DAIRY ELEMENT

OF THE

KINGS COUNTY GENERAL PLAN

Adopted by the Kings County Board of Supervisors

on

July 30, 2002

Prepared by:

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Adopted July 30, 2002
Resolution No. 02-100

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SUMMARY

The *Dairy Element* of the *Kings County General Plan* contains a series of goals, objectives, policies, and programs. These are designed to accomplish two equally important major objectives. One is to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. The other is to ensure that the standards established in the *Dairy Element* protect public health and safety and the environment.

Part of the strategy to accomplish this is to set a limit on the number of cows that can be accommodated in Kings County. Section II describes the method used to determine this limit. This element derives the limit by using a model to evaluate the Nitrogen and salt loading capacity of Kings County farmland which utilizes manure generated by cows, which is further discounted by subtracting the acreage used for other types of animal husbandry manure and biosolids (sewage sludge) applications. The result is that the maximum herd size for Kings County is determined to be 381,980 milk cows (534,772 animal units) and 423,998 head of support stock (335,409 animal units), totaling 805,978 head (870,181 animal units).

The goals, objectives, policies, and programs in the *Dairy Element* include changes in the way dairies are regulated. Under existing general plan and zoning ordinance requirements, expansions of existing dairies and establishment of new dairies must be approved through the conditional use permit (CUP) process. Each review of a dairy proposal must undergo individual environmental review under the California Environmental Quality Act (CEQA). Under the proposed new *Dairy Element* the expansion of existing dairies and establishment of new dairies will be accomplished through the site plan review (SPR) process. Dairies may be proposed only within certain specified areas of the County designated in the *Dairy Element* (see Figure 2, page DE-14), and shall only be established after the issuance of a SPR. Expansions of existing dairies may also be processed by SPR as long as the expanded portion of the dairies are consistent with the standards adopted in the *Dairy Element* concerning design, operation, monitoring and reporting. Approval of an SPR is ministerial and exempt from individual environmental review as long as a finding of consistency with the Dairy Element can be made. These standards have undergone environmental review in the *Program Environmental Impact Report* (PEIR) prepared as part of the development of this *Dairy Element*. Necessary changes to the *Kings County Zoning Ordinance* are included in Appendix E.

Compliance monitoring and reporting of the dairies in Kings County will be more formal under the new system than in the past. Section V provides that the Code Compliance division of the Kings County Planning Agency will monitor new and expanded existing dairy operations to ensure that they operate according to their approval requirements. In addition, dairies established before permits were required will be more closely monitored to ensure they do not create nuisances.

The specific standards for design, operations, and monitoring and reporting requirements are detailed in the policies of this Dairy Element and its Appendices.

SECTION I

INTRODUCTION

A. Introduction

Milk production has become a major agricultural industry in Kings County, representing about 31.8% of the gross value of agricultural crops produced. According to the *1999 Kings County Agricultural Commissioner's Annual Report,* dairy production has been the largest cash crop in Kings County in recent years. Kings County is ranked as the 12th leading agricultural county in California (25th in the nation), and in the top fifteen milk producing counties in the nation. Kings County's boundaries abut the top four agricultural counties in California. These are Fresno, Tulare, Monterey, and Kern counties (see Figure 1 on page DE-4).

Since dairy production is the leading cash crop, the dairy industry is very important to Kings County's economy. It also has the potential to adversely effect the environment. To address these two issues this *Dairy Element* of the *Kings County General Plan* was prepared to establish specific development and operational policies to ensure that the dairy industry can continue to grow with the least amount of adverse environmental impacts.

B. Purpose

The intent of this *Dairy Element* is to guide the physical growth of the dairy industry in general, and the specific development, expansion, and operation of dairies in a manner that protects the public and the environment and enhances the economy in Kings County. This element sets out general policies related to:

1. Specific standards for the development, expansion, and operation of dairies.
2. Policies for the location of new dairies in Kings County by the site plan review (SPR) process.
3. Monitoring and reporting requirements to ensure and to demonstrate compliance with standards.
4. Dairy expansion policies:
   - A. For dairies with previously issued valid zoning permits, and
   - B. For dairies established prior to 1979 (when ERME-II was implemented), which do not require zoning permits for herds sizes at their 1979 level.

These policies and standards are important to ensure that the location, distribution, and operation of dairies do not cause significant adverse effects to other land uses, including, but not limited to, agricultural, residential, commercial, industrial, public, and military uses and to the environment. Monitoring and reporting are necessary to demonstrate that impacts are being mitigated to the extent feasible and that mitigation measures are accomplishing their intended purposes. This will also ensure

that other resources such as open space, natural resources, recreation, scenic vistas, and public facilities will not be adversely impacted.

C. Objectives of the Dairy Element

1. Evaluate the overall ability/capacity of Kings County to host dairies, from the standpoints of both the environment and the economy.
2. Provide standards, including mitigation of environmental impacts and monitoring and reporting of the effects of implementing the mitigation measures, for the establishment of new and expanded dairies.
3. Encourage a voluntary Dairy Quality Assurance Program within Kings County for those dairies which are not required to comply with the standards of this Dairy Element.

D. Consistency with Other Elements

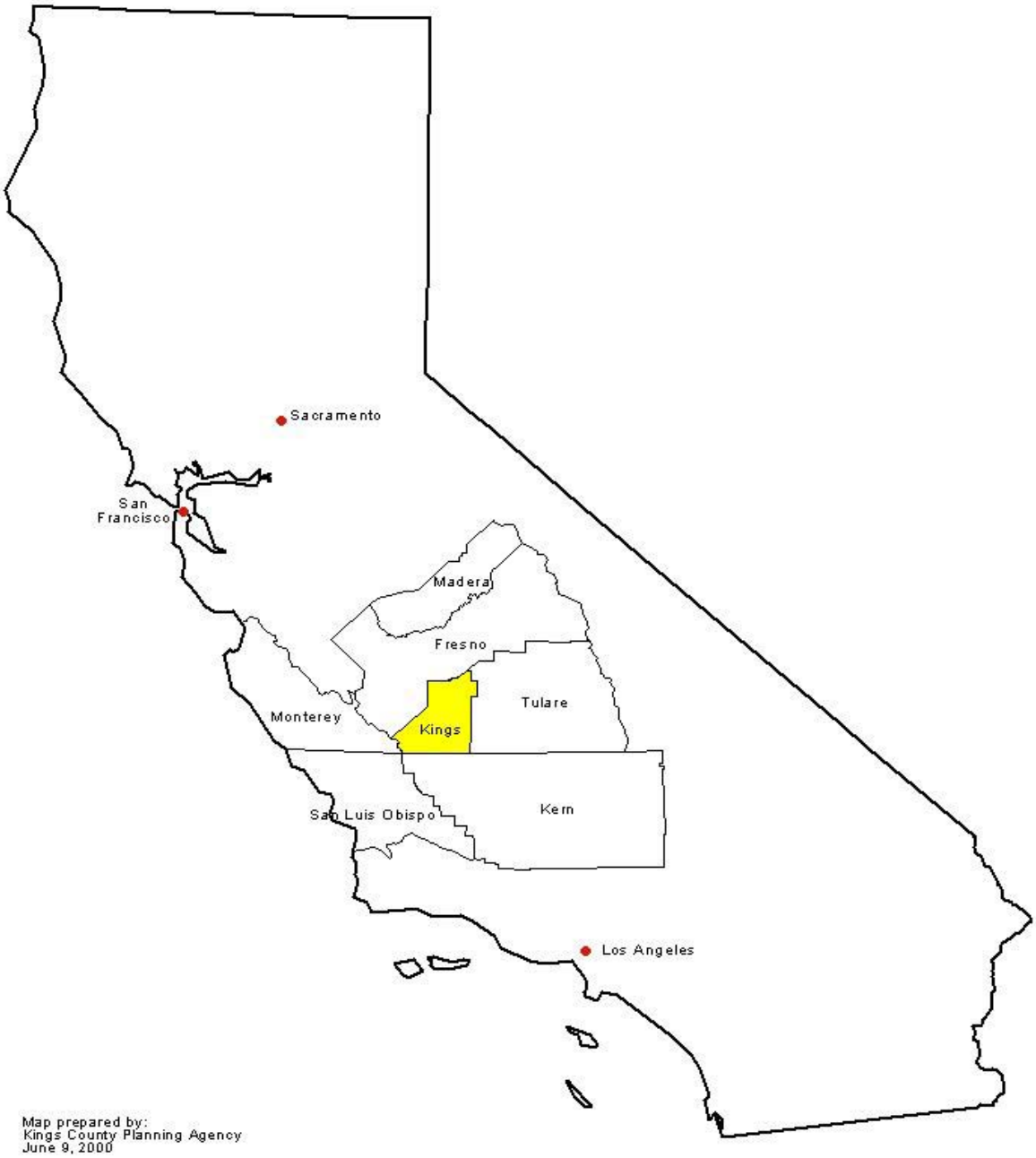
The *Dairy Element* is consistent with the other elements of the General Plan because all of the elements use the same population, housing, and employment projections. This Element also uses information in the other elements in conjunction with the evaluation of the new policies included herein, and makes recommended changes where necessary to ensure consistency (see Appendix K). Policies of the *Dairy Element* support, and are supported by, policies of the other elements and the policies of all elements are cross-referenced where necessary.

E. Scope and Organization

The *Dairy Element* contains eight sections, eleven appendices, an *Economic Impact Analysis*, and a *Program Environmental Impact Report*:

1. Section I: Introduction to the Dairy Element.
2. Section II: Determination of the theoretical capacity of Kings County to host dairies in order to establish an upper limit for evaluating the potential effects on the economy and the environment.
3. Section III: Policies addressing the general restrictions for the location and siting of new dairies and the expansion of existing dairies in Kings County, and streamlining the approval process through the use of the Site Plan Review (SPR) provisions of the Kings County Zoning Ordinance. These policies address siting constraints such as location relative to other development and protection of various sensitive resources such as wildlife habitat, groundwater, surface water bodies and stream courses.
4. Section IV: Policies addressing the design and management of dairy operations. These policies address minimum dairy operating standards for the protection of the environment and nearby development and land uses.

Figure 1
KINGS COUNTY LOCATION MAP



5. Section V: Monitoring Program to monitor the effectiveness of the mitigation measures for protecting the environment, and for compliance of each dairy regulated by the *Dairy Element*.
6. Section VI: The Voluntary Dairy Quality Assurance Program.
7. Section VII: Economic impact analysis and job creation potential of the dairy industry and the multiplier effect of ancillary or "spin off" industries on the economy in Kings County.
8. Section VIII: Program Environmental Impact Report (PEIR) for use as the environmental document for the *Dairy Element*.

The *Dairy Element* land use map (see Figure 2, page DE-14) reflects the dairy siting standards and policies of the *Dairy Element*. This map and the text must be used together in order to fully understand the standards and policies that apply to any particular proposed new or expanding dairy operation.

The *Dairy Element* land use map designations do not include a detailed study of any specific parcel of land. Development of individual parcels of land with dairies is regulated by the standards within the *Dairy Element* and implemented through the *Kings County Zoning Ordinance.* Parcels proposed for new dairies which are consistent with the generally acceptable areas for dairies shown in Figure 2 (page DE-14) must be evaluated in detail through the site plan review (SPR) process required in the *Zoning Ordinance*.

F. Optional General Plan Element

A County is required by law to prepare and adopt a comprehensive, long-term general plan for the physical development of its jurisdictional area (Cal. Gov't. Code Section 65300). Each general plan must include seven mandatory elements (i.e., Land Use, Circulation, Resource Conservation, Open Space, Housing, Noise and Safety), and may include *optional elements* judged by the legislative body to be related to the physical development of its jurisdiction (Section 65302 and 65303).

Since the growth of the dairy industry has the potential to significantly effect the physical development of the County, it is appropriate to address dairies in a separate general plan element. The County has determined that such a separate general plan element should be adopted to establish development and operational policies for the local dairy industry. Dairies are increasingly important to Kings County's economy, and the County is concerned about the potential effects dairies may have on the environment if they are not properly located, operated and maintained.

The Program Environmental Impact Report (PEIR) evaluates the policies of the Dairy Element and their effectiveness in protecting the environment from potential impacts associated with dairies. A more detailed discussion of the use of a PEIR is provided in Sections IV and VIII.

G. Background

Milk production has become a major agricultural industry in Kings County. According to the *1999 Kings County Agricultural Commissioner's Annual Report,* dairy production has been the largest

agricultural commodity in Kings County in recent years. Between 1979 and 1998, Kings County approved an average of 3.2 new or re-established dairies per year and 1.85 expanded dairies per year. Between 1990 and 1998, there was an average of 5.33 new or re-established dairies and 2.4 expanded dairies per year. (See Table No. 1 in Appendix A.)

The trend has fallen off since 1994. However, there are indications that new dairies will continue to come into the county, and existing dairies will expand to increase the number of cows that are being milked. This is partly due to the upcoming completion of the terms of many *Williamson Act* contracts in the Chino Basin area of Southern California resulting in those dairies relocating to other areas, such as Kings County. In addition, milk prices, competition and economies of scale require larger herd sizes to continue to compete profitably.

The expected growth in new dairies and expansion of existing dairies will increase the pressures on the local environment due to the addition of more cows to the area and the dairy process water, manure and nutrients they generate. While there are no direct indications at this time that the dairy industry in general is creating any significant adverse environmental problems in Kings County with the exception of certain air quality issues, the *Dairy Element* will examine the capacity of the County to handle additional dairies and increased herd sizes. The *Dairy Element* will examine dairy management practices and standards, analyze the adequacy of those standards, and present both policies and procedures to ensure that the dairy industry can continue to grow and improve the county's economy without causing avoidable significant adverse environmental impacts.

H. Regulatory History of the Kings County Dairy Industry

Kings County began regulating dairies in 1978. The policy relating to livestock concentrations was adopted in late 1976 with the adoption of the *Environmental Resources Management Element, Phase II*, (ERME II). Policy 15 (ERME II, page 33), which stated:

> *"15. Require administrative review and permit of all livestock concentrations to assure adequate waste disposal provisions and separation from conflicting uses."*

This policy was implemented in early 1978 with the amendment of the *Kings County Zoning Ordinance* which classified dairies as land uses subject to an Administrative Approval zoning permit before they could either be established or expanded.

The 1993 update of the *Kings County General Plan* included a statement that animal concentrations were allowed only within the General Agricultural zone districts (Land Use Element, page LU-8). This was to ensure their separation from urban and built-up areas. In 1994 the *Kings County Zoning Ordinance* was amended to eliminate Administrative Approval zoning permits, and concentrated animal feeding operation land uses, including dairies, were designated as conditional uses requiring environmental review, a public hearing, and Planning Commission approval.

I. Current Dairy Herd Sizes in Kings County (January 2000)

As part of the research for this *Dairy Element*, a survey of all known commercial dairy operations in Kings County has been conducted. The questionnaire is included in Appendix C. The following are the number of dairies that were mailed questionnaires and the number of responses:

Dairies (Milk Cows):	149 Questionnaires	34 Responses

The results of the herd size questions in the questionnaire are summarized in Appendix A Table No. 2. These results are compared to the information from the U.C. Cooperative Extension and the U.S. Census of Agriculture.

According to U.C. Cooperative Extension data, in January 2000, there were approximately 124,668 cows (milking and dry) in Kings County. The cows were confined on 149 commercial dairies for an average of 837 milk cows per herd. This number does not include replacement stock such as heifers and calves, or beef cattle grazing on open rangeland. Table No. 3 in Appendix A shows the relative sizes of the dairies and how they have changed since 1988.

This estimate differs somewhat from the data provided in the *1992 Census of Agriculture* by the U.S. Census Bureau. That difference is most likely due to the fact that the Census Bureau reports very small non-commercial dairies. The Census Bureau may include 4-H projects and personal use dairies in addition to commercial dairies. The Census Bureau reported between 20 to 27 small dairies (1 to 9 cows) from 1988 to 1992, and 3 to 7 dairies of less than 100 cows each, during these years (see Table No. 3A in Appendix A).

Thirty-four of the county's 149 dairies (23%) responded to the questionnaire, with 32 (21%) respondents representing an aggregate herd size of 26,635 milk cows in 1999. Extrapolating this data to all 149 dairies points to 124,019 milk cows. This is consistent with the U.C. Cooperative Extension data. This is an average of 832 milk cows per dairy, which is also consistent with the 837 indicated by U.C. Cooperative Extension data.

Note: The dairy herd figures for 2001 released by the U.C. Cooperative Extension became available in April 2001, after the analysis for the Dairy Element and the Program EIR was completed. The latest reported figures include 130,443 milk cows, on 147 dairies, for an average herd size of 887 milk cows.

SECTION II

THEORETICAL CAPACITY OF KINGS COUNTY TO HOST DAIRIES

A. Theoretical Capacity in Kings County for Dairies

Dairies generate liquid and solid (dry) manure. This liquid and dry manure contains nutrients that are essential for plant growth. Properly managed and applied to cropland at appropriate agronomic rates, these nutrients and other constituents become safe fertilizer and soil amendment for crops, including those crops used to feed the cows. However, the manure, and its constituents, if not properly managed could cause pollution to occur in ground and surface water, produce harmful and annoying insects, and create air emissions, odors, and dust at significant levels.

A finite amount of these nutrients can be safely managed by land application within a given area. The California Regional Water Quality Control Board Central Valley Region (RWQCB) has developed a set of worksheets for determining how much Nitrogen and salt are expected to be produced by dairy cows for various types of dairies (i.e., freestalls, flushed corrals, or scraped corrals). The method for estimating nutrients is presented in RWQCB's *Fact Sheet No. 4*. Using the factors developed by RWQCB and the Nitrogen and salt requirements for various crops provided by the U.C. Cooperative Extension and Natural Resource Conservation Service, a theoretical maximum number of dairy cattle (including support stock) can be estimated based on the crop acreage that is available to use these nutrients in Kings County.

The rationale for using the RWQCB methodology for estimating the theoretical maximum dairy herd in Kings County is based on the County's goal to protect water quality.

Various assumptions must be made in order to generate such a *theoretical estimate* and make sure that it is reasonable and does not underestimate the amount of cropland that is needed. The calculations for the estimate, based on the following assumptions, are presented in Table No. 5 in Appendix A. Reductions in the estimated available acreage for dairy manure application are made to account for the additional Nitrogen generated by other sources. These reductions are listed in Table 5A. After applying the other Nitrogen source adjustments, the theoretical limit of dairy cows can be estimated as shown in Table 5. The acreage estimate adjustments must be made on a continuous basis as land is converted to uses which no longer will support the use of manure from dairies as a fertilizer.

B. Assumptions for Theoretical Capacity of Kings County to Accommodate Dairies

ASSUMPTIONS:

- All assumptions are made using the more conservative estimates when a choice is required unless otherwise indicated.
- One Animal Unit (AU) is based on 1,000 pounds per AU (Source: RWQCB).
- A lactating Holstein cow is equivalent to 1.4 Animal Units (AU) (Source: RWQCB).
- Most existing and future dairies operating in Kings County will be supported by Holstein herds.
- The dairy model used in these assumptions is based on a theoretical herd with the following percentages of support stock and show the actual size of a typical milk cow dairy with support stock (Source: U.C. Cooperative Extension). For presentation purposes, a typical 1,000-milk cow dairy is used in this example:

Animal Type	Percentage Of Herd[1]	Head	AU Factor by Age[2]	Holstein Factor[3]	AU Equivalent
Milk Cows	--	1,000	1.00	1.40	1,400
Dry cows & bred heifers	15%	150	0.80	1.40	168
Heifers (2 yrs. & older)	32%	320	0.73	1.40	327
Heifers (1. to 2 yrs.)	16%	160	0.73	1.40	164
Calves (3 mo. to 1 yr.)	40%	400	0.35	1.40	196
Baby Calves (<3mo.)	8%	80	0.21	1.40	24
TOTALS		**2,110**			**2,278**

NOTES:

1 Based on various sources including the U. C. Cooperative Extension, the percentage figures are the typical ratio of support stock to milk cows in the herd necessary to sustain a herd.

2 A factor based on an animal's age and the amount of manure it produces as compared to a 1,000-lb. animal, which is defined as an Animal Unit.

3 A factor to take into account the fact that Holstein cows are bigger animals, i.e., an adult Holstein milk cow typically weighs 1,400 lbs., 1.4 times bigger than a 1,000 lb. animal.

- The *Dairy Development Overlay Zone* (DDOZ) is that portion of Kings County where the majority of dairies exist and new dairies may be located (see Table No. 4 in Appendix A and Figure 2 on Page DE-14). The zone contains nine separate areas totaling approximately 394 square miles, 341 of which can accommodate dairy facilities. The *Nutrient Spreading Overlay Zone* (NSOZ), adds another 642 square miles for liquid and solid manure spreading for a total of 983 square miles of area for dairy facilities and for management and recycling of the nutrients in the manure generated by those dairies (see Figure 2 and Table No. 4).

- All dairy facilities are assumed to have a freestall design. In the dairy model, the freestall design requires the most land for salt and Nitrogen recycling (thus the lowest density of cows). The results for each of the management types are as follows:
  - if all milk cows are in freestalls and support stock are in scraped corrals, Nitrogen is the controlling factor,
  - if all milk cows are in flushed corrals and support stock is in scraped corrals, salt is the controlling factor, and more cows could be accommodated,
  - if all cows are in scraped corrals, less land is required for both salt and Nitrogen application, and even more cows could be accommodated.
- Nitrogen is the principal limiting factor for protection of water quality, and salt is the secondary limiting factor for this model.
- Salt and Nitrogen usage assumes both single and double cropping farming methods will be used.
- Salt is generated at a rate of 1.29 lbs. per day per animal unit (AU). Using the "Holstein factor" of 1.4, each Holstein Milk cow will generate 1.81 lbs. of elemental salt per day.
- Nitrogen is generated at a rate of 0.56 lbs. per day per AU. Using the "Holstein factor" of 1.4, each Milk cow will generate 0.78 lbs. of Nitrogen per day.
- Transportation cost of solid manure may limit the range of hauling dry manure.
- Solid manure transported into Kings County from other counties is assumed to be offset by the amount of manure transported out of Kings County.
- In January of 2000 the total number of dairies in Kings County was 149 with an average herd of 837 milk cows plus support stock. These dairies and cows are subtracted from the calculated theoretical limit to determine the additional capacity that can be accommodated. (The January 2001 herd figures were received after the analysis for the Dairy Element and Program EIR was completed)
- "Harvested selected crops" are those crops on which dairy manure can be applied as fertilizer.
- Ratio of acres of "harvested selected crops" to all harvested crops countywide from the *1999 Agricultural Crop Report* by the Kings County Agricultural Commissioner is the ratio of "harvested selected crops" to all harvested crops countywide used for the "Dairy Development Overlay Zone" and "Nutrient Spreading Overlay Zone."
- The dairy process water and solid manure factors are assumptions used in calculating Nitrogen values based on RWQCB's *Fact Sheet 4*. The animals are housed for 365 days per year. The Nitrogen excretion rate is 0.56 lbs. per day per animal unit for the milk cows and 0.45 lbs. per day per animal unit for the support stock. Freestall systems generate 80% of the manure as liquid, and flushed corral systems generate 60% of the manure as liquid. For milk cows in dry corrals or where alleys and corrals are scraped, 10% of the manure is in process water generated at the milk barn.
- When dairy process water is held less than 30 days and then applied to cropland there is a 50% loss of Nitrogen. When dairy process water is held more than 60 days and applied to cropland there is a 75% loss of Nitrogen. These same rates are assumed for the Nitrogen loss from storage and application of dry manure. These values are based on RWQCB's *Fact Sheet 4*; however, the values may be modified in the future as new information becomes available.

- Adjustments in the acreage available for dairy manure use are made to reflect the Nitrogen loading from other livestock and poultry operations and sewage sludge (biosolids) application operations in the county.

C. Explanation of Tables No. 5 and 5A - Theoretical Dairy Capacity of Kings Co.

A model that calculates the theoretical capacity of Kings County to host dairies based on the nutrients, i.e., salt and Nitrogen, generated by the livestock on dairies is presented in Table 5 of Appendix A. The end result is the amount of nutrients (salt and Nitrogen) that can be utilized by the available cropland. As stated above, Nitrogen and salt are assumed to be the limiting factors for dairies using freestall facilities. Table No. 5 provides the gross acreage available with the selected types of crops where dairy manure and process water can be applied. Adjustments are made to account for the other Nitrogen sources listed in Table No. 5A. Table No. 5A calculates the acreage reduction necessary to account for the other Nitrogen sources applied to cropland.

As shown in Section A of Table No. 5, 381,980 milk cows (534,772 AU) plus 423,998 head of support stock (335,409 AU) can be accommodated based on the above assumptions. Generally a dairy includes both milk cows and support stock. Support stock includes dry cows that are periodically rotated into the milking portion of the herd. In addition, there are bred and young heifers, as well as calves and baby calves. The ratio of support stock to milking cows varies from operation to operation, but on average the ratio is as indicated in Section A of Table No. 5. In addition, Holstein cows are a large breed of cow, and a factor of 1.4 animal units (AU) per head is applied. An AU is equivalent to a 1,000 pound animal, characterized by a Jersey cow. Factors are also given for the age (and theoretical size) of the cows and calves. On average a dairy that milks 1,000 Holstein cows has a total herd of approximately 2,110 head of all ages that are equivalent to 2,278 AU.

Section A of Table No. 5 gives the estimate of the total head and equivalent AUs that can be accommodated based on the assumption as to the amount of cropland that is available to spread the liquid and solid manure at agronomic rates.

The manure and dairy process water generated from the dairy cows contains various nutrients that are essential to plant growth. These nutrients are a natural fertilizer. To estimate how much fertilizer can be used within Kings County, Section D of Table No. 5 estimates the Selected Crops to Harvested Crops (SC/HC) acreage ratio of crops that can use this kind of fertilizer, which is calculated to be 73.15%. This SC/HC ratio is based on the *1999 Agricultural Commissioner's Report* for Kings County. The estimate is then applied to the total amount of Nitrogen and salt each of these various crops can utilize. Each dairy operation must account for the nutrient load of dairy process water on the site controlled by the dairy operator. The solid, or dry, manure may be accounted for off site.

The model assumes the capacity for managing the Nitrogen is a function of the SC/HC ratio of land in areas designated as the *Dairy Development Overlay Zone* (DDOZ) and the *Nutrient Spreading Overlay Zone* (NSOZ), where manure and process water may be spread at agronomic rates. These two areas of Kings County are shown on Figure 2 (page De-14). The DDOZ includes about 341 square miles

(217,657 acres) and includes all but about 15 of the existing dairies. The NSOZ includes about 642 square miles (411,055 acres) where new dairy facilities are not allowed, but manure may be transported and used to fertilize crops there. This model does not consider areas outside of Kings County based on the assumption that the same amount of manure is exported from the county as is imported into the county.

The total available acreage within Kings County, where both liquid and solid manure can be used to fertilize crops, is approximately 983 square miles (628,712 acres). This area is discounted by the SC/HC ratio of 73.15%, leaving a usable cropland area of approximately 459,903 acres to spread the dairy process water and dry manure. However, using the *1999 Agricultural Commissioner's Report* approximately 429,700 acres of selected crops were harvested in the entire County. Therefore, only 73.15% of the selected harvested crops are used in the model, leaving 314,313 acres available for the spreading of the liquid and solid manure. Using the liquid waste and solid waste factors for both the milk cows and the support stock in freestall dairy facilities (with support stock in scraped corrals), the number of cows can be determined.

This acreage must be further discounted to account for the land needed by other sources of Nitrogen (other livestock and poultry operations and sewage sludge applications). Table No. 5A provides this accounting to further reduce the available acreage for dairy manure use by 95,395 acres (including a 20% contingency factor).

D. Theoretical Dairy Herd Capacity for Kings County

The results of this model, as shown in Appendix A, Table 5, estimates that 381,980 milk cows (534,772 AU) and 423,998 head of support stock (335,409 AU) totaling 805,978 head (870,181 AU) can be accommodated within Kings County using current freestall designed dairies. In January 2000 there were estimated to be 124,668 milk cows in Kings County. Assuming the 52.6% support stock to milk cow ratio, there are currently approximately 138,344 head of support stock in the County. Thus theoretically, the potential available remaining capacity in the County is approximately 257,312 milk cows and 285,654 head of support stock.

E. Relationship of Capacity to Air Quality

There is no parallel process, such as using the RWQCB standards, to determine what the capacity is with regard to air quality in Kings County. The San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) does not regulate dairies directly. Rule 8081, however, regarding PM_{10} control measures, applies to certain activities on dairy operations. Compliance with those standards is part of the operational requirements of the Dairy Element. By requiring these and other feasible measures to control air emissions, the Dairy Element will reduce the impact of further dairy development and operation within the County and within the Basin.

SECTION III

POLICIES FOR THE LOCATION AND SITING OF DAIRIES

A. General Areas Suitable for the Location of New Dairies and the Expansion of Existing Dairies

Potential impacts associated with dairies could adversely affect their neighbors, including "urban" areas, as well as potential future development throughout the County. Uncontrolled development could have an adverse effect on the economy of the County as a whole. Therefore, dairies and their ancillary uses and support areas shall be located in areas of the County that will not result in significant adverse impacts by dairy development and operation. (See Figure 2, page DE-14).

GOAL DE 1: Restrict the location of new dairies and the expansion of existing dairies to those areas of the County where they are most compatible with surrounding uses and activities, and where they are consistent with environmental constraints.

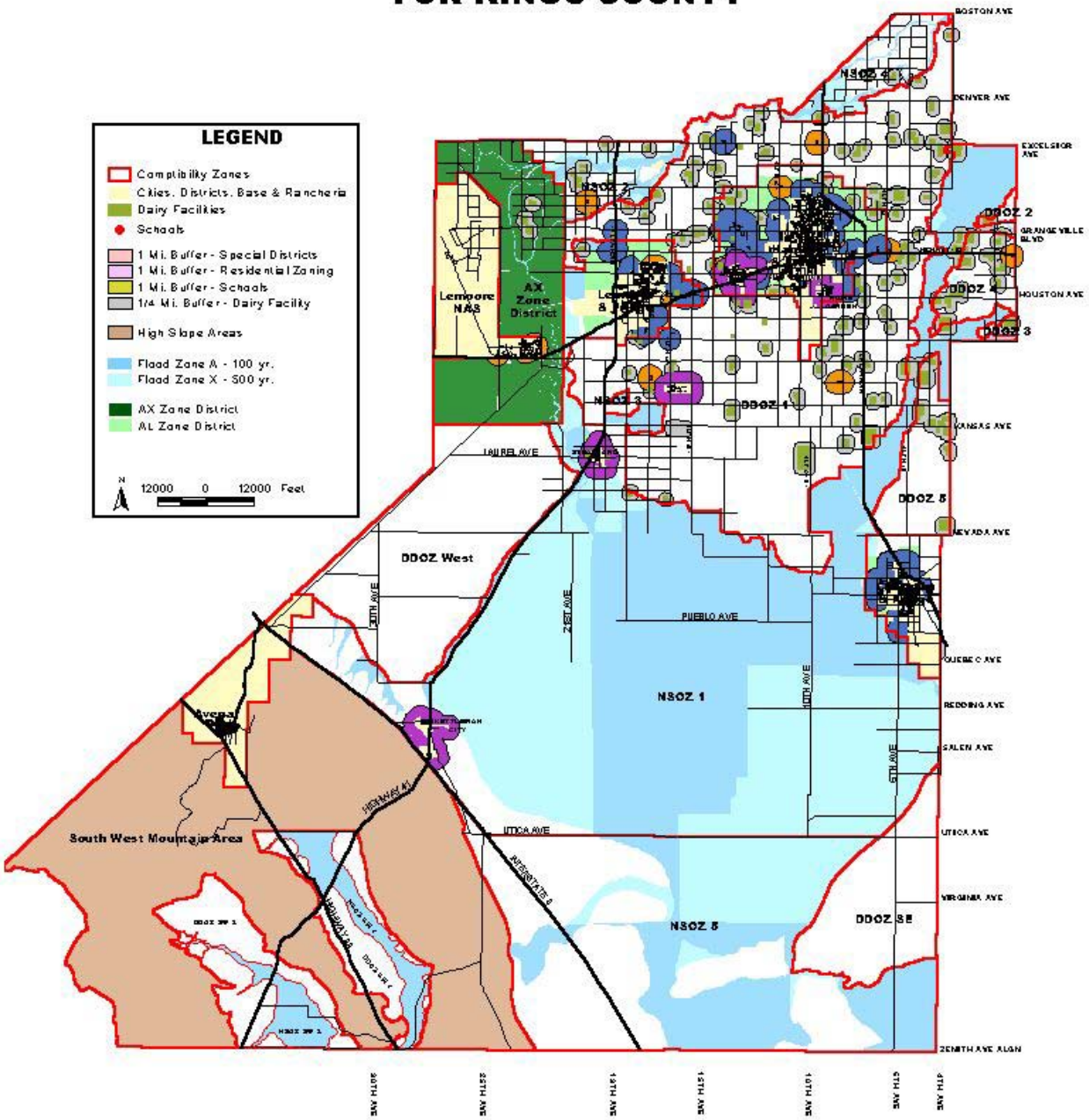
Objective DE 1.1: Protect agricultural uses and land from the encroachment of incompatible non-agricultural use of the land.

Policy DE 1.1a: *Agricultural Land Use Protection:* The *Kings County Right to Farm Ordinance*, Chapter 14, Article III, Section 14-38 of the *Kings County Code of Ordinances*, states that "agricultural operations are the principal and favored uses of land in areas of Kings County designated 'Agricultural' in the *Kings County General Plan* and included in the Agricultural zone districts of the *Kings County Zoning Ordinance*." Protection of agricultural activities is accomplished by the adopted policies to:

(1) Protect agricultural land, operations, and facilities from conflicting uses due to the encroachment of incompatible, non-agricultural uses of the land in agricultural areas of the county, and

(2) Advise developers, owners, and subsequent purchasers of property in the County of the inherent potential inconveniences and discomforts often associated with agricultural activities and operations, including, but not limited to, equipment and animal noise; farming activities conducted on a 24-hour a day, 7-day a week basis; odors from manure, fertilizers, pesticides, chemicals, or other sources; the aerial and ground application of chemicals and seeds; dust; flies and other insects; and smoke from agriculture operations.

FIGURE 2
THEORETICAL DAIRY HERD CAPACITY
FOR KINGS COUNTY



These policies are tempered by providing buffer areas around sensitive uses where new more intensive agricultural uses, such as dairies, are prohibited from locating by zoning regulations.

Objective DE 1.2: Use specific standards to avoid potential land use conflicts when approving new dairies and expansions of existing dairies.

Policy DE 1.2a: *Limited Agricultural (AL-10) zone districts*. This zone district prohibits intensive agricultural activities and uses. It is applied to areas adjacent to cities and rural communities. Animal concentration facilities, including associated dairy process water and manure storage areas, are intensive agricultural uses that are not appropriate in this urban-to-agricultural buffer area. However, manure used as fertilizer and dairy process water used to irrigate cropland may be transported to, and used in, the AL-10 zone districts.

Dairies that have been in operation since before 1979 or were issued a zoning permit after 1979 may continue to operate and expand. However, the expansion portion of the activity will be subject to approval of a conditional use permit (CUP) by the Planning Commission.

(Mitigation for Impact 4.7-4)

Policy DE 1.2b: *Exclusive Agricultural (AX) zone districts*. This zone district is designed to protect the Lemoore Naval Air Station (LNAS) from encroachment of uses that are not compatible with the noise generated from the jet aircraft operations at the air station and potential hazards from aircraft accidents. This restriction is on new dairies and is designed to protect the huge investment of tax money at the air station from potential land use conflicts due to jet aircraft noise and accident potentials. Areas used for manure and dairy process water storage and use are not prohibited from the AX zone district, only the location of the actual animal concentration facilities, e.g., corrals, freestall barns, milk barns, pens, lagoons, feed storage, manure storage, etc.

Dairies that have been in operation since before 1979 or were issued a zoning permit after 1979 may continue to operate and expand. However, the expansion portion of the activity will be subject to a site plan review (SPR).

(Mitigation for Impact 4.5-3, 4.7-4)

Policy DE 1.2c: *Flood Zones (Flood Hazard Areas).* Flood Zones are areas of the County that are subject to periodic flooding. New Dairy Facilities or the expansion of existing dairies, including corrals, barns, manure storage areas, feed storage areas, dairy lagoons, etc., shall not be located on any territory designated on the latest adopted *National Flood Insurance Program, Flood Insurance Rate Maps (FIRM) (Community-Panel Numbers 060086 0001 - 0425)* as Special Flood Hazard Areas Inundated by 100-Year Flood, *Zones A, AE, AO and AH*, *Floodway*

Areas in Zone AE, or *Other Flood Areas in Zone X*. The latest Special Flood Hazard Areas Inundated Map is dated August 4, 1988. However, manure used as fertilizer and dairy process water used to irrigate cropland may be transported to and used in the flood zones, if specific safeguards are in place to prevent pollution from these materials (see Policy DE 3.2d).

Flood protection shall also be provided according to California Regional Water Quality Control Board regulations found in *Title 27, Division 2, Subdivision 1, Chapter 7, Subchapter 2, Article 1, Section 22562, Calif. Code of Regulations*.

(Mitigation for Impact 4.3-2, 4.3-4, 4.3-7, 4.3-9)

Policy DE 1.2d: *High groundwater areas.* New dairies, or the expansion of existing dairies, are prohibited in shallow or perched groundwater areas of the County unless the applicant can demonstrate that the minimum vertical distance between proposed lagoon bottoms/corral surfaces and highest anticipated groundwater levels is at least five feet. Highest groundwater levels shall be established based on available records and site-specific geotechnical investigation by qualified registered professional engineer or hydrogeologist.

