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## 4.0 ENVIRONMENTAL SETTING, IMPACTS & MITIGATION MEASURES

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### 4.1 Organization

This chapter describes each of the environmental categories potentially affected by the proposed project. Each category consists of three parts: *Introduction*, *Setting*, and *Impacts and Mitigation Measures*.

The *Introduction* identifies any technical studies which form the basis for analysis.

The *Setting* describes the environment in the vicinity of the project, as it exists before the commencement of the proposed project, from both a local and regional perspective.

The *Impacts and Mitigation Measures* section describes the significant environmental effects of the proposed project compared with existing conditions. Both project specific and cumulative impacts will be described. Impacts will be described as less-than-significant, significant, or significant and unavoidable. The specific criteria for determining the significance of a particular impact are identified prior to the impact discussion in each issue section, and are consistent with significance criteria set forth in CEQA Guidelines and/or local standards. Mitigation measures will be recommended for each significant environmental effect identified in the EIR. Although not required by CEQA, mitigation measures may be identified for less-than-significant impacts to further reduce potential environmental effects.

A separate Mitigation Monitoring Program (as required by Public Resources Code §21081.6) will be developed in conjunction with the Final EIR, that outlines the mitigation measures and the monitoring and reporting methods that would be employed. The Mitigation Monitoring Program will be considered for adoption by the Monterey County Board of Supervisors when certification of the Final EIR is considered.

#### 4.1.1 Determination of Significance

Under CEQA, a significant impact is defined as a substantial, or potentially substantial, adverse change in the environment (Public Resources Code §21068). The guidelines implementing CEQA direct that this determination be based on scientific and factual data. The criteria for determining the significance of a particular impact are identified prior to the impact discussion in each Category, and are consistent with significance criteria set forth in the guidelines implementing CEQA.

## 4.2 Land Use and Planning

### 4.2.1 Introduction

The Project will result in a major visitor serving retail/commercial development on land outside the existing or planned urban area of the City of Greenfield on productive farmland designated for agricultural use. This section will review policies related to the timing, sequence and pattern of growth in this planning area, and City, County and Local Agency Formation Commission (LAFCo) standards and guidelines for development projects.

Issues associated with compatibility of the proposed airport with existing and future surrounding land uses generally relate to safety and noise. These concerns are addressed separately in Section 4.3, *Airport Safety*.

### 4.2.2 Setting

#### 4.2.2.1 Regional Setting

The project site is located in the central Salinas Valley immediately north of the City of Greenfield. ~~The project site is located in unincorporated Monterey County.~~ The property lies on the floor of the Salinas Valley which is bounded by the Gabilan Range to the east and the Sierra de Salinas Mountains to the west. The slopes and canyons of these ranges drain surface runoff to tributaries of the Salinas River which flows year-round, although primarily below the surface during the summer months. The Salinas River is located approximately 1.3 miles to the east of the project site.

The natural vegetation of the region is influenced by climate and location of topographic features. The valley floor is generally used for agricultural production, primarily row crops and grapes. Grass is the prevailing natural ground cover in the low lands and chaparral is found in the hills.

The central Salinas Valley enjoys a "Mediterranean" climate with moderate temperatures throughout the year. Summers are warm and dry and winters are generally mild with annual precipitation ranging from 10 inches in King City to 20 inches at Pinyon Peak in the Santa Lucia Range west of the site.

King City is located 11 miles from the project site and serves as the economic center for much of southern Monterey County. The Cities of Soledad and Gonzales are located approximately 6 and 15 miles, respectively, to the north. The local economy is primarily based on agriculture. Highway 101 is the primary north-south arterial within the County and passes immediately to the west of the site. Southern Pacific Railroad operates a railway line which runs in a north-south direction to the east of Greenfield. The King City Municipal Airport is a general purpose airport serving the central and south County region. Several private airfields are located in the vicinity of King City.

#### 4.2.2.2 Existing and Surrounding Land Uses

The property is currently farmed in row crop production. Unpaved roads cross the site as needed to provide access to the crops. Improvements also include two barns located approximately 1,500 feet north of Thorne Road and approximately 300 feet easterly of Highway 101. Just west of the barns are two water wells that supply the irrigation system for the farming operations.

The project site is surrounded to the north, west and south by lands also in agricultural production. Agricultural lands surrounding the project site are in unincorporated Monterey County and are designated "Agricultural (Farmlands-40 ac. min.)". The predominant crops grown on lands surrounding the subject parcel are row crops.

