,000.00
	2005	741	24.01	17,800	Ton	$214.00	$3,814,000.00
Watermelon, Seedless	2006	1,600	27.5	44,000	Ton	$294.00	$12,918,000.00
	2005	1,480	35.27	52,200	Ton	$208.00	$10,840,000.00
Miscellaneous	a/2006	65,300	---	2,111,000	Ton	---	$452,546,000.00
	b/2005	45,400	---	1,453,000	Ton	---	$265,895,000.00
Totals	2006	107,028	---	2,812,980	Ton	---	$647,412,000.00
	2005	83,586	---	2,134,460	Ton	---	$445,513,000.00

a/ Includes: Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli (Fresh & Processed), Butter Lettuce, Cabbage (Fresh & Processed), Carrots, Cauliflower, Celery, Chard, Chinese Greens, Cilantro, Collard, Corn (Sweet), CucPeas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Rutabaga, Spinach, Squash, umber, Daikon, Dandelion, Dill, Eggplant, Fennel, Gai Choy, Garlic (Fresh), Kale, Kohlrabi, Leaf Lettuce, Leek, Mustard, Onions (Green), Parsley, Parsnip, Sweet Potatoes, Tomatoes (Fresh & Processed), Turnips, Vegetable Leaf, Zucchini, and Yams.

b/ Includes: Artichoke, Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli, Butter Lettuce, Cabbage (Fresh & Processed), Carrots, Cauliflower, Celery, Chard, Chinese Greens, Cilantro, Collard, Corn (Sweet), Cucumber, Daikon, Dandelion, Dill, Eggplant, Fennel, Garlic (Fresh), Herbs, Kale, Kohlrabi, Leaf Lettuce, Leek, Mustard, Onions (Green), Parsley, Parsnip, Peas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Rutabaga, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh & Processed), Turnips, Zucchini, and Yams.

KERN COUNTY 2006 CROP REPORT
FRUIT and NUT CROPS

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Almonds	2006	101,000	1.18	a/118,800	Ton	$ 4,000.00	$ $ 475,560,000
	2005	93,500	1.06	a/99,300	Ton	5,780.00	$ 573,592,000
Almond By-Products	2006	------	------	171,000	Ton	110.00	$18,742,000
	*2005			166,000	Ton	110.00	$18,282,000
Apples, All	2006	2,230	15.16	33,800	Ton	------	$22,031,000
	2005	2,720	16.84	45,800	Ton		$21,695,000
Fresh	2006	------	------	21,900	Ton	952.00	$20,841,000
	2005			29,900	Ton	683.00	$20,413,000
Processing	2006	------	------	11,900	Ton	100.00	$1,190,000
	2005			15,900	Ton	80.60	$1,282,000
Apricots	2006	432	2.73	1,180	Ton	1,900.00	$2,254,000
	2005	537	7.26	3,900	Ton	1,670.00	$6,509,000
Cherries	2006	2,360	1.15	2,710	Ton	7,370.00	$19,984,000
	2005	2,160	1.88	4,070	Ton	4,080.00	$16,598,000
Citrus, All	2006	47,699	17.29	824,700	Ton	------	$388,003,000
	2005	44,406	18.63	827,400	Ton		$354,700,000
Grapefruit	2006	569	13.00	7,400	Ton	756.00	$5,595,000
	2005	576	15.98	9,200	Ton	862.00	$7,931,000
Lemons	2006	2,980	12.65	37,700	Ton	801.00	$30,196,000
	2005	2,400	13.92	33,400	Ton	845.00	$28,216,000
Oranges, Navels	2006	30,900	12.17	376,000	Ton	549.00	$206,431,000
	2005	30,000	12.60	378,000	Ton	546.00	$206,081,000
Oranges, Valencia	2006	7,630	12.32	94,000	Ton	650.00	$61,082,000
	2005	7,510	15.58	117,000	Ton	520.00	$60,833,000
Tangerine & Tangelo	2006	5,620	10.25	57,600	Ton	1,110.00	$63,749,000
	2005	3,920	8.62	33,800	Ton	1,220.00	$41,330,000
Processing, All Citrus	2006	------	------	252,000	Ton	83.10 40.30	$20,950,000
	2005			256,000	Ton		$10,309,000

Grapes, All	2006	73,000	8.86	646,760	Ton	------	$492,111,000
	2005	72,000	10.98	790,230	Ton		$536,571,000
Raisin Variety	b/2006	18,100	7.20	130,360	Ton	------	$34,860,000
	b/2005	18,800	9.76	183,530	Ton		$62,084,000
Fresh Market Raisins	2006			6,740	Ton	1,410.00	$9,517,000
	2005	------	------	26,100	Ton	1,220.00	$31,781,000
	c/2006	------	------	17,100	Ton	$ 1,000.00 $	$ 17,061,000
	c/2005			14,040	Ton	1,030.00	$ 14,473,000
Processing	2006	------	------	8,920 6,430	Ton	265.00	$2,365,000
	2005				Ton	257.00	$1,651,000
Crushed	2006	------	------	41,300	Ton	143.00	$5,917,000
	2005			84,300	Ton	168.00	$14,179,000
Juice	2006	------	------	------	Ton	------	------
	2005				Ton		
Table Variety	2006	31,600	9.54	301,400	Ton	------	$406,696,000
	2005	30,600	11.85	362,700	Ton		$412,573,000
Fresh Market	2006	------	------	251,000	Ton	1,590.00	$399,900,000
	2005			312,000	Ton	1,300.00	$405,453,000
Crushed	2006	------	------	50,400	Ton	135.00	$6,796,000
	2005			50,700	Ton	140.00	$7,120,000
Raisin	2006	------	------	------	Ton	------	------
	2005				Ton		
Wine Variety	2006	23,300	9.23	215,000	Ton	------	$50,555,000
	2005	22,600	10.80	244,000	Ton		$61,914,000
Crushed	2006	------	------	215,000	Ton	235.00	$50,555,000
	2005			244,000	Ton	254.00	$61,914,000
Juice	2006	------	------	------	Ton	------	------
	2005				Ton		
Kiwi	2006				Ton		
	2005	246	4.19	1,030	Ton	1,780.00	$1,835,000
Nectarines	2006	790	6.29	4,970	Ton	920.00	$4,571,000
	2005	912	5.37	4,900	Ton	835.00	$4,092,000
Olives	2006	------	------	------	Ton	------	------
	2005				Ton		

Peaches	2006	1,550	5.79	8,970	Ton	1,330.00	11,897,000
	2005	1,710	6.67	11,400	Ton	750.00	8,560,000
Pistachios	2006	47,100	0.86	d/40,600	Ton	3,840.00	156,027,000
	*2005	46,500	1.66	d/77,400	Ton	4,100.00	317,449,000
Plums	2006	1,660	6.63	11,000	Ton	960.00	10,604,000
	2005	1,590	9.06	14,400	Ton	905.00	13,026,000
Walnuts	2006	1,580	1.04	d/1,640	Ton	$ 1,790.00	$ 2,942,000
	2005	1,610	1.70	d/2,740	Ton	$ 1,480.00	$ 4,064,000
Miscellaneous	e/2006	6,720	---	58,300	Ton	---	34,496,000
	f/2005	6,720	---	51.700	Ton	---	31,657,000
Totals	**2006**	**286,121**	**---**	**1,924,430**	**Ton**	**---**	**$ 1,639,222,000**
	***2005**	**274,611**	**---**	**2,100,270**	**Ton**	**---**	**$ 1,908,630,000**

*Revised

a/ Almond production stated in terms of Nut Meat Equivalents.

b/ Total production includes raisins on a Fresh Equivalent basis.

c/ A combined value reflecting free tonnage and reserve tonnage.

Dry Ratio: 2006 - 4.3 to 1 2005 - 4.75 to 1

d/ Pistachio and Walnut production stated in terms of In-Shell Equivalents.

e/ Includes: Blackberries, Blueberries, Cherries (Processed), Chestnuts, Figs (Fresh & Dry), Kiwi, Olives, Peaches (Processing),
Pears, Pecans, Persimmons, Plums (Juice), Plumcot, Pluot, Pomegranates (Fresh & Juice), Quince, and Strawberries.

f/ Includes: Blackberries, Blueberries, Chestnuts, Figs (Fresh & Dry), Kumquat, Olives, Peaches (Processing), Pears, Pecans,
Persimmons, Plumcot, Pluot, Pomegranates (Fresh & Juice), Prunes, Quince, Raspberries, and Strawberries.

KERN COUNTY 2007 CROP REPORT SUMMARY

Commodity	Year	Harvested Acres	Range	Total Value
Fruit & Nut Crops	2007	309,544.00	------	$1,871,861,000.00
	*2006	286,121.00	------	$1,636,785,000.00
Field Crops & Rangeland	2007	513,529.00	1798000	542,885,000.00
	*2006	502,769.00	1821000	393,565,000.00
Vegetable Crops	2007	92,874.00	------	555,732,300.00
	2006	107,028.00	------	647,412,000.00
Nursery Crops	2007	3,193.00	------	105,317,380.00
	2006	3,982.00	------	109,329,500.00
Industrial & Wood Crops	2007	------	------	7,646,500.00
	2006	------	------	5,985,000.00
Seed Crops	2007	3,882.00	------	6,039,000.00
	2006	2,260.00	------	5,701,000.00
Livestock & Poultry	2007	------	------	230,431,000.00
	2006	------	------	215,277,000.00
Livestock & Poultry Products	2007	------	------	732,707,000.00
	2006	------	------	426,099,000.00
Apiary Products	2007	------	------	39,547,000.00
	2006	------	------	34,119,000.00
Totals	2007	923,022.00	1798000	$4,092,166,180.00
	*2006	902,160.00	1821000	$3,474,272,500.00
Total value without Timber	2007			$4,092,106,680.00
	*2006			$3,474,109,500.00

*revised



KERN COUNTY 2007 CROP REPORT

TOP 20 CROPS

	Commodity	Value	2006 Ranking
1.	Milk, Market & Manufacturing	$ 692,173,000	3
2.	Grapes, All	579,378,000	2
3.	Citrus, All	449,962,000	5
4.	Almonds, Including By-Products	441,532,000	1
5.	Carrots, Fresh & Processing	315,849,000	4
6.	Pistachios	274,440,000	7
7.	Hay, Alfalfa	225,386,000	8
8.	Cattle & Calves	219,247,000	6
9.	Cotton, Including Processed Cottonseed	161,685,000	9
10.	Silage & Forage	61,219,000	11
11.	Potatoes, All	59,559,300	10
12.	Nursery Fruit and Nut Trees & Vines	48,765,000	12
13.	Wheat	48,423,000	17
14.	Tomatoes, Fresh & Processing	45,075,000	15
15.	Bell Peppers, Fresh & Processing	42,383,000	16
16.	Apiary Products	39,547,000	14
17.	Eggs	39,172,000	18
18.	Roses	36,692,000	13
19.	Pomegranates, Fresh & Processing	33,721,000	21
20.	Onions, Fresh & Dehydrator	24,025,000	24

* Information provided by the Kern County Agricultural Commissioner's Office

KERN COUNTY 2007 CROP REPORT
FRUIT and NUT CROPS

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Almonds	2007	118,000	1.03	a/122,000	Ton	$3,420.00	$416,639,000
	2006	101,000	1.18	a/119,000	Ton	$4,000.00	$475,560,000
Almond By-Products	2007	------	------	191,000	Ton	130.00	24,893,000
	2006	------	------	171,000	Ton	110.00	18,742,000
Apples, All	2007	1,950	12.92	25,200	Ton	------	17,294,000
	2006	2,230	15.16	33,800	Ton	------	22,031,000
Fresh	2007	------	------	17,200	Ton	920.00	15,822,000
	2006	------	------	21,900	Ton	952.00	20,841,000
Processing	2007	------	------	8,000	Ton	184.00	1,472,000
	2006	------	------	11,900	Ton	100.00	1,190,000
Apricots	2007	327	6.66	2,180	Ton	1,560.00	3,402,000
	2006	432	2.73	1,180	Ton	1,900.00	2,254,000
Cherries	2007	3,120	1.73	5,400	Ton	3,310.00	17,861,000
	2006	2,360	1.15	2,710	Ton	7,370.00	19,984,000
Citrus, All	2007	49,726	15.91	791,370	Ton	------	449,962,000
	2006	47,699	17.29	824,700	Ton	------	388,003,000
Grapefruit	2007	536	15.24	8,170	Ton	688.00	5,617,000
	2006	569	13.00	7,400	Ton	756.00	5,595,000
Lemons	2007	3,310	13.26	43,900	Ton	1,210.00	53,036,000
	2006	2,980	12.65	37,700	Ton	801.00	30,196,000
Oranges, Navels	2007	31,500	9.62	303,000	Ton	812.00	245,851,000
	2006	30,900	12.17	376,000	Ton	549.00	206,431,000
Oranges, Valencia	2007	7,430	7.58	56,300	Ton	839.00	47,232,000
	2006	7,630	12.32	94,000	Ton	650.00	61,082,000
Tangerine & Tangelo	2007	6,950	6.76	47,000	Ton	1,390.00	65,360,000
	2006	5,620	10.25	57,600	Ton	1,110.00	63,749,000
Processing, All Citrus	2007	------	------	333,000	Ton	98.70	32,866,000
	2006	------	------	252,000	Ton	8,310.00	20,950,000

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Grapes, All	2007	73,400	9.48	696,000	Ton	------	579,378,000
	2006	73,000	8.86	646,760	Ton	------	492,111,000
Raisin Variety	2007	17,900	5.75	102,900	Ton	------	37,510,000
	2006	18,100	7.20	130,360	Ton	------	34,860,000
Fresh Market	2007	------	------	13,100	Ton	1,420.00	18,623,000
	2006	------	------	6,740	Ton	1,410.00	9,517,000
Raisins	c/2007	------	------	11,500	Ton	1,040.00	11,998,000
	c/2006	------	------	17,100	Ton	1,000.00	17,061,000
Processing	2007	------	------	10,800	Ton	282.00	3,047,000
	2006	------	------	8,920	Ton	265.00	2,365,000
Crushed	2007	------	------	26,100	Ton	147.00	3,842,000
	2006	------	------	41,300	Ton	143.00	5,917,000
Juice	2007	------	------	------	Ton	------	------
	2006	------	------	------	Ton	------	------
Table Variety	2007	33,300	10.06	335,100	Ton	------	480,723,000
	2006	31,600	9.54	301,400	Ton	------	406,696,000
Fresh Market	2007	------	------	290,000	Ton	1,640.00	474,551,000
	2006	------	------	251,000	Ton	1,590.00	399,900,000
Crushed	2007	------	------	45,100	Ton	137.00	6,172,000
	2006	------	------	50,400	Ton	135.00	6,796,000
Raisin	2007	------	------	------	Ton	------	------
	2006	------	------	------	Ton	------	------
Wine Variety	2007	22,200	11.62	258,000	Ton	------	61,145,000
	2006	23,300	9.23	215,000	Ton	------	50,555,000
Crushed	2007	------	------	258,000	Ton	237.00	61,145,000
	2006	------	------	215,000	Ton		50,555,000
Juice	2007	------	------	------	Ton	------	------
	2006	------	------	------	Ton	------	------
Kiwi	2007	------	------	------	Ton	------	------
	2006	------	------	------	Ton	------	------
Nectarines	2007	801	5.32	4,260	Ton	1,180.00	5,036,000
	2006	790	6.29	4,970	Ton		4,571,000
Olives	2007	------	------	------	Ton	------	------
	2006	------	------	------	Ton	------	------

Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Peaches	2007	1,480	8.04	11,900	Ton	1,100.00	13,105,000
	2006	1,550	5.79	8,970	Ton		11,897,000
Pistachios	2007	48,200	2.12	d/102,000	Ton	2,690.00	274,440,000
	*2006	47,100	0.86	d/46,600	Ton		153,590,000
Plums	2007	---	---		Ton	------	------
	2006	1,660	6.63	11,000	Ton	960.00	10,604,000
Walnuts	2007	1,240	1.28	d/1,590	Ton	2,180.00	3,466,000.00
	2006	1,580	1.04	d/1,640	Ton	1,790.00	2,942,000.00
Miscellaneous	e/2007	11,300	---	74,400	Ton	---	66,385,000.00
	f/2006	6,720	---	58,300	Ton	---	34,496,000.00
Totals	2007	309,544	---	2,027,300	Ton	---	$ $1,871,861,000
	*2006	286,121	---	1,924,430	Ton	---	$ $1,636,785,000

*Revised

a/ Almond production stated in terms of Nut Meat Equivalents.

b/ Total production includes raisins on a Fresh Equivalent basis.

c/ A combined value reflecting free tonnage and reserve tonnage.