(Mitigation for Impact 4.3-7, 4.3-9, 4.5-3, 4.7-3)

Policy DE 1.2e: *Designated wetlands and wildlife habitat for sensitive species*. Except as allowed by the conditional use permit process, new Dairy Facilities or the expansion of existing dairies shall not locate on wetlands or habitat for sensitive species. The SPR process is only available for lands where the detailed survey required by Policy DE 3.3a does not identify wetlands or habitat for sensitive species. Where the survey identifies the presence of wetlands or habitat for sensitive species, a conditional use permit and additional environmental review will be required before any new dairy development or expansion may occur.

(Mitigation for Impact 4.4-1, 4.4-2, 4.7-3)

Policy DE 1.2f: *Areas of excessive slope*. New Dairies Facilities are prohibited in the mountainous southwestern part of Kings County West of Interstate-5 or the California Aqueduct (whichever is farther west), except for the Sunflower Valley and portions of the Kettleman Plains along State Route 33 south of Utica Avenue (see Figure 2, page DE-14). This is due to the prevalence of slopes exceeding 5% that will make it difficult to contain manure and dairy process water on site.

(Mitigation for Impact 4.3-2, 4.3-5, 4.3-7, 4.3-9)

Policy DE 1.2g: *Areas in the immediate vicinity of schools.* New dairies facilities are prohibited from locating within a one-half (½) mile buffer zone around all existing public or private school sites. An existing dairy which proposes to decrease the separation between its dairy facilities and a school site to less than one-half (½) mile may do so only after approval of a conditional use permit by the Planning Commission. If the existing separation between an existing dairy's

facilities and a school site is not proposed to be reduced regardless of its distance to the school site, the site plan review process may be utilized.

Manure used as fertilizer and dairy process water used to irrigate cropland may be transported to and used within school buffer zones, but must be scheduled during weekends or summer vacation when the schools are closed.

(Mitigation for Impact 4.2-4, 4.7-4)

Policy DE 1.2h: *Separation of dairy facilities by ¼ mile.* The minimum distance between a Dairy Facility and other Dairy Facilities or confined animal feeding operations shall be one-quarter (¼) mile. This restriction includes only the actual dairy facilities, i.e., corrals, milk barns, feed storage areas, manure storage areas, etc., but not cropland used to spread dairy process water and manure. These separations are required to avoid potential nuisance problems, potential inter-herd disease transmission, soil and groundwater contamination, and cumulative air quality degradation.

An existing dairy which proposes to decrease the separation between its dairy facilities and another dairy's facilities to less than ¼ mile may do so only after approval of a conditional use permit by the Planning Commission. If the existing separation between the expanding dairy's facilities and the other dairy is not proposed to be reduced to a distance of less than ¼ mile, the site plan review process may be utilized.

(Mitigation for Impact 4.2-4, 4.6-2, 4.7-4)

Policy DE 1.2i: *Areas in the immediate vicinity of residential zones.* Facilities for new dairies, including corrals, barns, feed and manure storage areas, lagoons, etc., are prohibited from locating within a one-half (½) mile buffer zone around any residential zone (land zoned or designated for residential uses by Kings County or any city General Plan or zoning ordinance). However, manure used as fertilizer and dairy process water used to irrigate cropland may be transported to and used within a residential buffer zone.

Existing legally established dairies that do not meet the separation required from residential zones may only be expanded after the approval of a conditional use permit by the Planning Commission. However, the nonconformity in the separation shall not be increased by further encroachment of the actual Dairy Facility toward the residential zone.

(Mitigation for Impact 4.2-4, 4.6-2, 4.7-4, 4.7-5)

Policy DE 1.2j: The "compatibility zone" boundaries around the cities of Hanford, Lemoore, and Corcoran shall be updated periodically to ensure that changes, especially expansions of any city General Plan and/or Sphere of Influence area, are reflected in the "compatibility zone" boundaries.

(Mitigation for Impact 4.7-4)

B. Zoning Requirements for New and Existing Dairies

Site Plan Review (SPR) application approval by the Zoning Administrator (ZA) is a ministerial action requiring the ZA to insure all regulations, policies, mitigation requirements, standards, etc., in the *Zoning Ordinance*, *Dairy Element*, and *Dairy Element Program EIR* are met in the design of the facility. The monitoring program described in the *Dairy Element* will ensure that these policies, mitigation requirements, standards, etc., are being implemented or carried out.

The Zoning Administrator's review of the SPR application shall be formal and in writing. It shall include all steps as outlined in the Zoning Ordinance for SPR's, and for dairy reviews as outlined in the *Dairy Element*. No additional environmental review is required as long as the ZA makes a specific finding that all applicable provisions of the *Dairy Element* and *Program EIR for the Dairy Element* will be met. The monitoring program as outlined in the *Dairy Element* shall be implemented.

When an application for a new dairy or the expansion of an existing dairy does not or cannot meet all regulations, policies, mitigation requirements, standards, etc. in the Dairy Element, the application will instead be processed as an application for a conditional use permit (CUP). The review of such a CUP will include CEQA review beyond the Program EIR, which may include tiering of environmental documents as appropriate.

Failure to comply with policies, mitigation requirements, standards, etc., listed in the SPR will result in revocation proceedings before the Planning Commission. The Planning Commission may revoke the SPR and shut the operation down, or rescind the SPR and issue a new CUP with more conditions, monitoring, and reporting requirements. Upon request and after appropriate environmental review the Planning Commission, at its own discretion, may reinstate the dairy's SPR status.

GOAL DE 2: Streamline the permit process for establishing new dairies or expanding existing dairies.

Objective DE 2.1: All new dairies and the expansion of existing dairies with previously issued zoning permits shall be required to obtain a site plan review (SPR) pursuant to Article 21, or conditional use permit (CUP) pursuant to Article 19, of the *Kings County Zoning Ordinance* before construction or operation begins. For the expansions of existing lawfully established dairies the SPR process shall only apply to the expansion portion of the dairy. The CUP process shall be required if the *Dairy Element* standards are not met. Any additional environmental review associated with the CUP process shall only be required to address the deviation from the *Dairy Element* SPR process requirements.

Policy DE 2.1a: A SPR or CUP will be required for all proposed new or expanding dairies. Based on Regional Water Quality Control Board's (RWQCB) Table 1 of

Fact Sheet 4 for Dairies, the SPR or CUP review procedures will demonstrate the maximum number of animal units (AUs) the proposed new or expanding dairy site can potentially accommodate and establish the dairy's calculated capacity. The entire calculated capacity of the site will be removed from the theoretical capacity model for the County and will not be available for any other dairy project. If the dairy expands in the future within the original calculated capacity, it can claim the remaining capacity for its use as long as the farmland used in the calculation of the capacity remains under the dairy's control. In the event there is a variance between these standards and the RWQCB requirements, the more restrictive requirement shall prevail, unless RWQCB specifies a lesser standard in a Report of Waste Discharge (RWD). In the latter case, the RWQCB standard will prevail.

Policy DE 2.1b: For expansion of existing dairies, fluctuation in the herd size up to the calculated capacity does not require any zoning permits, unless the construction of new facilities including, but not limited to, barns, lagoons, feed and manure storage areas, corrals, etc. are part of the project. For example, if only 75% of the facility calculated capacity is being used and the herd is increased to 100% of capacity, and no construction of facilities will occur, the dairy is still operating within its original baseline limits of the permit.

Policy DE 2.1c: For dairies which have a previously-approved CUP or SPR, any construction of new facilities which were not addressed in the original CUP or SPR and which are intended to accommodate additional cows shall require a new SPR, regardless of whether the new construction will result in an increase in the dairy's calculated capacity or not. In such cases, the new SPR shall cover only the expanded facilities, not the entire dairy.

Policy DE 2.1d: Expansions above the originally approved calculated capacity limit of the zoning permit will require a new SPR for the new portion of the dairy facilities. Improvements to, and operation of, the dairy shall conform to all mitigation measures found in the Program EIR and policies of this Dairy Element.

Policy DE 2.1e: (Reserved)

Policy DE 2.1f: All applications for new dairies, or the expansion of existing dairies, shall include a *Technical Report*, pursuant to Policy DE 3.1a, with its required components. The contents of the *Technical Report* and its components are described in Appendix J.

(Mitigation for Impact 4.1-1, 4.1-3, 4.1-4)

Policy DE 2.1g: An application that does not, or cannot, meet all regulations, policies, mitigation requirements, standards, etc. of the Dairy Element shall be submitted as an application for a conditional use permit (CUP) which will include additional

environmental review. The Planning Commission may consider alternatives to the Dairy Element's regulations, policies, mitigation requirements, standards, etc., but must ensure that any alternative accomplish the same or higher level of performance as required by the Dairy Element, thus ensuring that the project is consistent with the Dairy Element of the General Plan.

Objective DE 2.2: Except in the AL-10 zone district, all dairies which existed prior to 1979, and which do not have previously-approved CUP, SPR, or Administrative Approval issued under a previous version of the Zoning Ordinance, shall be required to obtain a new SPR for either: (1) the construction of new facilities, or (2) an increase in the number of cows above the calculated capacity as determined by the Zoning Administrator. In the AL-10 zone district a CUP shall be required.

Policy DE 2.2a: Dairies that existed prior to 1979 that have not been the subject of a previously issued zoning permit may expand up to the calculated capacity of the dairy site, including the land that is currently under the dairy owner or operator's control, either by ownership or agreement, as of the date of adoption of this *Element*. Upon the request of the dairy owner or operator, the Zoning Administrator shall prepare a *Dairy Review Letter* providing the dairy owner or operator with the calculated capacity of the existing dairy site based on the capacity model described in Section II of this *Dairy Element*. The addition of new physical improvements or increase in the areal extent of the Dairy Facility, e.g., lagoons and separation pits, feed storage structures, barns, and expansion of corrals on to land that was not previously occupied by the dairy's facilities, will require approval of a new SPR by the Zoning Administrator.

Dairies with existing zoning permits are subject to the limits of their current zoning permit.

SECTION IV

DESIGN STANDARDS FOR INDIVIDUAL DAIRY PROJECTS

A. Design Capacity Component

A focus of this *Dairy Element*, and accompanying *Program EIR*, is on the capacity of dairy systems to recycle the by-products, i.e., nutrients in the manure, produced from a dairy operation. This concept is not based on a strict animal units (AU) count. Different methods of herd management, dairy process water and manure management, soil types, groundwater and surface water conditions, crop production management, proximity of receptors, etc., affect the ability of a dairy operator to properly use or recycle by-products generated by a dairy operation, and the degree to which those effects may be significant. The by-products generated by a dairy operation must be properly managed to ensure significant adverse effects will be reduced or eliminated. Therefore, the by-products that are generated are the controlling factor when considering a new or expanding dairy. A simple head count with assumptions about average by-product production per animal unit does not address the environmental differences from site to site. A simple animal unit calculation does not account for any innovative practices used to reduce the amount of dairy process water and manure that is generated in the first place, or the way in which it is managed. The *Dairy Element* takes the following principles into account when evaluating the capacity of a dairy system:

1. Manure contains unused nutrients from feed that needs to be controlled and directed to crops that could benefit from fertilization.
2. The reuse of water to flush manure at dairy sites is an efficient and environmentally sound management activity if combined with an effective manure and dairy process water collection and management system and a crop irrigation management program.
3. A total farm nutrient program that balances the utilization of manure nutrients through crops with the manure produced by the cattle is an essential step toward environmental accountability and sustainability.
4. Because of variations in production levels and systems used in feeding cows, each dairy shall develop its own program for manure and process water management.
5. Dairy farmers need to monitor their manure management system even after theoretical nutrient balance is achieved in order to avoid excess nutrient releases to the environment.

B. General Restriction for the Siting of New Dairies and the Expansion of Existing Dairies in Kings County

When dairies are not operated properly they can cause adverse impacts related to the environment and surrounding land uses. Goals Nos. 3, 4, 5, and 6, and their Objectives and Policies have been established to minimize any degradation of the environment due to the establishment and operation of new dairies, and the future expansion of existing dairies. These Goals, Objectives, and Policies apply to

the construction and operation of new dairies and the portions of the dairies that are expanded on existing dairies.

GOAL DE 3: Develop a countywide policy for the evaluation and distribution of dairy locations and their operation.

Objective DE 3.1: Apply the mitigation measures in the Program EIR to new or expanding dairies.

Policy DE 3.1a: With each application for a new or expanded dairy a technical report shall be prepared and shall address the following siting issues:

A. Ground and surface water quality and quantity,
B. Soil characteristics,
C. Air quality, including odors, dust and PM_{10} control during construction and operation at the Dairy Facility,
D. Traffic and road conditions,
E. Dead animal disposal management,
F. Insect, (i.e., fly and mosquito control), and rodent control,
G. Light, glare, and noise,
H. Biological resources,
I. Cultural and archeological resources,
J. Slope stability and potential for erosion,
K. Proximity to the nearest residences, and
L. Irrigation management.

This shall be accomplished by the preparation of the following components of the *Technical Report* as detailed in Appendix J:

1a. Geotechnical Report (Policy DE 2.1f and DE 3.2b),
1b. Groundwater Evaluation (Policy DE 3.2a),
1c. Soils Evaluation (Policy DE 3.2b),
1d. Hydrologic Sensitivity Assessment (HSA) (Policy DE 3.2h),
1e. Gas and Oil Well Evaluation (Policy DE 3.5a),
2a. Manure Nutrient Management Plan (MNMP) (Objective 4.1, Policy 4.1a, 4.1b, 4.1c, 4.1e, and 4.1f),
2b. Comprehensive Dairy Process Water Application Plan (CDPWAP) (Objective DE 4.2, Policy DE4.2a, 4.2b, 4.2c, and 4.2d),
2c. Odor Management Plan (OMP) (Policy DE 5.1b and 6.2d),
2d. Irrigation Management Program (IMP) (Policy DE 4.1b.C),
3. Hazardous Materials Business Plan (HMBP) (Policy DE 4.3a),
4. Pest and Vector Management Plan (PVMP) (Policy DE 4.3b),
5. Dead Animal Management Plan (DAMP) (Policy DE 4.1d),
6. Biological Resources Survey (Policy DE 3.3a),

7. Cultural Resources Evaluation by the California Historic Resources Information System (CHRIS) (Policy DE 3.1d and 3.1e),
8. Traffic Impact Study (Policy DE 3.1g),
9. Fugitive Dust Emissions Control Plan (FDECP) (Policy DE 5.1g, and 5.1h),
10. Light, Glare, and Noise Assessment (Policy DE 3.1h and 3.1i).

Additional details for specific areas are listed below in Policies DE 3.1b through 3.2j.

(Mitigation for Impact 4.1-1, 4.2-3,4.2-3a, 4.2-4, 4.2-5, 4.2-6, 4.2-7, 4.2-8, 4.2-13, 4.2-14, 4.3-5, 4.3-7, 4.3-9, 4.5-1, 4.5-4, 4.6-2, 4.7-5, 4.9-1)

Policy DE 3.1b: No new Dairy Facility shall be constructed within one-quarter (¼) mile of any existing rural residence that is not associated with that dairy.

(Mitigation for Impact 4.2-4, 4.6-2, 4.7-5)

Policy DE 3.1c: When nearby rural residences that are not associated with the dairy are within one-quarter (¼) mile of a proposed expansion of an existing Dairy Facility, the new improvements of the Dairy Facility shall be located so that the existing separation shall not be reduced.

(Mitigation for Impact 4.2-4, 4.6-2, 4.7-5)

Policy DE 3.1d: The *Technical Report* submitted for new or expanding dairies shall include documentation that a review of records of known cultural resources has been completed by the California Historical Resources Information System (CHRIS) and that no significant cultural (historic or archaeological) resources would be disturbed by the proposed dairy development (see Component 7 of Appendix J). In addition, the report shall document that a Sacred Lands File Check has been completed by the Native American Heritage Commission (NAHC). If CHRIS or NAHC indicates that known resources are present or suspected within the construction area of the proposed dairy development, the *Technical Report* shall include an evaluation of the resource by an archaeologist qualified under the Secretary of the Interior's Standards and Guidelines for archaeologists which includes an appropriate mitigation plan that will be implemented by the dairy developer. If the survey identifies any impacts on historical, archaeological or paleontological resources, then the applicant will not be eligible to obtain SPR approval by the Zoning Administrator and will instead complete a conditional use permit application process unless the area of concern is specifically excluded from the application.

(Mitigation for Impact 4.11-1)

Policy DE 3.1e: If potential historical, archaeological or paleontological resources are encountered during construction of any site proposed for dairy development, work in the vicinity of the find shall be suspended or diverted. The applicant shall

retain a qualified archaeologist to perform an assessment of the resource. Depending on the nature of any such find, evaluation may include determination of site boundaries and assessment of site integrity and significance. Standards for site evaluation shall comply with appropriate State and Federal requirements (including *California Public Resources Code Section 21083.2(i)*). Evaluation shall include, if necessary, site mapping and/or limited subsurface testing using standard archaeological methods in accordance with *CEQA Guidelines Section 15064.5*.

If, after evaluation, the qualified archaeologist judges an historical, archeological, or paleontological resource to be of importance, a mitigation plan shall be prepared in accordance with appropriate guidelines and submitted to the Zoning Administrator. Mitigation could include avoidance, site capping, data recovery, or a combination of these or other measures, as determined by the qualified archaeologist or paleontologist. Consultation with representatives of recognized local Native American groups shall be reflected in the development of any mitigation plan affecting Native American cultural resources.

(Mitigation for Impact 4.6-2, 4.11-1)

Policy DE 3.1f: All applications for new dairies or expansions of existing dairies shall continue to be submitted to the Kings County Public Works Department and CalTrans for a determination as to whether encroachment permits or other site-specific transportation improvements are required by those agencies.

(Mitigation for Impact 4.9-1)

Policy DE 3.1g: Upon the request of an applicant for a SPR or CUP, the Kings County Regional Transportation Planning Agency will evaluate the effect a new or expanding dairy project will have on surrounding roadways and highways using its traffic model. If the traffic model run demonstrates that the dairy project will not result in degradation of the Level of Service (LOS) of adjacent County roadways below LOS D, or below LOS C on State highways, no additional evaluation will be required.

If the Kings County Regional Transportation Planning Agency's traffic model demonstrated that the LOS will be degraded to a LOS E or lower on adjacent roadways, or to LOS D on State highways, a conditional use permit (CUP) will be required. In such a case the *Technical Report* accompanying the CUP application shall include a Traffic Impact Study (see Component 8 of Appendix J) prepared by a qualified traffic engineer in conformance with guidelines provided by the California Department of Transportation. Any additional environmental review shall focused on traffic related environmental issues and the Traffic Impact Study shall demonstrate that the proposed dairy project will not result in significant safety hazards.

(Mitigation for Impact 4.2-9, 4.9-1)

Policy DE 3.1h: The *Technical Report* for new and expanded dairies shall include a design of the outdoor lighting of the Dairy Facility which ensures that the outdoor lighting is so arranged as to reflect light away from adjoining properties (see Component 10 of Appendix J).

(Mitigation for Impact 4.6-2)

Policy DE 3.1i: The *Technical Report* for new and expanded dairies shall include an assessment of potential noise generated from the Dairy Facility showing that noise levels comply with the standards in the *Noise Element* of the *Kings County General Plan* (see Component 10 of Appendix J).

(Mitigation for Impact 4.5-1 and 4.5-4)

Policy DE 3.1j: The *Technical Report* for a new dairy, or the expansion of an existing dairy, shall evaluated the operations ability to accommodate the nutrients in the process water and manure generated by the dairy. For existing dairies, changes that reduce the dairy's process water and manure components of the operation may be implemented. However, under such circumstances, to receive credit for the nutrient reduction, and any corresponding increase in the herd size within the dairy's existing design capacity, a new site plan review (SPR) will be requirement. The new SPR is to document the new herd size limit, that the capacity of the dairy's nutrient balance system is not overloaded by the change, and it will operate in compliance with the regulations, policies, mitigation requirements, and standards of the *Dairy Element* and Program EIR.

Objective DE 3.2: Suitability for dairy facilities shall be based upon the ability of the site to adequately manage the dairy process water, manure, and associated nutrients generated by the dairy and other potential impacts. Specific nutrient management practices and other standards shall be used to make such determination.

Policy DE 3.2a: The *Technical Report* shall address water issues in the Groundwater Evaluation (see Component 1b of Appendix J), the Hydrologic Sensitivity Assessment (see Component 1d of Appendix J), the Manure Nutrient Management Plan (see Component 2a of Appendix J), the Comprehensive Dairy Process Water Application Plan (see Component 2b of Appendix J), and the Irrigation Management Plan (see Component 2d of Appendix J), including:

A. Minimum separation from bottom of all lagoons, manure and feed storage areas, and corrals and the groundwater level shall be at least five (5) feet at all times.

B. The source of potable water for the Dairy Facility, and the safeguards to protect that water source must be identified.

C. Identify adjacent watercourses and the improvements to protect those watercourses from discharges from a dairy into watercourses or water bodies.

In the event there is a variance between these standards and the RWQCB requirements, the RWQCB standard will prevail.

(Mitigation for Impact 4.3-7, 4.3-9)

Policy DE 3.2b: The Geotechnical Report (see Component 1a of Appendix J), Manure Nutrient Management Plan (see Component 2a of Appendix J), and the Irrigation Management Plan (see Component 2e of Appendix J), shall:

A. Include an evaluation by a certified agronomist of the soil type's capacity at the dairy site to assimilate the various nutrients in the dairy process water and manure produced on the dairy for crop production.

B. Demonstrate the agronomic rates for crop production needs for the nutrients for the various crops that are grown on cropland irrigated with dairy process water and fertilized with solid manure generated by the dairy, with consideration for the soil types and depth to groundwater.

(Mitigation for Impact 4.3-7, 4.3-9)

Policy DE 3.2c: Minimum Dairy Facility setbacks from water wells and water bodies shall be required:

A. Manured and feed storage areas on dairy facilities shall be set back 150 feet from wells and water bodies as required by the RWQCB.

B. Dairy Facilities shall be designed to ensure that no runoff into surface waters, including rivers, creeks, intermittent streams, canals, reservoirs, lakes, ponds, sloughs, stormwater basins, groundwater recharge basins, floodplains, floodways, etc., will occur. This can be done by constructing barriers or grading the facility away from such water bodies.

(Mitigation for Impact 4.3-2, 4.3-7, 4.3-8, 4.3-9)

Policy DE 3.2d: Dairy process water shall not be discharged into any surface water, including rivers, creeks, intermittent streams, canals, reservoirs, lakes, ponds, sloughs, stormwater basins, or groundwater recharge basins. Discharge of dairy process water onto land in floodplains or floodways shall not occur during periods of flooding. Solid manure applied to floodplains or floodways must be worked in to the soil immediately upon application. Additional storage capacity for dairy process water and solid manure shall be designed into the Dairy Facility to ensure there is sufficient capacity in case of flooding.

Flood protection shall also be provided according to California Regional Water Quality Control Board regulations found in *Title 27, Division 2, Subdivision 1, Chapter 7, Subchapter 2, Article 1, Section 22562, Calif. Code of Regulations*.

(Mitigation for Impact 4.3-2, 4.3-4)

Policy DE 3.2e: Each dairy shall apply dairy process water to crops at agronomic rates, and ensure even distribution of nutrients over the entire crop area so excessive

amounts of nutrients do not cause "hot spots", where excessive amounts of the nutrients cause crop damage and migrate below the root zone where they cannot be used by the crops.

Policy DE 3.2f: Each dairy shall design, implement, and maintain a monitoring and reporting program to ensure that the operation is in conformance with the *Mitigation Monitoring Plan* (MMP) in the Program EIR, and that significant adverse impacts are avoided. See Section V (Goal 6) for monitoring and reporting standards.

Policy DE 3.2g: Existing Dairy Facilities proposing to expand that are preliminarily determined to be located within the 100-year flood hazard zone shall either:

A. Show that the location of the Dairy Facility is outside of the 100-year flood hazard zone; or

B. Be based on detailed site-specific hydraulic analysis conducted by a licensed civil engineer, demonstrate to the Zoning Administrator that the facilities are not located within the 100-year flood hazard zone by securing a letter of map amendment, letter of map revision, or similar instrument from the Federal Emergency Management Agency; or

C. Provide 100-year flood protection for the dairy facilities by constructing berms or other flood control structures. The applicant must acquire all necessary permits and regulatory approvals for such structures.

(Mitigation for Impact 4.3-4, 4.3-9)

Policy DE 3.2h: *A Hydrogeologic Sensitivity Assessment (HSA) (see Component 1d of Appendix J)*, Whenever groundwater is being pumped from a hydrogeologic setting within one-half (½) mile of a proposed dairy site, or an expanding dairy, which is underlain by karst, fractured bedrock, or gravel, the applicants shall retain a qualified Certified Hydrogeologist or Professional Engineer to conduct a HSA.

A. The HSA shall evaluate whether hydrogeologic setting would offer adequate barriers to pollutant migration to drinking water supplies. The evaluation shall be conducted in accordance with the principles contained in the EPA's Ground Water Rule.

B. *Dairies Proposed in the Kettleman Plain or Sunflower Valley*: Water supply in the Kettleman Plains and Sunflower Valley is limited due to the lack of substantial recharge of the aquifers. In addition to paragraph A above, dairies proposed in these areas must complete a HSA to demonstrate that an adequate sustainable water supply would be available for each proposed project. The HSA must provide a detailed description of the proposed project water demand and how that demand would be met without overdrafting groundwater supplies. If the project proposes use of groundwater supplies, the HSA must quantify the safe yield of the

underlying aquifer. Allowable groundwater use must be limited to the quantified safe yield.

(Mitigation for Impact 4.3-6, 4.3-7, 4.3-9, 4.10-1)

Policy DE 3.2i: All existing active and inactive domestic and irrigation water supply wells (including those located at the dairy site) at a proposed new dairy or proposed expansion of an existing dairy shall be inspected by a qualified professional to ensure that each well is properly sealed at the surface to prevent infiltration of waterborne contaminants into the well casing or surrounding gravel pack. If any of the wells are found not to comply with the California Well Standards or RWQCB Standards, the applicant or dairy operator shall retain a licensed well driller to install the required seal or functional equivalent certified by a licensed engineer or other qualified registered professional. Documentation of the inspections and seal installations, if any, shall be maintained on the dairy site and made available to the Code Compliance personnel upon their request. This policy applies to all wells located on the Dairy Facility or on any farmland controlled by the dairy and used for the application of dairy process water.

(Mitigation for Impact 4.3-7, 4.3-8)

Policy DE 3.2j: In addition to local zoning requirements all dairies must comply with the Report of Waste Discharge (RWD) issued by Regional Water Quality Control Board (RWQCB) for each dairy. The local zoning and RWQCB requirements are separate requirements and must both be followed. In the event there is a variance between these standards and the RWQCB requirements, the RWQCB standard will prevail.

Objective DE 3.3: Protect any sensitive biological and wetland resources when evaluating proposed new and expanded dairies.

Policy DE 3.3a: It is the policy of the County, for purposes of siting dairies under this *Element*, that land continuously cultivated since 1985, or before, will not be considered wetlands or sensitive species habitat. Temporarily fallow land which otherwise meets this requirement shall not be considered to be habitat for sensitive species simply because it is not being cultivated at any given time. All applications for new or expanded dairies must submit a Biological Resources Survey (see Component 6 of Appendix J). The survey shall be conducted in compliance with the U.S. Fish and Wildlife Services, California Department of Fish and Game, and U.S. Army Corps of Engineers guidelines, where applicable. If the survey identifies impacts on wetlands or habitat for sensitive species, then the applicant will not be eligible to obtain SPR approval by the Zoning Administrator and will instead complete a conditional use permit (CUP) process and additional environmental review.

(Mitigation for Impact 4.4-1, 4.4-2, 4.7-3)

Objective DE 3.4: Protect public roads from the potential adverse effect of dairies.

Policy DE 3.4a: All buildings and structures on dairy facilities shall be set back from all public road right-of-ways at least 50 feet. Corrals, feed and manure storage areas, open sided shade structures shall be set back at least 20 feet from public road right-of-ways.

(Mitigation for Impact 4.9-1)

Objective DE 3.5: Protect the public from potential hazards associated with active or abandoned oil or gas wells.

Policy DE 3.5a: All applicants for new or expanded dairies shall submit documentation with the *Technical Report* indicating that the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) has reviewed their records for the potential presence of active and abandoned oil or gas wells at or adjacent to (within 100 feet) the proposed dairy site (see Component 1e of Appendix J). If DOGGR identifies wells, the *Technical Report* shall include a scaled map showing the location of the wells on the site plan of the proposed Dairy Facility. Copies of the pertinent maps will be maintained by the Kings County Planning Agency for consultation purposes by applicants for new or expanding dairies.

(Mitigation for Impact 4.8-6)

Policy DE 3.5b: Any identified abandoned oil or gas wells identified by DOGGR within the proposed dairy site that are located beneath or within 300 feet of a proposed dairy structure shall be properly closed in accordance with specifications provided by DOGGR.

(Mitigation for Impact 4.8-6)

Objective DE 3.6: Minimize the potential for increased fire hazards at new and expanded dairy facilities.

Policy DE 3.6a: Applications for all new and expanded dairy projects shall demonstrate conformance with all applicable Kings County Fire Department minimum standards for dairy developments. These minimum standards include**:**

A. Twenty thousand gallons of water must be stored in a tank on site for fire suppression. The storage tank shall be equipped with a pressure system and a float devise to keep the tank full at all times. The tank shall have a 3-inch discharge line with a 2½ inch National Standard Hose Thread male fitting for Fire Department connection. The male fitting shall have a cap to prevent accumulation of trash and debris within the fitting. The discharge line shall have a valve capable of controlling the flow of water. In lieu of the storage tank a well with a pump capable of producing at least 300gallons per minute of water may be used to meet water requirements.

The well shall have a 2½ inch National Standard Hose Thread male fitting located on the discharge plumbing. The well location shall be on the initial property and approved by the fire department. Any other source of water supply shall be submitted to and approved by the fire department.

B. Fires involving the storage of hay and/or feed commodities shall be brought under control by the fire department. Once the exigent circumstances cease to exist, it is at the fire department's discretion to turn the incident over to the responsible party/property owner for final extinguishment and removal of additional exposure, such as additional hay and feed commodities that may be ignited by drifting ambers. The fire department may continue to remain on scene at the responsible parties/property owners request if the responsible party/property owner agrees to pay the costs of additional suppression activities and stand-by time for all personnel and equipment used after the fire department determines that the exigent circumstances cease to exist.

C. Access road 15 feet in width shall be provided to all structures, water storage and hay storage areas. The roads shall be of an all-weather surface capable of supporting heavy fire apparatus.

D. Hay storage shall not exceed 20 feet in height. Individual stacks of hay shall be limited to 1,000 tons and shall have a minimum 20-foot separation between aisles and rows of adjoining haystacks.

E. Hay storage shall not be allowed within 100 feet of a structure.

F. Storage of hay within structures shall be limited to 100 tons. This does not include pole barns.

G. Agricultural shops that have repair facilities may be required to have automatic fire suppression systems installed depending upon operations and size of the structure. Fire hydrants may be required around structures depending on operations and size.

H. The fire department reserves the right to address requirements on a case-by-case basis depending upon the hazard and size of the risk involved. The aforementioned standards are only a minimum and more stringent requirements may be applied.

(Mitigation for Impact 4.10-3)

Objective DE 3.7: The expanded portions of existing dairies must comply with the standards in the *Dairy Element* and all other regulatory requirements.

Policy DE 3.7a: Nothing in this *Dairy Element* shall be construed as a guarantee that any existing dairy that does not meet the standards and regulations for the operation of dairies will be able to make the changes necessary for future expansion. Any dairy that is improperly located, or has other specific characteristics that conflict with the standards of this *Element* or other regulatory requirements, may not be able to expand. Such dairies, with or without expansion, may become nuisances and may be required to take specific corrective action which may include, but not

limited to, reducing herd size, increasing cropland application area, or ceasing operation.

C. Dairy System Design Policy

The following policies are derived from various sources, including local experience with the regulation of the Kings County dairy industry, California Regional Water Quality Control Board (RWQCB) regulations, *CEQA*, the *Kings County Zoning Ordinance*, and the USDA/USEPA *Unified National Strategy for Animal Feeding Operations, dated March 9, 1999.*

GOAL DE 4: Use specific and comprehensive manure nutrient management techniques in the operation of dairies.

Objective DE 4.1: A *Manure Nutrient Management Plan* (MNMP) shall be required as part of the *Technical Report* (see Component 2a of Appendix J) submitted with each application to either establish a new dairy or expand an existing dairy. The specific practices used to implement each component may vary to reflect site-specific conditions or needs.

Policy DE 4.1a: MNMP Components: The following components shall be addressed in the MNMP.

A. *Feed Management* – Evaluate the possibility of modifying diets and feed of the animals to reduce the amounts of nutrients in manure.

B. *Manure Handling and Storage* – Manure must be handled and stored properly to prevent water pollution from dairies. Manure and dairy process water handling and storage practices shall consider odor and other environmental and public health problems. Handling and storage considerations shall include:

1. *Diversion of clean water* – Dairy siting and management practices may include diverting clean water from contact with any manured area, including, but not limited to, corrals, pens, freestalls, feeding lanes and areas, feed storage areas, interiors of barns and milking parlors, manure storage and handling areas, dead animal storage areas, and other areas exposed to manure, feed, or dead animals. Clean water includes rainfall falling on roofs of facilities and runoff from adjacent lands, or other sources. If clean water is not diverted from manured areas, the capacity of process water storage facilities (i.e., lagoons) shall be sufficient to collect the additional runoff.
2. *Prevent leakage* – Construction and maintenance of buildings, collection systems, conveyance systems, and storage facilities shall prevent releases of organic matter, nutrients, and pathogens to ground or surface water by implementing the following measures:

a. All manure separation pits and process water lagoons shall be constructed so that the bottoms of the pits and lagoons are at least five feet above the highest expected groundwater levels.
b. The pits and lagoons shall be maintained so that the integrity of the seal is ensured.
c. The specific discharge of process water through the soils lining the bottom and sides of the manure separation pits and lagoons shall not be greater than 1×10^{-6} centimeters per second in compliance with the Geotechnical, Design, and Construction Guidelines published by the Natural Resource Conservation Service (1997).
d. A qualified professional (i.e., Professional Engineer or Certified Engineering Geologist) shall certify that the liner system of a lagoon or pit is installed according to the NRCS design standards.
e. The soil sampling and permeability testing program shall be designed to be representative of all soils lining all proposed pond areas.
f. Construction of the lagoons shall be inspected by a qualified professional to ensure that geologic heterogeneities (e.g., channel deposits and sandy lenses) are identified and properly mitigated to ensure integrity of the liner in compliance with the NRCS standards. The liner must be protected against damage during operation and maintenance activities.
g. At the corrals, naturally occurring or imported clayey (not less than 20% clay and silt) soils shall underlie the corrals and dry manure storage areas. Site drainage shall be included in the project design and construction of any manured area, including but not limited to, dairy surroundings, corrals, and ramps, pursuant to *Title 3, Division 2, Chapter 1, Article 22, §646.1 of the California Code of Regulations* to ensure that ponding does not occur.
h. Regular maintenance of corrals and dry manure storage areas shall include filling of depressions. Care shall be taken not to disturb the seal layer in the corrals. Dairy personnel shall be taught to correctly use manure collection equipment.
i. The potential for discharge of water-borne pathogens to existing and proposed domestic water supply wells shall be minimized by ensuring that the domestic wells are constructed in accordance with the California Well Standards and that appropriate minimum setbacks (150 feet, or other distance set in the Waste Discharge Requirements issued for the dairy by the RWQCB) between domestic wells and potential sources of pollution are maintained.

3. *Provide adequate storage for manure:*
   a) Dry manure shall be stored in a manner to ensure all runoff from the manure storage areas is captured and diverted to the dairy process water collection system.
   b. Dairy process water storage systems shall be designed and constructed to store, handle, and transport all of the quantity and contents of dairy process water produced on the Dairy Facility, runoff from the Dairy Facility, and rainfall that falls on the Dairy Facility. Location of manure storage areas shall be consistent with Policy DE 3.2c.
4. *Manure Management* – Manure shall be managed to reduce the loss of nutrients to the atmosphere during storage, to make the managed manure a more stable fertilizer when land applied, and to reduce pathogens, vector attraction and odors.

(Mitigation for Impact 4.1-3, 4.3-5, 4.3-7, 4.3-9, 4.8-4, 4.10-2)

Policy DE 4.1b: *Land Application of Manure* – Land application is the most common, and usually most desirable method of utilizing process water and dry manure because of the value of the nutrients and organic matter to plant growth. Land application shall be planned to ensure that the proper amounts of all nutrients are applied in a way that does not cause harm to the environment or to public health. Land application of manure in accordance with the MNMP shall minimize water quality degradation and public health risk. Considerations for appropriate land application shall include:

A. *Nutrient balance* – The primary purpose of nutrient management is to achieve the application of nutrients at the agronomic rates required to grow the planned crop by balancing the nutrients that are already in the soil and from other sources with those that will be applied in manure and commercial fertilizer. At a minimum, nutrient management shall prevent the application of nutrients at rates that will exceed the capacity of the soil and planned crops to assimilate nutrients, and will reduce the potential for degradation of water resources.

