APPENDIX B

CALIFORNIA AGRICULTURAL

LAND EVALUATION AND SITE ASSESSMENT MODEL

Instruction Manual

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EXECUTIVE SUMMARY

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

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

INTRODUCTION

Defining the LESA System

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

Background on LESA Nationwide

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

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

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

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

Development of the California Agricultural LESA Model

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

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

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

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

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

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

Presentation of the California LESA Model

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

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

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

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

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

Additionally:

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

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

The California Agricultural LESA Model

Section I. Required Resources and Information

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

Land Evaluation and Site Assessment calculations will require:

1. A calculator or other means of tabulating numbers

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

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

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

    - A hand operated electronic planimeter

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

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

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

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

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

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

Scoring of Land Evaluation Factors

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

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

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

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

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

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

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

Identifying a Project's Soils

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

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

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

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

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

Step 5.

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

1. Land Evaluation - The Land Capability Classification Rating

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

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

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

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

Table 2. Numeric Conversion of Land Capability Classification Units

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

Table 1A.
Land Evaluation Worksheet

Land Capability Classification (LCC) and Storie Index Scores

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

Table 1B.
Site Assessment Worksheet 1.

Project Size Score

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

Highest Project Size Score [ ]

2. Land Evaluation - The Storie Index Rating Score

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

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

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

Scoring of Site Assessment Factors

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

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

1. Site Assessment - The Project Size Rating

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

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

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

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

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

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

Table 3. Project Size Scoring

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

Explanation of the Project Size Factor

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

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

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

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

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

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

2. Site Assessment - The Water Resources Availability Rating

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

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

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

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

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

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

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

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

Step 4.

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

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

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

- Irrigated agricultural production is *feasible* when:

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

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

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

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

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

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

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

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

Table 5. Water Resource Availability Scoring

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

Explanation of the Water Resource Availability Rating

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

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

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

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

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

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

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

3. Site Assessment - The Surrounding Agricultural Land Rating

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

Defining a Project's "Zone of Influence"

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

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

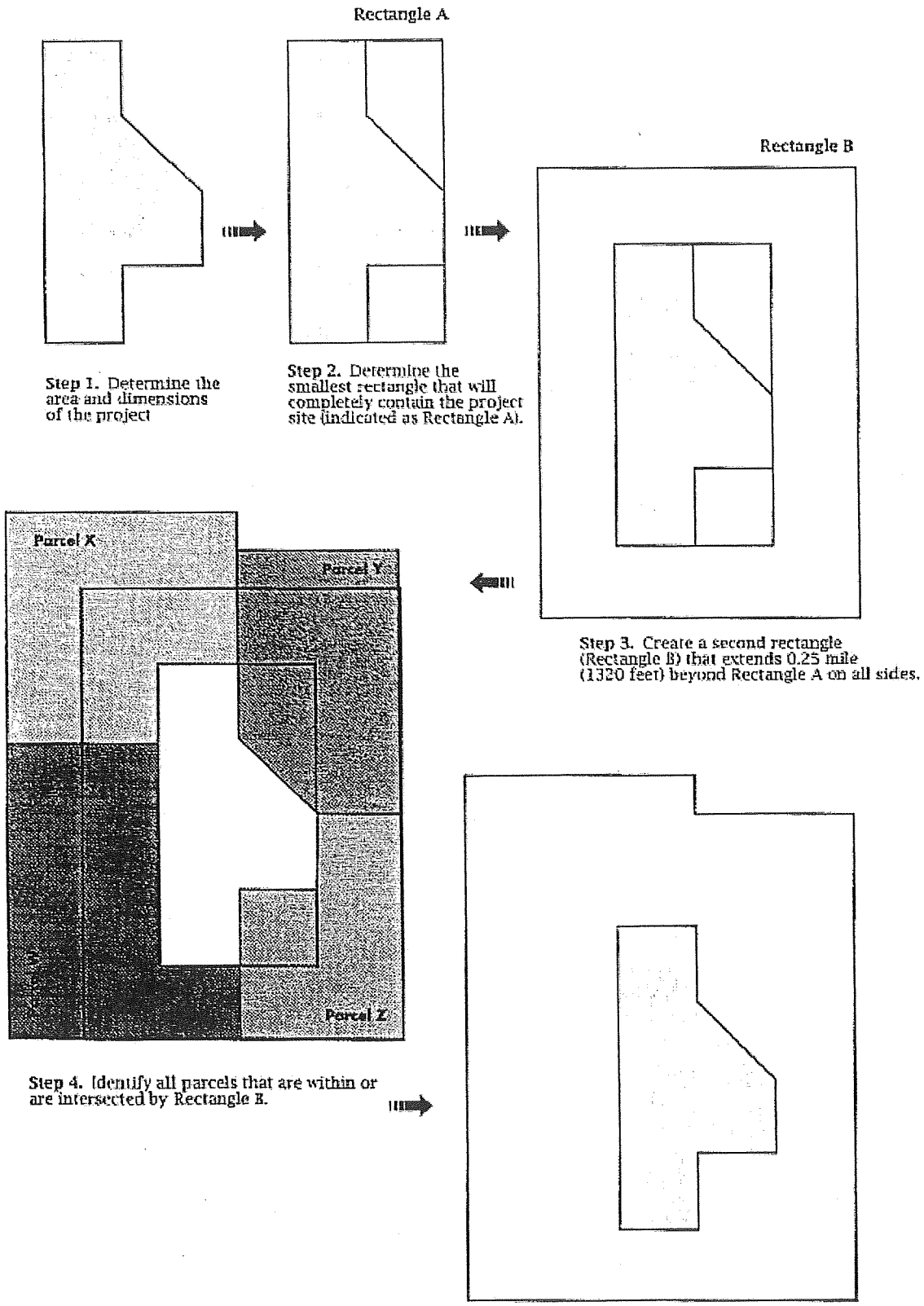
Step 3.
Create a second rectangle (Rectangle B) that extends 0.25 mile (1320 feet) beyond Rectangle A on all sides.