Dry Ratio: 2007 - 4.6 to 1 2006 - 4.3 to 1

d/ Pistachio and Walnut production stated in terms of In-Shell Equivalents.

e/ Includes: Blackberries, Blood Oranges, Blueberries, Cantaloupes Processed, Chestnuts, Figs (Fresh & Dry), Honeydew Processed, Kiwi, Nectarine Processed, Olives, Peaches Processed, Pears, Pecans, Persimmons, Plums (Fresh & Juice), Plumcot, Pluot, Pomegranates (Fresh & Juice), Prunes, Quince, Strawberries, and Table Grapes Processed.

f/ Includes: Blackberries, Blueberries, Cherries (Processed), Chestnuts, Figs (Fresh & Dry), Kiwi, Olives, Peaches (Processing), Pears, Pecans, Persimmons, Plums (Juice), Plumcot, Pluot, Pomegranates (Fresh & Juice), Quince, and Strawberries.

KERN COUNTY 2007 CROP REPORT
VEGETABLE CROPS

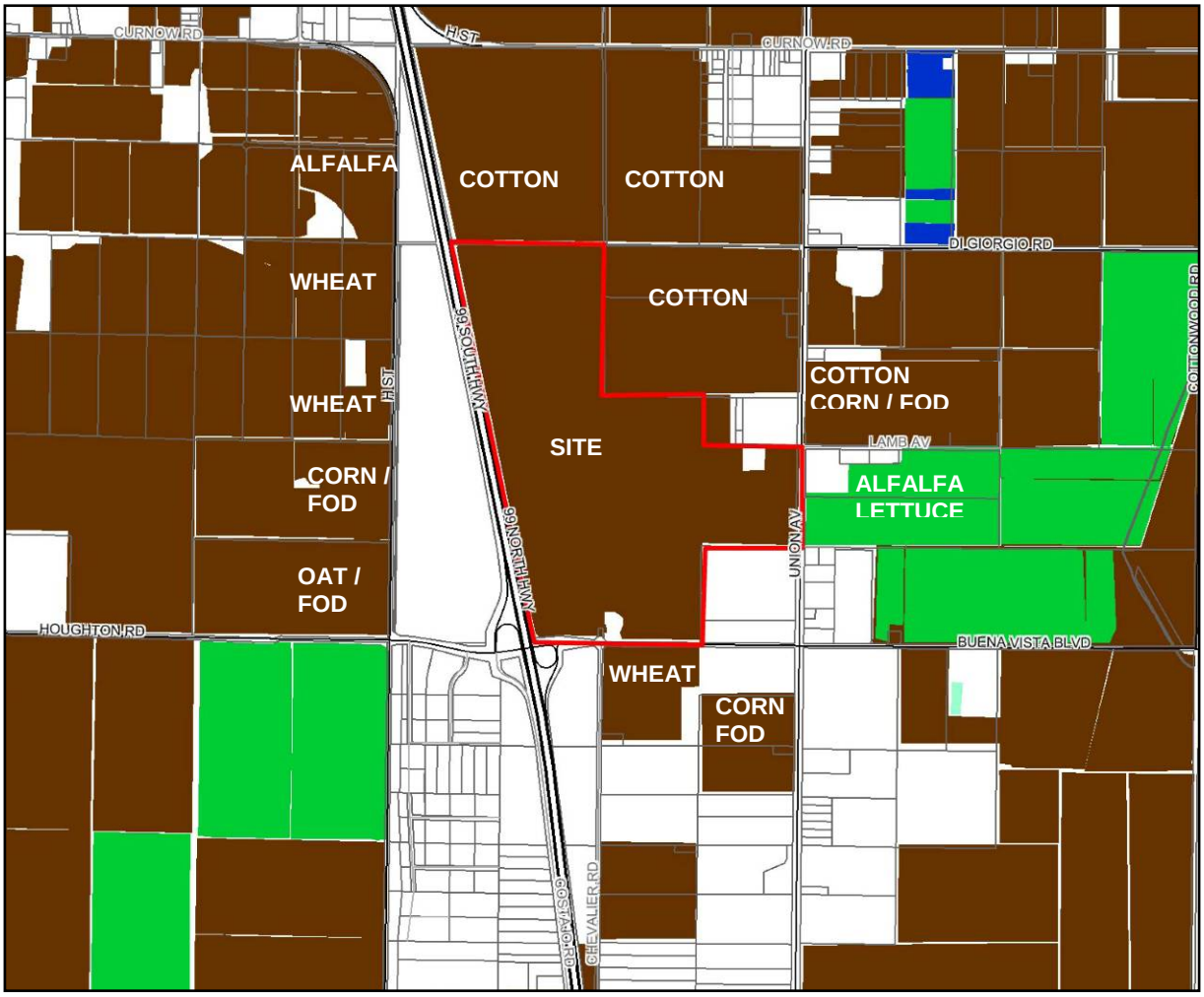
Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Cantaloupe	2007	815	13.26	10,800.00		$254.00	$2,738,000.00
	2006	808	10.61	8,580.00		$324.00	$2,781,000.00
Garlic, Processed	2007	2,610	9.12	23,800.00		$512.00	$12,187,000.00
	2006	3,160	6.27	19,800.00		$380.00	$7,536,000.00
Garlic, Fresh	2007	410	6.35	2,600.00		$1,900.00	$4,949,000.00
	2006						
Lettuce, Head	2007	1,260	19.21	24,200.00		------	$6,175,000.00
	2006	960	16.15	15,500.00			$4,193,000.00
Melons, Other	2007	469	16.41	7,700.00		$431.00	$3,317,000.00
	2006	220	19.55	4,300.00		$409.00	$1,757,000.00
Onions, Fresh	2007	2,760	25.69	70,900.00		$220.00	$15,608,000.00
	2006	1,660	17.47	29,000.00		$186.00	$5,403,000.00
Onions, Dehydrator	2007	2,500	20.28	50,700.00		$166.00	$8,417,000.00
	2006	3,110	19.74	61,400.00		$156.00	$9,572,000.00
Peppers, Bell	2007	2,670	18.01	48,100.00		$869.00	$41,790,000.00
	2006	1,920	13.44	25,800.00		$1,240.00	$31,988,000.00
Potatoes, All	2007	16,470	15.64	263,090.00		---	$59,559,300.00
	2006	27,490	17.31	475,800.00		---	$116,310,000.00
Spring Total	2007	13,950	16.65	232,200.00		---	$46,524,000.00
	2006	12,490	26.78	334,500.00		---	$65,903,000.00
Fresh Market	2007	---	---	120,000.00		$283.00	$33,987,000.00
	2006	---	---	220,000.00		$258.00	$56,698,000.00
Processing	2007	---	---	82,200.00		$150.00	$12,327,000.00
	2006	---	---	59,500.00		$150.00	$8,930,000.00
Culls	2007	---	---	30,000.00		$7.00	$210,000.00
	2006	---	---	55,000.00		$5.00	$275,000.00
Winter Total	2007	2,520	12.26	30,890.00		---	$13,035,300.00
	2006	15,000	9.42	141,300.00		---	$50,407,000.00
Fresh Market	2007	---	---	24,700.00		$526.00	$12,992,000.00
	2006	---	---	113,000.00		$445.00	$50,266,000.00
Culls	2007	---	---	6,190.00		$7.00	$43,300.00
	2006	---	---	28,300.00		$5.00	$141,000.00
Tomatoes, Fresh	2007	---	---	---		---	---
	2006	---	---	---		---	---

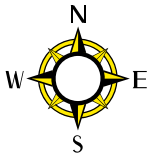
Crops	Year	Harvested Acres	Production Per Acre	Total Production	Unit	Unit Value	Total Value
Tomatoes,	2007	---	---	---		---	---
Processing	2006	---	---	---		---	---
Watermelons,	2007	1,000	31.1	31,100.00		$136.00	$4,239,000.00
Seeded	2006	800	22.25	17,800.00		$135.00	$2,408,000.00
Watermelons,	2007	2,010	25.12	50,500.00		$222.00	$11,228,000.00
Seedless	2006	1,600	27.5	44,000.00		$294.00	$12,918,000.00
Miscellaneous	a/2007	59,900	--	2,028,000.00		---	$385,525,000.00
	b/2006	65,300	--	2,111,000.00		---	$452,546,000.00
Totals	**2007**	92,874	**--**	2,611,490.00		---	$555,732,300.00
	2006	107,028	**--**	28,129,800.00		---	$647,412,000.00

a/ Includes: Arugula, Asparagus, Bok Choy, Broccoli (Fresh & Processed), Butter Lettuce, Cabbage (Fresh & Processed), Carrots, Cauliflower, Celery, Chard, Chinese Greens, Cilantro, Collard, Corn (Sweet), Daikon, Dandelion, Dill, Eggplant, Fennel, Gai Choy, Kale, Kohlrabi, Leaf Lettuce, Leek, Mustard, Onions (Green), Parsley (Fresh & Processed), Parsnip, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Rutabaga, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh & Processed), and Turnips.

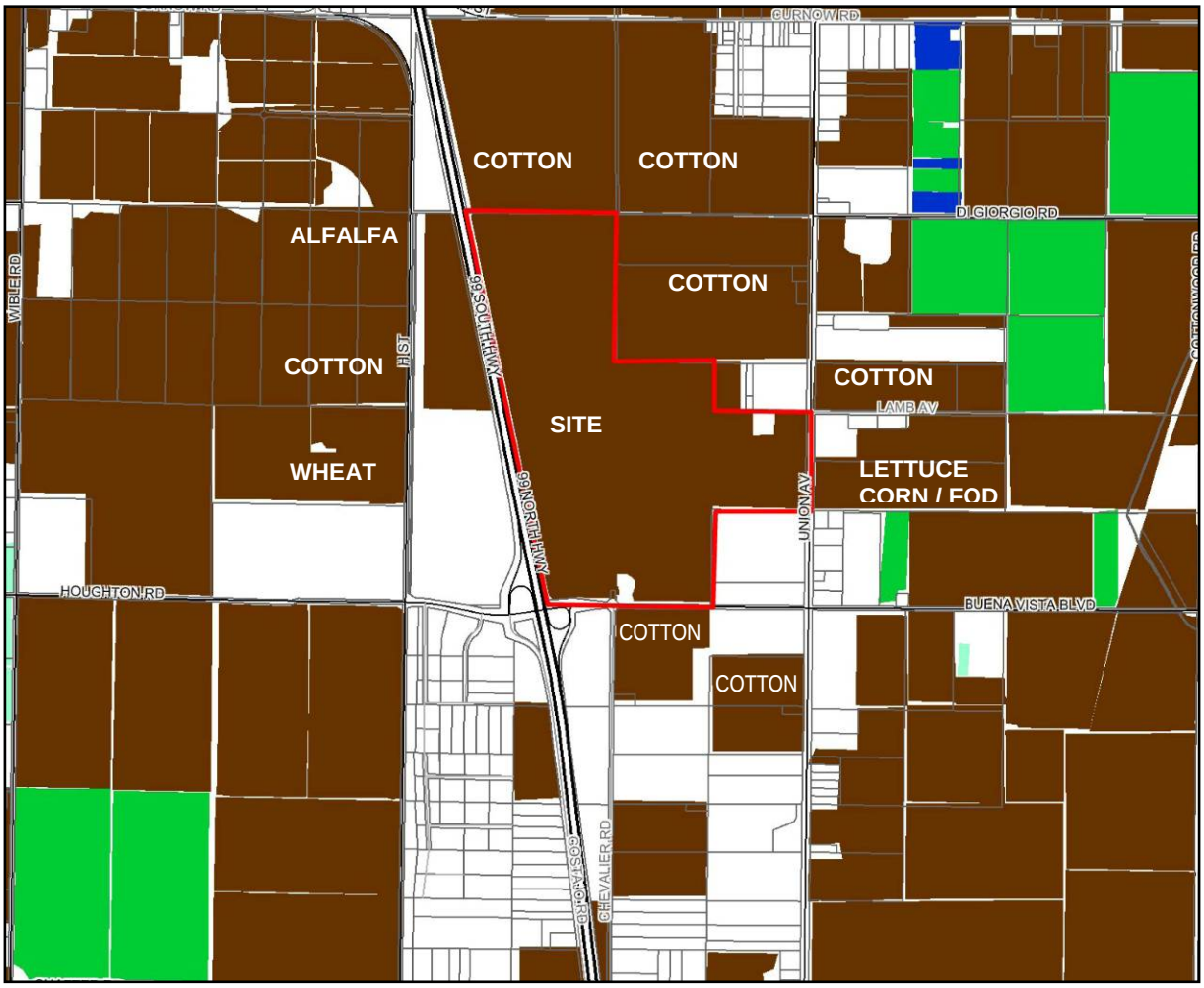
b/ Includes: Arugula, Asparagus, Beans (Snap), Bok Choy, Broccoli (Fresh & Processed), Butter Lettuce, Cabbage (Fresh & Processed), Carrots, Cauliflower, Celery, Chard, Chinese Greens, Cilantro, Collard, Corn (Sweet), Cucumber, Daikon, Dandelion, Dill, Eggplant, Fennel, Gai Choy, Garlic (Fresh), Kale, Kohlrabi, Leaf Lettuce, Leek, Mustard, Onions (Green), Parsley, Parsnip, Peas, Peppers (Chili & Processed), Pumpkins, Radishes, Red Beets, Romaine Lettuce, Rutabaga, Spinach, Squash, Sweet Potatoes, Tomatoes (Fresh & Processed), Turnips, Vegetable Leaf, Zucchini, and Yams.