Soils shall be tested at least annually to determine nutrient content. The results of the testing shall be evaluated by a qualified soil scientist or agronomist to determine whether adjustments to the *Manure Nutrient Management Plan* are required to prevent crop damage or salt buildup. In the evaluation of salinity, which requires data on concentration variation over time, a statistical methodology for determining trends shall be selected by a certified agronomist. The first trend analysis shall be conducted for each dairy after five years of data collection, and then each year thereafter. Buildup of salt in the soil is detrimental to growing crops. Consequently farmers will have a natural incentive to take remedial action upon receiving a report that a salt buildup has occurred.

B. *Timing and methods of application* – Care must be taken when applying manure and process water to the land to prevent it from entering groundwater, streams, other water bodies, or environmentally sensitive areas. The timing and method of application shall prevent the loss of excess nutrients to groundwater or surface water. Additionally, process water shall be applied to minimize unnecessary contact with air in order to minimize the release of ammonia into the atmosphere. Manure application equipment shall be calibrated to ensure that the quantity of material being applied is at agronomic rates. Manure application shall be avoided during periods of winds in excess of 20 miles per hour.

C. *Irrigation Management Program* – The owner/operator of the proposed new or expanded dairy shall include an Irrigation Management Program with the *Technical Report* (see Component 2e of Appendix J) to ensures that irrigation water and runoff from fields at each dairy unit would not be allowed to migrate away from the project site or into surface water features.

(Mitigation for Impact 4.3-2, 4.3-5, 4.3-7, 4.3-9)

Policy DE 4.1c: *Land Management* – Tillage, crop residue management, grazing management, and other conservation practices shall be utilized to minimize movement to surface water and groundwater of soil, organic materials, nutrients, and pathogens from lands where manure is applied.

(Mitigation for Impact 4.3-2, 4.3-5, 4.3-9)

Policy DE 4.1d: *Dead Animals Management Plan (DAMP)* – A Dead Animal Management Plan (see Component 5 of Appendix J) shall be prepared and implemented for the disposal of all dead animals in a way that does not adversely affect groundwater or surface water, create public health concerns, or cause nuisances due to odor or vectors. The plan shall specify at a minimum that dead animals shall be removed from the dairy within 72 hours. Carcasses shall be stored in an area screened from public view and accessible via an all weather road or driveway. No animals shall be buried on site unless by order of an officer of a regulatory agency with jurisdiction over dead animal management, including, but not limited to, the County Agricultural Commissioner, the County Health Officer, and State and Federal Agencies.

Since rendering is the most common method used to dispose of dead animals, a plan for the timely delivery of dead stock to appropriately permitted facilities that will process the dead stock will adequately serve as the *Dead Animal Management Plan (DAMP)*.

(Mitigation for Impact 4.3-5)

Policy DE 4.1e: *Record Keeping* - Dairy operators shall document the annual estimated quantity of solid manure produced at the dairy and transported off-site. Documentation of this

estimate shall be maintained by the dairy and shall be made available to the County Code Compliance personnel upon their request.

Objective DE 4.2: A "*Comprehensive Dairy Process Water Application Plan*" (CDPWAP) (see Component 2b of Appendix J) shall be required as part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy.

Policy DE 4.2a: The following components shall be addressed in the CDPWAP:

A. When an applicant for a new dairy or the expansion of an existing dairy will use his or her own land for the application of process water:
   1. The CDPWAP shall include a legal description of all lands that will be used for process water application.
   2. The CDPWAP shall include the estimated amount of water that will be generated by the dairy (including an estimate of the Nitrogen and salt content of the dairy process water).
   3. Prior to selling any land on which process water is applied, the dairy owner/operator shall notify the Zoning Administrator and:
      a. Provide substitute land or enter into an agreement with another land owner to replace the land upon which the process water is applied, or
      b. Immediately reduce the dairy herd to a level that can be accommodated by the remaining land identified in the SPR or CUP.
   4. Changes made in the operation pursuant to section 3. above must be reflected in an amendment to the dairy's SPR or CUP.

B. When the application for a new dairy or the expansion of an existing dairy will use land other than his or her own land for application of dairy process water:
   1. The CDPWAP shall include a legal description of all lands that will be used for process water application.
   2. The CDPWAP shall include the estimated amount of water that will be generated by the dairy (including an estimate of the Nitrogen and salt content of the dairy process water).
   3. The agreement shall be recorded by the dairy owner/operator and the owner of the land identified in the CDPWAP where the dairy's process water will be used. The agreement shall contain the following provisions:
      a) The agreement shall include a legal description of all lands burdened by the obligation of the agreement.
      b) The agreement shall identify the Dairy Facility generating the process water by name and location.

c) The agreement shall state that the identified land shall not be converted to any use which cannot accommodate the dairy's process water.

d) The agreement shall be binding on all successors in interest as long as the agreement is in force.

e) The agreement must restrict the use of the land to cropping patterns which use all of the nutrients from the process water generated from the new or expanded Dairy Facility (less any nutrients used on the dairy owners own land). The nutrient utilization rate used in the calculations for nutrient utilization of the cropping pattern shall be established by a Certified Agronomist.

f) The agreement shall coordinate timing of the delivery of the dairy process water in conformity with the Dairy Facility's IMP (Policy DE 4.1b.C) and MNMP (Policy DE 4.1a) to assure adequate storage capacity is available at he Dairy Facility.

g) To ensure that the process water is applied to crops in accordance with the requirements of the *Dairy Element*, the agreement shall either:

   i. Allow the dairy owner/operator to enter the land identified in the agreement to carry out the application of the dairy process water in accordance with the requirements of the *Dairy Element*, or

   ii. Obligate the owner of the land identified in the agreement to carry out the application of the dairy process water in accordance with the requirements of the *Dairy Element*.

4. The agreement shall be recorded after the SPR or CUP is approved, but before any cows are brought to the site.

5. Prior to terminating the agreement, the dairy owner/operator shall notify the Zoning Administrator and either:

   a. Provide a substitute agreement with another land owner to replace the land within the terminated agreement, or

   b. Immediately reduce the dairy herd to a level that can be accommodate by the remaining land under the SPR or CUP, or agreement.

6. Changes made in operation of the dairy pursuant to section 5 above shall be reflected in an amendment to the dairy's SPR or CUP.

7. The land identified in the agreement for the use of dairy process water shall not already be subject to any other dairy process water use agreement.

8. The Zoning Administrator for an amendment of the SPR, or the Planning Commission for an amendment of the CUP must approve any change in the terms of the agreement.
9. If application of process water on land identified in the agreement is not carried out in conformity with the requirements of the *Dairy Element*, it shall be the responsibility of the dairy owner/operator to correct such problems. Any such violations of the Dairy Element Standards shall subject the owner/operator of the Dairy Facility to enforcement action by the County or other responsible agency, as provided in the *Dairy Element*, the *Zoning Ordinance*, or State law.

C. When the applicant for a new dairy or the expansion of an existing dairy uses a combination of his or her land and land other than his or her own land for application of dairy process water, both A and B above shall apply.

(Mitigation for Impact 4.8-5)

Policy DE 4.2b: Lagoons may be used for treating and storing dairy process water and manure. All areas occupied by cows shall be graded in such a manner that ensures runoff water will flow into and be contained within a lagoon until used for fertilizer or irrigation purposes. Water that does not come into contact with manured areas or feed storage areas may be diverted away from such areas and not allowed into the lagoon. All contents of a lagoon shall be managed so that it is applied to cropland at agronomic rates and used only for approved purposes and in an approved manner.

Policy DE 4.2c: The sale of solid manure from a dairy to other farmers or commodity brokers shall not require an agreement as described in Policy DE 4.2a above. Sale of solid manure produced on a dairy is not regulated.

Transporting manure from other dairies into a dairy for subsequent sale or distribution to a third party would constitute a "fertilizer sale yard" and is subject to a separate conditional use permit application and approval.

Policy DE 4.2d: Failure to obtain the Zoning Administrator's approval of any change to the agreement described in Policy DE 4.2a will be a violation of the *Kings County Zoning Ordinance* and the site plan review (SPR), and may result in the revocation of the dairy's SPR or CUP approval. Failure to implement an agreement as approved by the Zoning Administrator shall also be a violation and may be grounds for revocation of the dairy's SPR or CUP approval.

Objective DE 4.3: Promote dairy management facility practices that protect workers, public health, and the environment.

Policy DE 4.3a: Dairy operators shall conform to all applicable laws and regulations controlling the management of hazardous materials, including fuels, pesticides, and other agricultural chemicals (see Component 3 of Appendix J).

(Mitigation for Impact 4.8-1)

Policy DE 4.3b: A *Pest and Vector Management Plan* (PVMP) shall be submitted with each application to either establish a new dairy or expand an existing dairy as part of the *Technical Report* (see Component 4 of Appendix J). In addition, dairies are encouraged to implement an *Integrated Pest Management* (IPM) system.

(Mitigation for Impact 4.8-3)

Policy DE 4.3c: The County shall require that all dairy operators follow all Kings Mosquito Abatement District requirements concerning vector control at the Dairy Facility.

(Mitigation for Impact 4.8-3)

Objective DE 4.4: Promote protection of San Joaquin Valley water quality through the adoption of compliance with the water quality objectives of the Water Quality Control Plan for the Tulare Lake Basin-Second Edition 1995 (Tulare Lake Basin Plan) for dairy projects.

Policy DE 4.4a: On August 17, 1995, the California Regional Water Quality Control Board, Central Valley Region, adopted the current Water Quality Control Plan for the Tulare Lake Basin. Such plans are required by the state *Porter-Cologne Water Quality Control Act* and federal *Clean Water Act*.

Under *CEQA Guidelines section 15064.7*, a County may adopt thresholds of significance to determine the significance of environmental effects. The County hereby adopts compliance with the water quality objectives of the Basin Plan as the threshold of significance for impacts to water quality from implementation of the Dairy Element. Therefore, dairy projects that 1) comply with the Basin Plan and 2) comply with the provisions in the Element allowing approval of a site plan review (SPR), do not create cumulatively significant environmental impacts on water quality.

(Mitigation for Impact 4.3-9)

GOAL DE 5: Promote protection of the San Joaquin Valley air quality through the reduction of potential adverse air emissions from dairies.

Objective DE 5.1: Implement air emissions control practices and technologies at dairies to reduce the potential for degradation of air quality and odor generation.

Policy DE 5.1a: The County shall monitor the efforts of the San Joaquin Valley Unified Air Pollution District (SJVUAPCD) in developing air emissions control guidelines for agricultural uses, including dairy operations.

Policy DE 5.1b: An "Odor Management Plan" (OMP) (see Component 2c of Appendix J) shall be required as part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The Plan shall specifically address standard operating practices for livestock handling, and manure collection, treatment, storage, and land application.

The plan shall also identify existing residences located within a ¼-mile radius of the proposed new or expanded dairy facility. The OMP shall also provide standard operating procedures/control measures to be implemented to protect these residents from odors that may be generated from dairy operations.

In addition, the standard operating practices in the OMP shall also include quality assurance/quality control protocol to monitor the implementation and effectiveness of the OMP. The OMP shall be revised as necessary, based on the results of the monitoring program, to ensure that standard operating procedures are conducted in a manner that will reduce or control odor from dairy operations.

(Mitigation for Impact 4.2-4)

Policy DE 5.1c: (Reserved)

Policy DE 5.1d: The owner/operator of a proposed new dairy development or expansion shall comply with the most recently adopted Regulation VIII rules established by the SJVUAPCD for construction activities, during facility pre-construction, construction, inactive construction period, and post construction, when applicable.

(Mitigation for Impact 4.2-1)

Policy DE 5.1e: To ensure that potential fugitive dust emissions from cattle movement and maintenance activities in unpaved corrals, perimeter roadways, and other unpaved areas throughout Dairy Facilities are reduced, unpaved areas shall be effectively stabilized. Water (expected efficiency of 50 percent) or chemical stabilizer/suppressant (expected efficiency of 75 percent) that is safe for the environment and cattle may be used. Stabilization shall be conducted in a manner that will not result in the potential for breeding of mosquitoes and other vectors. The owner/operator shall also ensure that manure generated in the corrals is removed frequently to minimize the extent to which the manure becomes a PM_{10} source.

(Mitigation for Impact 4.2-3, 4.2-3a, 4.2-3b, 4.2-6, 4.2-10)

Policy DE 5.1f: The owner/operator of a proposed dairy development or expansion shall follow measures to control emissions (ROG, NOx, and PM_{10}) generated during construction as required by the SJVUAPCD.

(Mitigation for Impact 4.2-2)

Policy DE 5.1g: All applications for proposed dairies and all dairy expansions requiring a site plan review (SPR) shall include a *Fugitive Dust Emissions Control Plan* (FDECP) as part of the *Technical Report* (see Component 9 of Appendix J) which describes and demonstrates conformance with Policy DE 5.1e and the most recently adopted SJVUAPCD Regulation VIII controls for fugitive dust emissions.

(Mitigation for Impact 4.2-3, 4.2-4, 4.2-10)

Policy DE 5.1h: All new and expanding dairies shall comply with the control measures for fugitive dust emissions from agricultural sources as established by the most recently adopted SJVUAPCD Regulation VIII. The *Fugitive Dust Emissions Control Plan*, as required by Policy DE 5.1g, shall specify the control measures that will be implemented during dairy operation.

(Mitigation for Impact 4.2-3, 4.2-10)

Policy DE 5.1i: (Reserved)

Policy DE 5.1j: Prior to conversion of dairy facilities to other land uses not involving livestock, the operator/owner of the facility shall submit documentation to the County Code Compliance personnel demonstrating that all residual manure and process water has been removed or managed in an appropriate manner consistent with the facility's CDPWAP.

(Mitigation for Impact 4.8-5)

SECTION V

DAIRY MONITORING PROGRAM

A. Monitoring Component

This requirement is based on the CEQA requirement set forth in *CEQA Guidelines Section 15097*. CEQA requires that a *mitigation monitoring and reporting program,* or *plan,* be adopted and carried out to ensure that potential significant adverse effects to the environment and required mitigation measures are monitored to ensure that the operation stays within the limits of the approval. Monitoring that is documented by record keeping is also part of the *USDA/USEPA Strategy*.

This will be accomplished by a tracking program through the Code Compliance division of the Kings County Planning Agency. This division shall operate a program that tracks the accumulated data, analyzes it to determine whether the standards are being met, and makes periodic reports. This division is under the direction of the Director of Planning and Building Inspection (Zoning Administrator), who will be responsible for submitting annual reports to the Planning Commission concerning the implementation of the policies in this Dairy Element of the General Plan. The report shall include at least the following information:

1. The results of the monitoring program,
2. Whether the goals, objectives, and policies are being met,
3. Any failures by operating dairies to report required data, and
4. Whether changes in standards or conditions of approval are necessary.

All records, reports, plans, programs, documentation and other material required as part of the monitoring and reporting requirements shall be maintained on the dairy site, and shall be made available to the County Code Compliance personnel upon request for review and inspection. The monitoring and reporting requirements are applicable to new dairies approved under this Dairy Element or the portion of a previously existing dairy that is expanded or affected by the expansion.

GOAL DE 6: Establish a *Dairy Monitoring Program* in the *Kings County Planning Agency,* and implement a monitoring program that both demonstrates the *Dairy Element's* effectiveness in protecting the environment, and the effectiveness of those mitigation measures for each Dairy Facility regulated by these policies.

Objective DE 6.1: Establish a *Dairy Monitoring Program*: Develop and implement as part of the monitoring program a method to document the data for all of the dairies as the overall county monitoring program. Individual dairy information will include such data as:

A. Location of the animal concentrations on dairies,
B. "Dairy process water/nutrient use areas" covered by dairy process water use agreements,

C. Soil characteristics, including types and classification,
D. Dairy process water and nutrient usage and demand,
E. Groundwater conditions, including depth, local perched water, etc.,
F. Crop patterns and production,
G. Floodplain designation, inundation potential, and incidental flooding,
H. Other Confined Animal Feeding Operations (CAFOs) within one-quarter (¼) mile,
I. Urban area development within one (1) mile,
J. Dust control practices and Fugitive Dust Emissions Control Plan,
K. Odor control practices as specified in the Odor Management Plan (OMP), and

Policy DE 6.1a: Under the direction of the Director of Planning and Building Inspection the Code Compliance division of the Kings County Planning Agency shall:

A**.** Track required data from the new and expanding dairies to determine whether the *Dairy Element* and Program EIR standards and conditions of approval are being complied with.

B**.** Prepare, as needed, specific reports on a case-by-case basis to address problems, and work with dairies to solve any problems and ensure compliance in a timely manner.

C. Prepare a written report at least annually, and submit it to the Planning Commission on the general results of the monitoring program.

(Mitigation for Impact 4.2-3, 4.2-3a, 4.2-3b, 4.2-4, 4.2-5, 4.2-6, 4.2-7, 4.2-8, 4.2-10, 4.2-11, 4.2-12, 4.2-13, 4.2-14)

Policy DE 6.1b: The Code Compliance division shall include a qualified compliance specialist capable of reviewing the data of the monitoring programs prepared by the dairies subject to the *Dairy Element*. The compliance specialist shall be familiar with environmental issues associated with dairy operations. The compliance specialist shall determine whether the practices documented are consistent with the monitoring and reporting requirements of all of the components of the Technical Report as outlined in Appendix J, and shall provide recommendations to modify the ongoing practices.

(Mitigation for Impact 4.2-3, 4.2-3a, 4.2-3b, 4.2-4, 4.2-6, 4.2-7, 4.2-8, 4.2-10, 4.2-12, 4.2-13, 4.2-14)

Objective DE 6.2: Protect the environment through monitoring individual dairy operational activities so that adjustments in the operation can be made when necessary to comply with the standards.

Policy DE 6.2a: *Continuous monitoring:* Although the total county capacity of cows in the dairy industry in Kings County can only be estimated in terms of dairy process water, manure, and nutrients generated, the overall industry can be monitored to determine whether the individual operations are being operated within the limits of the standards established by this Element, and whether the theoretical limit of the County has been reached.

If the "Theoretical Dairy Herd Capacity" for Kings County is exceeded then proposed new or expanded dairies will be required to go through a full conditional use permit and individual project environmental assessment process under CEQA.

(Mitigation for Impact 4.3-7)

Policy DE 6.2b: Every operator shall be responsible for conducting an annual inspection of the interior and exterior slopes surrounding the manure separation pits and process water lagoons following the rainy season of each year. The inspections shall document the occurrence of any significant erosion (e.g., formation of rills or gullies longer than ten feet and/or deeper than one foot) or any significant slope failures (e.g., soil slips greater than 100 square feet in area). A report of the inspections shall be maintained at the dairy site and made available to the County Code Compliance personnel upon request. The report shall include recommendations and schedule for completing any necessary corrective action.

(Mitigation for Impact 4.1-1, 4.2-4, 4.2-6, 4.7-5)

Policy DE 6.2c: *Minimum standards for dust control monitoring:* The County Code Compliance division shall establish requirements for monitoring the dust control measures specified under Policy DE 5.1d and e. At a minimum, the requirements shall include:

A. Performance of periodic visual inspections at dust sources throughout the dairy (i.e., cattle movement at unpaved corrals and all other unpaved or gravel paved areas).

B. Visual inspections shall be conducted and documented by the dairy operator to determine the effectiveness of dust control measures required under Policy DE 5.1e and presence/absence of breeding of mosquitoes and other vectors due to the implementation of dust control measures.

C. Visual inspections shall be conducted at the dairy site boundaries and shall be conducted at least on a monthly basis during the dry season (April through October), once during the remainder of the year, and during periods of high winds.

D. All visual inspections shall be documented by the dairy operator and the documentation shall be maintained at the Dairy Facility.

E. Performance of inspection and documentation of the implementation of the *Fugitive Dust Emissions Control Plan* (FDECP) required by Policy DE 5.1g and control measures required by the most recently adopted SJVUAPCD Regulation VIII by the dairy operator at the dairy shall be done at least monthly.

(Mitigation for Impact 4.2-3, 4.2-3a, 4.2-8, 4.2-9, 4.2-10)

Policy DE 6.2d: *Minimum standards for Odor Management Plan (OMP) monitoring:* The Code Compliance division shall establish requirements for monitoring the

implementation of the OMP specified under Policy DE 5.1b. At a minimum, the requirements shall include:

A. The dairy operator shall conduct quality assurance/quality control on the implementation of the standard operating procedures described in the OMP.

B. Quality assurance/quality control shall be conducted and documented by the dairy operator in a manner that will determine whether the implementation of the specified standard operating procedures indicated in the OMP are effectively reducing or controlling odors generated from livestock handling, manure collection, treatment, storage, and land application.

C. Quality assurance/quality control shall be conducted by the dairy operator when the potential for odor release/migration is high (e.g., high temperature) and on a monthly basis during the remainder of the year.

D. The results of quality assurance/quality control shall be documented. The documentation shall be maintained at the Dairy Facility.

(Mitigation for Impact 4.2-3, 4.2-3b, 4.2-5, 4.2-7, 4.2-8, 4.2-9, 4.2-11, 4.2-12, 4.2-13, 4.2-14)

Policy DE 6.2e: (Reserved)

Policy DE 6.2f: *Minimum standards for water quality monitoring program:* Water quality monitoring shall comply with all requirements and orders of the RWQCB. Copies of all reports that are required by, and submitted to, the RWQCB by any new or expanded dairy regulated under this *Dairy Element* shall also be provided a copy of those reports to the Kings County Zoning Administrator.

A. Installation of groundwater monitoring wells at each dairy adequate to characterize the variations in depth to uppermost groundwater at the Dairy Facility and chemical quality of the uppermost groundwater zone. If non-continuous perched groundwater zones underlie the facility, deeper aquifers may require monitoring. Vadose zone monitoring using lysimeters shall be required to monitor the quality of soil water, particularly in the vicinity of the lagoons. The design and installation of water quality monitoring system shall be preformed under the direction of a Registered Geologist or a Professional Engineer in accordance with California Well Standards.

B. Groundwater and soil water samples shall be analyzed, at minimum, for TDS, electrical conductivity, general mineral content, Nitrogen as nitrate and nitrite, phosphorus, and coliform or other appropriate indicator of biological contamination. This list of constituents to be analyzed may be modified at the request of the RWQCB. All samples should be analyzed by a State-certified analytical laboratory.

C. Sampling of all wells and/or lysimeters shall be conducted prior to dairy operation to establish background levels and thereafter on an annual basis. In addition, the depth to water in each well shall be measured to within an

accuracy of 0.01 feet twice each year, once in the spring and once in the fall.

D. Reporting requirements shall be according to the RWQCB and Policy DE 6.4d, below.

(Mitigation for Impact 4.3-7, 4.3-9)

Policy DE 6.2g: The documentation shall be kept on-site at all times and shall be made available to the *Code Compliance personnel* upon request.

Objective DE 6.3: Implement a continuous monitoring program for each dairy regulated by these policies so that adjustments in the operation can be made when necessary.

Policy DE 6.3a: *Continuous Evaluation Program:* Each new or expanded dairy will be required to conduct an annual evaluation to demonstrate that the dairy is operating within its approved parameters. The evaluation results shall be kept on the dairy site and shall be made available to the Code Compliance personnel upon request. If those parameters are exceeded, the operator must make changes to bring the dairy into conformance with the requirements of the *Dairy Element*. If the changes in operation cannot or do not correct the problem, the County may modify or revoke the facility zoning permit.

(Mitigation for Impact 4.2-3, 4.2-3b, 4.2-5, 4.2-6, 4.2-7, 4.2-8, 4.2-11, 4.2-12, 4.2-13, 4.2-14, 4.3-7)

Objective DE 6.4: Establish a formal and effective process to evaluate and respond to public complaints regarding nuisances or conditions of approval violations at specific dairy operations to be managed by Code Compliance personnel.

Policy DE 6.4a: All public complaints regarding dairy operations and facilities shall be recorded with the Code Compliance division. It is the responsibility of that office to authenticate the conditions cited in the complaint through inspection of the subject dairy. As necessary, the Code Compliance personnel shall rely on the expertise of other County Departments to verify the basis and severity of a complaint and establish appropriate corrective action. Timely performance of necessary corrective action shall be required of dairy operators and verified by the Code Compliance personnel.

(Mitigation for Impact 4.2-4, 4.5-4, 4.6-2)

Policy DE 6.4b: All applications for new or expanded dairies shall include the name of, and contact information for, the person(s) responsible for responding to complaints regarding that dairy.

(Mitigation for Impact 4.2-5)

Policy DE 6.4c: Code Compliance personnel shall notify dairy operators of complaints and provide them opportunity to participate in the development of corrective action, if required.

(Mitigation for Impact 4.2-4, 4.5-4, 4.6-2)

Policy DE 6.4d: Each dairy operator shall retain a qualified professional (i.e., Professional Engineer or Certified Hydrogeologist) to compile and evaluate the water quality data required by Policy DE 6.2f. The Code Compliance personnel shall review the data to determine whether violations have occurred, or if corrective action is required. When considering response action for identified violations, the County shall consult with the RWQCB.

(Mitigation for Impact 4.3-9)

SECTION VI

DAIRY QUALITY ASSURANCE

To ensure that the dairy industry remains healthy and does not adversely affect other sectors of the Kings County community, Kings County encourages all dairies to operate in environmentally sound ways. Kings County encourages, but does not require, dairies to work toward certification by the California Dairy Quality Assurance Program. For further information about the California Dairy Quality Assurance Program contact the U.C. Cooperative Extension.

SECTION VII

ECONOMIC ANALYSIS OF THE DAIRY INDUSTRY IN KINGS COUNTY

This Section considers the economic impact and job creation potential of the dairy industry, including the multiplier effect attributable to the creation of "spin off" industries that will occur as a result of a strong dairy industry.

The dairy industry is a significant contributor to the Kings County economy. Although dairy production and processing jobs are only 4.5% of private sector employment, this industry has very high multiplier effects. Total direct and indirect jobs related to milk production, processing, transportation and services represent 19% of total county employment. Dairy farm production is 13% of total output, with dairy processors adding another 6%, but total output associated with support industries and local businesses serving dairy employees increase the total contribution of the industry to about 30 percent.

The potential for rapid dairy growth over the next several years indicates an even greater future contribution to the Kings County economy. Over the long term, it is estimated that the milk cow herd size and associated employment will grow at an average annual rate of 2.3 percent per year. The growth of the dairy herd would mean that over 20 years, the industry can be expected to show an employment increase of nearly 60 percent and achieve full buildout under Kings County land capacity parameters in less than 50 years.

Full dairy build-out of triple the current herd size would mean a total of:

- 369,000 milk cows -- 245,000 new;
- 4,600 dairy jobs -- 3,100 new;
- 9,800 related jobs -- 7,400 new;
- 14,400 total jobs -- 10,500 new;
- $434 million in dairy worker payrolls -- $370 million new;
- $616 million in total payroll -- $510 million new;
- $2.4 billion in dairy output -- $2.1 billion new;

Dairies purchase most of their supplies from the local area, and processors purchase 57% of their commodities locally, including milk. Milk processing (fluid products, cheese, ice cream, yogurt, etc.) is lower in Kings County because the City of Tulare has a large concentration of processors. However, Leprino's announced expansion in Lemoore could ultimately absorb almost half the future growth in county milk production.

At an average of $3,000 to $6,000 per acre of assessed valuation spread over 4,756 acres, year 2000 property tax revenues from dairy operations are $2.45 million, with $392,000 going to the county General Fund. However, the expected new dairy value could be as high as $3,500 per milk cow. Buildout of the *Dairy Element* capacity (and additional 257,000 milk cows) at this per milk cow rate

could generate as much as $2,166,000 for the County General Fund, $855,000 for the County Fire Fund, and $254,000 for the Library Fund.

SECTION VIII

PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR)

A. PEIR Component

A *Program EIR*, pursuant to *Article 11 (beginning at Section 15168) of the CEQA Guidelines*, has been prepared in support of the *Dairy Element* program. The PEIR provides the required environmental assessment for the adoption of the *Dairy Element*, and the construction of projects that meet the standards established in the PEIR. Projects that do not meet the standards in the PEIR and thus require further environmental review, may utilize information in the PEIR to complete the environmental review required under CEQA. This will streamline the permit review process while providing standards with which to evaluate new projects. The PEIR is hereby included by reference in the *Dairy Element* and made a part hereof.

B. PEIR Format

A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project or are related either:

1. Geographically,
2. As logical parts of a chain of contemplated actions,
3. In connection with the issuance of rules, regulations, plans, or other general standards to govern the conduct of a continuing program, or
4. As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

The advantages of preparing a program EIR are that the PEIR can:

1. Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action.
2. Ensure consideration of cumulative impacts that might be overlooked in a case-by-case analysis.
3. Avoid duplicative reconsideration of basic policy considerations.
4. Allow the lead agency to consider broad alternatives and program-wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts.
5. Allow reduction in paperwork.

Subsequent activities in the program must apply the standards established or identified in the PEIR. If a later activity would have effects that were not examined in the PEIR, a new Initial Study would need to

be prepared leading to either an EIR or negative declaration. If the agency finds that no new effects will occur and no new mitigation measures are required, then the agency can approve the activity as within the scope of the project covered by the PEIR, and no new environmental document is required. The agency shall incorporate feasible mitigation measures and alternatives developed in the PEIR into subsequent actions under the program.

Where the subsequent activities involve site-specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the proposed activities to ensure that the operation is covered in the PEIR. A PEIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the PEIR, and no further environmental documents would be required. In the case where a subsequent project is exempt from environmental review, such as site plan reviews, the project shall be compared to the standards and mitigation measures in the PEIR. These standards and mitigation measures shall be incorporated into the project review and subsequent issuance of a site plan review.

A PEIR can be used to simplify the task of preparing environmental documents on later parts of the program, where appropriate. It can:

1. Provide the basis in an initial study for determining whether the later activity may have any significant effects.
2. Be incorporated by reference to deal with regional influences, secondary effects, cumulative impacts, broad alternatives, and other factors that apply to the program as a whole.
3. Focus an EIR on a subsequent project to permit discussion solely of new effects that had not been considered before.

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DAIRY ELEMENT APPENDICIES

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APPENDIX A

TABLES

TABLE NO. 1
DAIRY PERMIT APPROVALS
1979 TO 2000

YEAR	NEW OR RE-ESTABLISHED	EXPANSION	OTHER IMPROVEMENTS
1979	0	0	1
1980	2	0	0
1981	0	0	3
1982	2	1	1
1983	1	0	2
1984	1	4	1
1985	2	1	1
1986	1	1	1
1987	0	2	2
1988	6	2	5
1989	1	3	2
1990	11	1	0
1991	6	2	0
1992	5	3	0
1993	10	3	0
1994	2	2	2
1995	2	1	0
1996	4	1	2
1997	2	6	0
1998	6	3	0
1999	3	1	0
2000	0	0	0
TOTAL	**67**	**37**	**23**

Source: Kings County Planning Agency H:/Ord-gp/Genplan/Element/Dairy/DE-text/DE-Tbl 1-Dairy Permit Approvals.xls

TABLE NO. 2
Survey of Dairies in Kings County
August 2000

Dairy Size (# of Milk Cows)	Farms	Milk Cows	Dry Cows	Heifers		Calves		Total Head	Equivalent AU	
				>2 yrs	1 to 2 yrs	3mo-1 yr	<3 mo.		Milk Cows	Support Stock
1 to 9*								-	-	-
10 to 19								-	-	-
20 to 49								-	-	-
50 to 99								-	-	-
100 to 199	3	380	220	20	20	20	20	680	532	290
200 to 499	11	3,735	713	413	1,075	488	451	6,875	5,229	2,667
500 to 999	6	4,000	570	235	895	450	480	6,630	5,600	2,142
1,000 to 2,499	6	7,370	2,760	220	1,880	810	270	13,310	10,318	5,520
2,500 or more	3	11,150	2,030	175	8,275	5,800	1,700	29,130	15,610	14,268
Totals (all dairies):	29	26,635	6,293	1,063	12,145	7,568	2,921	56,625	37,289	24,886

Source:

Data: *Kings County Planning Agency (July 2000)*

Notes:

* Dairies from 1 to 9 cows are assumed to be non-commercial/private use or 4-H projects that may not be subject to zoning regulations.

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TABLE NO. 3
DAIRY HERD GROWTH IN KINGS COUNTY
1988 TO 2000

DAIRY SIZE (Range)	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988
1 to 99													
Total Cows	179	150	85	60	90	-	125	71	70	180	-	-	40
# of Dairies	2	2	1	1	2	-	2	1	1	2	-	-	1
Avg. Herd Size	90	75	85	60	45	N/A	63	71	70	90	N/A	N/A	40
100 to 199													
Total Cows	1,697	1,025	1,892	2,355	3,009	3,045	2,957	1,744	2,934	3,305	3,467	3,174	4,168
# of Dairies	11	7	12	16	20	20	21	13	20	21	23	21	27
Avg. Herd Size	154	146	158	147	150	152	141	134	147	157	151	151	154
200 to 499													
Total Cows	15,959	15,458	15,642	17,400	15,925	18,276	18,557	19,075	16,044	16,063	18,708	18,060	19,714
# of Dairies	43	46	45	51	49	53	55	63	49	50	56	49	60
Avg. Herd Size	371	336	348	341	325	345	337	303	327	321	334	369	329
500 to 999													
Total Cows	38,671	40,178	41,490	41,318	41,660	42,857	40,361	37,281	39,457	39,476	35,881	30,750	30,034
# of Dairies	54	58	58	57	59	61	59	55	58	57	52	46	43
Avg. Herd Size	716	693	715	725	706	703	684	678	680	693	690	668	698
1000 to 2499													
Total Cows	43,191	34,782	30,852	28,758	30,498	30,522	29,428	32,061	28,622	31,529	23,767	15,041	15,836
# of Dairies	32	25	22	21	22	21	21	23	21	23	18	11	12
Avg. Herd Size	1,350	1,391	1,402	1,369	1,386	1,453	1,401	1,394	1,363	1,371	1,320	1,367	1,320
< 2500													
Total Cows	24,970	20,964	16,884	16,699	9,798	6,830	6,077	-	-	-	-	-	-
# of Dairies	7	6	5	5	3	2	2	-	-	-	-	-	-
Avg. Herd Size	3,567	3,494	3,377	3,340	3,266	3,415	3,039	N/A	N/A	N/A	N/A	N/A	N/A
Totals													
Total Cows	**124,667**	**112,557**	**106,845**	**106,590**	**100,980**	**101,530**	**97,505**	**90,232**	**87,127**	**90,553**	**81,823**	**67,025**	**69,792**
Total Dairies	**149**	**144**	**143**	**151**	**155**	**157**	**160**	**155**	**149**	**153**	**149**	**127**	**143**
Herd Aveage	**837**	**782**	**747**	**706**	**651**	**647**	**609**	**582**	**585**	**592**	**549**	**528**	**488**

Source: U.C. Cooperative Extension Service

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TABLE NO. 3A
Dairy Growth in Kings County
1982 to 2000

Dairy Size (# of Cows)	2000 **			1995**			1990**			1987***			1982***		
	Farms ***	Cows ***	Cows/ Farm	Farms	Cows	Cows/ Farm	Farms	Cows	Cows/ Farm	Farms	Cows	Cows/ Farm	Farms	Cows	Cows/ Farm
1 to 9****	20	40	**2**	20	40	**2**	19	33	**2**	19	33	**2**	27	49	**2**
10 to 19	0	0	**0**	0	0	**0**	0	0	**0**	1	*	*	0	0	**0**
20 to 49	0	0	**0**	0	0	**0**	0	0	**0**	2	*	*	3	80	**27**
50 to 99	2	179	**90**	0	0	**0**	0	0	**0**	1	*	*	4	304	**76**
100 to 199	11	1,697	**154**	20	3,045	**152**	23	3,467	**151**	21	3,408	**162**	37	5,597	**151**
200 to 499	43	15,959	**371**	53	18,276	**345**	56	18,708	**334**	67	21,921	**327**	68	20,724	**305**
500 to 999*****	54	38,671	**716**	61	42,857	**703**	52	35,881	**690**	52	37,235	**716**	34	25,740	**757**
1,000 to 2,499	32	43,191	**1,350**	21	30,522	**1,453**	18	23,767	**1,320**	6	7,931	**1,322**	3	4,267	**1,422**
2,500 or more	7	24,970	**3,567**	2	6,830	**3,415**	0	0	**n/a**	0	0	**n/a**	0	0	**n/a**
Totals (all dairies):	169	124,707	**738**	177	101,570	**574**	168	81,856	**487**	163	62,597	**384**	173	52,494	**303**
Total (Commercial):	149	124,667	**837**	157	101,530	**647**	149	81,823	**549**	141	71,000	**504**	143	52,365	**366**

Source:

Data: *U.C. Cooperative Extension and 1992 Census of Agriculture*
Projections by Kings County Planning Agency

Notes:

* Data restricted by Census Bureau

** U.C. Cooperative Extension data reported for January 2000. The small dairies (1 to 9 cows) for 1995 and 2000 are projections based on the*1992 Census of Agricultural.*

*** *1992 Census of Agriculture*

**** Dairies from 1 to 9 cows are assumed to be non-commercial/private use or 4-H projects that are not counted as part UCCE count.