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

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

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

Figure 1: Defining a Project's Zone of Influence



Step 1. Determine the area and dimensions of the project

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

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

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

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

In this example, parcels W, X, and Y extend beyond Rectangle B and are therefore included in the their entirety in defining the project's zone of influence.

Measuring Surrounding Agricultural Land

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

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

Table 6. Surrounding Agricultural Land Rating

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

Explanation of the Surrounding Agricultural Land Rating

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

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

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

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

<u>Or</u>

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

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

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

4. Site Assessment - The Surrounding Protected Resource Land Rating

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

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

Instructions for the Surrounding Protected Resource Land Rating

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

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

Table 7. Surrounding Protected Resource Land Rating

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

Section III. Weighting of Factors and Final LESA Scoring

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

Land Evaluation Factors

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

Site Assessment Factors

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

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

Table 8. Final LESA Scoresheet

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

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

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

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

Table 9. California LESA Model Scoring Thresholds

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

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APPENDIX C

CITY OF GILROY
AGRICULTURAL MITIGATION PROGRAM

Contact
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Adopted May 3, 2004

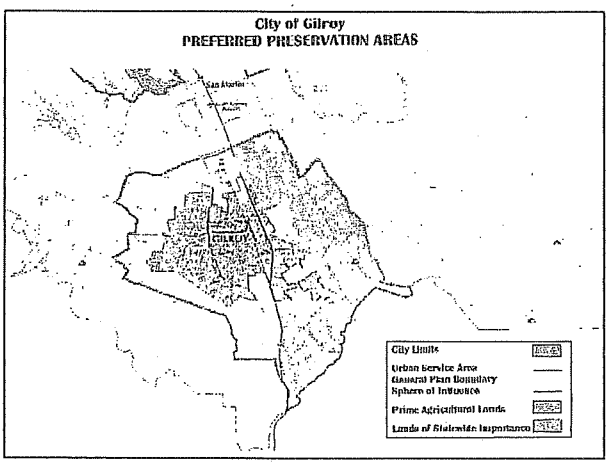
The main components of the City of Gilroy's Agricultural Mitigation Policy are:

- **Policy Application and Requirements**: The policy requires mitigation for the conversion of agricultural lands to urban uses at a 1:1 replacement ratio. There are three methods of mitigation established when mitigation is necessary. The policy establishes the criteria for determining when mitigation would be required (see table on back of this page), what lands are acceptable for preservation, how in-lieu fees would be determined, and requires the in-lieu fees to be used for the establishment of permanent agricultural conservation easements on prime farmlands around the Gilroy area.

Mitigation Methods

1. Purchase and dedication of **equal amount of ag lands** being converted; or
2. Purchase and dedicate **conservation easements for equal amount of ag lands** being converted; or
3. Payment of **in-lieu fees** to be used for obtaining conservation easements. *Fees based on recent appraisals in preferred preservation area.*

- **Farmland Preservation Areas**: The policy establishes a preferred area for the preservation of agricultural lands. This area is located within the City's Sphere of Influence and outside the General Plan 20-year boundary, east of Highway 101 and south of Masten Avenue. This area was chosen because it is the greatest concentration of "Prime" and "Statewide Important" farmland remaining in the south county area. Lands preserved can be located outside of the preferred preservation area when mitigation occurs in conjunction with a specific plan process or when approved by the City Council.



- **"Right-to-Farm" Disclosures**: The policy also requires the disclosure of nearby agricultural activities in deeds for any lands subdivided and developed within 1,000 feet of the preferred preservation area. Overall, this would apply to only a few areas in the City. However, it establishes agriculture as a priority in the community and gives forewarning to those areas where it could apply.

- **Agricultural Buffers**: The policy requires new developments to establish a minimum of 150 feet for an agricultural buffer adjacent to permanent agricultural and open space areas. Again, this would apply to only a few areas in the City. But the uses in these buffer areas would be limited to reduce potential conflicts between agricultural and non-agricultural uses.

- **Possible Exemptions**: The policy allows for certain exemptions from the 1:1 mitigation ratio as follows:
  - Up to 100 feet in width of a permanent agricultural buffer area.
  - Public facilities established in the City's General Plan or Parks Master Plan.
  - Lands dedicated for public right-of-ways that service the overall community, not just the specific development.