APPENDIX "F"

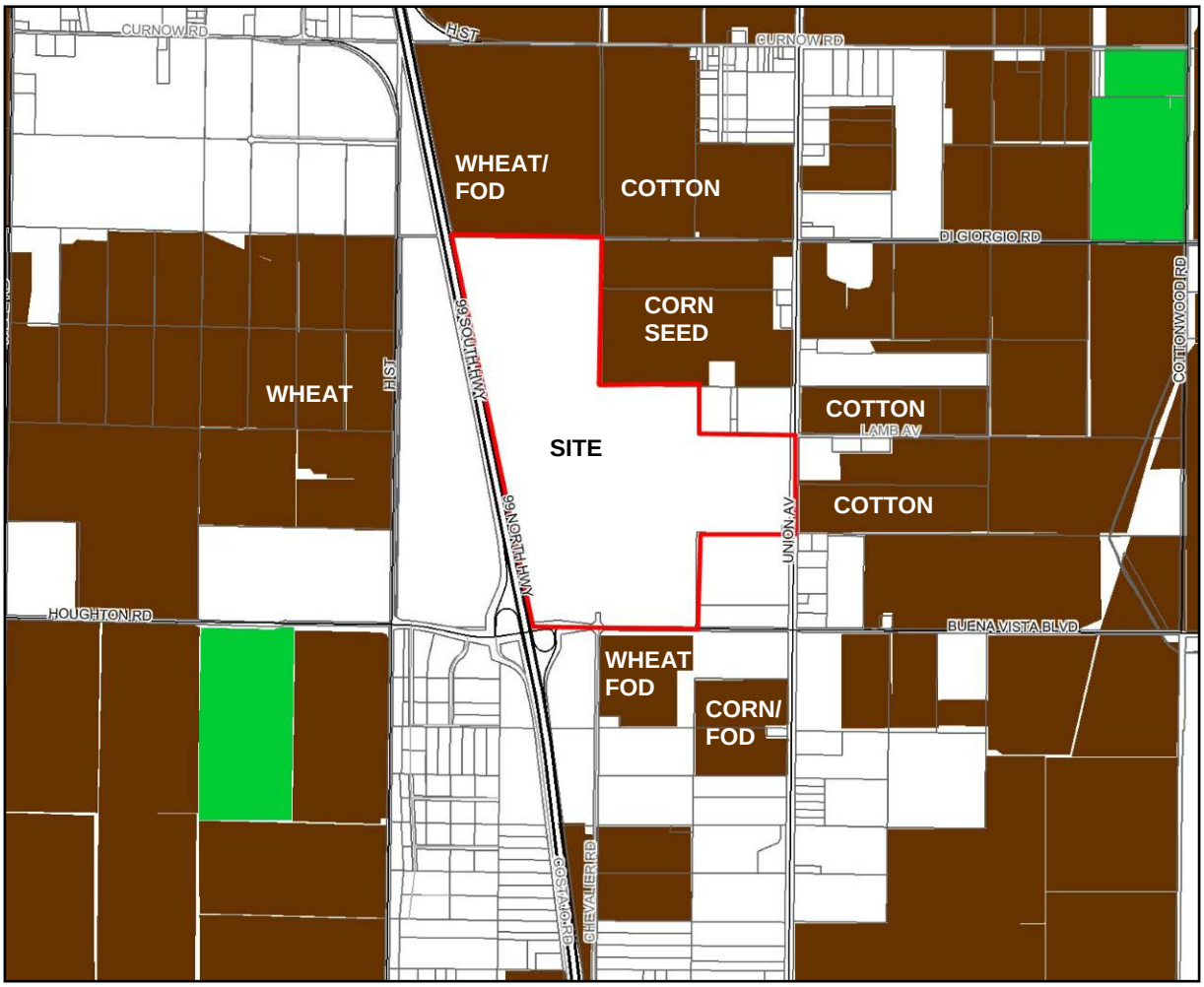




2003 Adjacent Crops

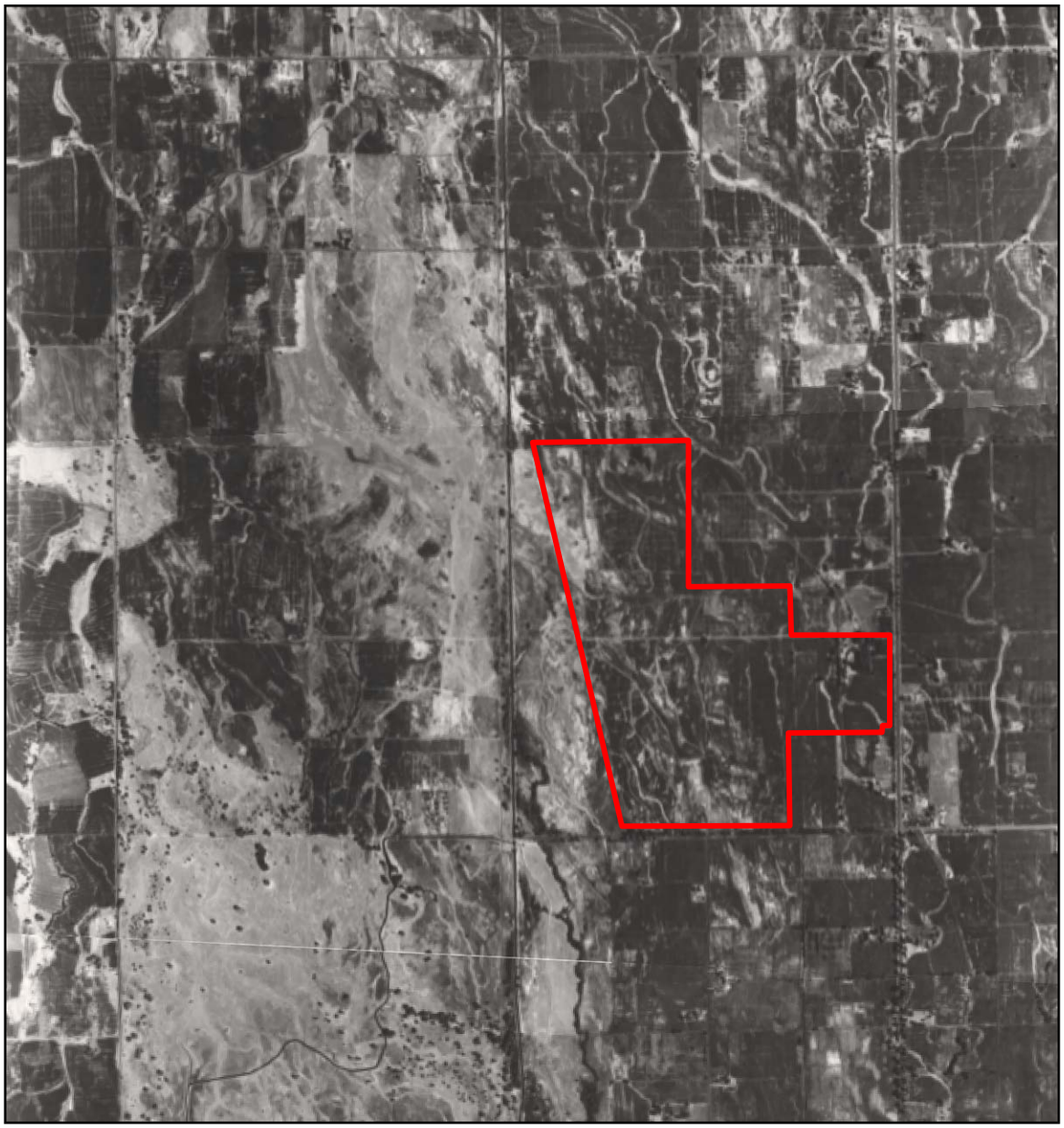


2004 Adjacent Crops



2005 Adjacent Crops

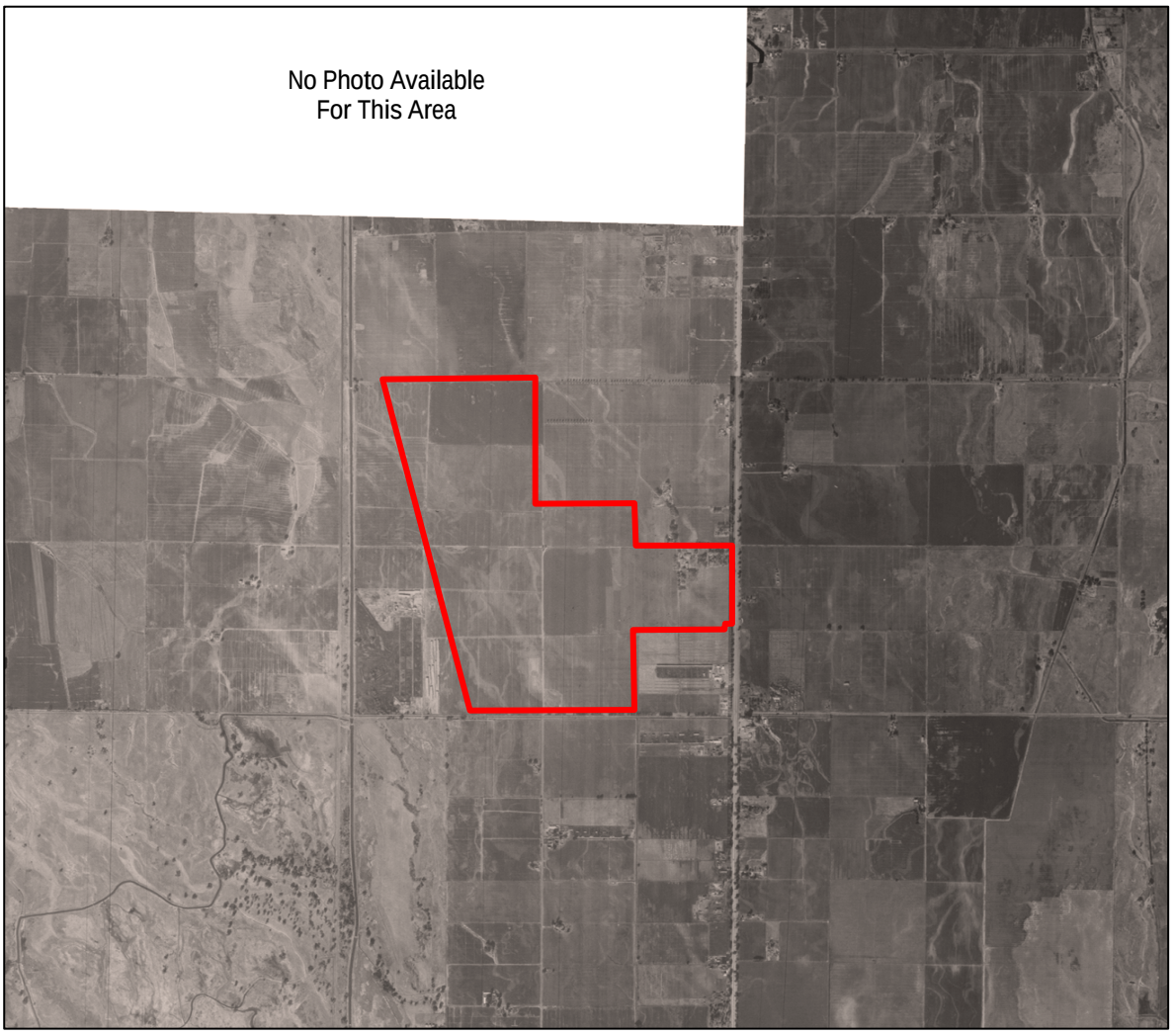
APPENDIX "G"



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NOT TO SCALE

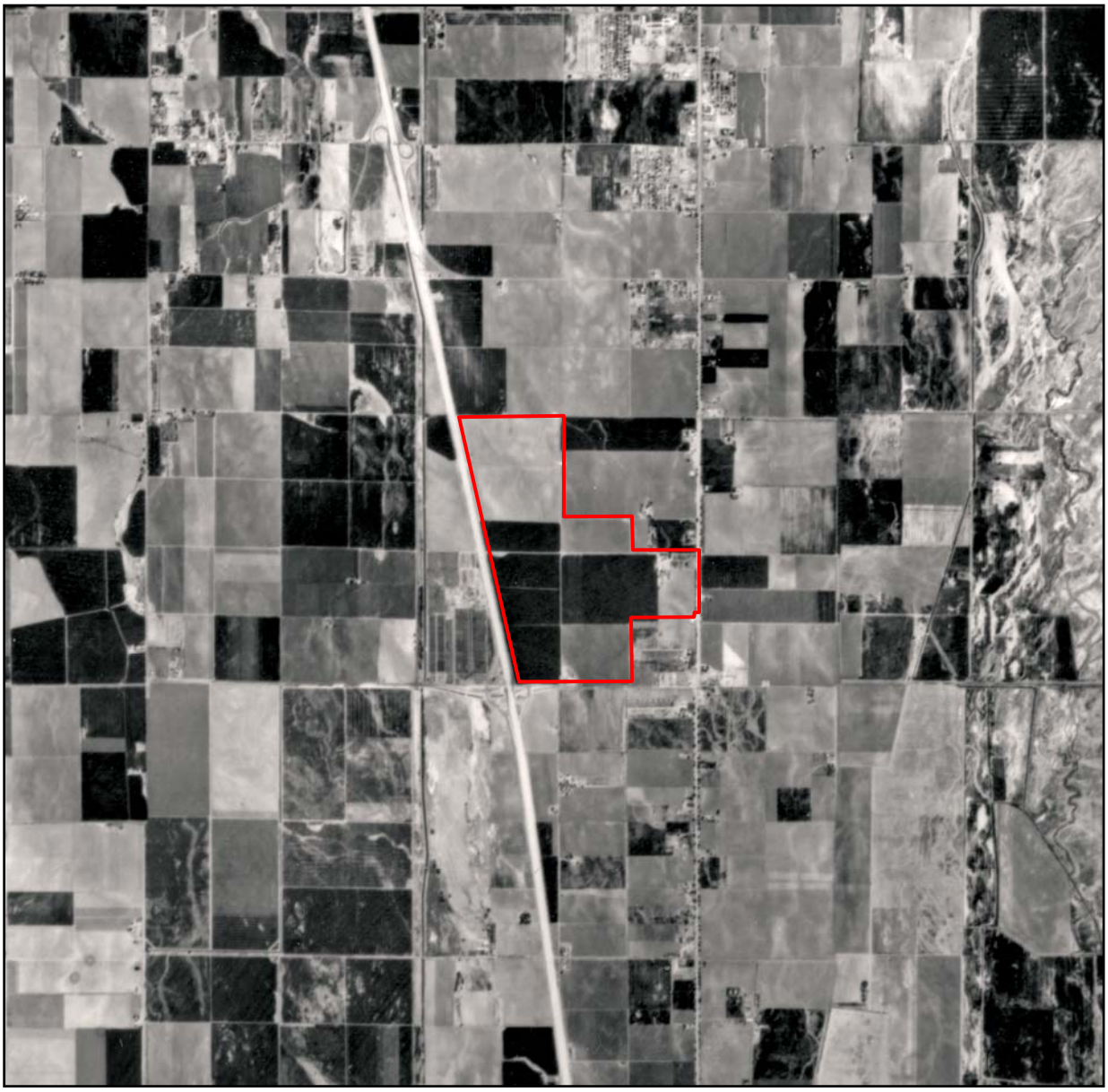
1937 Aerial Photograph
99–Houghton, LLC Property
Portion of Section 7, T.31S., R.28E., M.D.B.& M.
Source: Kern County Department of Engineering and Survey Services



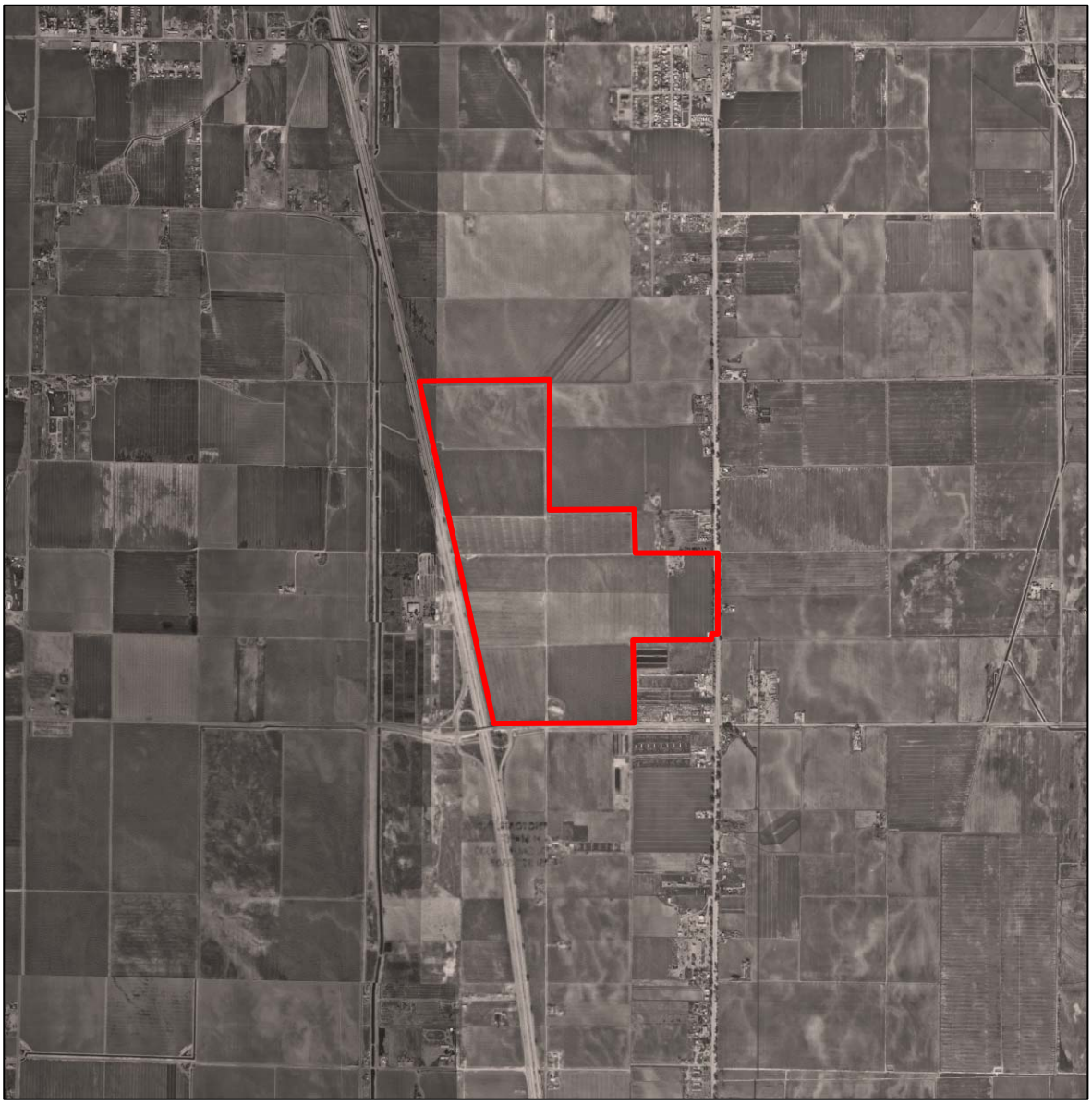
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NOT TO SCALE