***** Census data limited to 500 or more, but supplimented by UCCE data for 1982 and 1987.

Only cow dairies are listed

h:\Ord-gp\Element\Dairy\De-Tbl-3A Dairy Growth in KC.xls

TABLE NO. 4

Dairy Development and Nutrient Spreading Overlay Zone Areas

NAME/LOCATION	SUB-AREA IN ACRES	SUB-AREA IN SQUARE MILES	AVAILABLE LAND (Dairy & Irr.)	SUB-AREA IN SQUARE MILES	AVAILABLE LAND (Irr. only)	SUB-AREA IN SQUARE MILES
DDOZ 1 (Central)	131,230	205	103,768	162	4,586	7
DDOZ 2 (NE Central)	796	1	571	1	27	0
DDOZ 3 (East Central)	722	1	437	1	-	-
DDOZ 4 (EES Central)	7,850	12	4,069	6	439	1
DDOZ 5 (SE Central)	11,364	18	9,321	15	-	-
DDOZ SE County	23,972	37	23,972	37	-	-
DDOZ West County	48,803	76	48,761	76	42	0
DDOZ SW 1	11,253	18	11,253	18	-	-
DDOZ SW 2	15,941	25	15,941	25	-	-
SUBTOTAL	**251,930**	**394**	**217,657**	**341**	**5,095**	**8**
NSOZ 1 (Lake Basin)	238,445	373	-	-	235,897	369
NSOZ 2 (Island)	11,071	17	-	-	10,981	17
NSOZ 3 (Stratford)	246	0	-	-	246	0
NSOZ 4 (Northeast County)	10,287	16	-	-	10,287	16
NSOZ 5 (South county)	108,008	169	-	-	108,008	169
NSOZ SW 1	7,694	12	-	-	7,694	12
NSOZ SW 2	5,440	8	-	-	5,440	8
AX Zone District	32,503	51	-	-	32,503	51
SUBTOTAL	**413,693**	**646**	-	**-**	**411,055**	**642**
Avenal	12,278	19	-	-	-	-
Corcoran & Fringe	11,380	18	-	-	-	-
Hanford & Fringe	27,315	43	-	-	-	-
Lemoore & Fringe	12,992	20	-	-	-	-
Lemoore NAS	16,635	26	-	-	-	-
South West Mountain Area	144,287	225	-	-	-	-
SUBTOTAL	**224,887**	**351**	**-**	**-**	**-**	**-**
Grand Totals *	**890,510**	**1,391**	**217,657**	**341**	**416,150**	**650**

NOTES:

DDOZ = Dairy Development Overlay Zone

NSOZ = Nutrient Spreading Overlay Zone

Irr. = Irrigation

* The available acreage determined by the GIS mapping is more that the available acreage calculated in Table 5. Therefore, the amount of acreage estimated for the model will use the estimated acreage that is planted in the appropriate crops shown in Table 5.

h:/Ord-gp/Genplan/Element/Dairy/DE-Text/DE-Tables/DE-Tbl-4 DD Ns OZ area

TABLE NO. 5

Theoretical Capacity Model for Standard Freestall Dairies Balanced for Nitrogen and Salt Discounted for Additional Nitrogen Loading Sources

NITROGEN & SALT GENERATION CALCULATION TABLE (1)

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SECTION A: Calculation of Animal Units (AU)

Animals	Holstein Factor (1.4AU/Head)	AU Factor (By age of Animal)	A Freestalls (2) Head	A Freestalls (2) AU	B Flushed Corrals (3) Head	B Flushed Corrals (3) AU	C Scraped Corrals (4) Head	C Scraped Corrals (4) AU
1. Milk cows	1.40	1.00	381,980	534,772	-	-	-	-
2. Dry cows & bred heifers	1.40	0.80	-	-	-	-	57,297	64,173
3. Heifers (2 yr. & older)	1.40	0.73	-	-	-	-	122,234	124,923
4. Heifers (1 to 2 yrs. old)	1.40	0.73	-	-	-	-	61,117	62,461
5. Calves (3mo. to 1 yr. old)	1.40	0.35	-	-	-	-	152,792	74,868
6. Baby Calves (<3 mo. old)	1.40	0.21	-	-	-	-	30,558	8,984
7. Total AU's:			**381,980**	**534,772**	**-**	**-**	**423,998**	**335,409**

Grand Total:		
	Head:	805,977
	AUs:	870,181

SECTION B: Available Land (Excess or Deficit):

Crop Acreage Requirement for Nitrogen: Excess or (Deficit): **0** *Acres*

Corp Acreage Requirements for Salt: Excess or (Deficit):	Double Crop	Single Crop
	159,691	**79,845**

SECTION C: Calculations for Area and Animal Density:

Total Acreage Considered
250,056 *Acres*

Acreage Available	
Cropland	Dairy Facilities
235,483	**14,573**
Acres	*Acres*

A.U. Density (5)	
Total Acreage	**3.48**
Cropland only	**3.70**

Total Head Density (5)	
Total Acreage	**3.22**
Cropland only	**3.42**

SECTION D: Calculation of Nitrogen Loading Capacity:

N-Acreage Required for Liquid Manure
163,530 *@ [x] lb./ac./yr.*
Where x = **267** *lbs.N/Acre*

N-Acreage Required for Solid Manure
71,953 *@ [x] lb./ac./yr.*

Total N-Acreage Required
235,483 *Total Ac. Req'd*

Crop N Acreage Requirement: Excess or (Deficit)
0 *Acres*

	Values from Table 1	Liquid Manure Factor (2-4)	Liquid Manure Nitrogen	Solid Manure Factor (2-4)	Solid Manure Nitrogen
Estim'd Total AU's:	**870,181**				
AU's from B.7.	534,772	65.70	**35,134,502**		
AU's from B.1.	534,772	16.06	**8,588,434**		
AU's from B.7.	534,772			8.21	**4,391,813**
AU's from B.1.	534,772			2.01	**1,073,554**
AU's from D.7.	-	49.28	-		
AU's from D.1.	-	12.05	-		
AU's from D.7.	-			16.43	-
AU's from D.1.	-			4.02	-
AU's from F.1.	-	10.22	-		
AU's from F.1.	-			45.99	-
AU's from F.7 - F.1.	335,409			41.06	**13,772,725**
Time Factor (6):			**0.50**		**0.25**
Total N in lb./yr.			**43,722,936**		**19,238,092**
Total N in lb./yr. (both from liquid manure and solid manure):					**62,961,028**

NOTES:

(1) Source: This model for estimating the herd size is based on RWQCB's *Fact Sheet No. 4* .

(2) Freestalls: Liquid Waste Factor for Milk Cow = 0.8*0.11*0.5*365, Support Stock = 0.8*0.45*0.5*365, and Solid Waste Factor for Milk Cow = 0.2*0.11*0.25*365, Support Stock = 0.2*0.45*0.25*366.

(3) Flushed Corrals: Liquid Waste Factor for Milk Cow = 0.6*0.11*0.5*365, Support Stock = 0.6*0.45*0.5*365, and Solid Waste factor for Milk Cow = 0.4*0.11*0.25*365, Support Stock = 0.4*0.45*0.25*366.

(4) Scraped Corrals: Liquid Waste Factor for Milk Cow = 0.1*0.56*0.5*365, Support Stock = 0.1*0.45*0.5*365, and Solid Waste Factor for Milk Cow = 0.9*0.11*0.25*365, Support Stock = 0.9*0.45*0.25*366.

(5) Milk cows and support stock.

(6) Time Factor: The typical N loss from lagoons is time dependent. A loss of 30% of the N for a storage time of less than 30 days, 40% for 30-60 days, and 50% for more than 60 days. Solid manure Nitrogen loss is estimated to be 75%.

SECTION E: Estimate of Salt Loading Capacity:

	Values from: Table 1	Liquid Manure Factor	Liquid Manure Salt (lb./yr.)	Solid Manure Factor	Solid Manure Salt (lb./yr.)
Estimated Total AU's:					
AU's from B.7.	534,772	378.43	**202,374,732**	94.61	**50,593,683**
AU's from D.7.	-	283.82	**-**	189.22	**-**
AU's from F.7.	335,409	47.30	**15,866,179**	425.74	**142,795,611**
Total (Salt lb./yr.)	**870,181**		**218,240,910**		**193,389,293**

Total Salt Generated (both from liquid and solid manure):	**411,630,204**

Salt (lb./day) generated per 1,000 lb. A.U.: 1.296 Days per year: 365

	Double Crop	Single Crop	Total
Acres available in crops:	42,062	264,629	
Salt uptake per acre per year (6):	1,000	2,000	
Total lb. of Salt uptake per year from cropland:	**42,062,343**	**529,258,827**	**571,321,170**
Total lb. of Salt Generated by dairy herd (SECTION G):			**411,630,204**
Available cropland uptake vs. salt generated by herd: Excess or (Deficit):			159,690,966

(6) In order not to double count the acreage of double cropped land, add an additional 1,000 lb./acre/year the to the single crop limit of 2,000 lb. of salt./acre/yr.

NOTES for determining land area needed for the actual dairy facilities (DF):		
Acres in existing Dairy Facilities (DF):	4,756	Acreage is based on GIS calculation from satellite image of area in existing dairy facilities.
# of existing Dairies:	145	# of dairies is based on the identified existing DFs from the GIS review of the satellite image of Kings Co.
# of existing Milk Cows:	124,660	# of milk cows based on the annual report from UC Cooperative Extension

Average Ac. per existing DF:	32.80	Average Acres per Dairy Facility
Average # of cows per Ac of existing DF:	26.21	Milk Cows/Acres per Dairy Facility
Estimated Dairy Capacity (Milk Cows):	381,980	Total # of Milk Cows (from Sec. A)
Estimated Acres required for DFs:	**14,573**	**Ac. in DF**
Estimated acres for other Nitrogen Sources (Table No. 5A):	**95,395**	For other Nitrogen

Available Cropland from Fig. 2 & Table 4		
DDOZ =	**217,657**	Acres
NSOZ =	**416,150**	Acres
Total	**633,807**	Acres
Available	**463,611**	Acres

SECTION F: Estimate of Nitrogen Requirements for Certain Crops (7)

CROP (Source: NRCS)	YIELD Units	LBS. of N per Acre	Nitrogen Needs (lbs.N/acre) 1st Crop (Acres)	2nd Crop (Acs.)	3rd Crop (Acres)	Total Acres	Field Acres 1st Crop Only	Total lbs.N
Alfalfa (tons)	9.00	540	**42,060**	-	-	42,060	42,060	22,712,455
Alfalfa, seed		540	**17,427**	-	-	17,427	17,427	9,410,738
Barley, grain (tons)	2.50	160	**7,624**	-	-	7,624	7,624	1,219,911
Barley, Early (tons)	8.00	128	-	-	-	-	-	-
Barley, Late (tons)	16.00	160	-	-	-	-	-	-
Bermudagrass (tons)	4.00	224	-	-	-	-	-	-
Corn, grain (tons)	5.00	240	-	-	-	-	-	-
Corn, silage (tons)	30.00	240	**39,965**	-	-	39,965	39,965	9,591,714
Cotton (bale)	3.00	180	**166,732**	-	-	166,732	166,732	30,011,809
Cotton, seed		180	**2,765**	-	-	2,765	2,765	497,683
Mixed Small Grain (tons)	18.00	198	-	-	-	-	-	-
Oats, grain (tons)	1.60	115	**1,592**	-	-	1,592	1,592	183,389
Oats, silage (tons)	12.00	144	-	-	-	-	-	-
Oats, hay (tons)	4.00	140	-	-	-	-	-	-
Pasture, fescue (tons)	6.00	192	**9,216**	-	-	9,216	9,216	1,769,541
Safflower (tons)	2.00	200	**13,825**	-	-	13,825	13,825	2,764,907
Sorghum (tons)	4.00	252	-	-	-	-	-	-
Sudan, silage (tons)	8/cuttings	88	-	-	-	-	-	-
Sudan, hay (tons)	8.00	256	-	-	-	-	-	-
Sugar beets (tons)	30.00	270	**4,189**	-	-	4,189	4,189	1,131,098
Triticalo, early (tons)	12.00	180	-	-	-	-	-	-
Triticalo, late (tons)	22.00	220	-	-	-	-	-	-
Wheat, grain (tons)	3.00	174	-	-	-	-	-	-
Wheat, early (tons)	10.00	160	**51,947**	-	-	51,947	51,947	8,311,478
Wheat, late (tons)	18.00	198	**2,681**	-	-	2,681	2,681	530,862
Other (Specify)	Second Crop	240	-	**57,225**	-	57,225	-	13,734,047

(7) Source: U.C. Extension Service and Natural Resource Conservation Services

SECTION G: Cropland Nitrogen Requirement:					
	360,024	57,225	-	360,024	
Other Nitrogen sources reduction area from Table No. 5A:				95,395	
Subtotal: Gross Cropland Acreage available for dairy manure:				264,629	
Subtotal: Dairy Facility Acreage (from SECTION E above):				14,573	
Net available cropland (in acres) available for dairy manure:				**250,056**	**70,753,907**
Average Nitrogen demand in lbs. per acre (single and double crop) for the project:					**267**

SECTION H: Estimate of Available Crop Land for Nitrogen Usage from Dairies:

All Crops Harvested:	680,821	Total acres harvested countywide from *1999 Agri.Crop Report*
Selected Crops Harvested:	498,000	Total acres countywide of selected crops(8) harvested from *1999 Agri. Crop Report*
Ratio 1:	**73.15%**	**Ratio of Selected crops harvested to total crops harvested.**
DDOZ & NSOZ in acres:	633,807	Acres in the DDOZ and NSOZ.
Total Acreage:	463,611	Ratio of selected crops harvested in DDOZ and NSOZ areas based on *Ratio 1* .
Available Acreage:	417,250	90% cropable area

Crop	Harvested Acres (1999) Countywide	Available Acreage (8)
Alfalfa	50,200	42,060
Alfalfa, seed	20,800	17,427
Hay, other	1,900	1,592
Barley	9,100	7,624
Corn (silage)	47,700	39,965
Cotton (lint, all varieties)	199,000	166,732
Cotton (seed, all varieties)	3,300	2,765
Pasture, fescue	11,000	9,216
Safflower	16,500	13,825
Sugar beets	5,000	4,189
Wheat	62,000	51,947
Wheat, seed	3,200	2,681
Other (double crop acreage)	68,300	57,225
Total:	498,000	417,250
Less Double Crop:	429,700	360,024

360,024 Acreage available less double cropped acreage. Note that this is nearly 100,000 acres less than the estimated acreage in the DDOZ and NSOZ due to the actual acreage of the selected crops.

(8) Source: On average on 90% of the acreage is available for crop production due to structures, roads, canals, etc.

TABLE NO. 5A

ADDITIONAL NITROGEN LOADING SOURCES

Kings County, California

	1999 Number	Animal Units A.U[4]	Manure[5] lb/day	Total Kjeldahl Nitrogen[5] lb/day	Manure[5] lb/year	Total Kjeldahl Nitrogen[5] lb/year
Dairy Cows[1]	124,688	174,563	15,012,435	78,553	5,479,538,848	28,672,006
other cows[1]	**137,000**	137,000	7,946,000	43,840	2,900,290,000	16,001,600
Sheep & lambs[1]	11,914	1,191	47,656	500	17,394,440	182,642
Goats[1]	3,980	398	15,920	179	5,810,800	65,372
Hogs & Pigs[1]	11,700	4,680	393,120	2,434	143,488,800	888,264
Turkeys[1]	586,103	11,722	550,937	7,268	201,091,939	2,652,702
horses[2]	604	1,208	61,608	362	22,486,920	132,276
broilers[2,3]	**3,000,000**	30,000	2,550,000	33,000	930,750,000	12,045,000
			total	166,137	9,700,851,747	60,639,861
			subtotal-nondairy	87,583	4,221,312,899	31,967,855

	Acreage Needed	(all)	218,129
	Acreage Needed	**(nondairy)**	**114,992**
Acreage Needed	**(nondairy manure)**	(50% N reduction)	**57,496**
	Acreage Needed	(biosolids)	22,000
		Total	79,496
		120% contingency	95,395
		Total Herd Reduction(A.U)	366,684
		Milk Cow Reduction (A.U.)	225,346.84
		Revised Total (A.U.)	**517,136**
		% reduction	30.4

[1] Data source: Kings County 1999 Agricultural Crop Report

[2] Data source: USDA 1997 Agricultural Census

[3] Estimate of stable broiler flock population assumes four flock rotations per year.

[4] Animal Unit conversions: dairy cow (1.4), other cattle (1.0), Sheep/lamb (0.1), goat (0.1), hog/pig (0.4), turkey (0.02), horse (2.0), broiler (0.01).

[5] Data Source: American Society of Agricultural Engineers, 1999, Manure Production and Characteristics

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APPENDIX B

DEFINITIONS OF TERMS USED IN THE *DAIRY ELEMENT*

DEFINITIONS:

1. AGRONOMIC APPLICATION RATE:
Fertilizer or manure application rate that is calculated to meet the difference between what the soil is able to supply and the total nutrient requirement of the crop(s) being grown.

2. AFO (or CAFO):
AFO's (or CAFOs) are agricultural enterprises where animals are kept and raised in confined situations. AFO's congregate animals and their feed, manure and urine, dead animals, and production products in small areas. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures, fields, or on range land. Winter feeding of animals on pasture or rangeland is not considered an AFO for the purpose of the *Dairy Element*.

3. ANIMAL UNITS (AU) Source: RWQCB***:***

Animals Type	AU Factor (By age of Animal Head		Holstein Factor (1.4 AU/)	Equivalent Animal Units	
Milk Cow	1.00		1.40	1.40	
Dry Cow	*0.80*		1.40	1.12	
Heifers (2yrs and older)	*0.73*		1.40	1.02	
Heifers (1 yr. to breeding)	*0.73*		1.40	1.02	
Calves (3 mo. to 1 yr.)		*0.35*		1.40	0.49
Baby Calves (less than 3 mo.)	*0.21*		1.40	0.29	

4. BASELINE CAPACITY OF A DAIRY:
The baseline capacity of a dairy is the animal unit capacity of a dairy site in Animal Units (AU) which is determined through an analysis of the dairy management program operated at the dairy. This will include, but not limited to the existing dairy facility's development layout and configuration, its existing herd make up and size, Nitrogen and salt loading limits of the land used for solid and liquid manure usage, cropping program, and other factors deemed appropriate.

5. BIOLOGICAL RESOURCES SURVEY:
See Technical Report – Appendix J, Component 6.

6. CEQA (California Environmental Quality Act):
Public Resources Code, Division 13, from Section 21000 to 21178.

7. CEQA GUIDELINES:
California Code of Regulations, Title 14, Chapter 3, from Section 15000 to 15387.

8. COMPREHENSIVE DAIRY PROCESS WATER APPLICATION PLAN (CDWAP):
See Technical Report - Appendix J, Component 2b.

9. CONDITIONAL USE PERMIT (CUP):

(See Article 19 of the Kings County Zoning Ordinance) Discretionary Zoning permits granted by the Planning Commission used to achieve the purposes of the zoning ordinance and give zone district regulations the flexibility necessary to achieve the objectives of the ordinance. The Planning Commission is empowered to grant and to deny applications for use permits and to impose reasonable conditions. Approval of a CUP is subject to review by the Board of Supervisors.

10. CULTURAL RESOURCES EVALUATION:

See Technical Report - Appendix J, Component 7.

11. DAIRY:

The general term for agricultural enterprise principally engaged in the production of milk.

12. DAIRY DEVELOPMENT OVERLAY ZONE (DDOZ):

That portion of Kings County where new dairies may be established.

13. DAIRY ELEMENT:

An optional element of the General Plan authorized by Section 65303 of the California Government Code to address the issues related specifically to dairies.

14. DAIRY EXPANSION:

Any increase in a dairy's herd size (number of Animal Units) beyond the dairy's current baseline capacity. This includes an increase in capacity/size of a dairy to accommodate more animal units (A.U.) than were previously allowed by an existing zoning permit, or increase in the herd size of an existing dairy which was established prior to the requirement for zoning permits. In addition, an increase in the number of animal units which necessitates the construction of additional facilities (corrals, barns, lagoons, etc.) constitutes an expansion of the dairy and requires zoning approval.

15. DAIRY FACILITY:

That portion of a dairy which includes the corrals, barns, feed storage, milk barn, lagoons and other manure handling facilities, but not including the associated farm land or dwellings.

16. DAIRY PROCESS WATER:

Liquid manure and other water that has come into contact with manure or feed and managed by the dairy operation. Sometimes refereed to as "dairy waste water."

17. DAIRY REVIEW LETTER (DRL):

A letter prepared by the Zoning Administrator at the request of a dairy owner or operator that establishes the baseline capacity of an existing dairy operation. This information can be used to determine what type of zoning approval will be required to expand a dairy operation.

18. DAIRY SITE:

All of the land used for a dairy including the Dairy Facility and associated agricultural land.

19. DAIRY SYSTEM:
This is the complete dairy operation including, but not limited to, the physical structures of the facility; the animal feeding program; the management of the herd and the herd itself; the cropland where process water, manure, and nutrients are used, dead animals, etc.; and integrated management program and practice of the operation. System is defined as a regular interacting, or interdependent, group of items forming a unified whole that is considered a functional unit.

20. DEAD ANIMAL MANAGEMENT PLAN (DAMP):
See Technical Report - Appendix J, Component 5.

21. ERME-II:
Environmental Resources Management Element - Phase II, adopted as part of the *Kings County General Plan* in 1976 and rescinded and replace by the *1993 Kings County General Plan* adopted in December 1993.

22. FUGITIVE DUST EMISSIONS CONTROL PLAN (FDECP):
See Technical Report – Appendix J, Component 9.

23. GAS AND OIL WELL EVALUATION:
See Technical Report - Appendix J, Component 1e.

24. GEOTECHNICAL REPORT:
See Technical Report - Appendix J, Section 1 Component 1a.

25. GROUNDWATER EVALUATION
See Technical Report - Appendix J, Component 1b.

26. HAZARDOUS MATERIALS BUSINESS PLAN (HMBP):
See Technical Report - Appendix J, Component 3.

27. HYDROLOGIC SENSITIVITY ASSESSMENT (HSA):
See Technical Report - Appendix J, Component 1d.

28. IRRIGATION MANAGEMENT PLAN (IMP):
See Technical Report - Appendix J, Component 2d.

29. LEVEL OF SERVICE (LOS):
Refers to traffic flow on streets and roads.

30. LIGHT, GLARE AND NOISE ASSESSMENT:
See Technical Report - Appendix J, Component 10.

31. MANURE NUTRIENT MANAGEMENT PLAN (MNMP):
See Technical Report - Appendix J, Component 2a.

32. NOx:
Nitrous Oxide, a precursor for the formation of ozone (smog).

33. NUTRIENT SPREADING OVERLAY ZONE (NSOZ):
That portion of Kings County where new dairies will not be permitted, but where manure and dairy process water can be used to fertilize cropland.

34. ODOR MANAGEMENT PLAN (OMP):
See Technical Report - Appendix J, Component 2~~d~~c.

35. PEST AND VECTOR MANAGEMENT PLAN (PVMP):
See Technical Report - Appendix J, Component 4.

36. PM_{10} and $PM_{2.5}$:
Particulate Matter less than ten microns and 2.5 microns in diameter, respectively.

37. PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR):
An EIR as defined in Section 15168 of the CEQA Guidelines. Specifically for this project it is the Final and Draft PEIR documents for the Dairy Element project.

38. ROG:
Reactive Organic Gases, also referred to as VOC or Volatile Organic Gases, a precursor for the formation of ozone (smog).

39. RWQCB:
California Regional Water Quality Control Board Central Valley Region

40. SENSITIVE SPECIES:
Plant or animal species listed as threatened or endangered pursuant to the state or federal endangered species acts (CESA and ESA).

41. SITE PLAN REVIEW (SPR):
(See Article 21 of the Kings County Zoning Ordinance) A zoning permit issued by the Zoning Administrator after making findings that the proposed use is in conformity with the intent provisions of the Zoning Ordinance, and as a guide for the issuance of building permits.

42. SJVUAPCD:
San Joaquin Valley Unified Air Pollution Control District.

43. SOILS EVALUATION:
See Technical Report - Appendix J, Component 1c.

44. TECHNICAL REPORT:
See Appendix J.

45. TRAFFIC IMPACT STUDY:
See Technical Report - Appendix J, Component 8.

46. URBAN AREAS:
Those built-up areas of Kings County in and around the cities of Avenal, Corcoran, Hanford, and Lemoore, and the unincorporated areas of Armona, Home Garden, Kettleman City, Santa Rosa Rancheria, and Stratford.

47. WILDLIFE SURVEY:
See Technical Report - Appendix J, Component 6.

48. ZONING ORDINANCE:
Kings County Ordinances No. 269, as amended, which regulates land in the unincorporated territory of the County of Kings, state of California.

APPENDIX C

QUESTIONNAIRE FORM

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Kings County
Survey of Dairies

Please fill out the questionnaire as completely as possible. Write any additional comments on a separate sheet. If you have any questions, please call Steve Sopp at 559.582.3211, x 2675.

Please respond by July 21, 2000. Mail this form in the enclosed envelope or send or fax it to 559-584-8989:

Kings County Planning Agency
Kings County Government Center
Hanford, CA 93230
559.582.3211 x2670
fax 559.584.8989

The information provided will become the property of the County of Kings, and *will not* be made available to the public except in a composite form (i.e. totals, abstracts, or summaries). County staff may follow up with individual businesses to offer assistance with problems identified in this questionnaire.

A GENERAL INFORMATION

Dairy name _____
Person completing form_____
Phone_____
Fax _____

Physical address(es) of the dairy facility and support stock facility.

_____
_____
_____

Mailing address(es) of the dairy.

_____
_____
_____
_____

B FACILITIES AND EMPLOYMENT

What capital improvements have you made recently or will you make in the future?

For:	1999 $	2000 $	2001-2004 (total) $
Facility expansion			
Facility productivity improvements			
Replacing/upgrading older equipment			
Regulatory compliance			
Other/don't know			

Number of employees at this location (annual average) in the past, now, and in the future.

	1999	2000	2001	2002
Full time	_____	_____	_____	_____
Part time	_____	_____	_____	_____
Seasonal	_____	_____	_____	_____

Kings County Survey of Dairies

C PRODUCTION AND MARKETS

How do you expect the growth of the dairy industry to change in the next two to three years?

- ☐ Grow more slowly than the past three years
- ☐ Grow as fast as the past three years
- ☐ Grow more quickly than the past three years

Why?_____

_____

_____

Please estimate your herd size (annual average) now and in the future.

	1999	2000	2004
Milk cows			
Dry cows			
Heifers 2 yr or less			
Heifers more than 2 yrs			
Calves less than 3 mos			
Calves 3 mos to 1 yr			
Total herd			

If planning to increase herd size, why?

- ☐ Have/will have excess milking barn capacity
- ☐ Need to increase efficiency
- ☐ Price of milk
- ☐ Demand for milk is increasing
- ☐ Technological improvements are making it possible
- ☐ Other _____

If not planning to increase herd size, why?

- ☐ Have a balanced ecosystem; don't want to upset
- ☐ Personal or family reasons
- ☐ Capital costs
- ☐ Planning to make technological improvements instead
- ☐ Plant can't be expanded
- ☐ Qualified labor not available
- ☐ Lack of land to spread dry manure
- ☐ Lack of land to dispose of wastewater
- ☐ Price of milk
- ☐ Other _____

Whether or not you are planning to increase herd size, what improvements would you need to make in order to increase production?

- ☐ More acres of land to spread dry manure
- ☐ More acres of land to dispose of wastewater
- ☐ More milking stalls
- ☐ Other improvements

(specify) _____

What cooperative are you a member of?

- ☐ California Dairies, Inc.
- ☐ Dairyman's Division of Land 'o Lakes
- ☐ Dairy Farmers of America
- ☐ Security Milk
- ☐ Hilmar Cheese
- ☐ Other _____

If you know, where does milk go for processing on a typical day?

	Amount (lbs)	SPECIFY PLANT AND ADDRESS / SPECIFY DESTINATION, IF KNOWN / SPECIFY PLANT(S) AND ADDRESS(ES)
Local processor		
Spot market		
Dairy processes and sells		
Out of area		
Total		

Kings County Survey of Dairies

What was your total production and revenue in 1999 and your expected production in the future?

	Amount (lbs)	Revenue ($)
1999		
2000		
2004		

Operating capacity.
Present capacity used _____ %
cows that could be added without expansion _____

D OPERATIONS

Year dairy established.
☐ 1978 or earlier ☐ After 1978

What is the acreage of your dairy facility, including corrals, milking facilities, barns, feed storage and manure handling areas? Do not include acreage used for growing crops.

_____

_____

Dry manure handling, revenue, or cost. (Please check all that apply and fill in the blanks.)

☐ Spread dry manure on my own crop land
_____ acres

☐ Sell excess dry manure to other farmers
Annual income: $ _____

☐ Sell excess dry manure to fertilizer processors ?
Annual income: $ _____

☐ Purchase manure to satisfy my own crop needs
Annual cost: $ _____

What land is irrigated by water generated by the dairy operation? What is the ownership and agreement? Give by parcel, address, or section number.

Address, parcel, section	Acreage	Owned/ Leased	Secured by agreement for this use?
		☐ Own ☐ Lease	☐ Yes ☐ No
		☐ Own ☐ Lease	☐ Yes ☐ No
		☐	☐
		☐	☐
		☐ Own ☐ Lease	☐ Yes ☐ No

What are your other wastewater solutions?

☐ Sell excess wastewater to other farmers
Annual income: $_____

☐ Sell excess wastewater to manufacturing processors
Annual income: $_____

☐ Purchase wastewater to satisfy my own crop needs
Annual cost: $_____

Source of feed/silage. (Please total to 100%.)
Grow own feed on adjacent lands _____%
Grow own feed on other land I own not adjacent to dairy _____%
Purchase from other growers _____%
Other _____%
(specify) _____

Kings County
Survey of Dairies

What are the factors that are the *most important for the daily operation* of your business?

	Not at all	Somewhat Important		Very important	Critical
Labor costs	1	2	3	4	5
Labor supply	1	2	3	4	5
Transportation	1	2	3	4	5
Interest rates	1	2	3	4	5
Energy costs	1	2	3	4	5
Feed costs	1	2	3	4	5
Regulatory compliance	1	2	3	4	5
Local property taxes	1	2	3	4	5
State or corporate income taxes	1	2	3	4	5
Market condition/economy	1	2	3	4	5
Other	1	2	3	4	5
(specify) _____					

How will technology affect your operation in the future?

_____

_____

_____

_____

_____

_____

Please write any other comments on dairy production and the dairy industry, especially as related to Kings County.

_____

_____

_____

_____

_____

_____

Which factors are most difficult to *have control over?*

	Unimportant	Somewhat difficult	Difficult	Very difficult	Unmanageable
Labor costs	1	2	3	4	5
Labor supply	1	2	3	4	5
Transportation	1	2	3	4	5
Interest rates	1	2	3	4	5
Energy costs	1	2	3	4	5
Feed costs	1	2	3	4	5
Regulatory compliance	1	2	3	4	5
Local property taxes	1	2	3	4	5
State or corporate income taxes	1	2	3	4	5
Market condition/economy	1	2	3	4	5
Other	1	2	3	4	5
(specify) _____					

APPENDIX D

FIGURES

APPENDIX "D" – FIGURES

Figure 3. - General Plan Designation and Spheres of Influence; features shown

A. City Boundaries
B. CSD/PUD Boundaries
C. 'Spheres of Influence' of Districts providing urban type services
D. General Plan Designations outside of areas in A. and B above.

Figure 4. - Zone Districts; features shown

A. AL-10 – Limited Agricultural-10 (10 acres parcel minimum)
B. AG-20 – General Agricultural-20 (20 acres parcel minimum)
C. AG-40 – General Agricultural-40 (40 acres parcel minimum)
D. AX – Exclusive Agricultural (40 acres parcel minimum)
E. All other Zone Districts outside cities, rural communities, Rancheria, and NAS Lemoore

Figure 5. – FEMA Flood Zones; features shown

A. Zone A – 100 year flood zoned
B. Zone A – 500 year and 100 year (with water depth less than one foot) Flood Zones

Figure 6. - Existing Dairies; features shown

A. Dairy facilities
B. ¼ mile buffer
C. ½ mile buffer

Figure 7. - Other CAFO's; features shown

A. Poultry
B. Swine
C. Goat Dairies

Figure 8. – Communities; features shown

A. City boundaries
B. CSD/PUD/Rancheria boundaries
C. NAS Lemoore

Figure 9. – Schools; features shown

A. School site
B. ½ mile buffer
C. City and CSD/PUD boundaries

Figure 10. - Soil Map of Kings County; features shown

A. Soil characteristics (permeability, drainage, etc.)

Figure 11a. - Highest Recorded Water Table; Map of Northeastern Kings County; features shown

A. Groundwater depths of unconfined aquifer in Northeastern Kings County (source: Kings County Water District)

Figure 11b. - Highest Recorded Water Table; Map of Northeastern Kings County; features shown

A. Groundwater depths of shallow groundwater in Northeastern Kings County (source: Kings County Water District)

Figure 12. - Orchards and vineyards; features shown

A. Parcels shown on Assessor's records with orchards or vineyards

h:/Ord-gp/Genplan/Element/Dairy/DE-Text/DE-Appendix D Figs List.doc

FIGURE 3
General Plan Designations & Sphere of Influence

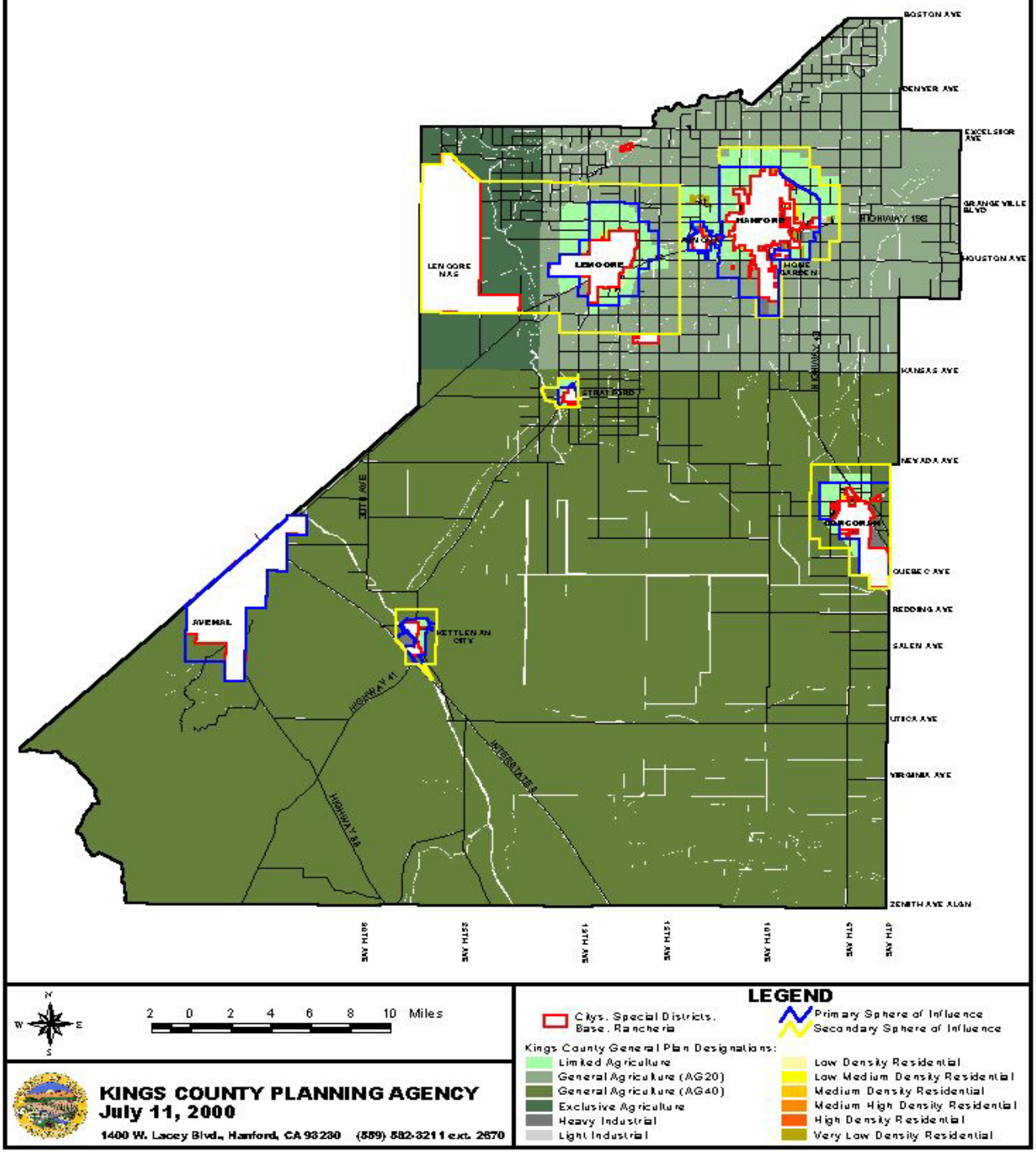


FIGURE 4
Zoning Districts

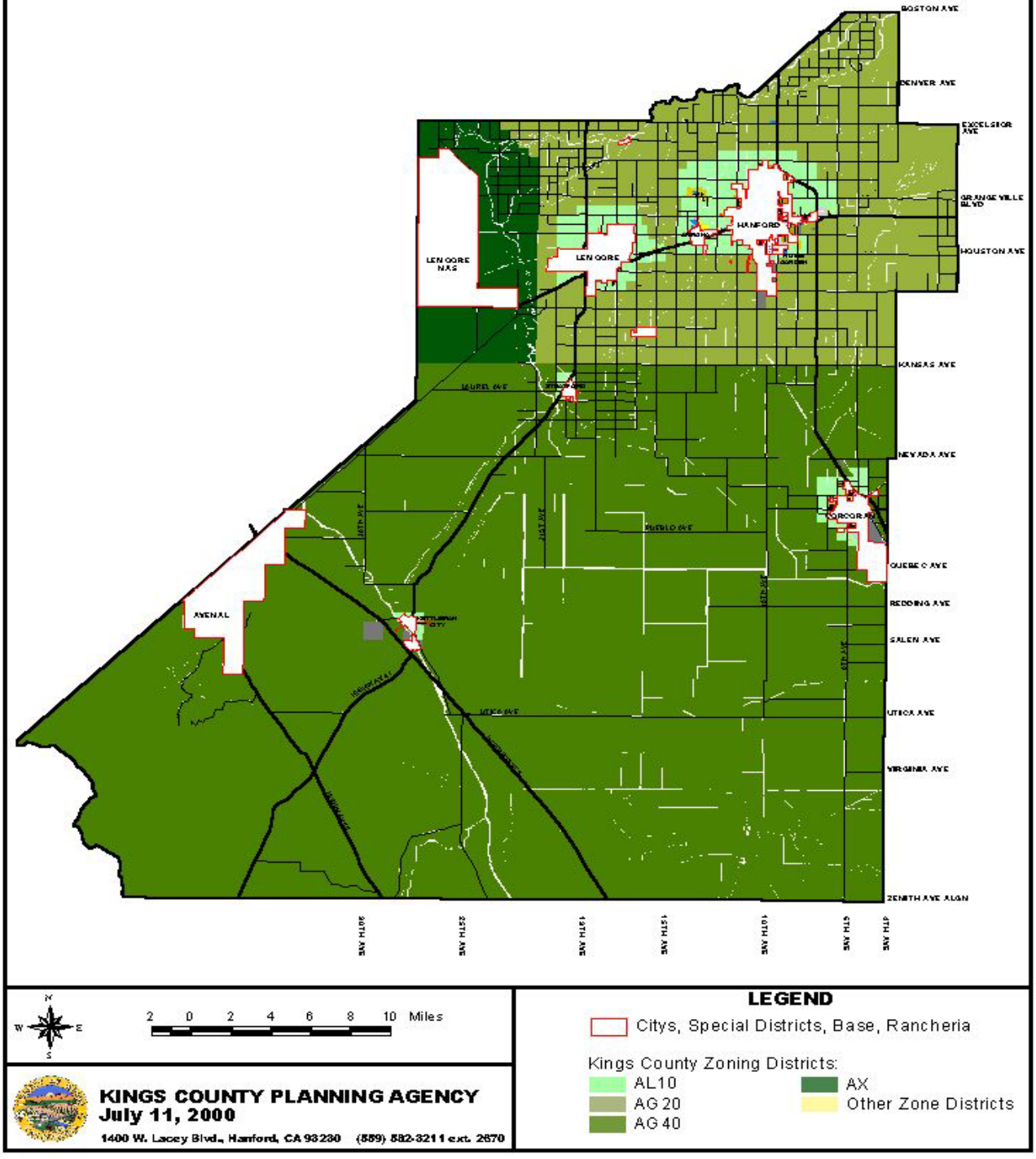
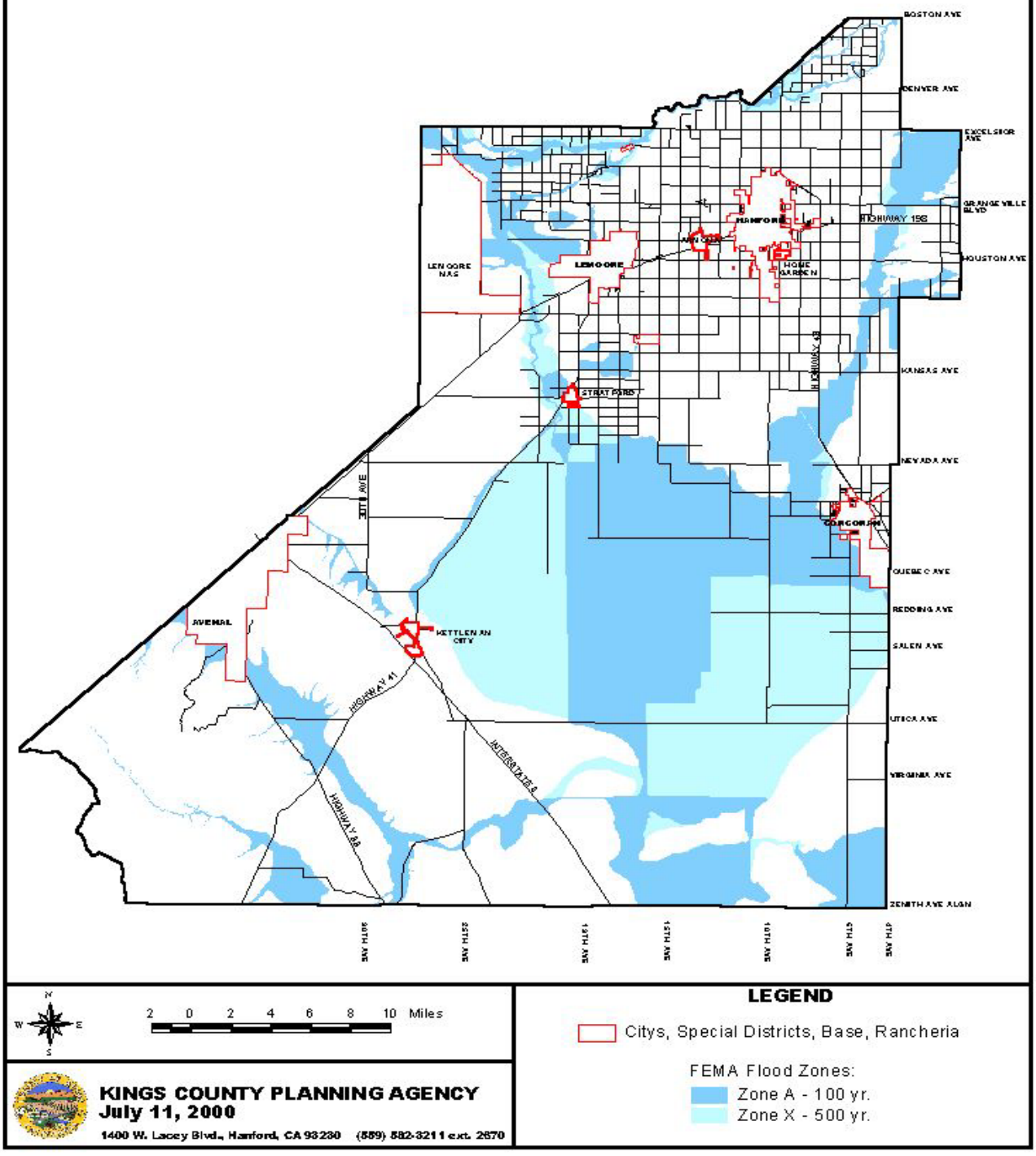


FIGURE 5
FEMA Flood Zones



N W E S

2 0 2 4 6 8 10 Miles

KINGS COUNTY PLANNING AGENCY
July 11, 2000
1400 W. Lacey Blvd., Hanford, CA 93230 (559) 582-3211 ext. 2670

LEGEND

Citys, Special Districts, Base, Rancheria

FEMA Flood Zones:
Zone A - 100 yr.
Zone X - 500 yr.

FIGURE 6
Existing Dairies

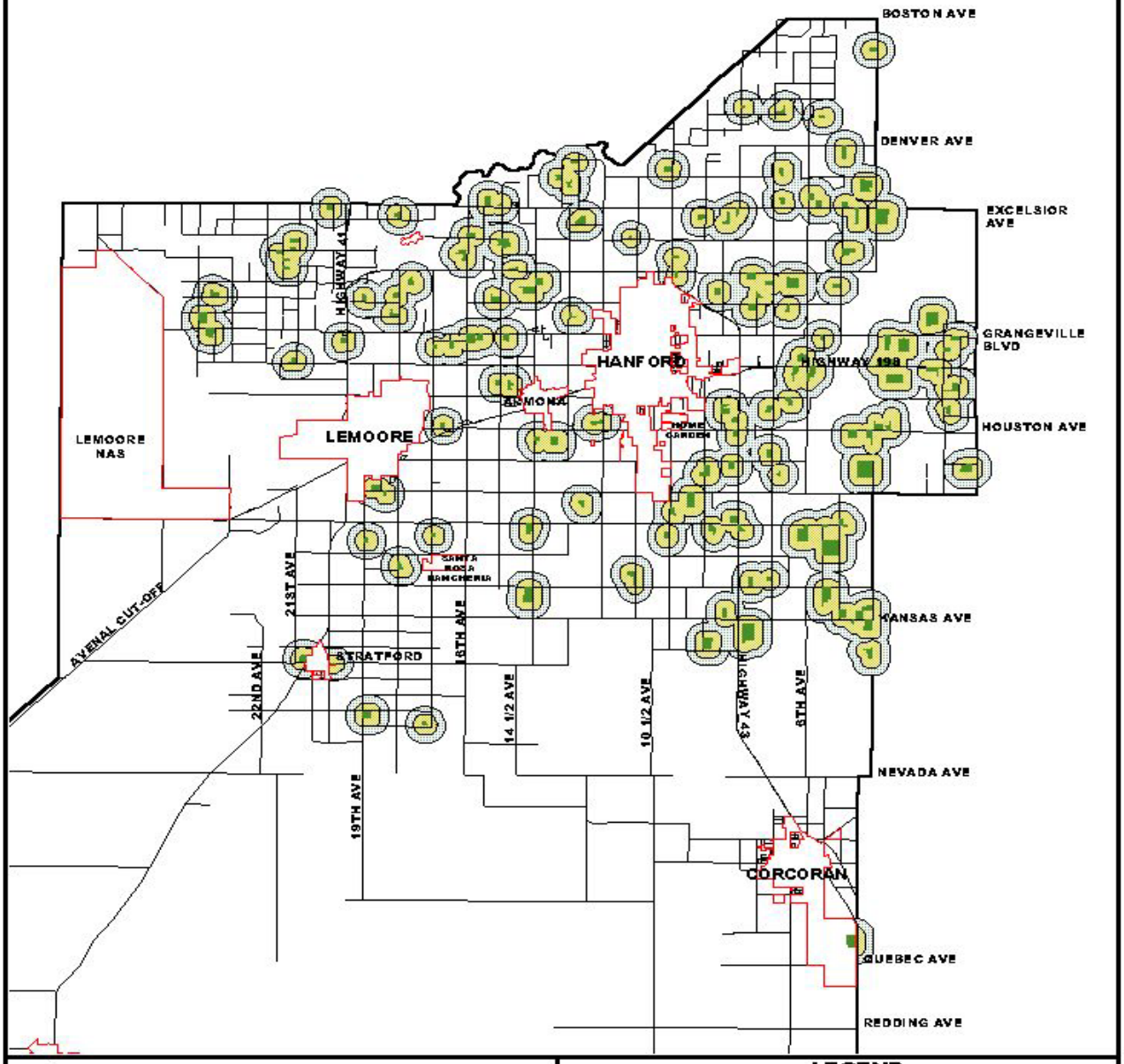


FIGURE 7
Other CAFO's

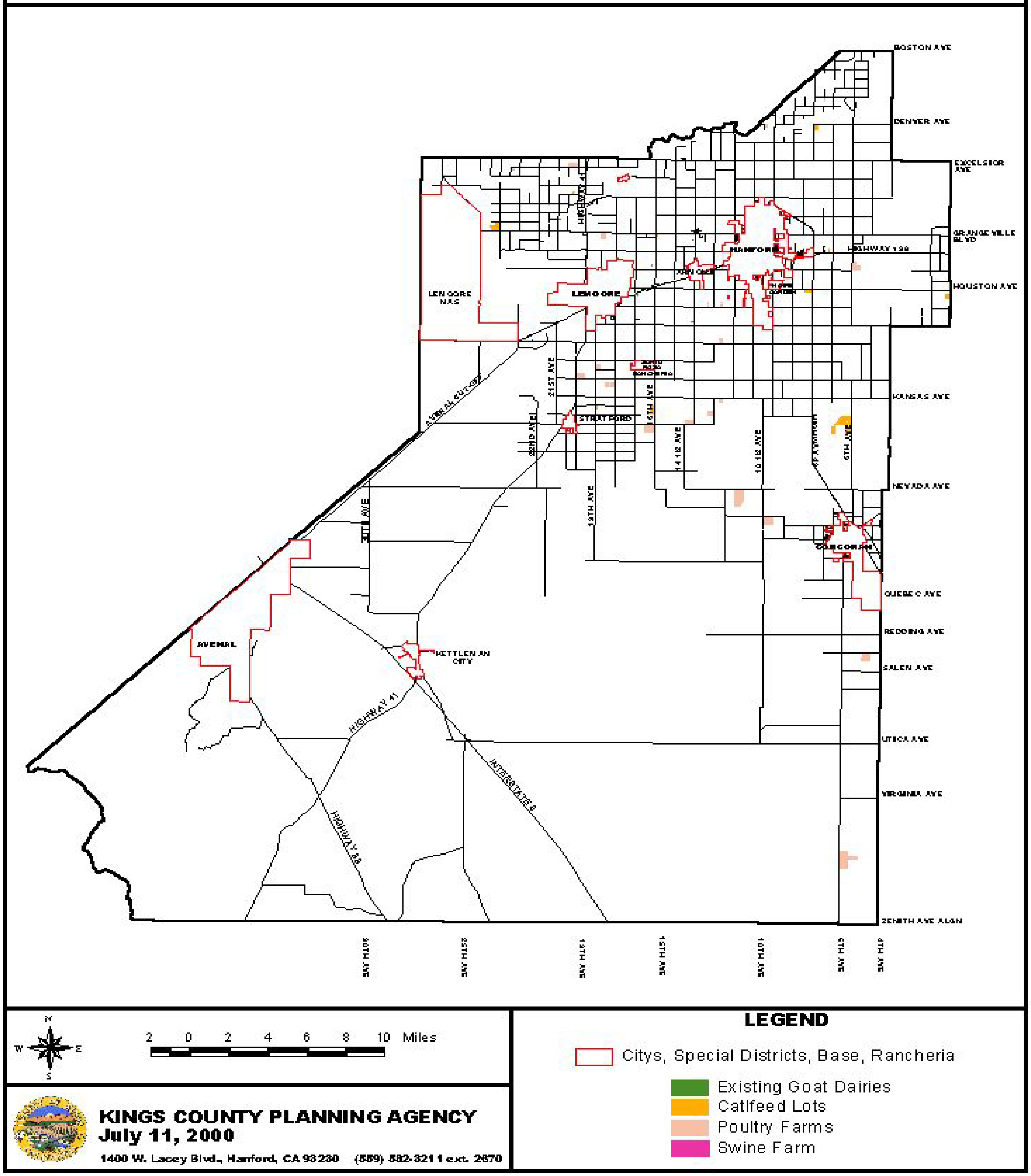


FIGURE 8
Communities

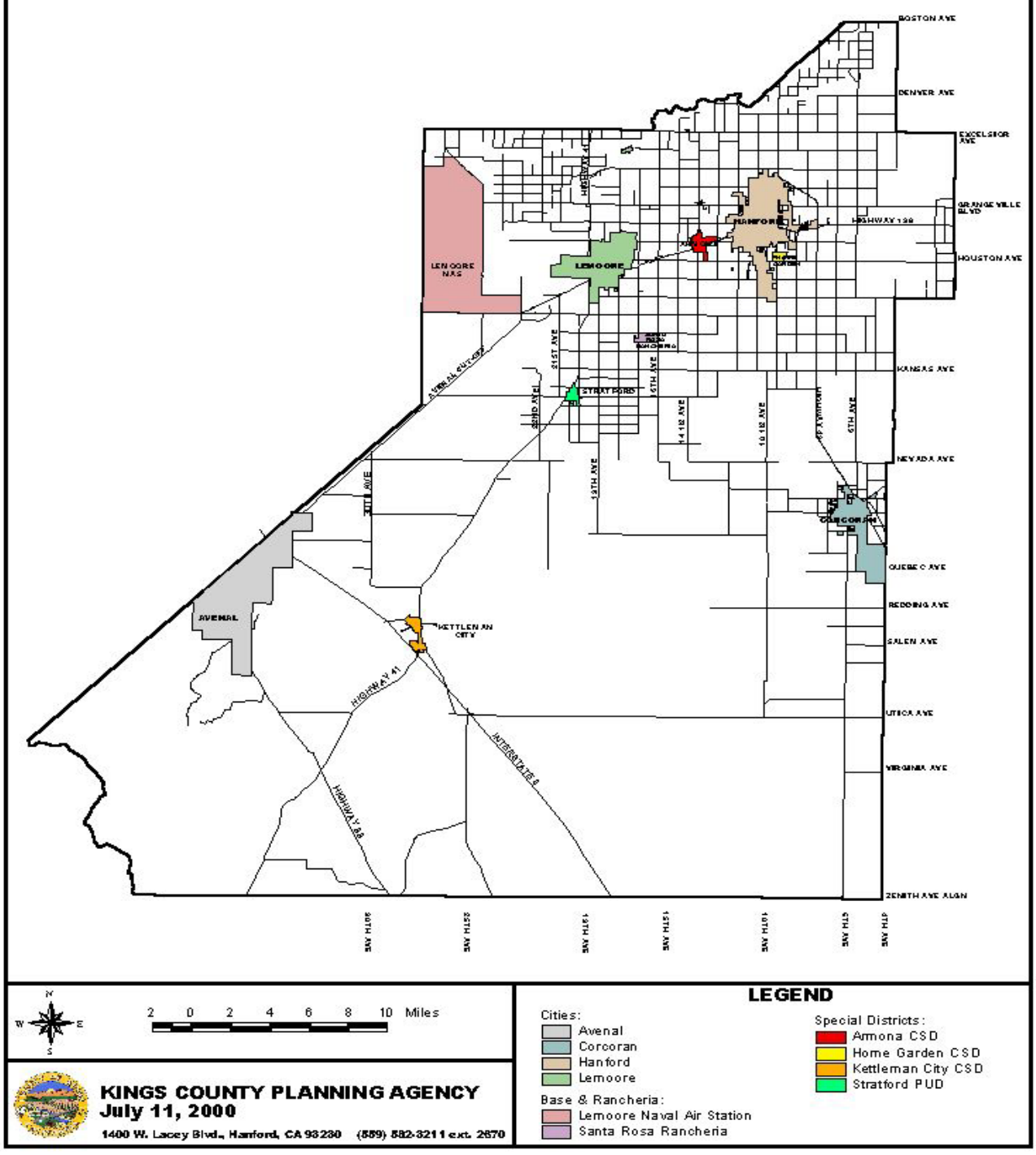


FIGURE 9
Schools

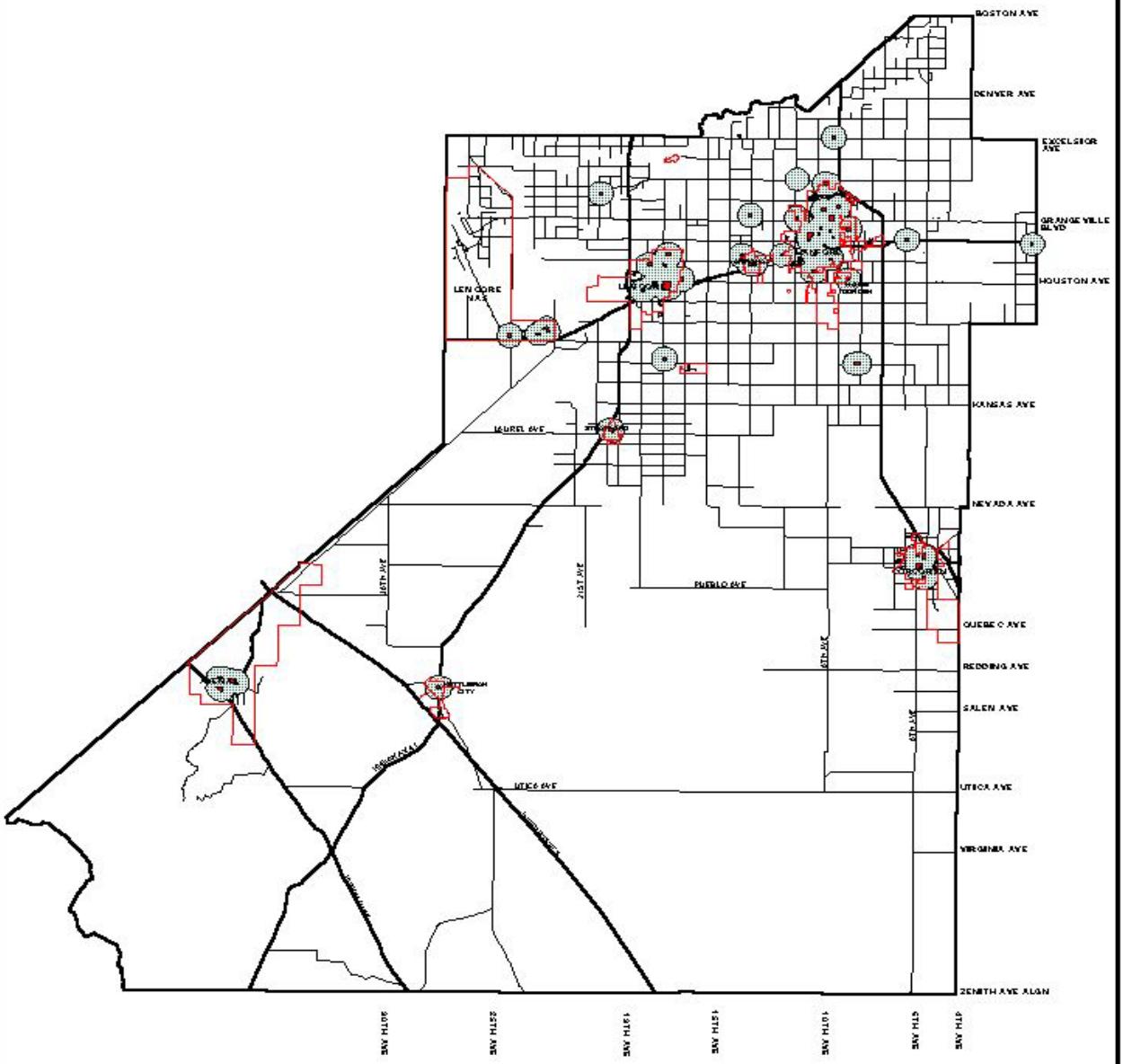


FIGURE 10
Soil Map of Kings County

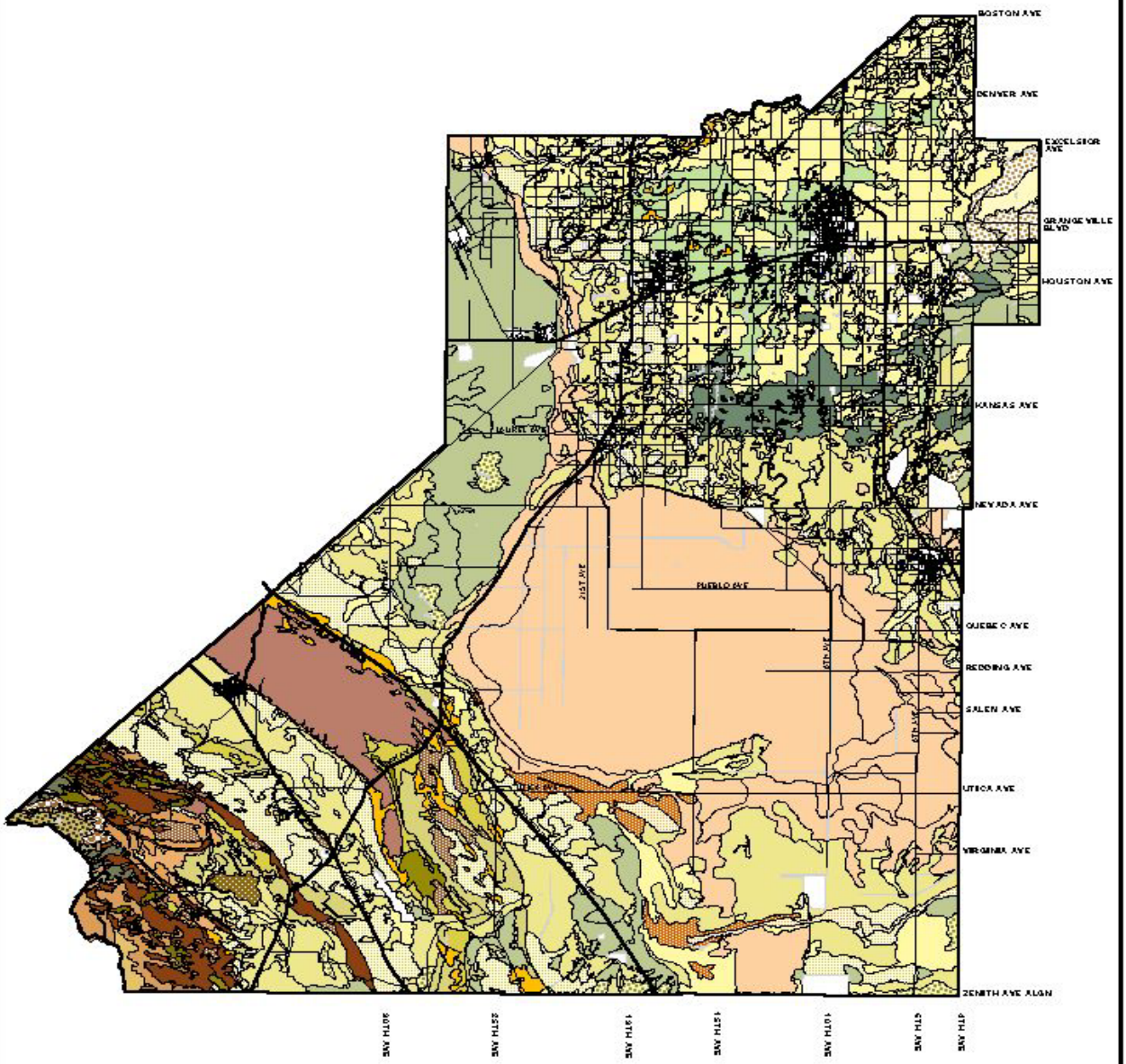


FIGURE 11a
Highest Recorded Water Table

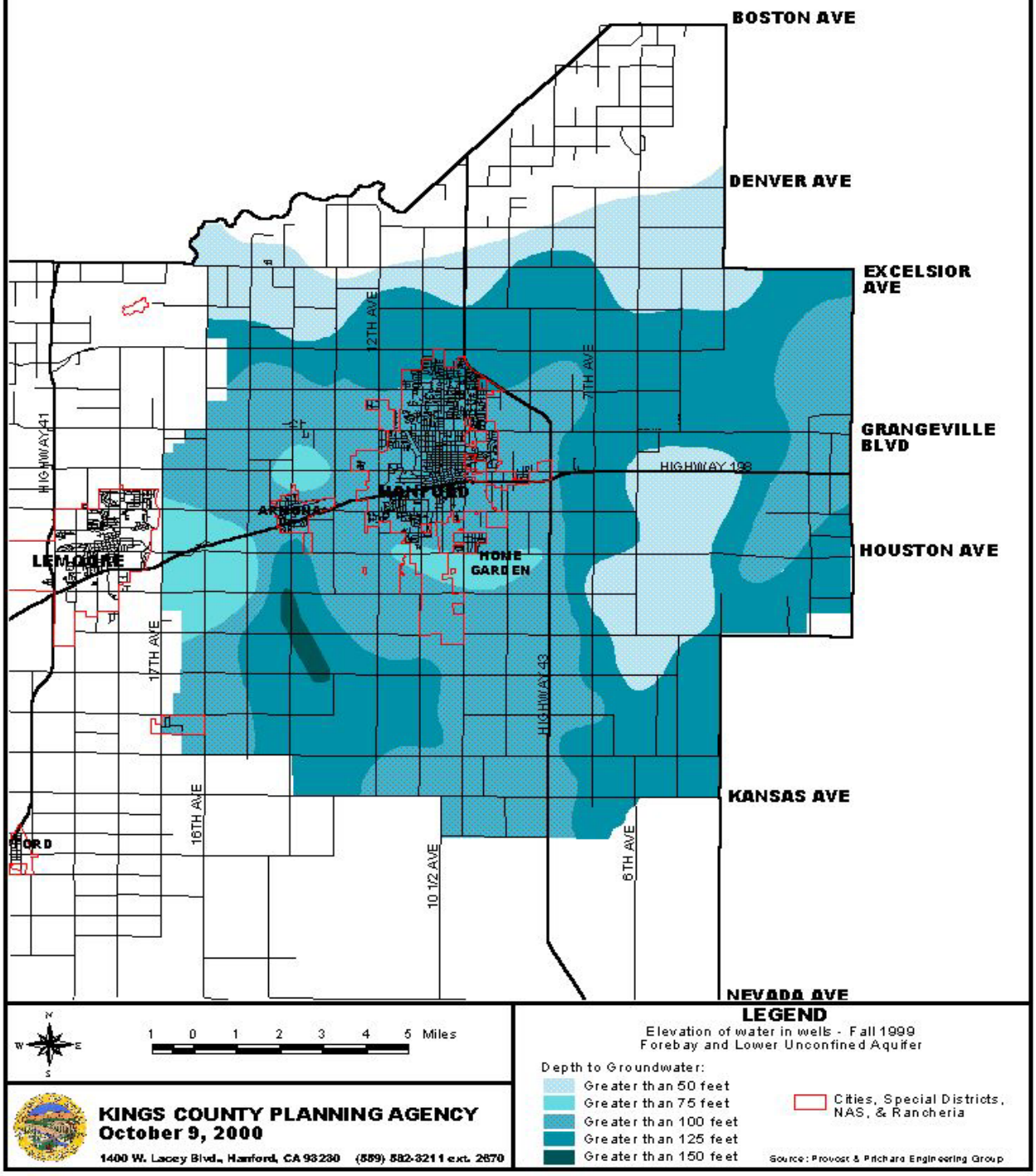


FIGURE 11b
Highest Recorded Water Table

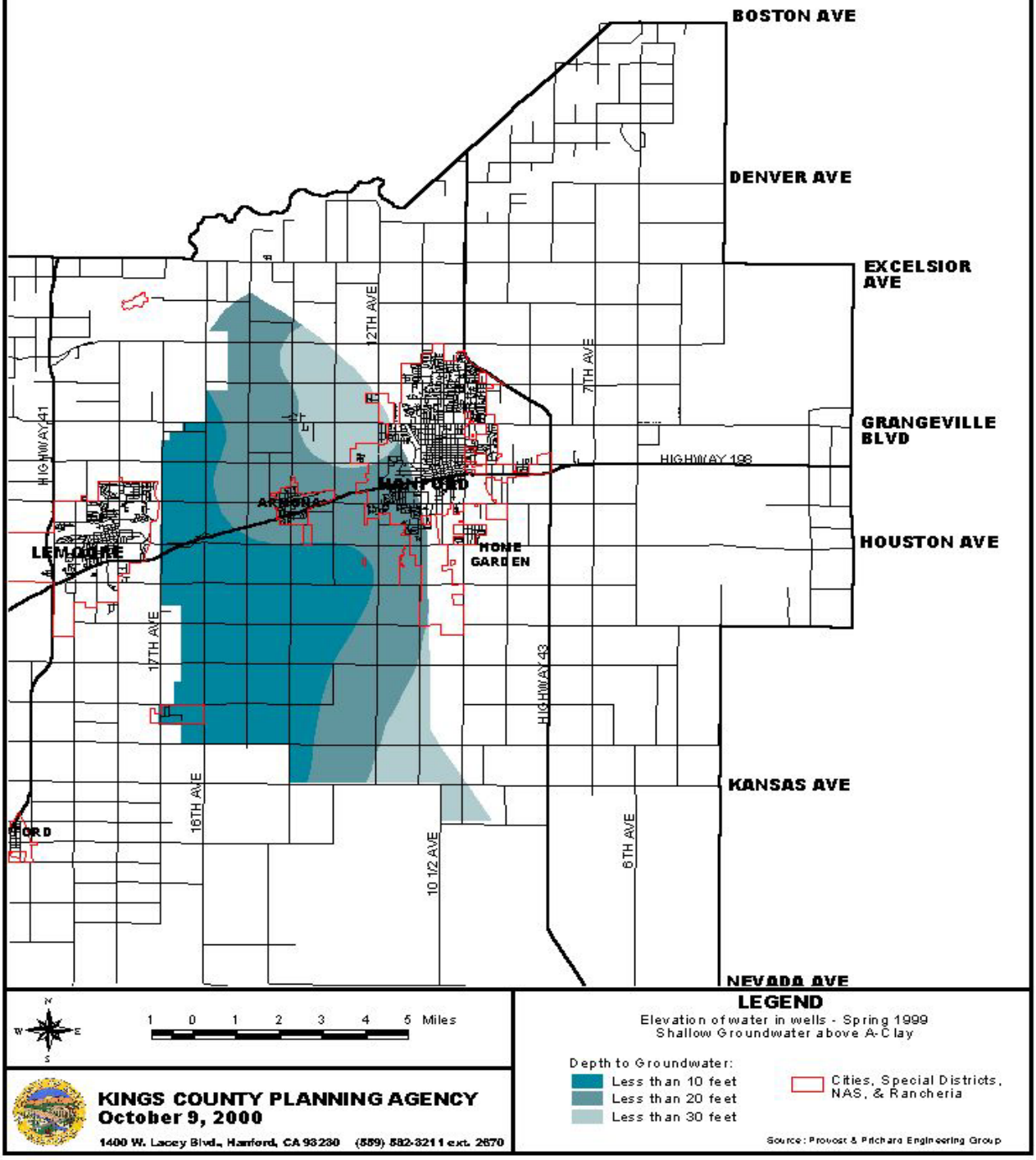
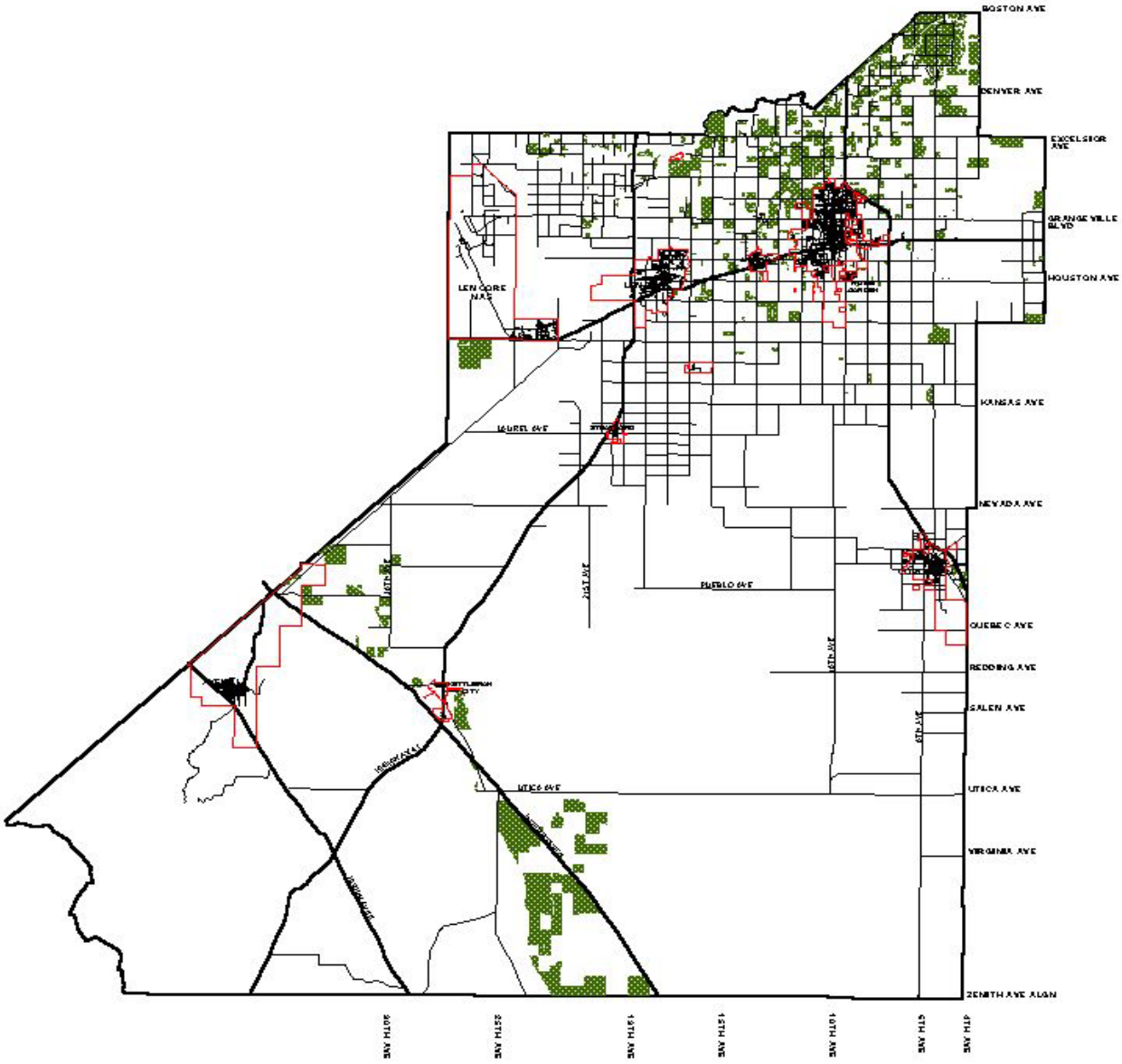


FIGURE 12
Orchards and Vineyards



APPENDIX E

ZONING ORDINANCE AMENDMENTS

PROPOSED CHANGES TO THE KINGS COUNTY ZONING ORDINANCE TO IMPLEMENT THE DAIRY ELEMENT OF THE KINGS COUNTY GENERAL PLAN

Sec. 402. AG-20 General Agricultural-20 District.