1952 Aerial Photograph
99–Houghton, LLC Property
Portion of Section 7, T.31S., R.28E., M.D.B.& M.
Source: Kern County Department of Engineering and Survey Services



1963 Aerial Photograph
99–Houghton, LLC Property
Portion of Section 7, T.31S., R.28E., M.D.B.& M.
Source: Western Photogrammetrics



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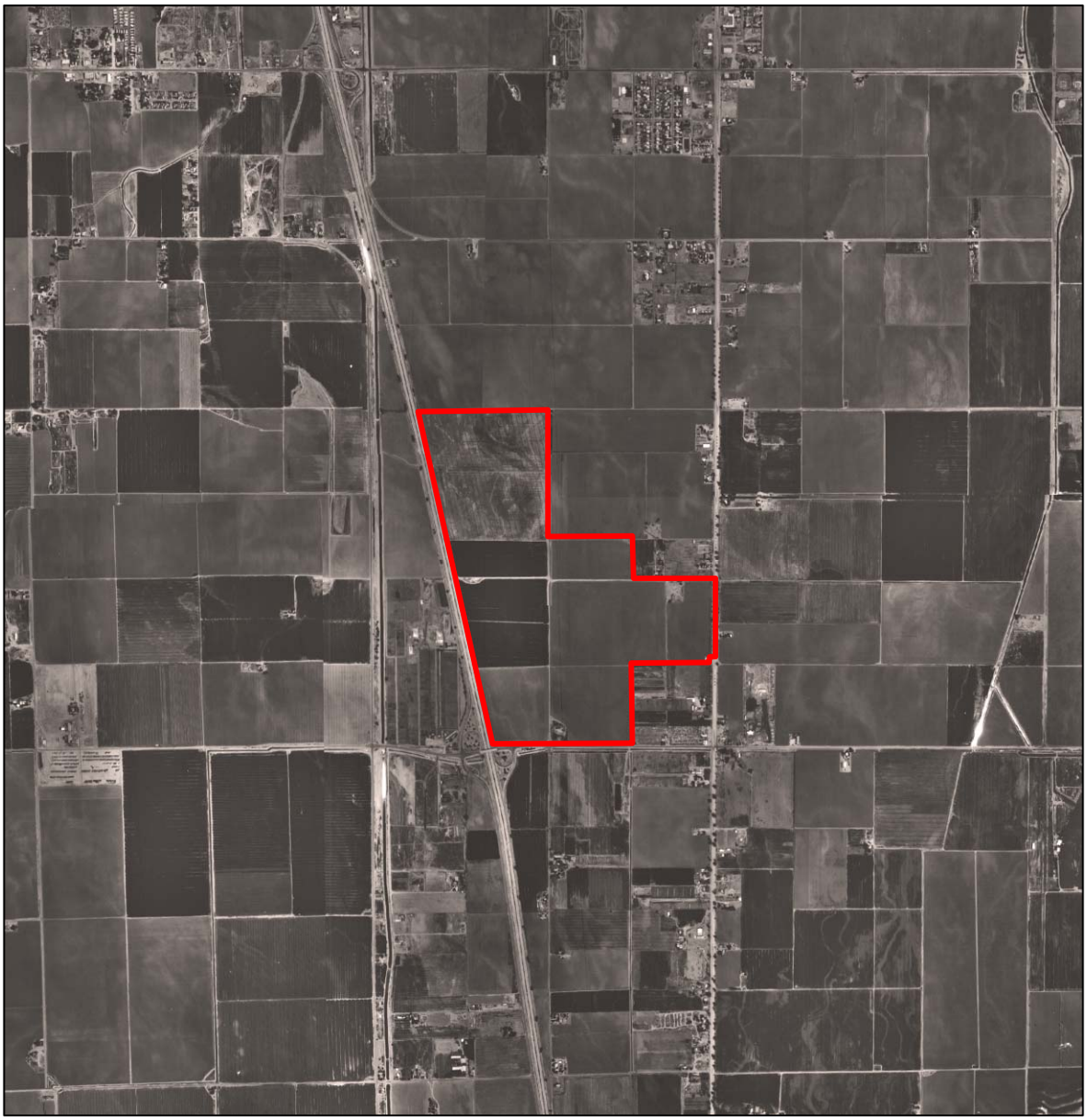
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1975 Aerial Photograph

99–Houghton, LLC Property

Portion of Section 7, T.31S., R.28E., M.D.B.& M.

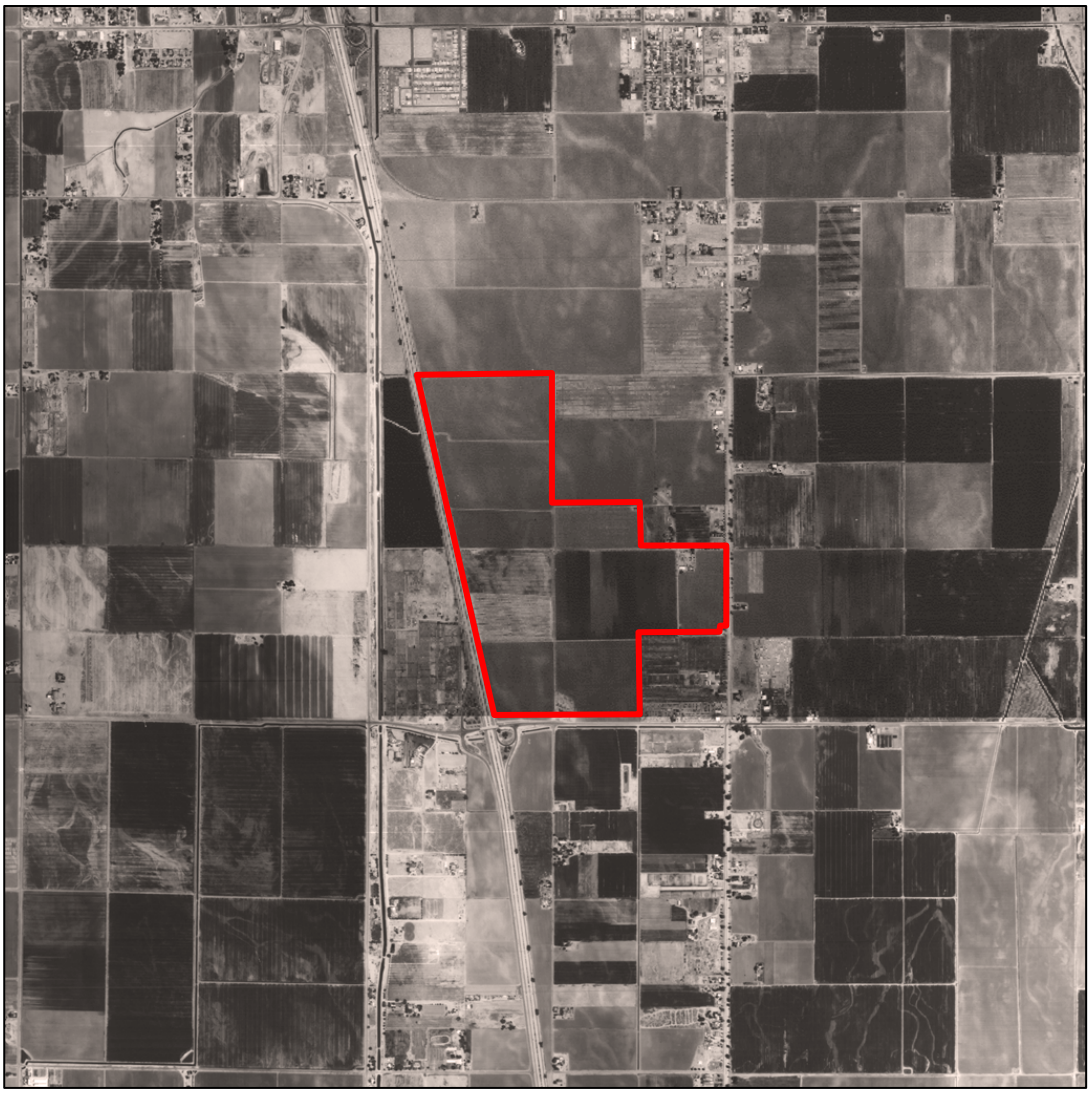
Source: Kern County Department of Engineering and Survey Services

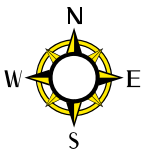


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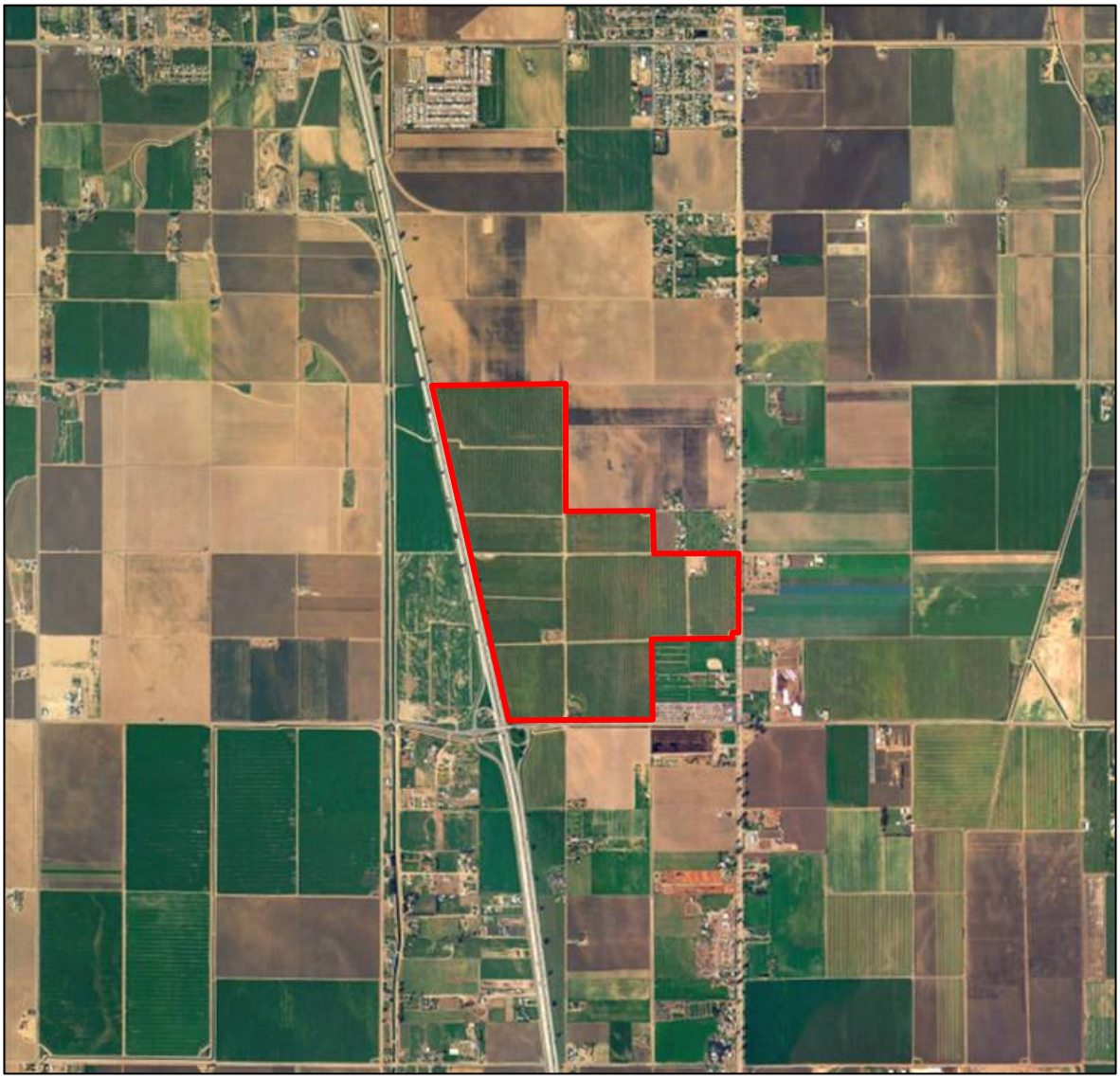
1981 Aerial Photograph
99–Houghton, LLC Property
Portion of Section 7, T.31S., R.28E., M.D.B.& M.
Source: Kern County Department of Engineering and Survey Services





NOT TO SCALE

1990 Aerial Photograph
99–Houghton, LLC Property
Portion of Section 7, T.31S., R.28E., M.D.B.& M.
Source: Kern County Department of Engineering and Survey Services



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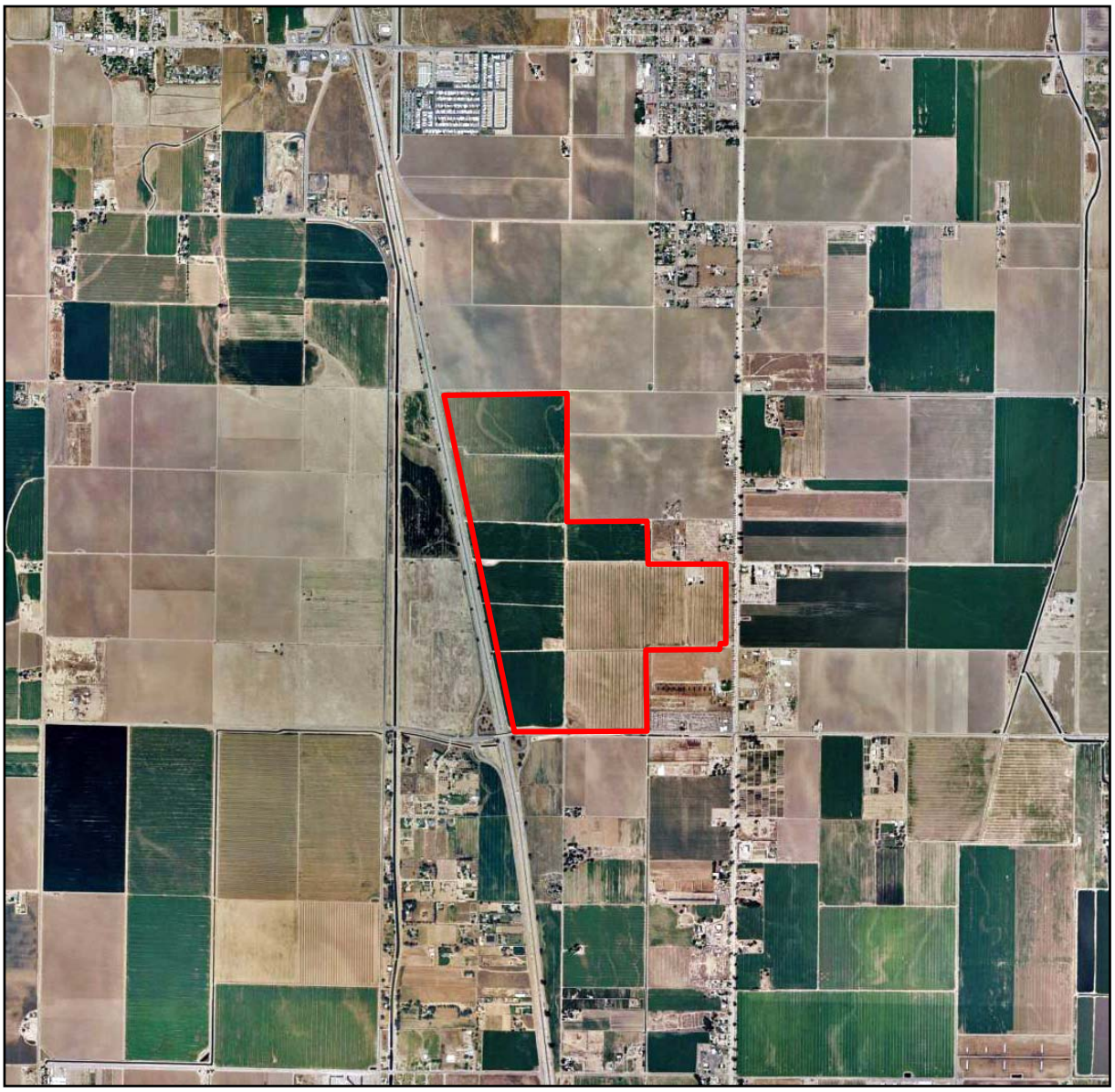
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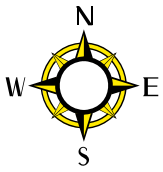
2000 Aerial Photograph

99–Houghton, LLC Property

Portion of Section 7, T.31S., R.28E., M.D.B.& M.

Source: Kern County Department of Engineering and Survey Services(Air Photo USA)

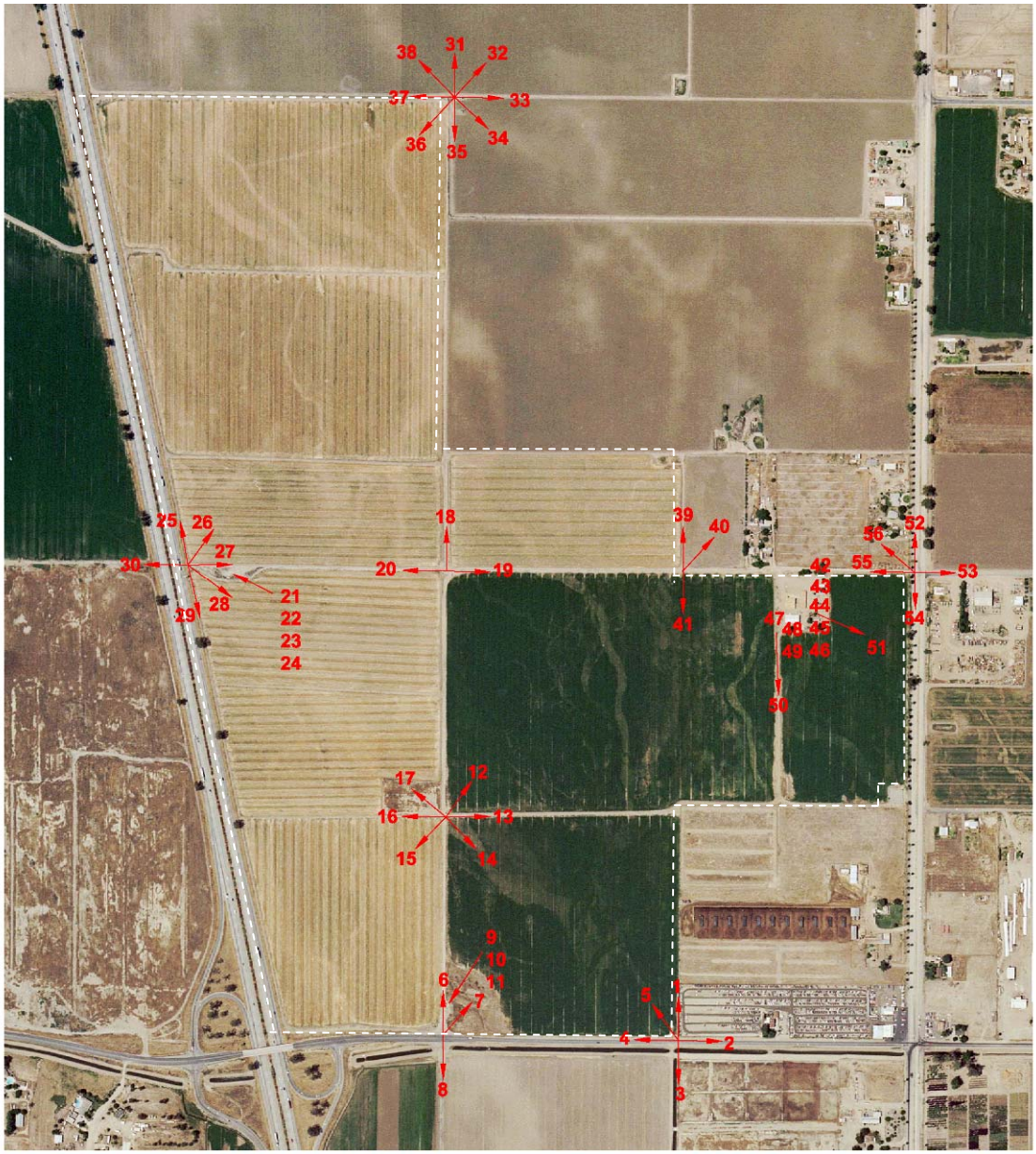




2006 Aerial Photograph

Source: Air Photo USA

APPENDIX "H"



Site Photo Index

Section 7, T.31S., R.28E.



Photo 1: Looking north from Houghton Road along the southeast property boundary



Photo 2: Looking east along Houghton Road from southeast corner of property.



Photo 3: Looking south from the southeast corner of property



Photo 4: Looking west along southern property boundary.



Photo 5: Looking northwest from southeast corner of property.



Photo 6: Looking north from south ¼ corner.



Photo 7: Looking northeast from south ¼ corner



Photo 8: Looking south from the south ¼ corner.



Photo 9: Electrical Box located near the south ¼ corner



Photo 10: Pump located near the south ¼ corner



Photo 11: Power Pole with transformers located near the south ¼ corner



Photo 12: Looking Northeast



Photo 13: Looking east



Photo 14: Looking southeast



Photo 15: Looking southwest



Photo 16: Looking west



Photo 17: Looking northwest



Photo 18: Looking north from center of section 7



Photo 19: Looking east from center of section 7



Photo 20: Looking west from center of section



Photo 21: Diesel fuel tank



Photo 22: Diesel powered generator



Photo 23: Pump and diesel generator



Photo 24: Pump



Photo 25: Looking north from west property boundary



Photo 26: Looking northeast from west property boundary



Photo 27: Looking east from west property boundary



Photo 28: Looking southeast from west property boundary



Photo 29: Looking south from west property boundary



Photo 30: Looking west from west property boundary



Photo 31: Looking north from northeast corner of property (north ¼ corner)



Photo 32: Looking northeast from north ¼ corner



Photo 33: Looking east from north ¼ corner



Photo 34: Looking southeast from north ¼ corner (adjacent property)



Photo 35: Looking south from north ¼ corner



Photo 36: Looking southwest from north ¼ corner.



Photo 37: Looking west from north ¼ corner



Photo 38: Looking northwest from north ¼ corner



Photo 39: Looking north



Photo 40: Looking northeast



Photo 41: Looking south



Photo 42: Water storage tank



Photo 43: Water storage tank



Photo 44: Propane storage tank



Photo 45: Storage building, propane tank, electrical panel



Photo 46: Power pole with transformers



Photo 47: Tires located on the west side of storage building



Photo 48: Storage tank located in back of building



Photo 49:



Photo 50: Looking south from storage building



Photo 51: Looking southeast from storage building



Photo 52: Looking north along Union Avenue from east ¼ corner



Photo 53: Looking west from east ¼ corner



Photo 54: Looking south from south ¼ corner

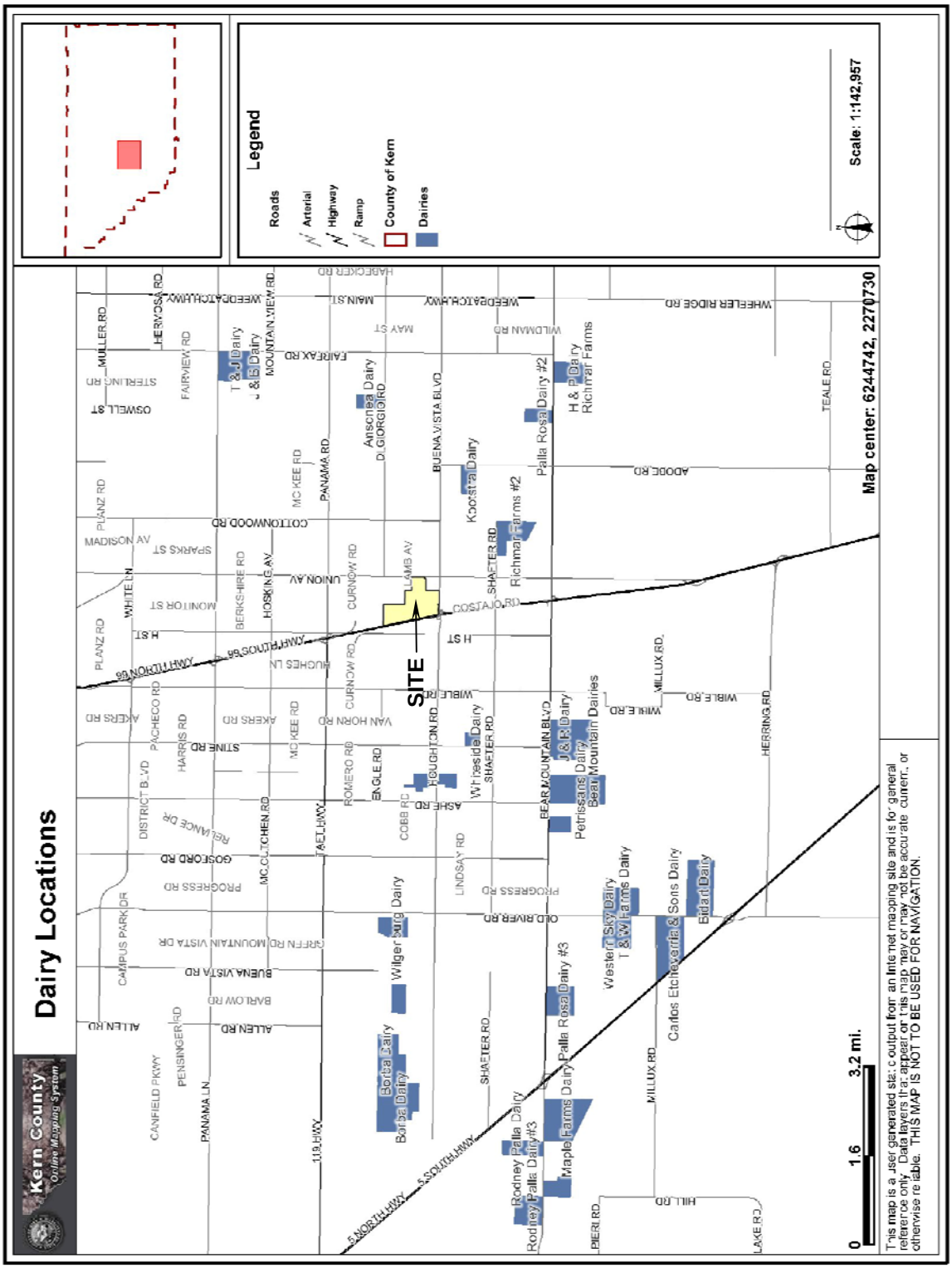


Photo 55: Looking west from east ¼ corner



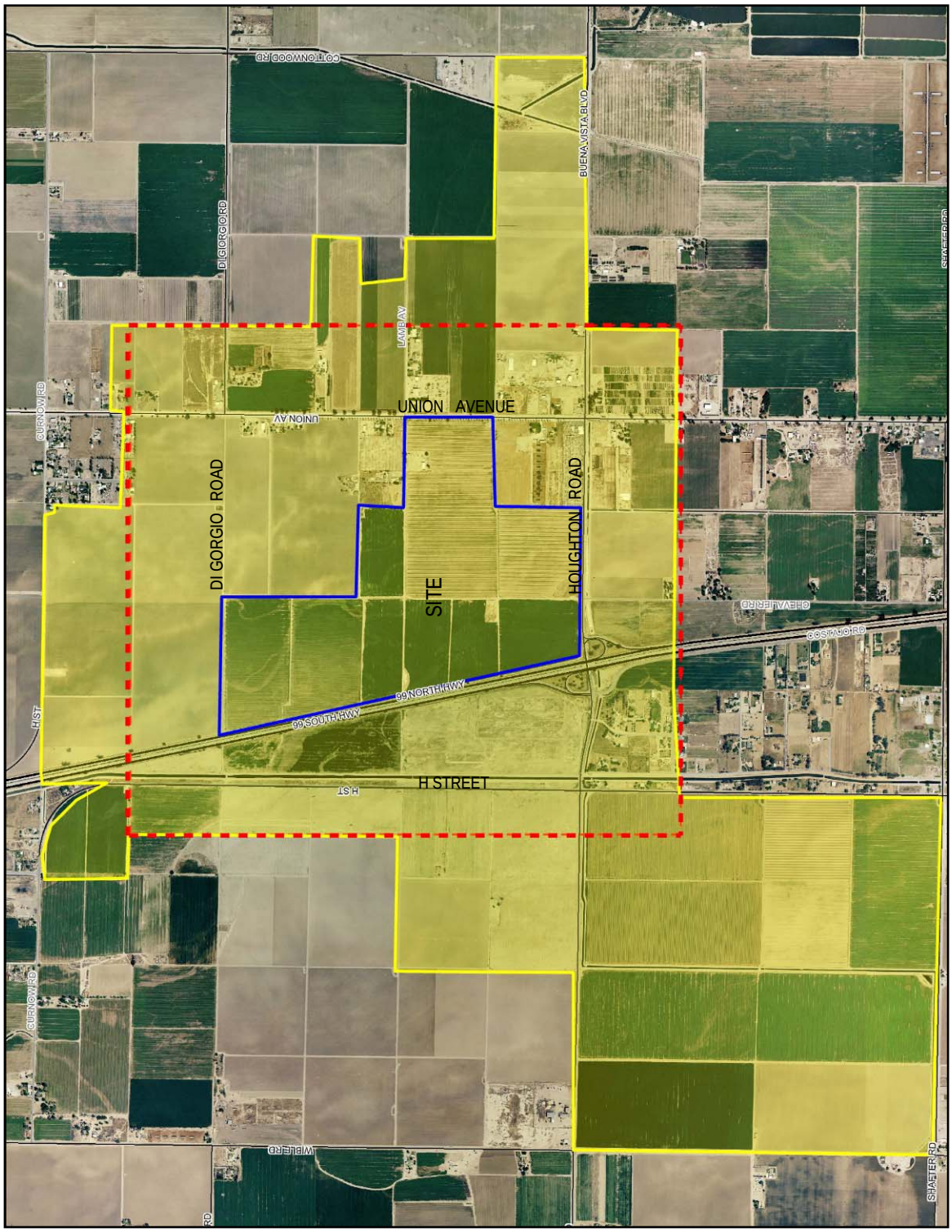
Photo 56: Looking northwesterly from east ¼ corner