…

C. Permitted uses; site plan review:

The following uses may be permitted in accordance with the provisions of Article 21:

…

15. New bovine stock feed yards and expansions of existing bovine stock feeding yards, including dairy calf and heifer raising facilities; new bovine dairies and expansions of existing bovine dairies, including incidental dairy calf and heifer raising facilities. Expansions include, but are not limited to, additions of farmland associated with the manure management of dairy operations, increases in herd size including dairy calf and heifer raising facilities, changes to the dairy facility, including additional corrals, feed and manure storage areas, lagoons, barns and other structures, etc., which qualify under the *Dairy Element* of the *Kings County General Plan*; goat dairies.

D. Conditional uses; planning commission approval:

The following conditional uses may be permitted in accordance with the provisions of Article 19:

…

8. New, or major expansions to~~, animal sales and stock feeding yards;~~ poultry raising or keeping, exceeding five hundred (500) chickens and fifty (50) turkeys; ~~bovine and goat dairies;~~ and raising other small animals, including birds, mammals, and reptiles, commercially for food, feathers, fur, skins, etc., exceeding fifty (50) animals and their immature offspring; new bovine dairies and expansions of existing bovine dairies which do not qualify under the *Dairy Element* of the *Kings County General Plan* for the issuance of a site plan review without additional mitigation of potential impacts.

Sec. 403. AX Exclusive Agricultural District.

…

C. Permitted uses; site plan review:

The following uses may be permitted in accordance with the provisions of Article 21:

…

10. Expansions of existing bovine dairy herd sizes, including incidental dairy calf and heifer raising facilities; and changes to the dairy facility including additions of farmland associated with the manure management of dairy operations, additional corrals, feed and manure storage areas, lagoons, barns and other structures, etc., which qualify under the *Dairy Element* of the *Kings County General Plan*.

D. Conditional uses, planning commission approval:

The following conditional uses may be permitted in accordance with the provisions of Article 19:

…

15. Expansions of bovine dairies that have been in operation since 1993, including incidental dairy calf and heifer raising facilities. Expansions include, but are not limited to, additions of farmland associated with the manure management of dairy operations, increases in herd size including dairy calf and heifer raising facilities, changes to the dairy facility, including additional corrals, feed and manure storage areas, lagoons, barns and other structures, etc., which do not qualify under the *Dairy Element* of the *Kings County General Plan.*

Sec. 404. AL-10 Limited Agricultural-10 District.

C. Permitted uses; site plan review:

The following uses may be permitted in accordance with the provisions of Article 21:

…

12. Additions to an existing dairy's structures and facilities that do not increase the herd size.

…

D. Conditional uses, planning commission approval:

The following conditional uses may be permitted in accordance with the provisions of Article 19:

…

14. Expansions of bovine dairies that have been in continuous operation since 1978 or earlier, including incidental dairy calf and heifer raising facilities. Expansions include, but are not limited to, additions of farmland associated with the manure management of dairy operations, increases in herd size including dairy calf and heifer raising facilities, changes to the dairy facility, including additional corrals, feed and manure storage areas, lagoons, barns and other structures, etc.

Sec. 405. AG-40 General Agricultural-40 District.

…

C. Permitted uses; site plan review:

The following uses may be permitted in accordance with the provisions of Article 21:

…

12. New bovine stock feed yards and expansions of existing bovine stock feeding yards, including dairy calf and heifer raising facilities; new bovine dairies and expansions of existing bovine dairies, including incidental dairy calf and heifer raising facilities. Expansions include, but are not limited to, additions of farmland associated with the manure management of dairy operations, increases in herd size including dairy calf and heifer raising facilities, changes to the dairy facility, including additional corrals, feed

and manure storage areas, lagoons, barns and other structures, etc., which qualify under the *Dairy Element* of the *Kings County General Plan*; goat dairies.

…

D. Conditional uses; planning commission approval:

The following conditional uses may be permitted in accordance with the provisions of Article 19:

…

8. New, or major expansions to~~, animal sales and stock feeding yards~~ poultry raising or keeping, exceeding five hundred (500) chickens and fifty (50) turkeys; ~~bovine and goat dairies;~~ and raising other small animals, including birds, mammals, and reptiles, commercially for food, feathers, fur, skins, etc., exceeding fifty (50) animals and their immature offspring; new bovine dairies and expansions of existing bovine dairies which do not qualify under the Dairy Element of the Kings County General Plan for the issuance of a site plan review without additional mitigation of potential impacts.

Sec. 1711. General exceptions.

C. Animal feeding operations.

1. The provisions of this article shall not require the elimination of bovine and goat dairies, calf and heifer raising facilities, animal sales and stock feeding yards, other commercial animal ~~raising~~ feeding operations ~~of fifty (50) or more animals~~, or commercial poultry keeping and raising operations ~~of more than five hundred (500) chickens or fifty (50) turkeys~~ within the AG-20, AG-40, AX and AL-10 zone districts, which were legally established prior to the effective date of the ordinance, provided however, that expansions to said uses may be permitted only upon granting of a conditional use permit for poultry operation and bovine dairies in the AL-10 zone district, or issuance of a site plan review for bovine dairies in the AG-20, AG-40, and AX zone districts~~, except that such permit shall not be required for minor alterations or accessory structures and uses located on the same site~~. Dairies, dairy calf and heifer raising facilities, animal sales and stock feeding yards, or poultry keeping and raising operations located within AG-20, AG-40, AX and AL-10 zones may discontinue operations for a period of time not to exceed two (2) years and reactivate operations at the same herd or flock size and in the same facility without first obtaining a conditional use permit or site plan review.

2. Notwithstanding Section 1709.C., an addition to, or expansion of, an existing bovine dairy facility or site which is non-conforming solely due to its status as a dairy that was built and operated prior to this Ordnance's requirement for zoning permits, or a dairy that has had a zoning permit issued prior to the adoption of the *Dairy Element* of the *Kings County General Plan* may be allowed without bringing the existing portion of the dairy facility or site into compliance with the *Dairy Element* standards. However, all new additions and the expanded areas of the dairy shall conform to the *Dairy Element* standards.

Sec. 1903. Application and fee.

A. The application for a conditional use permit shall be made to the planning commission in a form prescribed by the commission which shall include the following data:

…

(9) All applications for ~~a~~ bovine ~~dairy~~ dairies and dairy calf and heifer raising facilities shall ~~be accompanied by either~~ include a Technical Report as described in the *Dairy Element* of the *Kings County General Plan*.~~:~~

~~(a) A waste water and manure management and disposal plan, prepared and signed by a professional engineer registered in the State of California, which determines the design of a proposed new dairy, or expansion of an existing dairy, will comply with the standard waste water discharge requirements provided by the Regional Water Quality Control Board, to adequately dispose of all waste water and manure generated or produced by the new or expanded dairy operation, along with a groundwater monitoring plan to ensure that the plan works, or~~

~~(b) Waste Discharge Requirements prepared by the Regional Water Quality Control Board specifically for that new or expanded dairy.~~

Sec. 1908. Action by the planning commission.

The planning commission may grant an application for the use permit as the use permit was applied for or in modified form if, on the basis of the application and the evidence submitted, the planning commission makes the following findings:

…

F. When an application is submitted for an expansion of a bovine dairy in the AL-10 zone district, or other application for a dairy project as required by the *Dairy Element* of the *Kings County General Plan*, or this ordinance, the following findings shall be made before granting a conditional use permit:

1. That the zoning administrator has included in his or her report to the planning commission the results of consultation with representatives of the county agricultural commissioner, the county farm and home advisor, the county health officer, the Kings Mosquito Abatement District, the Central California Regional Water Quality Control Board and the Kings County Farm Bureau Dairy Committee before the planning commission may grant the application.

2. ~~Said application may be granted only if the planning commission is able to make the following additional findings:~~ The planning commission finds that the Technical Report accompanying the conditional use application, which will include its own additional environmental review, demonstrates that the alternative dairy project design or process will accomplish the same or higher level of performance as required by the *Dairy Element*.

~~(a) The site is located a sufficient distance from the city limits or community or municipal service type district boundaries of an urban area so that a conflict of land uses does not occur.~~

~~(b) The barns, corrals and waste disposal systems are located a sufficient distance from residences not associated with the dairy so that a conflict of land uses does not occur.~~

~~(c) There is sufficient land under the control of the applicant to provide for management and disposal of liquid wastes produced by the dairy.~~

~~(d) Pollution and nuisance conditions will not occur as a result of discharge, stockpiling, handling or storage of wastes generated by the dairy.~~

~~(e) The ponds, as part of the waste management system design, shall:~~

~~(1) Satisfy the requirements of the Central California Regional Water Quality Control Board and the county health officer to ensure the protection of water supply and public health and safety.~~

~~(2) Be located adjacent to or near the source of waste.~~

~~(3) Be located a minimum distance of three hundred (300) feet from a dwelling or public road, and a greater distance if practical.~~

~~(4) Be large enough so the wastes may be contained until used as part of crop irrigation water. Lagoons are required to be designed to contain enough winter time storage capacity for a minimum of 120 days.~~

~~(5) Have a minimum size based upon calculating the amount of water necessary for animal watering, washing, and animal equipment maintenance. Calculations shall be based upon the type of corral used, provided however, that the minimum figure shall be one hundred twenty-five (125) gallons per day per animal unit.~~

~~(6) The bottoms of waste water lagoons shall be at a minimum of five (5) feet above the highest anticipated ground water table. Exceptions may be made for specially engineered systems.~~

~~(7) Waste water lagoons must be lined with or underlain by soil containing a minimum of ten (10) percent clay and not more than ten (10) percent gravel or artificial material of equivalent permeability. Special engineering to prevent lateral and vertical seepage may be required for coarse textured strata. Soil samples and waste water lagoon design is subject to review and approval of the California Regional Water Quality Control Board.~~

~~(8) Have an approximately level bottom.~~

~~(9) Have banks sufficiently wide to provide for operation of maintenance vehicles.~~

~~(10) Have a minimum of one foot free board above the water surface at all times.~~

~~(11) Be maintained free of weeds on the banks to prevent mosquito breeding.~~

~~(f) In cases when there is evidence to indicate that the level of standards expressed in paragraph F.2.(e) of this section may be accomplished by alternative methods, such level of standards may be waived by the planning commission on an experimental basis, provided that within one year of the installation of such an experimental waste management system, a field review, and report to the planning commission, of such system shall be made by the zoning administrator and the consultants named in paragraph F.2.(e) of this section, to determine if such alternative methods are working satisfactorily. If the experiment has not been~~

~~successful, the standards described in paragraph F.2.(e) of this section shall be required and the zoning administrator shall so notify the planning commission and the applicant.~~

Sec. 2101. Purposes and application.

…

Development of uses requiring site plan review ~~generally~~ are ministerial projects, and as such, they are exempt from environmental review ~~pursuant to~~ under the California Environmental Quality Act (CEQA), Public Resources Code Section 21000, et seq, and the Kings County CEQA ~~implementation~~ Implementation procedures. ~~However, at the discretion of the zoning administrator, any application for site plan review that in the judgment of the zoning administrator may have significant adverse effect on the environment may be required to have an environmental review pursuant to CEQA.~~

Sec. 2102. Site plan review application and fee.

A. The application for a site plan review shall include twelve (12) prints of the site plan, and be submitted to the zoning administrator. The site plan shall be drawn to scale and shall indicate clearly and with full dimensions the following information:

…

16. Applications for new bovine dairies, or dairy calf and heifer raising facilities, and expansion of existing bovine dairies, or dairy calf and heifer raising facilities, shall be approved through the site plan review process if the application meets all of the specified criteria of the *Dairy Element* of the *Kings County General Plan*.

…

C. Within fifteen (15) working days after the application for a site plan review has been certified as complete by the zoning administrator, the zoning administrator shall ~~approve~~ issue an approval of the site plan review, ~~approve with conditions deemed necessary to protect the public health, safety and general welfare,~~ or ~~disapprove~~ reject the site plan review application if it fails to meet the required standards. ~~If a site plan is required to have environmental review the fifteen (15) working days does not start until the public comment period has been completed.~~ In approving the site plan, the zoning administrator shall find that:

…

14. When an application is submitted for a new bovine dairy or the expansion of an existing bovine dairy, including dairy calf and heifer raising facilities, in the AG-20 or AG-40 zone districts, or the expansion of an existing bovine dairy, including dairy calf and heifer raising facilities, in the AX zone district, the following findings shall be made by the zoning administrator before issuing a site plan review:

    a. That the zoning administrator has documented the results of consultation with representatives of the County Agricultural Commissioner, the county farm and home advisor, the County Health Officer, the Kings Mosquito Abatement District, the Central California Regional Water Quality Control Board and the Kings County Farm Bureau Dairy Committee before issuing a site plan review.

    b. Said site plan review may be issued only if the zoning administrator is able to make a finding that the Technical Report accompanying the site plan review application demonstrates that the dairy project will meet or exceed all applicable

goals, objectives, policies, and standards of the *Dairy Element* of the *Kings County General Plan* and provides a level of mitigation meeting or exceeding the mitigation measures in the Program EIR prepared for the Dairy Element.

Sec. 2503. Definitions.

For the purposes of this ordinance, certain words and terms used herein are defined as follows:

…

8. Animal unit: One mature horse or cow or as many animals as consume an equivalent amount of feed as a mature horse or cow. Some animal equivalents are:

Animal Type	**Age**	**Average weight (lb.)**	**Average lb. (TDN/day)**	**Animal Unit* (AU)**
Beef Cattle				
Mature beef cow				1.00
Cows - nursing part of yr.	2+	1,000	13.2	1.00
Bulls	2+	1,200	13.2	1.00
Yearling steers, bulls, heifers	1-2	627	9.9	0.75
Calves and weaners	3 mo.-1 yr.	354	6.6	0.50 0.35
Steers 2 yrs. and older	2+	930	13.2	1.00
Dairy Cattle: Multiply Dairy Cow Breed Factor (i.e., Jersey 1.0, Guernsey 1.2, and Holstein 1.4) by Animal Units.				
Milk Cows				1.00
Dry dairy cow and bred heifers	~~Mature~~			~~1.00~~ 0.80
~~Cows giving 200 lb B.F./yr.~~	~~Mature~~	~~1,100~~	~~13.2~~	~~1.00~~
~~Cows giving 250 lb B.F./yr.~~	~~Mature~~	~~1,100~~	~~14.5~~	~~1.10~~
~~Cows giving 300 lb B.F./yr.~~	~~Mature~~	~~1,100~~	~~15.8~~	~~1.20~~
~~Cows giving 350 lb B.F./yr.~~	~~Mature~~	~~1,100~~	~~16.5~~	~~1.25~~
~~Cows giving 400 lb B.F./yr.~~	~~Mature~~	~~1,100~~	~~17.5~~	~~1.33~~
Bulls	Mature	1,200	13.2	1.00
Heifers:	~~2 years or older~~ 1 year to breeding			~~1.00~~0.73
Calves	3 months to 1 year old			0.35
Baby Calves	less than 3 months old			0.21
~~Steers, bulls, heifers~~	~~1-2~~	~~600~~	~~8.7~~	~~0.70~~
~~Young dairy stock:~~				
	~~0-2 months~~			~~0.00~~
	~~2-6 months~~			~~0.25~~
	~~6-12 months~~			~~0.50~~
	~~1-2 years~~			~~0.85~~
Bulls	3 mo.-1 yr. old	~~300~~	~~5.3~~	0.40
Mature horse:				1.00
Sheep:				
Lambs: 70-90 pounds				0.15
Mature sheep				0.20
Hogs:				
Sows and boars (mature)				0.50
Piglets or weaners:				
		50 to 70		0.10
		70 to 90		0.25

APPENDIX F

ECONOMIC ANALYSIS OF THE DAIRY INDUSTRY IN KINGS COUNTY

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ECONOMIC ANALYSIS OF THE DAIRY INDUSTRY IN KINGS COUNTY

December 2000

Prepared for

Kings County, CA

Prepared by

Applied Development Economics
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2029 University Avenue, Berkeley CA 94704

CONTENTS

1. INTRODUCTION

PURPOSE OF THE STUDY

This report presents a discussion of the economic implications of growth in the dairy industry in Kings County. Funded through a State Community Development Block Grant (CDBG) Planning and Technical Assistance grant, the study is part of an effort by Kings County to develop a dairy element of the general plan that will provide a policy framework for addressing the economic and environmental requirements of this important industry. The analysis is based on a survey of dairies in Kings County and a projection of the economic multiplier effects of the dairy and milk processing industry in the county.

The overall goals of the general plan element and this study are to define the physical and economic carrying capacity of the dairy industry and to resolve the environmental issues necessary to ensure that continued growth in the industry meets Kings County standards. This study primarily contributes information about the economic characteristics of the industry in terms of the jobs and income that it generates. It also describes the short-term projections of growth by a sample of existing dairies along with the opportunities and constraints that dairies see for further industrial development in Kings County.

DAIRY INDUSTRY TRENDS

As is true in much of the food processing industry, milk production has seen steady and significant growth in productivity over the past forty years. Since 1959, the volume of milk production per cow has increased 117 percent, 18 percent since 1989. California is among the national leaders in this trend. Milk production per cow in our state was 17 percent above the national average in 1999. This has been the result of increasing herd sizes per dairy, up 44 percent since 1989, and more efficient barn designs and techniques for milking the cows as well as improvements in feed and care of the animals. Since 1959, the number of dairy farms in California has decreased 79 percent but milk production has increased 279 percent. California produces 19 percent of total US milk production.

Kings County has 125,000 cows, about eight percent of the total California herd. By comparison, Tulare County is the leading dairy county in the state, with about double the number of cows and milk production of Kings County. Tulare County also has seven of the ten milk processing facilities in the four-county South Valley region (Tulare, Kings, Fresno, Kern), although Leprino's announced expansion in Lemoore will significantly increase processing capacity in Kings County.

Milk processing is an important component of the industry, since only about 20 percent of milk is consumed in fluid form. Most is made into cheese (38 percent), followed by butter and condensed dry milk (32 percent) frozen deserts (five percent) and creams and cultured products including sour cream and cottage cheese (five percent). Fifty cheese producers in California create 130 varieties of cheese. This is a significant part of the overall trend toward more consumer demand for specialty foods that is driving much of the food processing industry to higher value-added products. California also produces 40 percent of the US consumption of ice cream.

Kings and Tulare counties have been leading the trend in productivity improvements. Tulare has the largest herd sizes per dairy in the state and in Kings county employment ranges from 80 to 90 cows per job, compared to 53 cows per job statewide. With the continued reduction in the number of dairies in Southern California, Kings County can expect increased new dairy development for the foreseeable future.

The study begins with a description of the results of the dairy survey in Kings County and then discusses countywide economic characteristics and projections for the industry.

2. DAIRY INDUSTRY SURVEY RESULTS

This chapter includes the dairy industry survey conducted in Kings County for this report. A mailed business survey was sent to all 149 of Kings County's dairies. The survey asked the dairies to describe themselves, and sought to add useful information to the impact analysis. The Tulare County Environmental Health Department, which regulates dairies in both Tulare and Kings counties, provided the listing of dairies.

Thirty-four of the 149 dairies responded, or about 23 percent of those sent surveys. Three weeks after mailing, over 100 phone calls were made to those who had not responded, which helped to generate a higher response rate. The response rate is typical of this type of survey, and as the analysis below demonstrates, the respondents are fairly representative of the industry as a whole in Kings County. Although not all of the respondents provided information for every question in the survey, the survey permits us to draw several useful conclusions about dairies, dairy operations, and the issues of concern dairy operators have. Mostly, as we shall see, the survey results confirm other information found within the Dairy Element.

The survey respondents represent 298 full-time and 13 part-time jobs (among 32 of the respondents), which translates to approximately one job per 90 milk cows. Total dairy employment in the county is estimated to be about 1,558, as discussed in the next section of the report. Accounting for the dairy proprietors themselves plus their reported employees, the survey respondents appear to represent a proportional amount of industry employment. This conclusion is reinforced by the fact that a selection of both large and small dairies in the county responded to the survey. The respondents reported an aggregate herd size of 26,635 milk cows, which is about 21 percent of the estimated total herd in Kings County of 124,557. The responding dairies occupy 1,589 acres, not including crop land they use. This represents one-third of the 4,756 estimated dairy land in the County. About 63 percent of the respondent dairies were started in 1978 or earlier. It is estimated that about 55 percent of all dairies in the county were started before 1979.

The following discussion highlights the finding from the survey. The complete results are provided in Appendix A, along with the survey instrument.

Facility Investments

The dairies were first asked what investments they have made, or are planning to make, in expanding their facilities, improving productivity, replacing equipment or responding to regulatory requirements. More than 80 percent of the respondent reported making such investments in 1999. The largest category of expenditure was $5 million in facility expansions reported by six of the respondents. Five also reported making productivity improvements for a

total of $1.6 million. Nine dairies said they had spent an average of $65,000 to upgrade equipment and six had spent an average of $50,000 on regulatory compliance.

Projected investments of these dairies were somewhat lower for the current year. The highest expenditure category was productivity improvements for about $2.2 million.

Over the following four years, the dairies expect to spend a total of about $5.3 million, mostly on additional productivity improvements. It is likely these expenditures reflect continuing technological improvements in the industry, as well as increased competition requiring increasingly efficient operations.

Growth Prognosis

Fifty-six percent of the respondents expect the industry to grow more slowly over the next two to three years compared to the past three years. Thirty-one percent expect the pace of growth to remain about the same and only six percent see the industry accelerating its growth pattern in the near future.

The herd size for the respondent group (32 dairies) included 26,538 milk cows in 1999. Twenty-nine of the respondents indicated that their herd size is up to 26,635 in 2000. Fifteen of the dairies, with a 2000 herd size of 20,505, or 77 percent of the total milk cows in the sample, projected their herd size to grow by 2,189 cows by 2004, an 11 percent increase. On an annual basis, this represents about a 2.6 percent growth rate.

The survey asked for the dairies' reasons for increasing or not increasing their herd sizes. The most often cited reason for increasing the herd was the need to increase efficiency, followed by the favorable price of milk. Six of the respondents (19 percent) said they have excess barn capacity and five (16 percent) cited the fact that technological improvements now make it possible for them to operate larger herds.

Relatively few of the respondents indicated they were not planning to increase their herd, and among these the most common reasons were the physical limitations of their plant, the lack of land for manure or water disposal, and the price of milk. On this latter point, eight dairies cited the price of milk as a reason to expand, while five used it as a reason not to.

Cooperative Affiliation and Milk Production

More than half of the respondents are part of California Dairies, Inc. and another six (19 percent) are with the Dairyman's Division of Land o' Lakes. Forty-seven percent send their milk to a local processor, amounting to 1,178,250 pounds per day.

For the current year, thirty of the respondents disclosed that they expect to produce nearly 421 million pounds of milk per year. On average, this is up about 10 to 11 percent over the reported production levels in 1999.

Twenty-four of the respondents reported on the percent of their capacity they are currently using. Ten reported being at 100 percent and another ten are at 80 percent or greater. Those responding to this question indicated they could add a total of 3,677 cows without needing a physical plant expansion.

Operations

Nearly half of the respondents operate on 20 acres or less, while about nine percent have 100 acres or more.

Nearly 60 percent spread dry manure on their own crop land and half sell excess manure to other farmers.

Seventeen of the respondents own land that they irrigate with water generated by the dairy, but two of these also lease land for this purpose. Sixty-three percent of the respondents only lease land to dispose of dairy water. Nine percent reported selling excess water to other farmers and three percent reported buying such water.

Three quarters of the respondents grow their feed on land adjacent to the dairy and 19 percent grow feed on non-adjacent lands they own. However, 66 percent also report buying feed from other farmers.

In terms of factors that are most important for the daily operation of the business, market conditions and feed costs were judged "critical" most often by the respondents. Regulatory compliance was judged "very important" by 47 percent, while interest rates were cited as "important" by 44 percent. These rankings were generally consistent with the findings of which factors are most difficult for dairies to control, with the exception of feed costs which dairies control through their own production.

Conclusion

The dairy industry experienced higher than average milk prices for the past two years. In 1998, this was due in part to poor climatic conditions that held down milk production, but in 1999 weather was good and many dairies enjoyed healthy financial conditions that allowed them to pay down debt, add employees and make investments in better equipment and facilities.[1] As

[1] California Department of Food and Agriculture, *Dairy Marketing Branch, California Cost of Milk Production Annual Summary 1999*. Sacramento, n.d.

1999 closed, milk prices dropped and are expected to remain closer to historical averages during the current year. In this context, it is understandable that a majority of survey respondents expect the industry to grow more slowly than it has in the past several years. However, the level of anticipated investment in productivity improvements is notable and the projected growth rate in milk cows for the next three years (2.6 percent) exceeds the average for the period from 1988 to 2000 (2.3 percent). The projected increase in milk production of nearly 11 percent over 1999 is also notable. Historically, milk production values per cow have risen about 1.8 percent per year on an inflation-adjusted basis. Finally, the ability of the County to address the environmental issues associated with dairy industry expansion will be very helpful based on the indication by two-thirds of the survey respondents that regulatory compliance is either "critical" or "very important" for the daily operations of their businesses.

3. KINGS COUNTY'S ECONOMIC BASE

In 1998, Kings County had a total of about 26,500 private sector wage and salary jobs.[2] This represents an 18 percent employment increase since 1991 (Table 1). About one-third of the county private sector employment base is in agricultural production, which includes dairy farms. The county produces another 1,650 jobs in food processing industries. Clearly, these food and fiber industries represent the strength of Kings County's overall employment base. Other growing industries that are part of Kings County's primary employment base include rubber/plastics manufacturing, gas and electrical utilities, and health services.

TABLE 1
WAGE AND SALARY EMPLOYMENT BY INDUSTRY GROUP
KINGS COUNTY, 1991 TO 1998

Industry Description	1991 Employment	1998 Employment
TOTAL EMPLOYMENT [a]	22,480	26,528
AGRICULTURE, FORESTRY, FISHING	6,121	9,048
Dairy Production	n/a	925
MINING	61	3
CONSTRUCTION	903	930
MANUFACTURING	3,322	3,359
Food Processing	1,443	1,650
Dairy Processing	200	286
TRANSPORTATION AND PUBLIC UTILITIES	768	818
WHOLESALE TRADE	767	987
RETAIL TRADE	6,116	5,563
FINANCE, INSURANCE, AND REAL ESTATE	650	695
SERVICES	3,743	5,125

[a] Does not include self-employed proprietors.
Source: ADE, data from MIG ES202 county database

In addition to these base industries, Kings County also has a number of emerging industries as well. These industries have shown recent employment growth, but have yet to assemble into a high concentration of employment that drives the county's economy. These emerging industries

[2] Data from Minnesota IMPLAN Group ES202 employment database.

GROWING INDUSTRIES AND CONCENTRATIONS OF EMPLOYMENT
KINGS COUNTY, 1991 TO 1998

	NON-GROWING INDUSTRIES		GROWING INDUSTRIES	
01	Agricultural production—crops	07	Agricultural services	HIGH EMPLOYMENT CONCENTRATION
		16	Heavy construction, except building	
		20	Food and kindred products	
		22	Textile mill products	
		30	Rubber and misc. plastics products	
		46	Pipelines, except natural gas	
		49	Electric, gas, and sanitary services	
		52	Building materials & garden supplies	
		53	General merchandise stores	
		54	Food stores	
		55	Automotive dealers & service stations	
		79	Amusement & recreation services	
		80	Health services	
13	Oil and gas extraction	17	Special trade contractors	LOW EMPLOYMENT CONCENTRATION
15	General contractors and operative builders	24	Lumber and wood products	
23	Apparel and other textile products	32	Stone, clay, and glass products	
25	Furniture and fixtures	36	Electronic & other electric equipment	
27	Printing and publishing	38	Instruments and related products	
28	Chemicals and allied products	47	Transportation services	
34	Fabricated metal products	48	Communication	
35	Industrial machinery and equipment	50	Wholesale trade—durable goods	
37	Transportation equipment	51	Wholesale trade—nondurable goods	
39	Miscellaneous manufacturing industries	58	Eating and drinking places	
41	Local and interurban passenger transit	61	Nondepository institutions	
42	Trucking and warehousing	62	Security and commodity brokers	
45	Transportation by air	64	Insurance agents, brokers, & service	
56	Apparel and accessory stores	65	Real estate	
57	Furniture and homefurnishings stores	72	Personal services	
59	Miscellaneous retail	73	Business services	
60	Depository institutions	75	Auto repair, services, and parking	
63	Insurance carriers	78	Motion pictures	
67	Holding and other investment offices	83	Social services	
70	Hotels and other lodging places			
76	Miscellaneous repair services			
82	Educational services			
86	Membership organizations			
87	Engineering & management services			

Source: ADE, data from MIG ES202 county employment database

include wholesale distribution, wood products, stone/glass/clay products, electronics, instruments, transportation services, and business services.

INDUSTRY OUTPUT AND INCOME

The 1998 total industry output, or the sales value of goods and services, for all private sector industries in Kings County is estimated to total about $2.3 billion (Table 2).[3] Calculated from an employment base of 26,500 jobs, this works out to about $88,200 of industrial output per job. The most productive industry groups in the county are agriculture and manufacturing, each of which accounted for over $725 million of industrial output.

Of the total industry output, dairy production accounted for about $302 million in 1998.[4] Also in 1998, dairy processing industries accounted for about $139 million. Even though dairy production accounted for about 3.5 percent of the private sector wage-and-salary employment in Kings County, dairy farm production generates 13 percent of the output. Accordingly, dairy processing industries generate about one percent of the jobs, but they account for six percent of the total private sector industrial output in Kings County.

Employee compensation accounts for about $552 million, or about 24 percent, of the total industrial output in Kings County. The industry groups accounting for over $100 million in payroll are agriculture, manufacturing, and services.

In 1998, dairy farm production accounted for about $19 million in payroll, while the processing industries accounted for about $12 million. The dairy production employment accounts for 3.5 percent of the countywide total employment and 3.4 percent of the payroll. For dairy processing industries, the payroll accounts for two percent of the countywide total, while dairy processing generates about one percent of the jobs. This indicates that the processing jobs have high employee incomes compared to the rest of Kings County.

Components of Industrial Output for Dairy Production and Processing Industries

As mentioned previously, two broad components make up industrial output: value added and commodity inputs. Commodity inputs consist of the goods and services that an industry needs to purchase in order to operate. For dairy production, examples of inputs include agricultural services, farm machinery, and feed. In addition, the dairy production and

[3] Industry output derived from data in the IMPLAN input-output model. The estimated outputs are calculated based on the average output per employee for each industry sector. Industry output represents the sum of total commodity inputs (cost of goods sold) and total value added. Value added includes labor income, property income, and indirect business taxes.

[4] The 1998 dairy production figure is reported at $321 million in the Kings County Crop Report, and is adjusted to 1999 dollars using the producer price index.

TABLE 2
PRIVATE SECTOR EMPLOYMENT, PAYROLL, AND INDUSTRY OUTPUT
KINGS COUNTY, 1998

Industry Description	1998 Employment	Percent of Employment	1998 Payroll	Percent of Payroll	Estimated Industry Output	Percent of Output
TOTAL EMPLOYMENT	26,528	100.0%	$551,873,014	100.0%	$2,340,911,074	100.0%
AGRICULTURE	9,048	34.1%	$146,147,395	26.5%	$780,710,336	33.4%
Dairy Production	925	3.5%	$18,742,608	3.4%	$302,253,552	12.9%
MINING	3	0.0%	$30,080	0.0%	$551,700	0.0%
CONSTRUCTION	930	3.5%	$27,815,202	5.0%	$77,958,845	3.3%
MANUFACTURING	3,359	12.7%	$107,436,728	19.5%	$727,981,022	31.1%
Dairy Processing	286	1.1%	$11,583,864	2.1%	$138,944,945	5.9%
TRANSPORTATION AND PUBLIC UTILITIES	818	3.1%	$26,851,128	4.9%	$146,128,451	6.2%
WHOLESALE TRADE	987	3.7%	$29,486,652	5.3%	$44,938,150	1.9%
RETAIL TRADE	5,563	21.0%	$87,211,808	15.8%	$253,283,614	10.8%
FINANCE, INSURANCE, AND REAL ESTATE	695	2.6%	$16,201,517	2.9%	$36,942,350	1.6%
SERVICES	5,125	19.3%	$110,692,504	20.1%	$272,416,607	11.6%

Source: ADE, data from MIG ES202 county database, Kings County Crop Report, and the IMPLAN input-output model.

Note: Industry output represents estimates calculated from the average output per employee for each industry group. This calculation was done independently from the payroll, which comes directly from the ES202 database of wage and salary employment. Payroll only accounts for wage and salary income, and does not include proprietor income and property income. The output for dairy production was adjusted to the producer price index.

processing industries in Kings County can either procure necessary commodity inputs locally or they may need to import their inputs from outside the county if the commodities are unavailable or insufficiently supplied by local industries.

As implied by the name, value added refers to the amount of value that the activities of a particular industry add to their commodity inputs. Value added consists of employee income, proprietary income from self-employment, property income, and indirect business taxes. For dairy processing, one major commodity input is milk, and the transformation of this commodity into a finished product such as cheese represents the value that dairy processing industries add to the commodity.

Kings County's dairy production output in 1998 totaled approximately $302 million, and about $225 million of this output comes from the total commodity inputs purchased by the industry (Table 3). The majority of the inputs into the dairy production industry, worth about $168 million, come from outside of Kings County. This implies that many of the major commodities

purchased by the local dairy production industry are not currently produced in Kings County. The remainder of the output in dairy production comes from value added. The 1998 wage and salary income for dairy production totals about $19 million, while self-employment income comes out to $36 million. Agricultural industries in general have a very high proportion of self-employment, and the dairy production sector in Kings County follows this pattern.

TABLE 3
COMPONENTS OF INDUSTRIAL OUTPUT FOR DAIRY PRODUCTION AND PROCESSING INDUSTRIES IN KINGS COUNTY, 1998

Components of Industrial Output	Dairy Production	Dairy Processing
VALUE ADDED		
Employee Income (Wage and Salary)	$18,742,608	$11,583,864
Income From Self-Employment	$35,554,648	$362,402
Other Value Added	$23,142,010	$12,423,410
COMMODITY INPUTS		
Local Inputs	$56,764,326	$65,765,520
Other Inputs	$168,049,960	$48,809,749
TOTAL INDUSTRIAL OUTPUT	$302,253,552	$138,944,945

Source: ADE, data from Kings County, ES202 county employment database, and IMPLAN input-output model

Notes: Wage and salary income come from the ES202 database, while self-employment income and other value added (property income and indirect business taxes) are derived from data in the input-output model.

Local inputs consist of commodity purchases made by Kings County dairy production and processing industries that come from other Kings County industries. Other inputs are any commodity purchases that come from anywhere outside of Kings County, and can include overseas imports.

For the dairy processing industries, the amount of output that comes from commodity inputs is substantially higher. This is because dairy processing is more of a mechanized manufacturing industry that requires substantial investment in facilities. In addition, the primary inputs into dairy processing come from dairy farms, as well as other dairy processors. Of the total dairy processing output of $139 million, commodity inputs make up $115 million of the total. Unlike dairy farms, which need to import the majority of their commodity inputs from outside of Kings County, about 57 percent of the commodities purchased by Kings County dairy processors are supplied by local industries. Much of this is due to the prevalence of local dairy production in Kings County, which supplies 74 percent of the milk and primary dairy commodities consumed

by the dairy processing industries.[5] The remainder of the output comes from value added, and in this case the dairy processing industries also have very different characteristics from dairy farm production. As with most manufacturing industries, the workforce in dairy processing consists almost entirely of wage and salary employees with minimal self-employment. The 1998 employee income in Kings County dairy processing industries totals about $11.6 million, while the self-employment income comes out to less than $0.4 million.

[5] Data comes from the IMPLAN input-output model.

4. DAIRY INDUSTRY PROJECTIONS

Under existing land use capacities, the estimated maximum holding capacity for dairy farming in Kings County is approximately 369,400 dairy cows, which represents nearly a three-fold increase from the current herd size of 124,700. For the past twelve years from 1988 to 2000, the milk cow herds have grown at an average annual rate of about 2.3 percent. Accounting for the year-to-year variation in the herd size[6], the ten-year growth trend projects a herd size of about 156,900 by 2010, and a herd size of about 197,400 by 2020. At this rate of growth, Kings County is projected to reach the maximum herd capacity around 2047. The following sections discuss the employment, output and income implications of this growth.