APPENDIX "I"



Existing Dairy Locations
Kern County GIS
9-12-08

APPENDIX
"J"



Zone of Influence
LESA
Kern County GIS

TABLE 1A
LAND EVALUATION WORKSHEET

Land Capability

Alphabetical Symbol	Numerical Symbol	Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
KsA	**101**	Bakersfield fine sandy loam, drained, 0-1 percent slopes	170.22	53.9	IIs-0	80	35.2		IIs-0
CaA	**123**	Cajon sandy loam, 0 to 2 percent slopes, overwash	144.09	45.6	IIIs-4	60	27.4	**Not available**	IIIs-4
		Totals	0	1.0		**LCC Total**	62.6	**Storie Index Total**	-

(must sum to 1.0)

TABLE 1B
SITE ASSESSMENT WORKSHEET 1

Project Size Score

LCC Class I - II	LCC Class III	LCC Class IV - VIII	
170.22			
	140.09		
170.22	**140.09**	***0***	***total acres***
100	90	0	***project size scores***

Highest Project Size Score: **100**

TABLE 2

NUMERIC CONVERSION OF LAND CAPABILITY CLASSIFICATION UNITS

Land Capability Classification	LCC Point Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0

TABLE 3

PROJECT SIZE SCORING

LCC Class I - II Soils	
Acres	**Score**
80 or above	100
60-79	90
40-59	80
20-39	50
10-19	30
fewer than 10	0

LCC Class III	
Acres	**Score**
160 or above	100
120-159	90
80-119	80
60-79	70
40-59	60
20-39	30
10-19	10
fewer than 10	0

LCC Class IV - VIII	
Acres	**Score**
320 or above	100
240-319	80
160-239	60
100-159	40
40-99	20
fewer than 40	0

TABLE 4
SITE ASSESSMENT WORKSHEET 2

Water Resources Availability

Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score
314.31	well water	0.75	100	75.0
117.75	surface water	0.25	100	25.0
totals		1.00	**Total Water Resource Score**	100.0
		(must sum to 1.0)		

TABLE 5
WATER RESOURCE AVAILABILITY SCORING

Option	Non-Drought Years			Drought Years			Water Resource Score
	Restrictions						
	Irrigated Production Feasible?	Physical Restrictions?	Economic Restrictions?	Irrigated Production Feasible?	Physical Restrictions?	Economic Restrictions?	
1	yes	no	no	yes	no	no	100
2	yes	no	no	yes	no	yes	95
3	yes	no	yes	yes	no	yes	90
4	yes	no	no	yes	yes	no	85
5	yes	no	no	yes	yes	yes	80
6	yes	yes	no	yes	yes	no	75
7	yes	yes	yes	yes	yes	yes	65
8	yes	no	no	no	-	-	50
9	yes	no	yes	no	-	-	45
10	yes	yes	no	no	-	-	35
11	yes	yes	yes	no	-	-	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

SURROUNDING AGRICULTURAL LAND RATING

Percent of Project's Zone of Influence in Agricultural Use	Surrounding Agricultural Land Score
90-100%	100
80-89	90
75-79	80
70-74	70
65-69	60
60-64	50
55-59	40
50-54	30
45-49	20
40-44	10
less than 40%	0

Surrounding Agricultural Land Score	93

TABLE 7
SURROUNDING PROTECTED RESOURCE LAND RATING

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score	
90 - 100% 100 Points	100	
80 - 89	90	
75 - 79	80	
70 - 74	70	
65 - 69	60	
60 - 64	50	
55 - 59	40	
50 - 54	30	
45 - 49	20	
40 - 44	10	
40 <	0	34.5%

Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

Surrounding Protected Resource Land Score	0

TABLE 8
FINAL LESA SCORESHEET

Factor Name	Factor Rating (0-100 Points)	Factor Weighting (Total=1.0)	Weighted Factor Rating
LAND EVALUATION			
Land Capability Classification	62.55	0.50	31.28
Storie Index Rating	-	-	-
SITE ASSESSMENT			
Project Size	100.00	0.15	15.00
Water Resource Availability	100.00	0.15	15.00
Surrounding Agricultural Lands	93.00	0.15	13.95
Protected Resource Lands	0.00	0.05	0.00
		Total LESA Score	75.23

TABLE 9
California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 points	not considered significant
40 to 59 points	considered significant ONLY if LE AND SA subscore are each greater than or equal to 20 points
60 to 79 points	considered significant UNLESS either LE OR SA subscore is LESS than 20 points
80 to 100 points	considered significant

CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual



For further information, please contact:

California Department of Conservation
Office of Land Conservation
801 K Street, MS 13-71
Sacramento, CA 95814-3528
(916) 324-0850
FAX (916) 327-3430

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CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual
1997

Department of Conservation
Office of Land Conservation

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EXECUTIVE SUMMARY

Land Evaluation and Site Assessment (LESA) is a term used to define an approach for rating the relative quality of land resources based upon specific measurable features. The formulation of a California Agricultural LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, with developing an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines concerning agricultural lands. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095).

The California Agricultural LESA Model is composed of six different factors. Two Land Evaluation factors are based upon measures of soil resource quality. Four Site Assessment factors provide measures of a given project's size, water resource availability, surrounding agricultural lands, and surrounding protected resource lands. For a given project, each of these factors is separately rated on a 100 point scale. The factors are then weighted relative to one another and combined, resulting in a single numeric score for a given project, with a maximum attainable score of 100 points. It is this project score that becomes the basis for making a determination of a project's potential significance, based upon a range of established scoring thresholds. This Manual provides detailed instructions on how to utilize the California LESA Model, and includes worksheets for applying the Model to specific projects.

INTRODUCTION

Defining the LESA System

The Land Evaluation and Site Assessment (LESA) system is a point-based approach that is generally used for rating the relative value of agricultural land resources. In basic terms, a given LESA model is created by defining and measuring two separate sets of factors. The first set, Land Evaluation, includes factors that measure the inherent soil-based qualities of land as they relate to agricultural suitability. The second set, Site Assessment, includes factors that are intended to measure social, economic, and geographic attributes that also contribute to the overall value of agricultural land. While this dual rating approach is common to all LESA models, the individual land evaluation and site assessment factors that are ultimately utilized and measured can vary considerably, and can be selected to meet the local or regional needs and conditions for which a LESA model is being designed to address. In short, the LESA methodology lends itself well to adaptation and customization in individual states and localities. Considerable additional information on LESA may be found in *A Decade with LESA - the Evolution of Land Evaluation and Site Assessment* (8).

Background on LESA Nationwide

In 1981, the federal Natural Resources Conservation Service (NRCS), known then as the Soil Conservation Service, released a new system that was designed to provide objective ratings of the agricultural suitability of land compared to demands for nonagricultural uses of lands. The system became known as Land Evaluation and Site Assessment, or LESA. Soon after it was designed, LESA was adopted as a procedural tool at the federal level for identifying and addressing the potential adverse effects of federal programs (e.g., funding of highway construction) on farmland protection. The Farmland Protection Policy Act of 1981 (5) spells out requirements to ensure that federal programs, to the extent practical, are compatible with state, local, and private programs and policies to protect farmland, and calls for the use of LESA to aid in this analysis. Typically, staff of the NRCS is involved in performing LESA scoring analyses of individual projects that involve other agencies of the federal government.

Since its inception, the LESA approach has received substantial attention from state and local governments as well. Nationwide, over two hundred jurisdictions have developed local LESA methodologies (7). One of the attractive features of the LESA approach is that it is well suited to being modified to reflect regional and local conditions. Typical local applications of LESA include assisting in decision making concerning the sitting of projects, changes in zoning, and spheres of influence determinations. LESA is

also increasingly being utilized for farmland protection programs, such as the identification of priority areas to concentrate conservation easement acquisition efforts.

Because of the inherent flexibility in LESA model design, there is a broad array of factors that a given LESA model can utilize. Some LESA models require the measurement of as many as twenty different factors. Over the past 15 years, the body of knowledge concerning LESA model development and application has begun to indicate that LESA models utilizing only several basic factors can capture much of the variability associated with the determination of the relative value of agricultural lands. In fact, LESA models with many factors are increasingly viewed as having redundancies, with different factors essentially measuring the same features, or being highly correlated with one another. Additional information on the evolution and development of the LESA approach is provided in, A *Decade with LESA -The Evolution of Land Evaluation and Site Assessment* (8).

Development of the California Agricultural LESA Model

In 1990 the Department of Conservation commissioned a study to investigate land use decisions that affect the conversion of agricultural lands in California. The study, conducted by Jones and Stokes Associates, Inc., was prepared in response to concerns about agricultural land conversion identified in the *California Soil Conservation Plan* (1) (developed by the ad hoc Soil Conservation Advisory Committee serving the Department of Conservation in 1987). Among these concerns was the belief that there was inadequate information available concerning the socioeconomic and environmental implications of farmland conversions, and that the adequacy of current farmland conversion impact analysis under the California Environmental Quality Act (CEQA) was not fully known. The findings of this study are included in the publication, *The Impacts of Farmland Conversion in California* (2).

Currently, neither CEQA nor the State CEQA Guidelines contains procedures or specific guidance concerning how agencies should address farmland conversion impacts of projects. The only specific mention of agricultural issues is contained in Appendix G of the State CEQA Guidelines, which states that a project will normally have a significant effect on the environment if it will “convert prime agricultural land to non-agricultural use or impair the agricultural productivity of prime agricultural land”.

Among the conclusions contained in *The Impacts of Farmland Conversion in California* study was that the lack of guidance in how lead agencies should address the significance of farmland conversion impacts resulted in many instances of no impact analysis at all. A survey of environmental documents sent to the Governor's Office of Planning and Research (OPR) between 1986 and 1988 was performed. The survey

showed that among projects that affected at least 100 acres of land and for which agriculture was a project issue, nearly 30 percent received Negative Declarations, and therefore did not did not receive the environmental impact analysis that would be provided by an Environmental Impact Report (EIR).

Of those projects involving the conversion of agricultural lands and being the subject of an EIR, the study found a broad range of approaches and levels of detail in describing the environmental setting, performing an impact analysis, and providing alternative mitigation measures. The only agricultural impacts found to be significant in the EIRs were those involving the direct removal of prime agricultural lands from production by the project itself. The focus on prime farmland conversion in the projects surveyed was deemed to be related to the narrow direction provided in Appendix G of the State CEQA Guidelines.

The formulation of a California LESA Model is the result of Senate Bill 850 (Chapter 812 /1993), which charges the Resources Agency, in consultation with the Governor's Office of Planning and Research, to develop an amendment to Appendix G of the California Environmental Quality Act (CEQA) Guidelines. Such an amendment is intended "to provide lead agencies with an optional methodology to ensure that significant effects on the environment of agricultural land conversions are quantitatively and consistently considered in the environmental review process" (Public Resources Code Section 21095). This legislation authorizes the Department of Conservation to develop a California LESA Model, which can in turn be adopted as the required amendment to Appendix G of the CEQA Guidelines.

Presentation of the California LESA Model

The California LESA Model is presented in this Manual in the following sections:

Section I. provides a listing of the information and tools that will typically be needed to develop LESA scores for individual projects.

Section II. provides step-by-step instructions for scoring each of the six Land Evaluation and Site Assessment factors that are utilized in the Model, with an explanation of the rationale for the use of each factor.

Section III. defines the assignment of weights to each of the factors relative to one another, and the creation of a final LESA score for a given project.

Section IV. assigns scoring thresholds to final LESA scores for the purpose of determining the significance of a given project under CEQA where the conversion of agricultural lands is a project issue.

Additionally:

Appendix A. provides an abridged set of step-by-step LESA scoring instructions that can be used and reproduced for scoring individual projects.

Appendix B. demonstrates the application of the California LESA Model to the scoring of a hypothetical project.

The California Agricultural LESA Model

Section I. Required Resources and Information

The California Land Evaluation and Site Assessment (LESA) Model requires the use and interpretation of basic land resource information concerning a given project. A series of measurements and calculations is also necessary to obtain a LESA score. Listed below are the materials and tools that will generally be needed to make these determinations.

Land Evaluation and Site Assessment calculations will require:

1. A calculator or other means of tabulating numbers

2. An accurately scaled map of the project area, such as a parcel map

3. A means for making acreage determinations of irregularly shaped map units. Options include, from least to most technical:

    - A transparent grid-square or dot-planimeter method of aerial measurement

    - A hand operated electronic planimeter

    - The automatic planimetry capabilities of a Geographic Information System (GIS)

4. A modern soil survey, generally produced by the USDA Natural Resources Conservation Service, which delineates the soil-mapping units for a given project. [Note: If modern soil survey information is not available for a given area of study, it may be necessary to draw upon the services of a professional soil scientist to perform a specific project survey].

5. Maps that depict land uses for parcels including and surrounding the project site, such as the Department of Conservation's Important Farmland Map series, the Department of Water Resources Land Use map series, or other appropriate information.

6. Maps or information that indicate the location of parcels including and surrounding the project site that are within agricultural preserves, are under public ownership, have conservation easements, or have other forms of long term commitments that are considered compatible with the agricultural use of a given project site.

Section II. Defining and Scoring the California Land Evaluation and Site Assessment Model Factors

This section provides detailed step-by-step instructions for the measurement and scoring of each of the Land Evaluation and Site Assessment factors that are utilized in the California Agricultural LESA Model, and is intended to serve as an introduction to the process of utilizing the Model. Once users are familiar with the Model, a more streamlined set of instructions and scoring sheets is available in Appendix A. In addition, the scoring of a hypothetical project is presented using these scoring sheets in Appendix B.

Scoring of Land Evaluation Factors

The California LESA Model includes two Land Evaluation factors that are separately rated:

1. The Land Capability Classification Rating
2. The Storie Index Rating

The information needed to make these ratings is typically available from soil surveys that have been conducted by the federal Natural Resources Conservation Service (formerly known as the Soil Conservation Service). Consultation should be made with NRCS staff (field offices exist in most counties) to assure that valid and current soil resource information is available for the project site. Copies of soil surveys are available at local field offices of the NRCS, and may also be available through libraries, city and county planning departments, the Cooperative Extension, and other sources. In addition, a Certified Professional Soil Scientist (CPSS) may also be consulted to obtain appropriate soil resource information for the project site. A directory of CPSS registered soil consultants is available through the Professional Soil Scientists Association of California, P.O. Box 3213, Yuba City, CA 95992-3213; phone: (916) 671-4276.

1) The USDA Land Capability Classification (LCC) - The LCC indicates the suitability of soils for most kinds of crops. Groupings are made according to the limitations of the soils when used to grow crops, and the risk of damage to soils when they are used in agriculture. Soils are rated from Class I to Class VIII, with soils having the fewest limitations receive the highest rating (Class I). Specific subclasses are also utilized to further characterize soils. An expanded explanation of the LCC is included in most soil surveys.

2) The Storie Index - The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based upon soil characteristics only. Four factors that represent the inherent characteristics and qualities of the soil are

considered in the index rating. The factors are: profile characteristics, texture of the surface layer, slope, and other factors (e.g., drainage, salinity).

In some situations, only the USDA Land Capability Classification information may be currently available from a given published soil survey. However, Storie Index ratings can readily be calculated from information contained in soil surveys by qualified soil scientists. Users are encouraged to seek assistance from NRCS staff or Certified Professional Soil Scientists to derive Storie Index information for the soils as well. If, however, limitations of time or resources restrict the derivation of Storie Index ratings for the soils within a region, it may be possible to adapt the Land Evaluation by relying solely upon the LCC rating. Under this scenario the LCC rating would account for 50 percent of the overall LESA factor weighting.

Identifying a Project's Soils

In order to rate the Land Capability Classification and Storie Index factors, the evaluator must identify the soils that exist on a given project site and determine their relative proportions. A **Land Evaluation Worksheet** (Table 1A.) is used to tabulate these figures, based upon the following:

Step 1.
Locate the project on the appropriate map sheet in the Soil Survey.

Step 2.
Photocopy the map sheet and clearly delineate the project boundaries on the map, paying close attention to the map scale.

Step 3.
Identify all of the soil mapping units existing in the project site (each mapping unit will have a different map unit symbol) and enter the each mapping unit symbol in **Column A** of the **Land Evaluation Worksheet** (Table 1A).

Step 4.
Calculate the acreage of each soil mapping unit present within the project site using any of the means identified in **Section 1**, **Required Resources and Information**, and enter this information in **Column B**.

Step 5.

Divide the acres of each soil mapping unit by the total project acreage to determine the proportion of each unit that comprises the project, and enter this information in Column C.

1. Land Evaluation - The Land Capability Classification Rating

Step 1.
In the Guide to Mapping Units typically found within soil surveys, identify the Land Capability Classification (LCC) designation (e.g., IV-e) for each mapping unit that has been identified in the project and enter these designations in **Column D** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
From Table 2., **The Numeric Conversion of Land Capability Classification Units**, obtain a numeric score for each mapping unit, and enter these scores in **Column E**.

Step 3.
Multiply the proportion of each soil mapping unit (**Column C**) by the LCC points for each mapping unit (**Column E**) and enter the resulting scores in **Column F**.

Step 4.
Sum the LCC scores in **Column F** to obtain a single LCC Score for the project. Enter this LCC Score in **Line 1** of the **Final LESA Worksheet** (Table 8)

Table 2. Numeric Conversion of Land Capability Classification Units

Land Capability Classification	LCC Point Rating
I	100
IIe	90
IIs,w	80
IIIe	70
IIIs,w	60
IVe	50
IVs,w	40
V	30
VI	20
VII	10
VIII	0

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

A	B	C	D	E	F	G	H
Soil Map Unit	Project Acres	Proportion of Project Area	LCC	LCC Rating	LCC Score	Storie Index	Storie Index Score
Totals		(Must Sum to 1.0)		***LCC Total***		***Storie Index Total***	

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

	I	J	K
	LCC Class I - II	LCC Class III	LCC Class IV - VIII
Total Acres			
Project Size Scores			

Highest Project Size Score |

2. Land Evaluation - The Storie Index Rating Score

Step 1.
From the appropriate soil survey or other sources of information identified in Appendix C, determine the Storie Index Rating (the Storie Index Rating is already based upon a 100 point scale) for each mapping unit and enter these values in **Column G** of the **Land Evaluation Worksheet** (Table 1A.).

Step 2.
Multiply the proportion of each soil mapping unit found within the project (**Column C**) by the Storie Index Rating (**Column G**), and enter these scores in **Column H**.

Step 3.
Sum the Storie Index Rating scores in **Column H** to obtain a single Storie Index Rating score for the project. Enter this Storie Index Rating Score in **Line 2** of the **Final LESA Worksheet** (Table 8)

Scoring of Site Assessment Factors

The California LESA Model includes four Site Assessment factors that are separately rated:

1. **The Project Size Rating**
2. **The Water Resources Availability Rating**
3. **The Surrounding Agricultural Land Rating**
4. **The Surrounding Protected Resource Land Rating**

1. Site Assessment - The Project Size Rating

The Project Size Rating relies upon acreage figures that were tabulated under the Land Capability Classification Rating in Table 1A. The Project Size rating is based upon identifying acreage figures for three separate groupings of soil classes within the project site, and then determining which grouping generates the highest Project Size Score.

Step 1.
Using information tabulated in **Columns B** and **D** of the **Land Evaluation Worksheet** (Table 1A), enter acreage figures in **Site Assessment Worksheet 1. - Project Size** (Table 1B) using either **Column I, J,** or **K** for each of the soil mapping units in a given project.

Step 2.
Sum the entries in **Column I** to determine the total acreage of Class I and II soils on the project site.

Sum the entries in **Column J** to determine the total acreage of Class III soils on the project site.

Sum the entries in **Column K** to determine the total acreage of Class IV and lower rated soils on the project site.

Step 3.
For each of the three columns, apply the appropriate scoring plan provided in Table 3, **Project Size Scoring**, and enter the **Project Size Score** for each grouping in the **Site Assessment Worksheet 1. - Project Size** (Table 1B). Determine which column generates the highest score. The highest score becomes the overall **Project Size Score**. Enter this number in **Line 3** of the **Final LESA Scoresheet** (Table 8).

Table 3. Project Size Scoring

LCC Class I or II soils		LCC Class III soils		LCC Class IV or lower	
Acres	***Score***	***Acres***	***Score***	***Acres***	***Score***
80 or above	100	160 or above	100	320 or above	100
60-79	90	120-159	90	240-319	80
40-59	80	80-119	80	160-239	60
20-39	50	60-79	70	100-159	40
10-19	30	40-59	60	40-99	20
fewer than 10	0	20-39	30	fewer than 40	0
		10-19	10		
		fewer than 10	0		

Explanation of the Project Size Factor

The Project Size factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3).

The inclusion of the measure of a project's size in the California Agricultural LESA Models is a recognition of the role that farm size plays in the viability of commercial agricultural operations. In general, larger farming operations can provide greater flexibility in farm management and marketing decisions. Certain economies of scale for equipment and infrastructure can also be more favorable for larger operations. In addition, larger operations tend to have greater impacts upon the local economy through direct employment, as well as impacts upon support industries (e.g., fertilizers, farm equipment, and shipping) and food processing industries.

While the size of a given farming operation may in many cases serve as a direct indicator of the overall economic viability of the operation, The California Agricultural LESA Model does not specifically consider the issue of economic viability. The variables of economic viability for a specific farm include such factors as the financial management and farming skills of the operator, as well as the debt load and interest rates being paid by an individual operator, which are issues that cannot readily be included in a statewide LESA model.

In terms of agricultural productivity, the size of a farming operation can be considered not just from its total acreage, but the acreage of different quality lands that comprise the operation. Lands with higher quality soils lend themselves to greater management and cropping flexibility and have the potential to provide a greater economic return per unit acre. For a given project, instead of relying upon a single acreage figure in the Project Size rating, the project is divided into three acreage groupings based upon the Land Capability Classification ratings that were previously determined in the Land Evaluation analysis. Under the Project Size rating, relatively fewer acres of high quality soils are required to achieve a maximum Project Size score. Alternatively, a maximum score on lesser quality soils could also be derived, provided there is a sufficiently large acreage present. Acreage figures utilized in scoring are the synthesis of interviews that were conducted statewide for growers of a broad range of crops. In the interviews growers were queried as to what acreage they felt would be necessary in order for a given parcel to be considered attractive for them to farm.

The USDA LCC continues to be the most widely available source of information on land quality. Project Size under this definition is readily measurable, and utilizes much of the same information needed to score a given project under the Land Evaluation component of the methodology. This approach also complements the LE determination, which, while addressing soil quality, does not account for the total acreage of soils of given qualities within a project.

This approach allows for an accounting of the significance of high quality agricultural land as well as lesser quality agricultural lands, which by virtue of their large area can be considered significant agricultural resources. In this way, no single acreage figure for a specific class of soils (e.g., soils defined as “prime”) is necessary.

2. Site Assessment - The Water Resources Availability Rating

The Water Resources Availability Rating is based upon identifying the various water sources that may supply a given property, and then determining whether different restrictions in supply are likely to take place in years that are characterized as being periods of drought and non-drought. **Site Assessment Worksheet 2. - Water Resources Availability Worksheet** (Table 4) is used to tabulate the score.

Step 1.
Identify the different water resource types that are used to supply the proposed project site (for example, irrigation district water, ground water, and riparian water are considered to be three different types of water resources). Where there is only one water source identified for the proposed project, skip to Step 4.

Step 2.
Divide the proposed project site into portions, with the boundaries of each portion being defined by the irrigation water source(s) supplying it. A site that is fully served by a single source of water will have a single portion, encompassing the entire site. A site that is fully served by two or more sources that are consistently merged together to serve a crop's needs would also have a single portion. (e.g., a portion of the proposed project may receive both irrigation district and groundwater). If the project site includes land that has no irrigation supply, consider this acreage as a separate portion as well. Enter the water resource portions of the project in **Column B** of Table 4, **Site Assessment Worksheet 2. - Water Resources Availability**.

[As an example, a hypothetical project site is determined to have four separate water supply portions:

Portion 1 is served by irrigation district water only;
Portion 2 is served by ground water only;
Portion 3 is served by *both* irrigation district water and ground water;
Portion 4 is not irrigated at all.**]**

Step 3.
Calculate the proportion of the total project area that is represented by each water resource portion, and enter these figures in **Column C** of **Site Assessment Worksheet 2. - Water Resources Availability**, verifying that the sum of the proportions equals 1.0.

Table 4. Site Assessment Worksheet 2. - Water Resources Availability

A	B	C	D	E
Project Portion	Water Source	Proportion of Project Area	Water Availability Score	Weighted Availability Score (C x D)
1				
2				
3				
4				
5				
6				
		(Must Sum to 1.0)	***Total Water Resource Score***	

Step 4.

For each water resource supply portion of the project site, determine whether irrigated and dryland agriculture is *feasible*, and if any *physical* or *economic restrictions* exist, during both *drought* and *non-drought* years. These italicized terms are defined below:

- A *physical restriction* is an occasional or regular interruption or reduction in a water supply, or a shortened irrigation season, that forces a change in agricultural practices -- such as planting a crop that uses less water, or leaving land fallow. (This could be from cutbacks in supply by irrigation and water districts, or by ground or surface water becoming depleted or unusable. Poor water quality can also result in a physical restriction -- for example by requiring the planting of salt-tolerant plants, or by effectively reducing the amount of available water.)

- An *economic restriction* is a rise in the cost of water to a level that forces a reduction in consumption. (This could be from surcharge increases from water suppliers as they pass along the cost of finding new water supplies, the extra cost of pumping more ground water to make up for losses in surface water supplies, or the extra energy costs of pumping the same amount of ground water from deeper within an aquifer.)

- Irrigated agricultural production is *feasible* when:

  1) There is an existing irrigation system on the project site that can serve the portion of the project identified in Step 2;

  2) *Physical* and/or *economic restrictions* are not severe enough to halt production; and

  3) It is possible to achieve a viable economic return on crops though irrigated production.

(A major question that should be considered is, if there is an irrigated crop that can be grown within the region, can it actually be grown on the project site? Depending upon the jurisdiction, some typical crops that have a large water demand may not be feasible to grow on the project site, while others that require less water are feasible. Information to aid in making this determination can be obtained from county agricultural commissioners, the UC Cooperative Extension, irrigation districts, and other sources.)

- *Dryland production* is *feasible* when rainfall is adequate to allow an economically viable return on a nonirrigated crop.

- A *drought year* is a year that lies within a defined drought period, as defined by the Department of Water Resources or by a local water agency. Many regions of the state are by their arid nature dependent upon imports of water to support irrigated agriculture. These regions shall not be considered under periods of drought unless a condition of drought is declared for the regions that typically would be providing water exports.

Step 5.
Each of the project's water resource supply portions identified in **Step 2** is scored separately. Water Resources Availability scoring is performed by identifying the appropriate condition that applies to each portion of the project, as identified in Table 5., **Water Resource Availability Scoring**. Using Table 5, identify the option that best describes the water resource availability for that portion and its corresponding water resource score. Option 1 defines the condition of no restrictions on water resource availability and is followed progressively with increasing restrictions to Option 14, the most severe condition, where neither irrigated nor dryland production is considered feasible. Enter each score into **Column D** of Table 4.

Step 6.
For each portion of the project site, determine the section's weighted score by multiplying the portion's score (**Column D**), by its proportion of the project area (**Column C**), and enter these scores in **Column E**, the weighted Water Availability Score. Sum the **Column E** scores to obtain the total Water Resource Availability Score, and enter this figure in **Line 4** of the **Final LESA Score Sheet** (Table 8).

Table 5. Water Resource Availability Scoring

Option	Non-Drought Years			Drought Years			WATER RESOURCE SCORE
	RESTRICTIONS			RESTRICTIONS			
	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	Irrigated Production Feasible?	Physical Restrictions ?	Economic Restrictions ?	
1	YES	NO	NO	YES	NO	NO	100
2	YES	NO	NO	YES	NO	YES	95
3	YES	NO	YES	YES	NO	YES	90
4	YES	NO	NO	YES	YES	NO	85
5	YES	NO	NO	YES	YES	YES	80
6	YES	YES	NO	YES	YES	NO	75
7	YES	YES	YES	YES	YES	YES	65
8	YES	NO	NO	NO	-- --	-- --	50
9	YES	NO	YES	NO	-- --	-- --	45
10	YES	YES	NO	NO	-- --	-- --	35
11	YES	YES	YES	NO	-- --	-- --	30
12	Irrigated production not feasible, but rainfall adequate for dryland production in both drought and non-drought years						25
13	Irrigated production not feasible, but rainfall adequate for dryland production in non-drought years (but not in drought years)						20
14	Neither irrigated nor dryland production feasible						0

Explanation of the Water Resource Availability Rating

The Water Resource Availability factor in the California Agricultural LESA Model was developed in cooperation with Nichols-Berman, a consulting firm under contract with the Department of Conservation. A thorough discussion of the development of this rating is presented by Nichols-Berman in a report to the Department entitled, *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors* (3). During the development of this factor it became apparent that certain conditions unique to California would need to be represented in this system.

First, it was decided to classify water reliability based upon the *effects* on agricultural production (such as being forced to change to lower-value crops, putting in groundwater pumps, or cutting back on the acreage farmed) rather than the actual *type* of limitation (such as a limitation on the quantity, frequency, or duration of water delivery). LESA systems have traditionally focused on the latter. However, it was found that the many types of limitations are too varied in California to adequately represent in the LESA system. In the Statewide LESA system, these effects are referred to as *restrictions*.

Second, the factor had to include an interrelation with cost. The historical shortages and unreliability of California water use has led to the establishment of various interconnected and dual systems. Probably more than any other state, reliability is related with cost -- a more reliable water supply can sometimes be obtained, but at a greater cost. Therefore, *restrictions* were classified into two major categories -- *physical* and *economic*. These are separated because, generally, a physical restriction is more severe than an economic restriction and this should be reflected in the LESA system.

Third, the factor had to include the effects of the drought cycle in California. During the drought of 1987 to 1992, many agricultural areas of the state experienced water shortages. The impact of these shortages resulted in a number of different actions. Some areas were able to avoid the worst effects of the drought simply by implementing water conservation measures. Other areas were able to obtain additional water supplies, such as by securing water transfers or simply pumping more groundwater, but at an increase in the overall price of water. Other options included shifting crops, replanting to higher value crops to offset the increase in water prices, or leaving land fallow. A project site that experiences restrictions during a drought year should not be scored as high as a similar project site that does not.

The easiest way to make determinations of irrigation feasibility and the potential restrictions of water sources is to investigate the cropping history of the project site. For instance, was the water supply to the project site reduced by the local irrigation district during the last drought? If the site has a ground water supply, do area ground water levels sometimes drop to levels that force markedly higher energy costs to pump the water?

If the history of the project site is unavailable (including when the site has recently installed an irrigation system), look at the history of the general area. However, remember that the project site may have different conditions than the rest of the region. For instance, the project site could have an older water right than others in the region. Although certain areas of the state had severe restrictions on water deliveries during the last drought, some parcels within these areas had very secure deliveries due to more senior water rights. If this was the case in the region of the project site, check the date of water right and compare it with parcels that received their total allotment during the last drought. The local irrigation district should have information on water deliveries.

The scoring of water resource availability for a project site should not just reflect the adequacies of water supply in the past -- it should be a *prediction* of how the water system will perform in the future. For instance, a local jurisdiction might find that the allocation of flows to stream and river systems has been recently increased for environmental reasons, which will decrease the future available surface water supply. In this case, the past history of the site is not an adequate representation of future water supply and water system performance.