DAIRY PRODUCTION INDUSTRY

Employment

The local dairy production industry is estimated to have increased its employment base by over 300 jobs between 1995 and 2000, which represents an annual growth rate over four percent during this time period.[7]

TABLE 4
EMPLOYMENT (INCLUDING PROPRIETORS) AND HERD SIZE TRENDS IN DAIRY PRODUCTION
KINGS COUNTY, 1995 TO BUILDOUT

Dairy Production Industry Trends	Employment (Including Self-Empl.)	Dairy Cow Herd Size (Head)
1995	1,226	101,530
1998	1,336	106,845
2000 (Estimated)	1,558	124,667
2010 (Projected)	1,961	156,869
2020 (Projected)	2,467	197,386
At Buildout (Projected)	4,617	369,383

Source: ADE, data from Kings County and MIG ES202 county employment database
Note: Employment totals include wage-and-salary employees and proprietors

[6] Data for the increases in Kings County dairy cow herd come from the County. The assumed 2.3 percent annual growth rate was calculated using a regression equation that accounts for the variation in the herd size during different years from 1988 to 2000.

[7] This employment estimate is based on data from the ES202 database, Kings County Dairy Industry Survey and the IMPLAN input-output model. The dairies included in the survey sample reported about 90 dairy cows per employee. The input-output model assumes that about 33 percent of the total employment comes from self-employment. The analysis assumes 80 dairy cows per worker after including self-employment.

Future employment growth in dairy production employment will track with the projected increases in dairy cow herd size. With a projected herd size of 156,900 dairy cows by 2010, the resulting employment is estimated at 1,960 jobs. By 2020, the projected herd of 197,400 head could add over 900 new dairy production jobs. At buildout, the estimated job growth resulting from the increased herd size could add over 3,000 new dairy production jobs.[8] The actual number of new jobs could be less, depending on the degree to which technological improvements lessen the number of workers required to tend the herds.

Employment Multiplier Effects

By using an input-output model, the multiplier effects on employment generated by the dairy production industry were estimated.[9] Assuming that dairy farms in Kings County have a 2000 employment base of about 1,560 jobs (including self-employment), the input-output model estimated that dairy production generates an additional 1,810 indirect jobs and 610 induced jobs (Table 5). By 2010, the multiplier effects will result in 2,660 indirect jobs and 890 induced jobs, and by 2020 the multiplier effects will result in 3,750 indirect jobs and 1,280 induced jobs. When Kings County reaches its maximum theoretical herd size, the multiplied job base could go as high as 4,620, at which time the multiplier effects of the industry will result in a total of 6,750 indirect jobs and about 3,055 induced jobs.

TABLE 5
PROJECTED EMPLOYMENT MULTIPLIERS FROM KINGS COUNTY DAIRY FARM PRODUCTION , 2000 TO BUILDOUT

Year	Direct Employment (1)	Indirect Employment (2)	Induced Employment (3)	Total
2000 (Estimated)	1,558	1,807	608	3,973
2010 (Projected)	1,961	2,659	888	5,508
2020 (Projected)	2,467	3,751	1,280	7,498
At Buildout (Projected)	4,617	6,751	3,055	14,422

Source: ADE, data from Kings County and IMPLAN input-output model

Notes: (1) Direct employment refers to the total number of dairy production jobs in Kings County for a particular year.
(2) Indirect employment refers to the jobs generated by supplier purchases made by Kings County dairy farms.
(3) Induced employment results from purchases made by dairy farm production workers.

[8] The estimated number of new jobs assumes that the balance between herd size and employment base will remain roughly the same.

[9] The input-output model used in the analysis is the IMPLAN Impro 2.0 application. The dataset in the model corresponds to the 1996 BEA input-output structural matrix.

The indirect jobs result from supplier purchases made by dairy farms. These supplier purchases are otherwise known as commodity inputs. More than half of the indirect jobs generated by dairy production are in agricultural services (Table 6). In addition to the indirect jobs in agricultural services, the Kings County dairy production industry also generates significant indirect jobs in hay production, wholesale trade, motor freight, feed grains, and maintenance.

TABLE 6
PROJECTED INDIRECT EMPLOYMENT MULTIPLIERS FROM KINGS COUNTY DAIRY FARM PRODUCTION, 2000 TO BUILDOUT

Industry	2000 Indirect Employment	2010 Indirect Employment	2020 Indirect Employment	Indirect Employment At Buildout
Total Indirect Employment	1,807	2,659	3,751	6,751
Agricultural Services	1,027	1,535	2,276	4,242
Hay and Pasture	243	362	434	451
Wholesale Trade	158	221	299	562
Motor Freight Transport and Warehousing	103	140	183	311
Maintenance and Repair Other Facilities	36	53	74	166
Feed Grains	35	53	63	66
All Other Industries	204	296	421	953

Source: ADE, data from Kings County and IMPLAN input-output model
Notes: Indirect employment refers to the jobs generated by supplier purchases made by Kings County dairy farms.

In addition to indirect jobs that come from buyer-supplier relationships, employment in the dairy production industry also generates induced jobs. These jobs result from purchases made by employees. Because households make these purchases, the induced jobs are primarily generated in local-serving industries, such as retail trade, and personal and health services (Table 7).

Output Multiplier Effects

Based on the current herd size, direct industrial output for the dairy production industry in Kings County totals $352 million. For 2000, the supplier industries to the dairy production industry generate an additional $76 million in indirect outputs, as a result of supplier purchases from dairy farms. In addition, purchases made by dairy farm production employees generates an additional $38 million in induced industry output.

For future projections, ADE assumed that the production value generated by each dairy cow will increase at an annual rate of 1.8 percent. This increase follows the recent real increases in production by the Kings County herd, and accounts for year-to-year production fluctuations as

well as inflation.[10] The total increase in dairy production value adds together the production increase per cow, and projected additions to the herd.

The ten-year projection indicates that the direct industry output for dairy farm production in Kings County will increase to $530 million by 2010, with the total multiplied industry output increasing to $695 million. By 2020, the direct output is projected to increase to $797 million, with the total multiplied output going up to $1.03 billion (Table 8). At buildout, the projected direct dairy production industry output is $2.4 billion, with a total multiplied industry output of $2.9 billion.

TABLE 7
PROJECTED INDUCED EMPLOYMENT MULTIPLIERS FROM KINGS COUNTY DAIRY FARM PRODUCTION, 2000 TO BUILDOUT

Industry	2000 Induced Employment	2010 Induced Employment	2020 Induced Employment	Induced Employment At Buildout
Total Induced Employment	608	888	1,280	3,055
Eating/Drinking Places	86	127	184	454
Automotive Dealers & Service Stations	41	60	87	216
Hospitals	41	60	87	215
Miscellaneous Retail Stores	39	58	84	207
Doctors and Dentists	39	57	83	206
General Merchandise Stores	39	57	82	204
Food Stores	31	45	65	161
Nursing and Protective Care	26	38	56	138
Domestic Services	18	27	39	97
Banking	17	25	36	78
All Other Industries	231	335	477	1,080

Source: ADE, data from Kings County and IMPLAN input-output model
Notes: Induced employment refers to the jobs generated by household purchases made by Kings County dairy farm employees.

[10] Data for the increases in production per dairy cow in Kings County come from the Kings County Crop Report. These figures were adjusted to 1999 dollars using the producer price index (at the time of the analysis, PPI figures for 2000 were not available). The 1.8 percent annual growth rate was calculated using a regression equation that accounts for the variation in production during different years.

TABLE 8
PROJECTED OUTPUT MULTIPLIER EFFECTS FROM KINGS COUNTY DAIRY FARM PRODUCTION, 2000 TO BUILDOUT

Year	Direct Output (1)	Indirect Output (2)	Induced Output (3)	Total Dairy Production Industry Output
2000 (Estimated)	$352,495,008	$76,470,955	$37,597,091	$466,563,042
2010 (Projected)	$530,112,992	$110,357,739	$54,851,410	$695,322,148
2020 (Projected)	$797,230,016	$153,552,515	$78,853,507	$1,029,636,049
At Buildout (Projected)	$2,414,436,096	$295,112,072	$186,247,394	$2,895,795,688

Source: ADE, data from Kings County and IMPLAN input-output model
Notes: (1) Direct output refers to the entire industry output for dairy production in Kings County during a given year.
(2) Indirect output refers to the economic activity generated by supplier purchases made by Kings County dairy farms.
(3) Induced output results from household purchases made by dairy farm production workers.

Income Multiplier Effects

As part of the overall output, the input-output model calculated the labor income that would result from projected job growth in dairy production.[11] For the base year 2000, the nearly 4,000 direct, indirect, and induced jobs (from Table 5) generate about $106 million in total income, which includes both wage-and-salary workers and proprietors (Table 9). The direct dairy production jobs account for over half of the total income, with $63 million in 2000. In future years, the total multiplied labor income is projected to increase to $157 million by 2010 and $231 million by 2020. At buildout, the job growth is expected to generate a total multiplied labor income of $616 million, of which $434 million will result from dairy farm employment.

DAIRY PROCESSING INDUSTRIES

Employment

In 1998, dairy processing (SIC 202) accounted for 286 jobs, or about 17 percent of the total food processing employment in Kings County.[12] This represents a 40 percent increase over the 200 dairy processing jobs in 1991 and an average annual growth of about five percent. The growth rate for the dairy processing industries was also higher than the employment increase for all food processing industries in the county. The 1998 ES202 database identified a total of three

[11] Labor income includes both earnings by wage and salary employees, and self-employment income.
[12] Data from Minnesota IMPLAN Group ES202 employment database.

food processing establishments that primarily produce dairy products. Ignoring the actual size differences, this results in an average of 95 employees per dairy processing establishment.

TABLE 9
PROJECTED INCOME MULTIPLIER EFFECTS FROM KINGS COUNTY DAIRY FARM PRODUCTION, 2000 TO BUILDOUT

Year	Income From Direct Jobs (1)	Income From Indirect Jobs (2)	Income From Induced Jobs (3)	Total
2000 (Estimated)	$63,309,002	$28,427,237	$14,104,358	$105,840,601
2010 (Projected)	$95,210,002	$41,156,979	$20,603,088	$156,970,069
2020 (Projected)	$143,186,000	$58,138,458	$29,672,266	$230,996,727
At Buildout (Projected)	$433,644,976	$111,989,246	$70,630,373	$616,264,585

Source: ADE, data from Kings County and IMPLAN input-output model

Notes: Income includes both employee compensation and proprietor income.
(1) Income from direct jobs refers to the total income from dairy production employment in Kings County for a particular year.
(2) Income from indirect employment refers to income generated by supplier purchases made by Kings County dairy farms.
(3) Income from induced employment results from household purchases made by dairy farm production workers.

By comparison, Tulare County dairy processing industries accounted for about 1,120 jobs in 1998. However, this total represents a 34 percent decline from the 1991 employment total of nearly 1,690 jobs. The entire loss in dairy processing can likely be attributed to the closure of the Kraft cheese production plant in Tulare in 1995, which eliminated 500 jobs. This single plant closing event negated an overall pattern of growth in dairy processing. Growth in the early 1990s was also slowed by high grain prices and lower wholesale milk prices, but recent growth trends have shown improvement. In the first half of 1999 cheese production grew 11 percent over the same period in 1998.[13] Even with this recent decline, Tulare County's economic base is still more oriented towards dairy processing than Kings County. For example, Kings County has roughly four dairy production jobs for every dairy processing job, while Tulare County has closer to two dairy production jobs for every dairy processing job.

The projection for dairy processing in Kings County shows the employment in this industry increasing to about 540 through 2010 (Table 10). A more moderate projection that accounts for the lower projected statewide growth trends in the industry projects that dairy processing employment in Kings County will increase to about 420 jobs. By 2020, the overall employment base for dairy processing industries is projected to range from 570 to 930 jobs.

[13] Associated Press Newswire, 10/03/99

TABLE 10
EMPLOYMENT TRENDS IN DAIRY PROCESSING INDUSTRIES
KINGS COUNTY, 1991 TO 2020

Dairy Processing Industry Trends By Year	Employment (Jobs)
1991	200
1995	203
1998	286
2010 (High Projection)	542
2020 (High Projection)	925
2010 (Moderate Projection)	416
2020 (Moderate Projection)	568

Source: ADE, data from MIG ES202 county employment database, and EDD Labor Market Information Division

This projection is based on California Labor Market Information Division projections, and recent trends.[14]

Results from the input-output model indicate that the dairy processing industry has very high multiplier effects. Using the 1998 employment base of 286 jobs, indirect jobs generated by the industry total about 700 (Table 11). Over 300 of the indirect jobs resulting from buyer-supplier relationships with dairy processing establishments were in dairy production. By 2010, the projected new dairy processing jobs will boost the indirect employment past 1,000 jobs. By 2020, the indirect employment is projected to range from 1,400 to 2,280 jobs.

Clearly, the production and processing functions of dairy are very related. However, the relationship has a directional flow to it: dairy production supplies the dairy processing industry, but not the other way around. Other significant supplier industries to the dairy processors include agricultural services, wholesale trade, hay production, motor freight, and other dairy processing industries (Table 12).

TABLE 11
PROJECTED MULTIPLIER EMPLOYMENT FROM KINGS COUNTY DAIRY PROCESSING INDUSTRIES , 1998 TO 2020

Year	Direct Employment	Indirect Employment	Induced Employment	Total

[14] California Labor Market Information Division projections are done at both the state and county levels. The statewide projections have a time horizon of 1998 to 2008, and have considerably more detail than the county projections, which go from 1995 to 2002 and do not define industries beyond the 3-digit SIC code level. The high projection estimates the detailed growth rate for SIC 202 by using the projected county growth rate for SIC 20 and the existing proportional difference in growth rates between SIC 20 and SIC 202. The moderate projection combines the statewide projection with the county projection.

	(1)	(2)	(3)	
1998	286	704	236	1,226
2010 (Moderate Projection)	416	1,023	343	1,782
2020 (Moderate Projection)	568	1,398	468	2,434
2010 (High Projection)	542	1,335	447	2,325
2020 (High Projection)	925	2,278	763	3,966

Source: ADE, data from Kings County and IMPLAN input-output model

Notes: High projection assumes an average annual growth rate of 5.5 percent., which is close to the growth trend between 1991 and 1998. This growth rate assumes a constant relationship between the respective growth rates for food processing (SIC 20) and dairy processing (SIC 202). Moderate projection assumes an average annual growth rate of about 3.2 percent. This accounts for the lower rate of growth projected for dairy processing industries throughout the rest of California.

(1) Direct employment refers to the total number of dairy production jobs in Kings County for a particular year.

(2) Indirect employment refers to the jobs generated by supplier purchases made by Kings County dairy farms.

(3) Induced employment results from purchases made by dairy farm production workers.

TABLE 12
PROJECTED INDIRECT EMPLOYMENT FROM KINGS COUNTY DAIRY PROCESSING INDUSTRIES, 1998 TO 2020

Supplier Industry	1998 Indirect Employment	2010 Indirect Empl. (Moderate)	2020 Indirect Empl. (Moderate)	2010 Indirect Empl. (High)	2020 Indirect Empl. (High)
Total Indirect Employment	704	1,023	1,398	1,335	2,278
Dairy Farm Products	310	451	616	588	1,003
Agricultural, Forestry, Fishery Services	115	166	227	217	371
Wholesale Trade	64	93	128	122	208
Other Dairy Processing	35	51	70	66	114
Hay and Pasture	27	39	53	51	87
Motor Freight Transport and Warehousing	23	33	45	43	73
Banking	13	19	27	25	43
All Other Industries	33	49	66	63	108

Source: ADE, data from Kings County and IMPLAN input-output model

Note: Indirect employment refers to the jobs generated by supplier purchases made by Kings County dairy farms.

In addition, employment generated by dairy processing activities account for 236 induced jobs. By 2020, the projected dairy processing employment shows increased the induced employment to between 470 and 760 jobs (Table 13). As with the induced jobs related to dairy production,

the induced jobs from the dairy processing industry are primarily in local-serving retail and services industries.

Output Multiplier Effects

Dairy processing activities in Kings County generated a direct output total of $139 million in 1998 (Table 14). Because dairy processing activities require substantially more commodity inputs than dairy farm production, the indirect outputs reflect this higher demand with a total of $84 million. Altogether, the 1998 total multiplied dairy processing output comes out to $238 million. Under the moderate growth projection, the direct industry output is expected to increase to $202 million by 2010 and to $276 million by 2020. The projected total multiplied outputs for dairy processing should total about $346 million by 2010 and $472 million by 2020. With the high growth projection, the direct output is expected to increase to $263 million by 2010 and $450 million by 2020.

TABLE 13
PROJECTED INDUCED EMPLOYMENT FROM KINGS COUNTY DAIRY PROCESSING INDUSTRIES, 1998 TO 2020

Supplier Industry	1998 Employment	2010 Indirect Empl. (Moderate)	2020 Indirect Empl. (Moderate)	2010 Indirect Empl. (High)	2020 Indirect Empl. (High)
Total Induced Employment	236	343	468	447	763
Eating & Drinking	33	48	66	63	108
Automotive Dealers & Service Stations	16	23	31	30	51
Hospitals	16	23	31	30	51
Miscellaneous Retail	15	22	30	29	49
Doctors and Dentists	15	22	30	29	49
General Merchandise Stores	15	22	30	28	48
Food Stores	12	17	23	22	38
Nursing and Protective Care	10	15	20	19	33
Domestic Services	7	10	14	13	23
Banking	7	10	14	13	22
All Other Industries	90	131	179	171	292

Source: ADE, data from Kings County and IMPLAN input-output model

Note: Induced employment refers to the jobs generated by household purchases made by Kings County dairy farm employees.

TABLE 14
PROJECTED OUTPUT MULTIPLIER EFFECTS FROM KINGS COUNTY DAIRY PROCESSING INDUSTRIES, 2000 TO 2020

Year	Direct Output (1)	Indirect Output (2)	Induced Output (3)	Total Dairy Processing Industry Output
1998	$138,944,945	$84,088,051	$14,742,930	$237,775,925
2010 (Moderate Projection)	$201,966,401	$122,227,978	$21,429,902	$345,624,278
2020 (Moderate Projection)	$275,904,984	$166,974,840	$29,275,250	$472,155,064
2010 (High Projection)	$263,499,171	$159,466,978	$27,958,915	$450,925,069
2020 (High Projection)	$449,586,149	$272,084,867	$47,703,910	$769,374,932

Source: ADE, data from Kings County and IMPLAN input-output model

Notes: (1) Direct output refers to the entire industry output for dairy processing in Kings County during a given year.

(2) Indirect output refers to the economic activity generated by supplier purchases made by Kings County dairy processing industries.

(3) Induced output results from household purchases made by dairy processing industry workers.

Income Multiplier Effects

The direct employment (including self-employment) in the dairy processing industries generated about $12 million of labor income in 1998 (Table 15). Labor income resulting from supplier and employee household purchases added $26 million, resulting in a total multiplied labor income of $38 million when accounting for direct, indirect, and induced employment. The moderate employment growth projection shows labor income increasing to $56 million per year by 2010, and up to $76 million annually by 2020. With the high employment growth projection, the total multiplied labor income in 2010 grows to nearly $73 million per year, and by 2020 grows to about $124 million per year.

TABLE 15
PROJECTED INCOME MULTIPLIER EFFECTS FROM KINGS COUNTY DAIRY PROCESSING INDUSTRIES, 2000 TO 2020

Year	Annual Income From Direct Jobs (1)	Annual Income From Indirect Jobs (2)	Annual Income From Induced Jobs (3)	Total Labor Income
1998	$11,946,266	$21,332,646	$5,143,432	$38,422,346
2010 (Moderate Projection)	$17,364,751	$31,008,524	$7,476,347	$55,849,623
2020 (Moderate Projection)	$23,721,873	$42,360,544	$10,213,388	$76,295,804
2010 (High Projection)	$22,655,241	$40,455,839	$9,754,153	$72,865,231
2020 (High Projection)	$38,654,702	$69,026,344	$16,642,679	$124,323,726

Source: ADE, data from Kings County and IMPLAN input-output model

Notes: Income includes employee compensation and proprietor income.

(1) Income from direct jobs refers to the total income from dairy production employment in Kings County for a particular year.

(2) Income from indirect employment refers to income generated from supplier purchases made by Kings County dairy farms.

(3) Income from induced employment results from household purchases made by dairy farm production workers.

5. FISCAL IMPACTS

The dairy industry contributes property taxes to the County budget and expenditures by dairy employees contribute sales taxes and other public revenues both directly and through multiplier effects. This preliminary analysis focuses on the property tax revenue, and is based on recent dairy development history in Tulare County, since comprehensive tax records of dairy properties in Kings County are not available.

The Tulare County Assessor's office reports a range of assessed values for mid size dairies built in the 1990s and larger dairies built more recently.[15] For dairies with approximately 1,500 milk cows, typical assessed values per cow range from $1,000 to $1,200 for real property, not including land, equipment or associated residences. For larger dairies in the range of 3,000 to 7,000 cows, these figures have ranged from $1,600 to $2,500 per cow. Equipment costs are more uniform, at about $275 per cow using up to date equipment. All of these figures tend to increase over time due to constant improvements in technology that increase the mechanization of the industry.

There is tremendous variation in assessed land values in the industry, as for most agricultural property. The characteristics of the soils, the location of the property, and the presence of Williamson Act contracts or other agricultural easements all affect land values. Also, the fact that many dairies in Kings County have remained in single ownership for many years, tends to depress assessed values well below current market values, due to assessment procedures instituted by Proposition 13. In Tulare County, assessed values tend to range from $3,000 to $6,000 per acre but can go as high as $8,000 per acre in certain locations.[16] Kings County has seen similar land values.

For this analysis, we have used mid-range values to approximate existing and projected property taxes generated by the dairy industry. It is likely that this approach somewhat overestimates the current revenue generated by the industry since many existing assessed values may reflect market prices of twenty or thirty years ago. On the other hand, the future projection may be slightly understated if additional property turnover and technological advancements occur as the industry grows in Kings County. The values in Table 16 are based on figures of $1,500 per cow for real property, $275 per cow for equipment, and $5,000 per acre for land.

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[15] Gary Westbrook, Tulare County Assessor's Office, personal communication, September 7, 2000.
[16] Yvonne Montgomery, Kings County Assessor's Office, personal communication, September 7, 2000.

TABLE 16
PROPERTY TAX ESTIMATES FOR THE DAIRY INDUSTRY

	2000 Estimate	2010 Projection	2020 Projection
Cows	124,660	156,900	197,400
Acres	4,756	5,986	7,531
Assessed Value	$245,051,500	$308,427,566	$388,040,800
Property Tax	$2,450,515	$3,084,276	$3,880,408
County Share	$392,082	$493,484	$620,865

Source: ADE.

Based on this approach, it is estimated that dairies generate about $392,000 per year in property taxes for the County budget, not including the value of residences on dairy property. The projected growth to 2010 could increase this by more than 25 percent and possibly much more depending on future escalation of land and property values in the dairy industry. For comparison, the total county share of property taxes in the 1999-2000 budget is about $11.9 million. Based on these estimates, the dairy industry directly contributes about 3.3 percent of county property taxes, which is about half of its contribution to total industry output in the county. This does not, however, account for the fiscal benefits from the economic multiplier effects of the industry.

APPENDIX I-- SURVEY DATA

Kings County Survey of Dairies Analysis

Summary

Number of total Respondent (N) = 32

B) Facilities and Employment

What capital improvements have you made recently or will you make in the future ?

1999	Total Expenditure	No. Respondents	Percent
Facility Expansion	5006000	6	19%
Facility productivity improvements	1610000	5	16%
Replacing/upgrading equip	599000	9	28%
Regulatory compliance	322000	6	19%
Total respondents		26	81%
Missing		6	19%
2000			
Facility Expansion	900000	2	6%
Facility productivity improvements	2180000	10	31%
Replacing/upgrading equip	718000	8	25%
Regulatory compliance	205000	4	13%
Total respondents		24	75%
Missing		8	25%
2001-2004			
Facility Expansion	1150000	2	6%
Facility productivity improvements	2850000	3	9%
Replacing/upgrading equip	1168000	4	13%
Regulatory compliance	125000	2	6%
Total respondents		11	34%
Missing		21	66%

Range of expenditure (dollars)

1999	Expenditure ($)	No. Respondents	Percent
Facility Expansion	5000-1million	6	19%
Facility productivity improvements	5000-1million	5	16%
Replacing/upgrading equip	5000-250,000	9	28%
Regulatory compliance	2,000-150,000	6	19%
Total		26	81%
Missing		6	19%
2000			
Facility Expansion	400,000 -500,00	2	6%
Facility productivity improvements	5,000 - 1 millior	10	31%
Replacing/upgrading equip	5,000 - 250,000	8	25%
Regulatory compliance	10,000 - 150,000	4	13%
Total		24	75%
Missing		8	25%
2001-2004			
Facility Expansion	50,000 - 900,00	2	6%
Facility productivity improvements	5,000 -2 millior	3	9%
Replacing/upgrading equip	80,000 -750,00	4	13%
Regulatory compliance	35,000 - 90,000	2	6%
Total		11	34%
Missing		21	66%

Number of employees at this location (annual average) in the past, now, and in the future

	1999	No. Respondents	Percent
Number of employees Full Time	247	30	94%
Number of employees Part Time	61	6	19%
Number of employees Seasonal	0	0	0
Total Employment	308		
	2000	**No. Respondents**	**Percent**
Number of employees Full Time	298	32	100%
Number of employees Part Time	13	6	19%
Number of employees Seasonal	2	1	3%
Total Employment	**313**		
	2001	**No. Respondents**	**Percent**
Number of employees Full Time	256	23	72%
Number of employees Part Time	16	5	16%
Number of employees Seasonal	0	0	0%
Total Employment	**272**		
	2002	**No. Respondents**	**Percent**
Number of employees Full Time	206	15	47%
Number of employees Part Time	15	4	13%
Number of employees Seasonal	0	0	0
Total Employment	**221**		

C) Production and Markets

How do you expect the growth of the dairy industry to change in the next two three years?

	Respondent	Percent
Grow more slowly than the past 3 yrs	18	56%
Grow as fast as the past 3 yrs	10	31%
Grow more quickly than past 3 yrs	2	6%

Please estimate your herd size (annual average) now and in the future
(total herd size by year)
Total Herd by year and no of respondents

	1999	Total Respondents	2000	Total Respondents	2004	Total Respondents
Milk Cows	26,538	32	26,635	29	22,694	15
Dry Cows	4,572	28	7,493	27	4,258	16
Heifers 2 years or less	11,288	22	12,325	20	12,354	14
Heifers 2 years or more	1,561	17	1,278	15	922	10
Calves less than 3 months	4,878	21	3,285	18	2,948	11
Calves 3 months to 1 year	8,953	18	7,761	14	8,988	13
Total Herd	**57,790**		**58,777**		**52,164**	

Projections 2000 -2004

	2000	2004	Absolute Growth	% Growth
Milk Cows	**20,505**	**22,694**	**2,189**	**11%**
Dry Cows	3,573	4,258	685	19%
Heifers 2 years or less	10,530	12,354	1,824	17%
Heifers 2 years or more	843	922	79	9%
Calves less than 3 months	2,621	2,948	327	12%
Calves 3 months to 1 year	7,428	8,988	1,560	21%
Total Herd	45,800	52,164	6,364	14%

If planning to increase herd size, why?

	Yes	Percent
Have excess milking barn capacity	6	19%
Need to increase efficiency	11	34%
Price of milk	8	25%
Demand for milk increasing	3	9%
Technological improvements making it	5	16%
Other Planning 1	0	0%

If not planning to increase herd size, why?

	Yes	Percent
Don't want to upset ecosystem	2	6%
Personal or family reasons	2	6%
Capital costs	2	6%
Planning tech improvements	1	3%
Plant can't be expanded	5	16%
Qualified labor not available	2	6%
Lack of land for manure	4	13%
Lack of land to dispose water	5	16%
Price of milk	5	16%

Whether or not you are planning to increase herd size, what improvements would you need to make in order to increase production?

	Yes	Percent
More acres of land to spread dry manur	6	19%
More acres of land to dispose wastewat	9	28%
More milking stalls	13	41%
Other improvements	10	31%

What cooperative are you a member of?

	No Respondents	Percent
California Dairies, Inc	18	56%
Dairyman's Division of land 'o lakes	6	19%
Dairy Farmers of America	1	3%
Security Milk	0	0%
Hilmar Cheese	0	0%
Other cooperatives ?	4	13%

If you know, Where does milk go for processing on a typical day?

	No Respondents	Amount (lbs)	Percent
Local processor	15	1,178,250	47%
Out of area	1	51,000	3%
Other plant	17		53%

What was your total production and revenue in 1999 and your expected production in the future ?

Total production & revenue

	Amount lbs	AveAmount	Revenue	AveRevenu	No Respondents
1999	379,734,401	$ 11,507,103	$ 57,394,067	$ 1,739,214	24
2000	420,958,150	$ 12,756,308	$ 52,492,844	$ 1,590,692	30
2004	334,680,437	$ 10,141,831	$ 32,807,229	$ 994,158	13

Projections 2000 - 2004

	2000	2004	Absolute Change	% Change
Amount lbs	293,377,950	334,680,437	41,302,487	14%
Revenue ($)	29,744,519	30,807,229	1,062,710	4%

Operating Capacity

Present Capacity used (%)	No respondents	Percent
25	1	3%
65	1	3%
75	2	6%
80	6	19%
90	4	13%
100	10	31%
Total	24	75%
Missing	8	25%

# of cows that could be added without expansion

Range of Cows	No Respondents	Percent	No Cows
0-100	9	28%	602
101-300	5	16%	875
301-500	1	3%	500
501-700	1	3%	700
701-1000	1	3%	1,000
Total	**17**	**53%**	**3,677**

D) Operations

Year diary established	No Respondents	Percent
1 1978 or earlier	20	63%
after 1978	12	38%
Total	32	100%

What is the acreage of your facility, including corrals, milking facilities, barns, feed storage and manure handling areas?

Acreage of dairy facility Range	No of Respondents	Percent
0-20	14	44%
21-40	9	28%
41-80	6	19%
100-200	2	6%
200-400	1	3%
Total	32	100%
Total Acreage	**1,589**	

	Yes	Percent	No	Percent
Spread dry manure on my own crop land	19	59%	13	41%

Acreage Range	No. of Respondents	Percent
0-200	7	22%
201-400	2	6%
401-700	6	19%
701-1000	1	3%
1001-3000	2	6%
Total	18	56%
missing	14	44%

	Yes	Percent	No	Percent
Sell Excess dry manure to other farmers?	16	0.5	16	0.5

Annual Income Range	No of Respondents	Percent
0-700	0	0%
700-1000	1	3%
1001-3000	4	13%
3001-5000	2	6%
5001-6000	2	6%
Total	8	25%
Missing	24	75%

What land is irrigated by water generated by dairy operation ? What is the ownership and agreement?

	No of Respondents	Percent
Own	15	47%
Lease	20	63%
Own and Lease	2	6%
Secured by agreement for thus use? Yes	9	28%

what are your other westwater solutions?

	Yes
Sell excess wastewater to farmers	9%
Sell excess wastewater to processors	0%
Purchase wastewater for own crops	3%

Percent Range	**0-25**	**26-50**	**51-75**	**76-100**	**Total Respondents**
Grow Own Feed on adjacent lands	6%	19%	3%	47%	75%
Grown on other land not adjacent to dairy	6%	3%	0%	9%	19%
Purchase from other growers	13%	16%	6%	31%	66%

What Are the factors that are the most important for the daily operation of your business?

	Not at all	Somewhat	Important	Very Important	Critical	% of Total
Labor costs	0%	9%	38%	34%	19%	100%
Labor supply	9%	6%	28%	31%	25%	100%
Transportation	22%	16%	38%	9%	9%	94%
Interest rates	6%	6%	44%	22%	22%	100%
Energy costs	0%	9%	38%	31%	22%	100%
Feed costs	3%	0%	19%	22%	53%	97%
Regulatory compliance	3%	3%	31%	47%	16%	100%
Local property taxes	9%	19%	34%	31%	6%	100%
State or corporate income taxes	6%	9%	28%	34%	16%	94%
Market condition economy	0%	0%	13%	25%	56%	94%

Which factors are most difficult to have control over?

	Not at all	Somewhat	Important	Very Important	Critical	% of Total
Labor costs	3%	25%	41%	16%	3%	85%
Labor supply	9%	19%	31%	25%	6%	88%
Transportation	22%	22%	25%	6%	9%	82%
Interest rates	3%	9%	28%	25%	28%	91%
Energy costs	3%	9%	28%	25%	28%	91%
Feed Costs	0%	16%	28%	25%	25%	91%
Regulatory compliance	0%	16%	22%	38%	22%	94%
Local property taxes	16%	16%	16%	25%	19%	88%
State or corporate income taxes	9%	16%	25%	22%	19%	88%
Market condition/economy	0%	3%	6%	28%	56%	91%

Manure Management

Please indicate the general type of manure management system which most accurately describes the system used at you dairy facility.

	No Respondents
1. Flushed freestall barn, flushed corrals. Manure separation pits/anaerobic lagoons	3
2. Flushed freestall barn, scrapped corrals. Manure separation pits/anaerobic lagoons	4
3. Scrapped freestall barn,scrapped corrals, solid manure stockpiling	2
4. Scraped corrals, solid manure stockpiling	5
5. Other describe.	
Owner handles waste and waste water	
Scraped corals with anerobic lagoons	
scraped corals with anerobic lagoons	
we don't have a floor, but we do scrap corrals and we give manure away	
no freestall barn, we do flush alleyways and we do have a lagoon	
open corrals floors are scrapped and manure is stock piled and applied to cropland.	
Total	**14**

APPENDIX II – METHODOLOGY

HERD SIZE AND DAIRY PRODUCTION VALUE ASSUMPTIONS

In dairy farm production, the volume of production and production values published in the agriculture commissioner's annual crop reports, while the herd size is estimated by the U.C. Cooperative Extension in from Kings County. Both sources provide historical data, and ADE used the data dating back to 1988. To more accurately track the prevailing growth trends since 1988, all of the production value figures were adjusted to 1999 constant dollars using the producer price index (PPI) for milk production. The producer price indexes come from the Bureau of Labor Statistics (BLS) and 1999 represents the most recent year with an annual index available.

ADE used these data sources as the basis for projecting future growth in the Kings County dairy cow herd and dairy production. The dairy cow projections assumed that the herd size would grow at an annual rate of 2.3 percent. This growth rate was calculated by generating a linear regression equation based on the herd size for each year from 1988 to 2000. A regression equation represents the "best fit" trend line for this time period because it shows the prevailing growth trend while accounting for the variations that occur from year to year.

Growth in dairy production will occur along with any increases in the number of dairy cows. Additionally, the data indicates that between 1988 and 2000, the production value per cow increased in constant dollar terms. Assuming that this long-term trend will continue, the analysis used an annual growth rate of 1.8 percent for the production value per cow. This represents real growth because the production value data has already been controlled for inflation using the PPI. The projected growth rate for production value per cow was calculated by generating a regression equation for data between 1988 and 1999. Using the growth components in the herd size and the production value per cow, the projected dairy production values were projected.

EMPLOYMENT AND GROWTH ASSUMPTIONS

Employment for the dairy farm production is calculated through a combination of data sources. The historic wage-and-salary employment comes from the ES202 county employment database, which is provided to ADE by the Minnesota IMPLAN Group (MIG). MIG uses the ES202 database, which is maintained by the Bureau of Labor Statistics (BLS), and runs the BLS data through a proprietary econometric model that estimates employment for industries that go unreported due to confidentiality requirements. The analysis uses the ES202 data to show employment at the county level for all industries in the Standard Industry Classification (SIC)

coding system between 1991 and 1998. The ES202 database does not include self-employment by dairy farm proprietors.

Projections for employment growth are based on the projected growth in the dairy cow herd size in Kings County. The analysis assumes about 120 dairy cows for every wage-and-salary worker and 80 dairy cows per worker if proprietors are included. This assumption is based on the ES202 database, the herd size data, the IMPLAN input-output model, and data from the Dairy Industry Survey. Depending on the year, the ES202 data, which does not include self-employment, gives a range of between 110 and 122 dairy cows per worker. Meanwhile, the IMPLAN input-output model, which includes self-employment and proprietor income, estimates an employment level that works out to about 80 cows per worker. Data from the Dairy Industry Survey reports a ratio of about 90 cows per worker, and a check of the survey forms indicates that dairy farms answering the survey likely included some proprietors in the employment totals.

ASSUMPTIONS FOR DATA GENERATED BY THE INPUT-OUTPUT MODEL

Input-output models are useful tools for identifying buyer-supplier relationships in a regional economy, and for estimating the contributions that different industries make to the regional economy. In the analysis of dairy industries in Kings County, key estimates made by the input-output model include proprietor income, industry output, and value added. In addition, input-output models can calculate multiplier effects from economic activity by a particular industry. These effects are typically classified as indirect and induced multipliers. An indirect effect comes from activity generated by supplier purchases (or inputs), while induced effects reflect demand for local goods and services made by employees. The input-output model used in the analysis is the IMPLAN Impro Professional 2.0 application. The model was developed by IMPLAN with data from the Bureau of Economic Analysis (BEA), BLS, and the ES202 employment database.

The Kings County analysis uses county-specific datasets from 1994 and 1996. In addition, the model allows the user to update and otherwise make changes to study data and relational assumptions. Because the model makes several calculations based on large national datasets, it is ideal to recalibrate the model whenever more specific data is available. In the Kings County analysis, some of the model parameters pertaining to dairy farm production, specifically the relationship between employment and industry output, were modified because county-specific information from the crop reports and dairy cow herd data was available.

DAIRY PROCESSING GROWTH ASSUMPTIONS

The methods used to make estimates and projections for dairy processing industries in Kings County differ somewhat from those used for dairy farm production. Because milk is one of many commodity inputs into the dairy processing industries rather than the main product, there is not as direct a connection between the herd size and the number of employees. With dairy processing, the employment estimates come directly from the ES202 county employment database. Projections for employment used a combination of historic growth patterns and projections by the California Employment Development Department Labor Market Information Division (LMID), which does not make projections for agricultural production sectors.