3. Site Assessment - The Surrounding Agricultural Land Rating

Determination of the surrounding agricultural land use rating is based upon the identification of a project's "Zone of Influence" (ZOI), which is defined as that land near a given project, both directly adjoining and within a defined distance away, that is likely to influence, and be influenced by, the agricultural land use of the subject project site. The determination of the ZOI is described below, and is illustrated with an example in Figure 1.

Defining a Project's "Zone of Influence"

Step 1.
Locate the proposed project on an appropriate map and outline the area and dimensions of the proposed project site.

Step 2.
Determine the smallest rectangle that will completely contain the project site (Rectangle A).

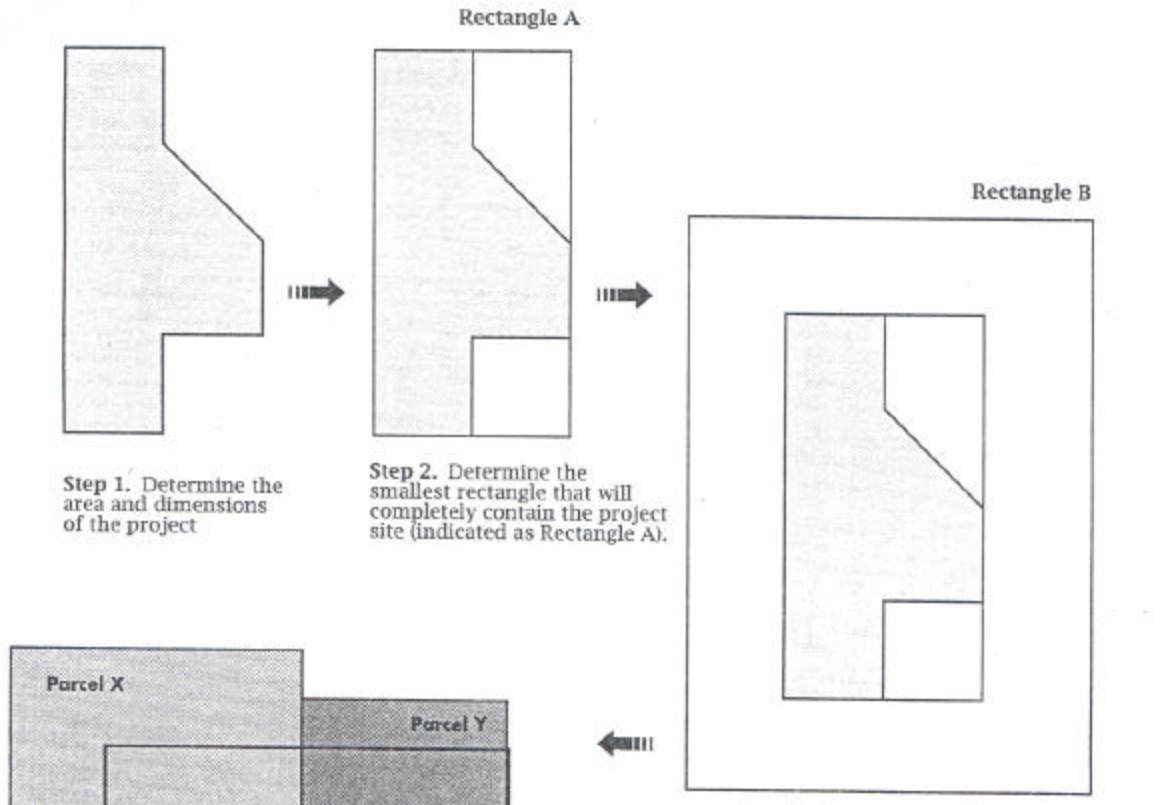
Step 3.
Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.

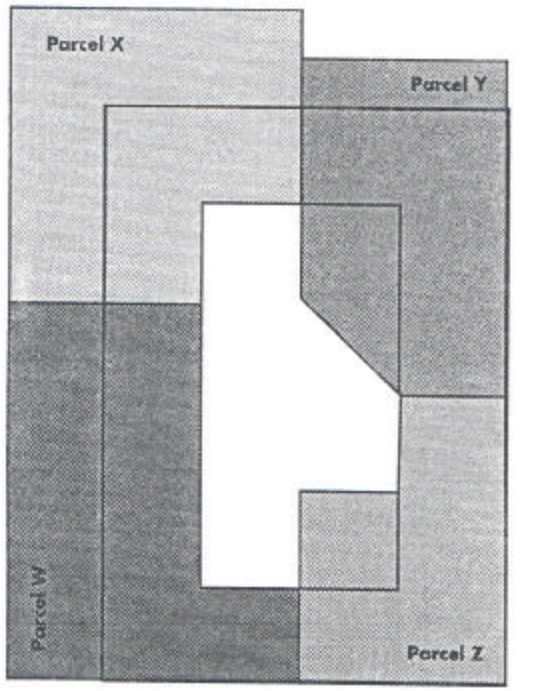
Step 4.
Identify all parcels that are within or are intersected by Rectangle B.

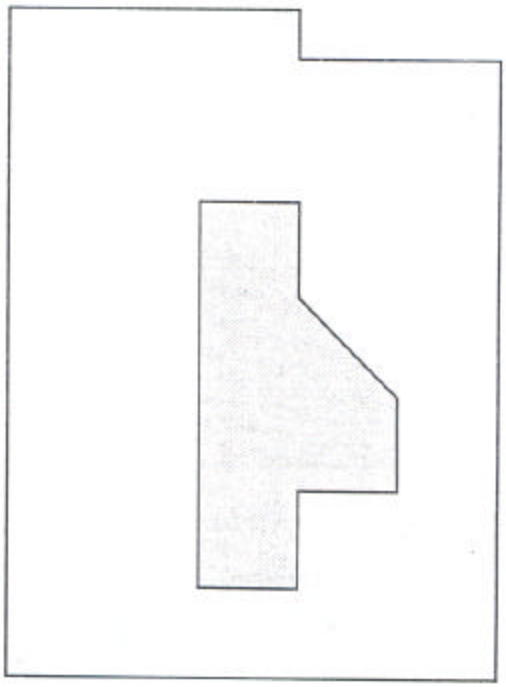
Step 5.
Define the project site's "zone of influence" as the entire area of all parcels identified in Step 4, less the area of the proposed project from Step 1.

[In the illustration provided in Figure 1, Parcels W, X, and Y extend beyond Rectangle B and are therefore included in their entirety in defining the project site's Zone of Influence.**]**

Figure 1: Defining a Project's Zone of Influence







Measuring Surrounding Agricultural Land

Step 1.
Calculate the percentage of the project's Zone of Influence that is currently producing agricultural crops. **[**This figure can be determined using information from the Department of Conservation's Important Farmland Map Series, the Department of Water Resources' Land Use Map Series, locally derived maps, or direct site inspection. For agricultural land that is currently fallowed, a determination must be made concerning whether the land has been fallowed as part of a rotational sequence during normal agricultural operations, or because the land has become formally "committed" to a nonagricultural use. Land that has become formally committed, whether fallow or not, should not generally be included in determining the proportion of the Zone of Influence that is agricultural land. For further information on the definition of Committed Land, refer to the following Explanation of the Surrounding Agricultural Land Rating.**]**

Step 2.
Based on the percentage of agricultural land in the ZOI determined in Step 1, assign a Surrounding Agricultural Land score to the project according to Table 6, and enter this score in **Line 5** of the **Final LESA Scoresheet** (Table 8) .

Table 6. Surrounding Agricultural Land Rating

Percent of Project's Zone of Influence in Agricultural Use	Surrounding Agricultural Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Explanation of the Surrounding Agricultural Land Rating

The Surrounding Agricultural Land Rating is designed to provide a measurement of the level of agricultural land use for lands in close proximity to a subject project. The California Agricultural LESA Model rates the potential significance of the conversion of an agricultural parcel that has a large proportion of surrounding land in agricultural production more highly than one that has a relatively small percentage of surrounding land in agricultural production. The definition of a "Zone of Influence" that accounts for surrounding lands up to a minimum of one quarter mile from the project boundary is the result of several iterations during model development for assessing an area that will generally be a representative sample of surrounding land use. In a simple example, a single one quarter mile square project (160 acres) would have a Zone of Influence that is a minimum of eight times greater (1280 acres) that the parcel itself.

Land within a Zone of Influence that is observed to be fallow will require a case by case determination of whether this land should be considered agricultural land. The Department of Conservation's Important Farmland Maps may be of assistance in making this determination. In addition, land currently in agricultural production may be designated as being "committed" to future nonagricultural development. The Department of Conservation's Farmland Mapping and Monitoring Program has a land use designation of Land Committed to Nonagricultural Use, and is defined as "land that is permanently committed by local elected officials to nonagricultural development by virtue of decisions which cannot be reversed simply by a majority vote of a city council or county board of supervisors. The "committed" land must be so designated in an adopted local general plan, and must also meet the requirements of either (a) or (b) below:

(a). It must have received one of the following final discretionary approvals:

1. Tentative subdivision map (approved per the Subdivision Map Act);
2. Tentative or final parcel map (approved per the Subdivision Map Act);
3. Recorded development agreement (per Government Code §65864);
4. Other decisions by a local government which are analogous to items #1-3 above and which exhibit an element of permanence. Zoning by itself does <u>not</u> qualify as a permanent commitment.

<u>Or</u>

(b) It must be the subject of one of the final fiscal commitments to finance the capital improvements specifically required for future development of the land in question as shown below:

1. Recorded Resolution of Intent to form a district and levy an assessment;
2. Payment of assessment;
3. Sale of bonds;
4. Binding contract, secured by bonds, guaranteeing installation of infrastructure;
5. Other fiscal commitments which are analogous to items #1-4 above and exhibit an element of permanence."

Lead agencies are encouraged to identify Land Committed to Nonagricultural Use within a project's ZOI and make the determination whether this land, while still in agricultural production, be considered nonagricultural land for the purposes of the calculation performed here.

4. Site Assessment - The Surrounding Protected Resource Land Rating

The Surrounding Protected Resource Land Rating is essentially an extension of the Surrounding Agricultural Land Rating, and is scored in a similar manner. Protected resource lands are those lands with long term use restrictions that are compatible with or supportive of agricultural uses of land. Included among them are the following:

- Williamson Act contracted lands
- Publicly owned lands maintained as park, forest, or watershed resources
- Lands with agricultural, wildlife habitat, open space, or other natural resource easements that restrict the conversion of such land to urban or industrial uses.

Instructions for the Surrounding Protected Resource Land Rating

Step 1.
Utilizing the same "Zone of Influence" (ZOI) area calculated for a project under the Surrounding Agricultural Land Rating, calculate the percentage of the ZOI that is Protected Resource Land, as defined above.

Step 2.
Assign a Surrounding Protected Resource Land score to the project according to Table 7, and enter this score on **Line 6** of the **Final LESA Scoresheet** (Table 8).

Table 7. Surrounding Protected Resource Land Rating

Percent of Project's Zone of Influence Defined as Protected	Surrounding Protected Resource Land Score
90 - 100%	100 Points
80 - 89	90
75 - 79	80
70 - 74	70
65 - 69	60
60 - 64	50
55 - 59	40
50 - 54	30
45 - 49	20
40 - 44	10
40 <	0

Section III. Weighting of Factors and Final LESA Scoring

The California LESA Model is weighted so that 50 percent of the total LESA score of a given project is derived from the Land Evaluation factors, and 50 percent from the Site Assessment factors. Individual factor weights are listed below, with the sum of the factor weights required to equal 100 percent.

Land Evaluation Factors

Land Capability Classification	25%
Storie Index Rating	25%
Land Evaluation Subtotal	**50%**

Site Assessment Factors

Project Size	15%
Water Resource Availability	15%
Surrounding Agricultural Lands	15%
Surrounding Protected Resource Lands	5%
Site Assessment Subtotal	**50%**
Total LESA Factor Weighting	**100%**

Each factor is measured separately (each on 100 point scale) and entered in the appropriate line in **Column B** of the **Final LESA Scoresheet** (Table 8). Each factor's score is then multiplied by its respective factor weight, resulting in a weighted factor score in **Column D** as indicated in Table 8. The weighted factor scores are summed, yielding a Total LESA Score (100 points maximum) for a given project, which is entered in **Line 7** of **Column D**.

Table 8. Final LESA Scoresheet

A	B		C		D
Factor Name	Factor Rating (0-100 points)	X	Factor Weighting (Total = 1.00)	=	Weighted Factor Rating
<u>Land Evaluation</u>					
1. Land Capability Classification	<Line 1>_____	X	0.25	=	_____
2. Storie Index Rating	<Line 2>_____	X	0.25	=	_____
<u>Site Assessment</u>					
1. Project Size	<Line 3>_____	X	0.15	=	_____
2. Water Resource Availability	<Line 4>_____	X	0.15	=	_____
3. Surrounding Agricultural Lands	<Line 5>_____	X	0.15	=	_____
4. Protected Resource Lands	<Line 6>_____	X	0.05	=	_____
			Total LESA Score (sum of weighted factor ratings)		<Line 7>_____

Section IV. California Agricultural LESA Scoring Thresholds - Making Determinations of Significance Under CEQA

A single LESA score is generated for a given project after all of the individual Land Evaluation and Site Assessment factors have been scored and weighted as detailed in Sections 2 and 3. Just as with the scoring of individual factors that comprise the California Agricultural LESA Model, final project scoring is based on a scale of 100 points, with a given project being capable of deriving a maximum of 50 points from the Land Evaluation factors and 50 points from the Site Assessment factors.

The California Agricultural LESA Model is designed to make determinations of the potential significance of a project's conversion of agricultural lands during the Initial Study phase of the CEQA review process. Scoring thresholds are based upon both the total LESA score as well as the component LE and SA subscores. In this manner the scoring thresholds are dependent upon the attainment of a minimum score for the LE and SA subscores so that a single threshold is not the result of heavily skewed subscores (i.e., a site with a very high LE score, but a very low SA score, or vice versa). Table 9 presents the California Agricultural LESA scoring thresholds.

Table 9. California LESA Model Scoring Thresholds

Total LESA Score	Scoring Decision
0 to 39 Points	Not Considered Significant
40 to 59 Points	Considered Significant only if LE and SA subscores are each greater than or equal to 20 points
60 to 79 Points	Considered Significant unless either LE or SA subscore is less than 20 points
80 to 100 Points	Considered Significant

Bibliography

1. *Conserving the Wealth of the Land - A Plan for Soil Conservation*, Department of Conservation. 1987.

2. *The Impacts of Farmland Conversion in California*. Prepared by Jones and Stokes, Associates, Inc., for the California Department of Conservation. 1991.

3. *Statewide LESA Methodologies Report - Project Size and Water Resource Availability Factors*. Prepared by Nichols - Berman, for the Department of Conservation. 1995.

4. *LESA Guidelines for Local Jurisdictions - Project Size and Water Resource Availability Factors*. Prepared by Nichols - Berman, for the Department of Conservation. 1995.

5. Office of the Federal Register National Archives and Records Administration. The Farmland Protection and Policy Act, part 658. Code of Federal Regulations - Agriculture, Parts 400 to 699. 1990.

6. Pease, J and R. Coughlin. Land Evaluation and Site Assessment: *A Guidebook for Rating Agricultural Lands, Second Edition*; prepared for the USDA Natural Resources Conservation Service; Soil and Water Conservation Society. 1996.

7. Pease, J., et al. *State and Local LESA Systems: Status and Evaluation*; In: Steiner, F., J. Pease, and R. Coughlin, eds. *A Decade with LESA: The Evolution of Land Evaluation and Site Assessment*. Soil and Water Conservation Society. 1994.

8. Steiner, F., J. Pease, and R. Coughlin, eds. *A Decade with LESA: The Evolution of Land Evaluation and Site Assessment*. Soil and Water Conservation Society. 1994.