With these different data sources available, the analysis made two projections, one assuming moderate growth and one assuming high growth. The LMID statewide projections have a time horizon of 1998 to 2008, and have considerably more detail than the county projections, which go from 1995 to 2002 and define industries at a more aggregated level. The high projection estimates the detailed growth rate for the more specifically defined dairy processing industries. The high projected growth rate multiplied the LMID projected Kings County growth rate for all food processing industries (3.4 percent) with the historic ratio of the average annual growth rates for all food processing industries to the growth rate for dairy processing industries (1 to 1.6). This results in a high projected annual growth rate of 5.5 percent. The high projection assumes that the long-term employment growth will correspond to the employment growth trends observed between 1991 and 1998 when employment grew at an average annual rate of about five percent.

The moderate projection combines the high projected annual growth rate assumption and combines it with the statewide LMID projected annual growth rate for dairy processing industries (0.9 percent). This results in a moderate projected growth rate of 3.2 percent, which assumes that the growth pattern in Kings County will more closely track with the slower projected growth for all of California.

As with dairy farm production, the analysis looked at the buyer-supplier relationships of the processing industries using the IMPLAN input-output model. In this case, the primary input into the model was employment. The analysis used the model's assumptions regarding the relationship between employment and industry output.

APPENDIX G

DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT (Draft-PEIR)

This document is incorporated in its entirety by reference as an attachment to this *Dairy Element* of the *Kings County General Plan*

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APPENDIX H

FINAL PROGRAM ENVIRONMENTAL IMPACT REPORT (Final-PEIR)

This document is incorporated in its entirety by reference as an attachment to this *Dairy Element* of the *Kings County General Plan*

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APPENDIX I

A. Kings County Planning Commission's Resolution No. 02-03, adopted June 3, 2002, recommending approval of the *Dairy Element* of the *Kings County General Plan*

This document is incorporated in its entirety by reference as an attachment to this *Dairy Element* of the *Kings County General Plan*

B. Kings County Board of Supervisors' Resolution No. 02-100, adopted July 30, 2002, adopting the *Dairy Element* of the *Kings County General Plan*

This document is incorporated in its entirety by reference as an attachment to this *Dairy Element* of the *Kings County General Plan*

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APPENDIX J

TECHNICAL REPORT CONTENTS

TECHNICAL REPORT:

The *Technical Report* is a series of reports, plans, and programs prepared by qualified professionals that are submitted with an application for a new dairy or expansion of an existing dairy. The *Technical Report* shall include various studies, plans, and programs necessary to describe how the proposed application, when implemented, will satisfy the standards set in the Dairy Element. In addition, a monitoring and record keeping program shall be included for each component that both documents how the component achieves the standard, and provides documentation by the dairy operator of the results of implementing the plans and programs identified in the *Technical Report*. The components of the *Technical Report* are:

SUMMARY OF TECHNICAL REPORT COMPONENTS:

1a. Geotechnical Report
1b. Groundwater Evaluation
1c. Soils Evaluation
1d. Hydrologic Sensitivity Assessment
1e. Gas and Oil Well Evaluation
2a. Manure Nutrient Management Plan (MNMP
2b. Comprehensive Dairy Process Water Disposal Plan (CDWDP)
2c. Odor Management Plan (OMP)
2d. Irrigation Management Program (IMP)
3. Hazardous Materials Business Plan (HMBP)
4. Pest and Vector Management Plan (PVMP)
5. Dead Animal Management Plan (DAMP)
6. Wildlife Survey
7. Cultural Resources Evaluation by the California Historic Resources Information System (CHRIS)
8. Traffic Impact Study
9. Fugitive Dust Emissions Control Plan (FDECP)
10. Light, Glare and Noise Assessment

TECHNICAL REPORT COMPONENTS:

1a. Geotechnical Report (Policy DE 2.1f, DE 3.2b and DE 4.1a.B.2.c):

The *Geotechnical Report* is a part of the *Technical Report* documentation prepared by a qualified professional, either a Professional Engineer or Licensed Geotechnical Engineer, and shall be submitted to the Kings County Planning Agency with the SPR or CUP application. The report shall, at a minimum, present the results of sufficient subsurface sampling and testing to classify and characterize the soils and groundwater conditions in areas of proposed dairy facility structures, corrals, feed and manure storage areas, lagoon, and cropland where process water and manure are spread. The report shall include recommendations for foundation design, cut and fill slope design, berm or embankment design, and site grading. The recommendations shall specifically address, but not limited to, the following:

A. Soil consolidation and compression;
B. Shrink-swell potential;

C. Soil corrosivity;
D. Cut and fill slope stability under static and pseudo-static (earthquake) conditions;
E. Erosion potential

Prior to construction of a proposed above-grade embankments for the manure separation pits and process water lagoons at a dairy facility, the owner/operator shall submit a revised geotechnical report, prepared by a qualified professional that presents any changes to the specifications for the construction of embankments, foundations, cut and fills using on-site surface soils. The geotechnical report shall be submitted to the Kings County Building Department and shall include at least the following requirements:

A. Specific compaction testing requirements that ensure suitable compressive strength for the embankments. The compaction requirements shall specifically address the potential for leaching of salts and possible effects associated with hydrocompressibility of the emplaced soils.
B. Slope stability analysis for proposed embankment design. The slope stability analysis shall demonstrate that, under proposed design and requirements for fill compaction, the fill slopes will have a factor of safety of 1.25 or greater under static conditions and 1.0 or greater under pseudo-static (expected seismic shaking) conditions.

Following Construction:

A. Following construction of lagoons and separation pits, a registered Civil Engineer or licensed Geotechnical Engineer shall submit to the Kings County Planning Agency documentation and certification that the embankments have been constructed in compliance with design requirements. The documentation and certification shall also be maintained on the dairy site and be made available to Code Compliance personnel upon request.
B. Following construction of lagoons and separation pits, a registered Civil Engineer or licensed Geotechnical Engineer shall submit to the Kings County Planning Agency documentation and certification that the bottoms and sides of the lagoons and separation pits has a permeability equal to, or less than, 10^{-6} cm/sec. The documentation and certification shall be maintained on the dairy site and be made available to Code Compliance personnel upon request.
C. Annual inspection and reporting of findings by a Registered Civil Engineer or licensed Geotechnical Engineer of the inspection of the lagoons and separation pits, and any remedial action taken.

1b. Groundwater Evaluation (Policy DE 3.2a):

This evaluation may be done in conjunction with the Geotechnical Report described above. The *Technical Report* shall address the following:

A. *Depth to first groundwater:* Minimum separation from bottom of (lined and unlined) lagoons, manure and feed storage areas, and corrals shall be at least five (5) feet to the highest recorded groundwater level.
B. *Depth to first useable groundwater for human consumption:* The source of potable water for the dairy facility and nearby properties, and the safeguards to protect that water source must be identified.

C. *Proximity to watercourses:* Adjacent watercourses and improvements to protect watercourses from discharges from a dairy into watercourses or water bodies must be identified.

Documentation of the above information shall be submitted to the Kings County Planning Agency with the SPR or CUP application, and maintained on the dairy site and be made available to Code Compliance personnel upon request.

In the event there is a variance between these standards and the RWQCB requirements, the RWQCB standard will then prevail.

1c. Soils Report (Policy DE 2.1f and 3.2b):

The applicant for new dairies, or the expansion of existing dairies, shall file as part of the *Technical Report* a preliminary soils report on the Dairy Facility prepared by a Registered Civil Engineer. The preliminary soils report shall be based upon sufficient subsurface sampling and testing to classify and characterize the soils using test borings or excavations necessary to evaluate the soil beneath the proposed Dairy Facility. If the preliminary soils report indicates the presence of critically expansive soils or other soil problems, which if not corrected, could lead to structural defects or leakage of contaminates into the groundwater, a soil investigation shall be prepared by a Civil Engineer registered in the State of California and shall recommend design requirements that are likely to prevent possible structural damage to structures or lagoons proposed to be constructed within the Dairy Facility. The report shall include recommendations for foundation design, cut and fill slope design, and site grading.

1d. Hydrogeologic Sensitivity Assessment (HSA) (Policy DE 3.2h):

Whenever groundwater is being pumped from a hydrogeologic setting within one-half (½) mile of a proposed or an expanding dairy facility underlain by karst, fractured bedrock, or gravel, the applicants shall retain a qualified Certified Hydrogeologist or Professional Engineer to conduct a HSA. The HSA shall include the following:

A. The HSA shall evaluate whether the hydrogeologic setting would offer adequate barriers to pollutant migration to drinking water supplies. The evaluation shall be conducted in accordance with the principles contained in the EPA's Ground Water Rule.

B. *Dairies Proposed in the Kettleman Plain or Sunflower Valley*: In addition to paragraph A above, dairies proposed in these areas must complete a HSA to demonstrate that an adequate sustainable water supply would be available for each proposed project. The HSA must provide a detailed description of the proposed project water demand and how that demand would be met without overdrafting groundwater supplies. If the project proposes use of groundwater supplies, the HSA must quantify the safe yield of the underlying aquifer. Allowable groundwater use must be limited to the quantified safe yield.

1e. Gas and Oil Well Evaluation (Policy DE 3.5a):

The *Technical Report* shall include a report that the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) has reviewed their records for the potential presence of active and abandoned oil or gas wells at or adjacent to (within 100 feet) a proposed dairy site. If DOGGR identifies wells, the *Technical Report* shall include a scaled map

showing the location of the wells on the Site Plan of the proposed dairy facility. Any abandoned oil or gas wells identified by DOGGR within the proposed dairy site located beneath or within 300 feet of a proposed dairy structure shall be properly closed in accordance with specifications provided by DOGGR.

Documentation of any well closure or destruction pursuant to DOGGR standards, or other protection deemed adequate by DOGGR, shall be submitted to the Kings County Planning Agency.

2a. Manure Nutrient Management Plan (MNMP) (Objective 4.1, Policy 4.1a, 4.1b, 4.1c, 4.1e, and 4.1f):

The Manure *Nutrient Management Plan* (MNMP) is a part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The MNMP specifies practices that will be used to implement each component of the MNMP. The MNMP includes the following components as found in the USDA/USEPA *Unified National Strategy for Animal Feeding Operations*:

A. Feed Management - Evaluate the possibility of modifying diets and feed of the animals to reduce the amounts of nutrients in manure.

B. Manure Handling and Storage – Manure must be handled and stored properly to prevent water pollution from dairies. Manure and dairy process water handling and storage practices shall consider odor and other environmental and public health problems. Handling and storage considerations shall include:

1. *Diversion of clean water* – Dairy siting and management practices may include diverting clean water from contact with corrals, pens, freestalls, feeding lanes and areas, feed storage areas, interiors of barns and milking parlors, manure storage and handling areas, dead animal storage areas, and other areas exposed to manure, feed, or dead animals. Clean water includes rainfall falling on roofs of facilities and runoff from adjacent lands, or other sources. If clean water is not diverted from manured areas, the capacity of process water storage facilities (i.e., lagoons) shall be sufficient to collect the additional runoff.

2. *Prevent leakage* – Construction and maintenance of buildings, collection systems, conveyance systems, and storage facilities shall prevent releases of organic matter, nutrients, and pathogens to ground or surface water by implementing the following measures:
   a. All manure separation pits and process water lagoons shall be constructed so that the bottoms of the pits and lagoons are at least five feet above the highest expected groundwater levels.
   b. The pits and lagoons shall be maintained so that the integrity of the seal is ensured.
   c. The specific permeability soils lining the bottom and sides of the manure separation pits and lagoons shall not be greater than 1×10^{-6} centimeters per second in

compliance with the Geotechnical, Design, and Construction Guidelines published by the Natural Resource Conservation Service (1997).

d. A qualified professional (i.e., Professional Engineer or Certified Engineering Geologist) shall certify that the liner system of a lagoon or pit is installed according to the NRCS-design standards.
e. The soil sampling and permeability testing program shall be designed to be representative of all soils lining all proposed pond areas.
f. Construction of the lagoons shall be inspected by a qualified professional to ensure that geologic heterogeneities (e.g., channel deposits and sandy lenses) are identified and properly mitigated to ensure integrity of the liner in compliance with the NRCS standards. The liner must be protected against damage during operation and maintenance activities.
g. At the corrals, naturally occurring or imported clayey (not less than 20% clay and silt) soils shall underlie the corrals and dry manure storage areas. Site drainage shall be included in the project design and construction of any manured area, including but not limited to, dairy surroundings, corrals, and ramps, pursuant to *Title 3, Division 2, Chapter 1, Article 22, §646.1 of the California Code of Regulations* to ensure that ponding does not occur.
h. Regular maintenance of corrals and dry manure storage areas shall include filling of depressions. Care shall be taken not to disturb the seal layer in the corrals. Dairy personnel shall be taught to correctly use manure collection equipment.
i. The potential for discharge of water-borne pathogens to existing and proposed domestic water supply wells shall be minimized by ensuring that the domestic wells are constructed in accordance with the California Well Standards and that appropriate minimum setbacks (150 feet, or other distance set in the Waste Discharge Requirements issued for the dairy by the RWQCB) between domestic wells and potential sources of pollution are maintained.

3. *Provide adequate storage for manure:*
   a. Dry manure shall be stored in a manner to ensure all runoff from the manure storage areas is captured and diverted to the dairy process water collection system.
   b. Dairy process water storage systems shall be designed and constructed to store, handle, and transport all of the quantity and contents of dairy process water produced on the Dairy Facility, runoff from the Dairy Facility, and rainfall that falls on the Dairy Facility. Location of manure storage areas shall be consistent with Policy DE 3.2c.
4. Manure treatments - Manure shall be treated to reduce the loss of nutrients to the atmosphere during storage, to make the material a more stable fertilizer when land-applied or to reduce pathogens, vector attraction and odors, as appropriate.

C. <u>Management of dead animals</u> – A Dead Animal Management Plan *(DAMP)* (see Component 5 of Appendix J) shall be prepared and implemented for the disposal of all dead animals in a way that does not adversely affect groundwater or surface water, create public health concerns, or cause nuisances due to odor or vectors.

D. Land Application of Manure – Land application is the most common, and usually most desirable method of utilizing process water and dry manure because of the value of the nutrients and organic matter to plant growth. Land application shall be planned to ensure that the proper amounts of all nutrients are applied in a way that does not cause harm to the environment or to public health. Land application of manure in accordance with the MNMP shall minimize water quality degradation and public health risk. Considerations for appropriate land application shall include:

1. *Nutrient balance* – The primary purpose of nutrient management is to achieve the application of nutrients at the agronomic rates required to grow the planned crop by balancing the nutrients that are already in the soil and from other sources with those that will be applied in manure and commercial fertilizer. At a minimum, nutrient management shall prevent the application of nutrients at rates that will exceed the capacity of the soil and planned crops to assimilate nutrients, and will reduce the potential for degradation of water resources

   Soils shall be tested at least annually to determine nutrient content. The results of the testing shall be evaluated by a qualified soil scientist or agronomist to determine whether adjustments to the *Manure Nutrient Management Plan* are required to prevent crop damage or salt buildup. In the evaluation of salinity, which requires data on concentration variation over time, a statistical methodology for determining trends shall be selected by a certified agronomist. The first trend analysis shall be conducted for each dairy after five years of data collection, and then each year thereafter. Buildup of salt in the soil is detrimental to growing crops. Consequently farmers will have a natural incentive to take remedial action upon receiving a report that a salt buildup has occurred.

2. Timing and methods of application - Care must be taken when land-applying manure and process water to the land to prevent it from entering groundwater, streams, other water bodies, or environmentally sensitive areas. The timing and methods of application shall prevent the loss of excess nutrients to groundwater or surface water. Additionally, process water shall be applied to minimize unnecessary contact with air in order to minimize the release of ammonia into the atmosphere. Manure application equipment shall be calibrated to ensure that the quantity of material being applied is at agronomic rates. Manure application shall be avoided during periods of winds in excess of 20miles per hour.

E. Land Management –Tillage, crop residue management, grazing management, and other conservation practices shall be utilized to minimize movement to surface water and groundwater of soil, organic materials, nutrients, and pathogens from lands where manure is applied.

F. Record Keeping - Dairy operators shall document the annual estimated quantity of solid manure produced at the dairy and transported off-site. Documentation of this estimate shall be maintained by the dairy and shall be made available to the County Code Compliance personnel upon their request

2b. Comprehensive Dairy Process Water Application Plan (CDWAP) (Objective DE 4.2, Policy DE4.2a, 4.2b, 4.2c, and 4.2d):

The *Comprehensive Dairy Process Water Application Plan* (CDWAP) is a part of the *Technical Report* submitted with an application for a new dairy or the expansion of an existing dairy.

1. The following components shall be addressed in the CDPWAP:
   A. When an applicant for a new dairy or the expansion of an existing dairy will use his or her own land for the application of process water:
      1. The CDPWAP shall include a legal description of all lands that will be used for process water application.
      2. The CDPWAP shall include the estimated amount of water that will be generated by the dairy (including an estimate of the Nitrogen and salt content of the dairy process water).
      3. Prior to selling any land on which process water is applied, the dairy owner/operator shall notify the Zoning Administrator and:
         a. Provide substitute land or enter into an agreement with another land owner to replace the land upon which the process water is applied, or
         b. Immediately reduce the dairy herd to a level that can be accommodated by the remaining land identified in the SPR or CUP.
      4. Changes made in the operation pursuant to section 3. above must be reflected in an amendment to the dairy's SPR or CUP.

   B. When the application for a new dairy or the expansion of an existing dairy will use land other than his or her own land for application of dairy process water:
      1. The CDPWAP shall include a legal description of all lands that will be used for process water application.
      2. The CDPWAP shall include the estimated amount of water that will be generated by the dairy (including an estimate of the Nitrogen and salt content of the dairy process water).
      3. The agreement shall be recorded by the dairy owner/operator and the owner of the land identified in the CDPWAP where the dairy's process water will be used. The agreement shall contain the following provisions:
         a) The agreement shall include a legal description of all lands burdened by the obligation of the agreement.
         b) The agreement shall identify the Dairy Facility generating the process water by name and location.
         c) The agreement shall state that the identified land shall not be converted to any use which cannot accommodate the dairy's process water.
         d) The agreement shall be binding on all successors in interest as long as the agreement is in force.
         e) The agreement must-restrict the use of the land to cropping patterns which use all of the nutrients from the process water generated from the new or expanded Dairy Facility (less any nutrients used on the dairy owners' own land). The nutrient

utilization rate used in the calculations for nutrient utilization of the cropping pattern shall be established by a Certified Agronomist.

f) The agreement shall coordinate timing of the delivery of the dairy process water in conformity with the Dairy Facility's IMP (Policy DE 4.1b.C) and MNMP (Policy DE 4.1a) to assure adequate storage capacity is available at the Dairy Facility.

g) To ensure that the process water is applied to crops in accordance with the requirements of the *Dairy Element*, the agreement shall either:

i. Allow the dairy owner/operator to enter the land identified in the agreement to carry out the application of the dairy process water in accordance with the requirements of the *Dairy Element*, or

ii. Obligate the owner of the land identified in the agreement to carry out the application of the dairy process water in accordance with the requirements of the *Dairy Element*.

4. The agreement shall be recorded after the SPR or CUP is approved, but before any cows are brought to the site.
5. Prior to terminating the agreement, the dairy owner/operator shall notify the Zoning Administrator and either:
   a. Provide a substitute agreement with another land owner to replace the land within the terminated agreement, or
   b. Immediately reduce the dairy herd to a level that can be accommodated by the remaining land under the SPR or CUP, or agreement.
6. Changes made in operation of the dairy pursuant to section 5 above shall be reflected in an amendment to the dairy's SPR or CUP.
7. The land identified in the agreement for the use of dairy process water shall not already be subject to any other dairy process water use agreement.
8. The Zoning Administrator or the Planning Commission, for an amendment to a SPR or a CUP respectively, must approve any change in the terms of the agreement.
9. If application of process water on land identified in the agreement is not carried out in conformity with the requirements of the *Dairy Element*, it shall be the responsibility of the dairy owner/operator to correct such problems. Any such violations of the Dairy Element Standards shall subject the owner/operator of the Dairy Facility to enforcement action by the County or other responsible agency, as provided in the *Dairy Element*, the *Zoning Ordinance*, or State law.

C. When the applicant for a new dairy or the expansion of an existing dairy uses a combination of his or her land and land other than his or her own land for application of dairy process water, both A and B above shall apply.

D. Lagoons may be used for treating and storing dairy process water and manure. All areas occupied by cows shall be graded in such a manner that ensures runoff water will flow into and be contained within a lagoon until used for fertilizer or irrigation purposes. Water that does not come into contact with manured areas or feed storage areas may be diverted away from such areas and not allowed into the lagoon. All contents of a lagoon shall be managed so that it is applied to cropland at agronomic rates and used only for approved purposes and in an approved manner.

2c. Odor Management Plan (OMP) (Policy DE 5.1b and 6.2d):

The *Odor Management Plan* (OMP) is a part of the *Technical Report* submitted with the application for a new dairy or the expansion of an existing dairy. The purpose of the OMP is to reduce the potential for odor impacts to nearby receptors. The owner/operator, or his or her agent, shall prepare an OMP that specifies standard operating practices for livestock handling, and manure collection, treatment, storage, and land application. The OMP shall specifically address standard operating practices for livestock handling, and manure collection, treatment, storage, and land application. It shall also provide standard operating procedures/control measures to be implemented to protect receptors from potential odors that could be generated from dairy operations. At a minimum, the plan shall include the following components:

A. Manure Collection Areas:
   1. Clean out manure generated at the freestall barns and corrals at a frequency that will minimize odors;
   2. Keep cattle as dry and clean as possible at all times;
   3. Scrape manure from the corrals and bedding from the freestall barns and corrals at a frequency that will minimize odors.

B. Manure Treatment and Application
   1. Minimize moisture content of stockpiled manure/retained solids to a level that will reduce the potential for release of odorous compounds during storage.
   2. Minimally agitate stockpiled manure during loading for off-site transport;
   3. Mix process water with irrigation water prior to irrigation (dilution rate shall be adequate to minimize odor levels and maintain appropriate nutrient content in effluent);
   4. Apply process water containing ammonia so that it minimizes exposure to air;
   5. Clean up manure spills upon occurrence;
   6. Maintain and operate separation pits and process water lagoons to minimize odor levels.
   7. Avoid spreading in windy conditions, especially when it blows toward populated areas, or immediately before weekends or holidays when nearby neighbors are likely to be engaged in outdoor and recreational activities.
   8. If there is no storage facility, spread manure as frequently as possible during warm weather. Unload storages on schedule. To minimize the time that odor is released to the air, have machinery in good repair and labor ready before starting to unload.
   9. Incorporate manure during or immediately after land application by injecting it into the soil or plowing or disking the soil. Where immediate incorporation is not possible, apply manure uniformly in a thin layer so that it will dry quickly.

C. General
   1. Implement dust suppression measures to prevent the release of odorous compound-carrying fugitive dust;
   2. During project operations, the dairy operator/owner shall respond to neighbors who are adversely affected by odors generated at the project site and take prompt corrective action.

D. Record Keeping:

   The OMP shall include a complaint register kept at the dairy site. The register shall include each complaint received by the dairy, who received the complaint, and the date of the complaint. In addition, the documentation shall indicate what action was taken to determine the cause of the odor, action taken to resolve the odor problem, the results of the action, and

whether additional action was required to eliminate the problem from re-occurring. The complaint register shall be available to the Code Compliance personnel upon their request.

F. Amendments of the OMP shall be submitted for to the Zoning Administrator for approval.

2d. Irrigation Management Program (IMP) (Policy DE 4.1b.C):

The *Irrigation Management Plan* (IMP) is a part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The owner/operator shall prepare an IMP and it shall include, but not be limited to, the following components:

A. Ensure that irrigation water and runoff from fields at each dairy unit do not migrate away from the project site,
B. Do not allow excessive nutrients to accumulate in one part of a field and create "hot spots". Ensure that the nutrients are spread evenly over the entire field, and
C. Coordinate the timing of irrigation to meet the crop needs and the capacity limits of the ponds.

3. Hazardous Materials Business Plan (HMBP) (Policy DE 4.3a):

The *Hazardous Materials Business Plan* (HMBP) is a part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. A draft HMBP prepared pursuant to the Health and Safety Code Chapter 6.95, sections 25500 to 25520 shall be submitted with the application, and the final HMBP shall be filed with the Kings County Department of Environmental Health Services pursuant to their requirements after the zoning permit is issued.

The operator of the dairy shall review the HMBP at least annually and amend the plan if changes have been made. The amended plan shall be submitted to the Kings County Department of Environmental Health and a copy retained on site with the dairy's other reporting documentation. The HMBP shall be made available to the Code Compliance personnel upon their request.

4. Pest and Vector Management Plan (PVMP) (Policy DE 4.3b):

The **Pest and Vector Management Plan** (PVMP) is a part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The PVMP (sometimes referred to as a fly and mosquito control plan) shall include methods of controlling flies, mosquitoes, and rodents under various conditions.

The PVMP shall be designed to use good housekeeping practices as the primary tool to combat vector infestation. The PVMP shall include, but not be limited to, measures that ensure good drainage of manured areas, frequent lane flushing, clean-up and maintenance along fence lines, and prompt repair of all leaking pipes and fixtures. When housekeeping controls prove ineffective (or have provided limited effectiveness), chemicals (i.e., pesticides) may supplement the program. When chemicals are used, special care shall be taken to select and apply chemicals that are compatible with existing biological controls that may be in use (i.e., those that do not kill the parasitic wasps). Other measures that may be considered in the PVMP are biological controls, including, but not limited to, the use of parasitic beetles and mites (to control egg and larvae populations) and parasitic wasps (to control fly pupae populations).

The Kings County Zoning Administrator shall distribute the PVMP to the Kings Mosquito Abatement District, Kings County Agricultural Commissioner, and the Kings County Division of Environmental Health Services for review and comment before final acceptance of the PVMP.

Record keeping for the PVMP shall consist of documentation kept at the dairy site that includes pest control methods used and the dates of the pest control activities. The PVMP shall also include a complaint register. The complaint register documentation shall indicate who received the complaint; date a complaint was received, what and when action was taken to determine the cause of pest problem, action taken to resolve the problem, and the results action and whether additional action was required to resolve the problem. The complaint register shall be made available to Code Compliance personnel upon their request.

5. Dead Animal Management Plan (DAMP) (Policy DE 4.1d):

The *Dead Animal Management Plan* (DAMP) is a part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The DAMP shall include a program of removing dead animals from the site within 72 hours, or by the end of the first working day after a holiday weekend. Burial or otherwise disposing of the carcasses on site shall not be allowed unless by order of the Health Officer, Agricultural Commissioner, or other authority authorized to make such an order.

Record keeping for the DAMP shall be documented and the records shall be kept at the dairy site. The documentation shall include the number of dead animals by date; the date and method of their removal, and location where the dead animals were taken when removed from the dairy site. The documentation shall be made available to Code Compliance personnel upon their request.

6. Biological Resources Survey (Policy DE 3.3a):

The results of a *Biological Resources Survey* shall be made a part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The survey of habitat for sensitive species and wetlands shall be conducted by a qualified wildlife biologist prior to initiation of grading for each dairy facility to confirm the presence or absence of any nesting activity at each location. If habitat for sensitive species or wetlands is found, appropriate measures shall be taken to avoid destruction of active dens or nests. An appropriate buffer zone shall be established around any active den or nest based on consultation with representatives of the California Department of Fish and Game. Construction activities shall be restricted in this zone until the qualified biologist has determined that the young animals are no longer using the dens or nests. Passive relocation methods shall be used by the qualified biologist in the event that removal of any wildlife from the impact area is deemed necessary by a regulatory agency with appropriate jurisdiction.

7. Cultural Resources Evaluation by the California Historic Resources Information System (CHRIS) (Policy DE 3.1d and 3.1e):

The *Technical Report* shall include documentation that a review of records of known cultural resources has been completed by the California Historical Resources Information System (CHRIS) and that no significant cultural (historic or archaeological) resources would be

disturbed by the proposed dairy development. If CHRIS indicates that known resources are present or suspected within the construction area of the proposed dairy development, the *Technical Report* shall include an evaluation of the resource by an archaeologist qualified under the Secretary of the Interior's Standards and Guidelines for archaeologists which includes an appropriate mitigation plan that will be implemented by the dairy developer.

This evaluation shall include an evaluation of paleontological and unique geologic feature resources.

8. TRAFFIC IMPACT STUDY (Policy DE 3.1g):

Upon the request of an applicant, or the applicant's agent, for a SPR or CUP, the Kings County Regional Transportation Planning Agency will evaluate the effect a new or expanding dairy project will have on surrounding roadways and highways using its traffic model. If the traffic model run demonstrates that the dairy project will not result in degradation of the Level of Service (LOS) of adjacent County roadways below LOS D, or below LOS C on State highways, no additional evaluation will be required.

If the traffic model indicates that the LOS will be degraded on adjacent County roadways below LOS D, or below LOS C on State highways, a Traffic Impact Study prepared by a qualified traffic engineer in conformance with guidelines provided by the California Department of Transportation, will be required. The Traffic Impact Study shall propose improvements that will be necessary to mitigate the reduced LOS to acceptable levels. Additionally, the Traffic Impact Study shall demonstrate that the proposed improvement of the dairy project will not result in significant safety hazards.

9. Fugitive Dust Emissions Control Plan (FDECP) (Policy DE 5.1g and 5.1h):

The Fugitive Dust Emissions Control Plan (FDECP) is part of the *Technical Report* submitted with each application to either establish a new dairy or expand an existing dairy. The owner/operator shall prepare a FDECP which shall include, but not be limited to the following components:

A. Identification of all significant off-field source of fugitive dust emissions (e.g., unpaved roads, unpaved corrals and other open or vacant areas, and bulk material stockpiles);
B. Description of the control measures used for controlling of fugitive emissions from all sources identified at the dairy facility and an estimate of control efficiency;
C. Discussion of compliance of identified control measures with the requirements of the most recent Regulation VIII rules adopted by the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD);
D. Discussion of quality control/quality assurance procedures to ensure that control measures are implemented and inspected;
E. Discussion of record keeping for quality control/quality assurance procedures;
F. Identification of person responsible for implementation of the FDECP implementation.

10. Light, Glare and Noise Assessment: (Policies DE 3.1h and 3.1i):

A. Provide an exterior lighting plan of the Dairy Facility showing all exterior lights and methods used to ensure that the lighting is so arranged to reflect light away from adjoining properties.

B. Provide a Noise Assessment of the Dairy Facility and any mitigation requirements necessary to comply with the noise level standards in the *Noise Element* of the *Kings County General Plan*.

APPENDIX K

OTHER GENERAL PLAN ELEMENT AMENDMENTS

CHANGES TO OTHER *KINGS COUNTY GENERAL PLAN* ELEMENTS TO IMPLEMENT THE DAIRY ELEMENT OF THE KINGS COUNTY GENERAL PLAN

1. Add the following Goal, Objective and Policy to the *Land Use Element* of the *Kings County General Plan* at page LU-12:

GOAL 9A: Restrict the locations where dairies may be located to those areas of the County where they are most compatible with surrounding uses and activities and environmental constraints as presented in the *Dairy Element*.

Objective 9A.1: Use specific standards to avoid potential land use conflicts through the site plan review (SPR) streamlined review process when approving new dairies and expansion of existing dairies.

Policy 9A.1a: Proposed new diaries and dairy stock replacement facilities, and expansions of existing dairies, may be approved though the SPR process if they meet all of the criteria in the *Dairy Element* concerning siting, design, operation, monitoring and reporting.

2. Amend Land Use Program 2 on page LU-15 as follows:

Land Use Program 2 (2002 Update):

Bring the Kings County Zoning Ordinance into conformance with *General Plan* policies, as follows:

A. Consider changing zone district boundaries, or relying more heavily on administrative review rather than on the conditional use permit process, in order to streamline the planning process. Retain the opportunity for public review and comment on potentially significant projects.

~~Amend the Zoning Ordinance to include new zone districts "AG-20," "AG-40," and "Public Facilities." Rename the former "Light Agriculture" zone "Limited Agriculture." Eliminate the zone district formerly known as "Exclusive Agriculture."~~

B. Continue to apply ~~Apply~~ the "General Agriculture" (AG) zone to areas so designated on the General Plan map, with minimum parcel size as indicated (e.g., AG-20 and AG-40). Permit, or permit subject to administrative action, all agricultural uses in the AG zone. Require Conditional Use permits of all ~~livestock concentration activities,~~ agricultural service industries, agricultural airports, and other commercial operations which are now permitted, or are permitted subject to administrative approval, in agricultural zone districts.

New and expanding dairies, and dairy replacement stock facilities activities, shall be reviewed and processed as site plan reviews consistent with the policies found in the *Dairy Element*.

C. Apply the "Limited Agriculture" (AL) zone to areas so designated on the General Plan map, with a ten-acre minimum parcel size. Permit new non-intensive, temporary agricultural service activities and uses, such as kennels and veterinary hospitals, to locate in the AL zone. Do not approve uses for new livestock animal concentrations or ~~nuisance-producing~~ agricultural service industries in new permanent structures and facilities within areas designated "Limited Agriculture."

~~Specify the criteria for permitting the division of property for nonagricultural use in areas designated AG and AL. Consider minimum parcel size, length of property ownership, and required degree of consanguinity for recipients of gift parcels for homesites and life estates. Require environmental and agricultural evaluation of the proposed division.~~

~~Amend the Zoning Ordinance to eliminate the zoning permit granted by Administrative Approval. Process permits for these uses as either Site Plan Reviews or Conditional Use Permits, based on whether the particular use is subject to review pursuant to CEQA. Generally, those uses which do not require CEQA review should be processed as Site Plan Reviews, and those uses requiring CEQA review should be processed as Conditional Use Permits.~~

~~Define "residences or farm employee housing incidental to an agricultural use" as those units occupied by households deriving at least one-half of their gross income from agricultural sales or labor.~~

~~Remove airports and heliports from the list of permitted uses.~~

~~The minimum parcel size in the "Rural Residential Agricultural" zone district shall be 20,000 square feet although a larger minimum site area may be required to comply with environmental concerns, building codes, or improvement standards. However, the site shall be not less than one acre in size if both individual water supply and individual sewage waste disposal systems are to be utilized on the site.~~

~~However, retain the provision for smaller lot sizes of the existing "Rural Residential Estate" zone district for application to rural residential subdivisions employing a public water system.~~

~~Eliminate the existing "Urban Reserve" zone district and apply specific zoning that is consistent with the Land Use Element, but initiate more stringent review of development proposals to ensure compatibility of existing and proposed uses and conformance with adopted policies.~~

3. Amend Land Use Program 11 on page LU-17 as follows:

Land Use Program 11 (2002Update):

~~Prepare an Agriculture~~ Implement the *Dairy Element* ~~to be integrated with the contents of the Land Use, Open Space, and Resource Conservation Elements~~ of the *Kings County General Plan*.

h:/Ord-gp/Genplan/Element/Dairy/DE-Text/Public Review Draft/24-Appendix H GP Amend.doc

DATE RECEIVED FOR FILING

NOTICE OF DETERMINATION

FILED
JUL 30 2002
GEORGE J. MISNER
KINGS COUNTY CLERK
DEPUTY

TO: County Clerk
County of Kings
Kings County Government Center
Hanford, California 93230

FROM: Kings County Board of Supervisors
Kings County Government Center
Hanford, CA 93230

SUBJECT: Filing of Notice of Determination in compliance with Section 21152 of the Public Resources Code. This notice shall be posted for 30 days in accordance with Public Resources Code section 21092.3 in the office of the Kings County County Clerk.

APPLICANT'S NAME AND ADDRESS:
Kings County Planning Agency, 1400 W. Lacey Blvd., Building No. 6, Hanford, CA 93230

PROJECT TITLE:
Dairy Element of the Kings County General Plan/Zoning Ordinance Text Change No. 269.54

CONTACT PERSON: Bill Zumwalt TELEPHONE NUMBER: (559) 582-3211, Ext. 2686

PROJECT LOCATION:
The project location is not site specific, but the policies of the Dairy Element apply countywide within agricultural zone districts in Kings County.

PROJECT DESCRIPTION:
The project, known as the Dairy Element of the Kings County General Plan, including a Program Environmental Impact Report (PEIR), presents a comprehensive set of goals, objectives, and policies to guide development, expansion, and operation of milk cow (bovine) dairies within the County. The Element and associated applicable general plan and zoning ordinance amendments are designed to accomplish two equally important major purposes. The first purpose is to ensure that the dairy industry of Kings County continues to grow and contribute to the economic health of the County. The second purpose is to ensure that the standards established in the Element protect public health and safety and the environment. The PEIR evaluates the potential environmental impacts of the Dairy Element program and identifies mitigation for impacts found to be significant.

On July 30, 2002, the Kings County Board of Supervisors approved the above described project and made the following determinations regarding the above described project:

1. The project will have significant effects on the environment.

2. An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA. The EIR and record of project approval are available to the general public and may be examined at the Kings County Planning Agency, Kings County Government Center, Building No. 6, 1400 W. Lacey Blvd., Hanford, California.

3. Findings were made by the Board under Public Resources Code Section 15091.

4. Mitigation measures were included in the project.

5. A Statement of Overriding Considerations was adopted for this project.

Signature
Title: Chairman of the Board of Supervisors
Date: July 30, 2002