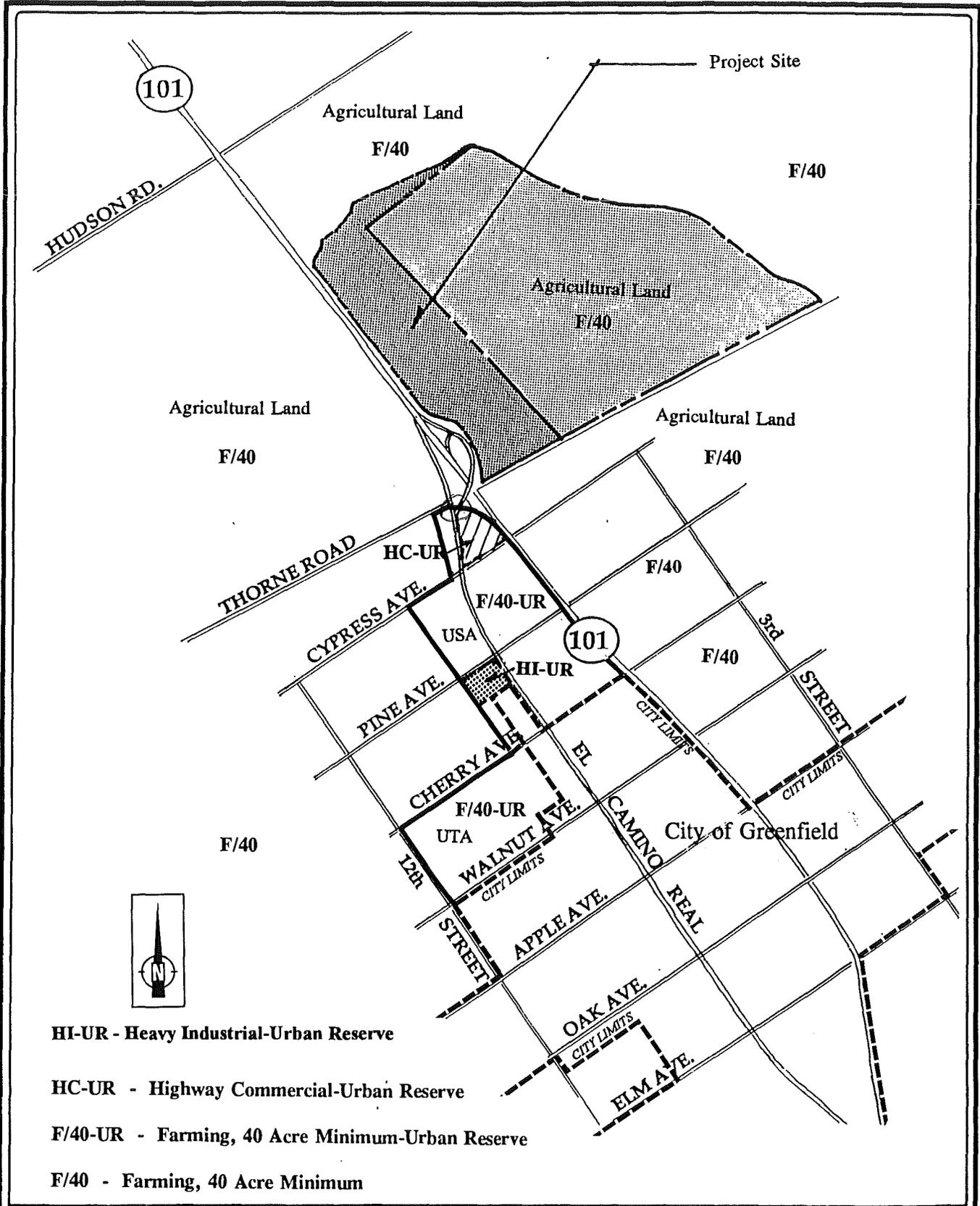
The northern and eastern boundaries of the subject parcel coincide with the top of the terrace slope which drops off about 30 feet at a 2:1 slope to the next terrace below. The Salinas River lies approximately 1.3 miles to the east of the project site. Highway 101 is immediately to the west of the project site. Figure 9 depicts surrounding land uses.

The project site is located approximately one mile north of the City of Greenfield. Greenfield was incorporated in 1947. The current population is 9,450 ~~9,324~~<sup>2</sup>. Highway 101 divides the city with the commercial core and most of the residential development located west of the highway. ~~The project site is located outside of the adopted Sphere of Influence (SOI) of the City. The SOI consists of an Urban Service Area which defines areas which are projected to be ready for annexation to the City within the next five years, and an Urban Transition Area which defines areas which are projected to be ready for annexation within the next five to 20 years.~~ The City of Greenfield City Council recently approved an amendment to Greenfield's Sphere of Influence. The proposed project site is now located in the boundaries of the Urban Service Area of the Sphere of Influence. This amendment will require final approval by LAFCO. Figure 10 depicts the current City of Greenfield SOI and City limits.

Lands between the City limit and the project site within the Greenfield SOI west of El Camino Real are designated "Residential Reserve" in the Greenfield General Plan. Lands between the City limit and the project site within the Greenfield SOI east of El Camino Real are designated "Light Industrial".

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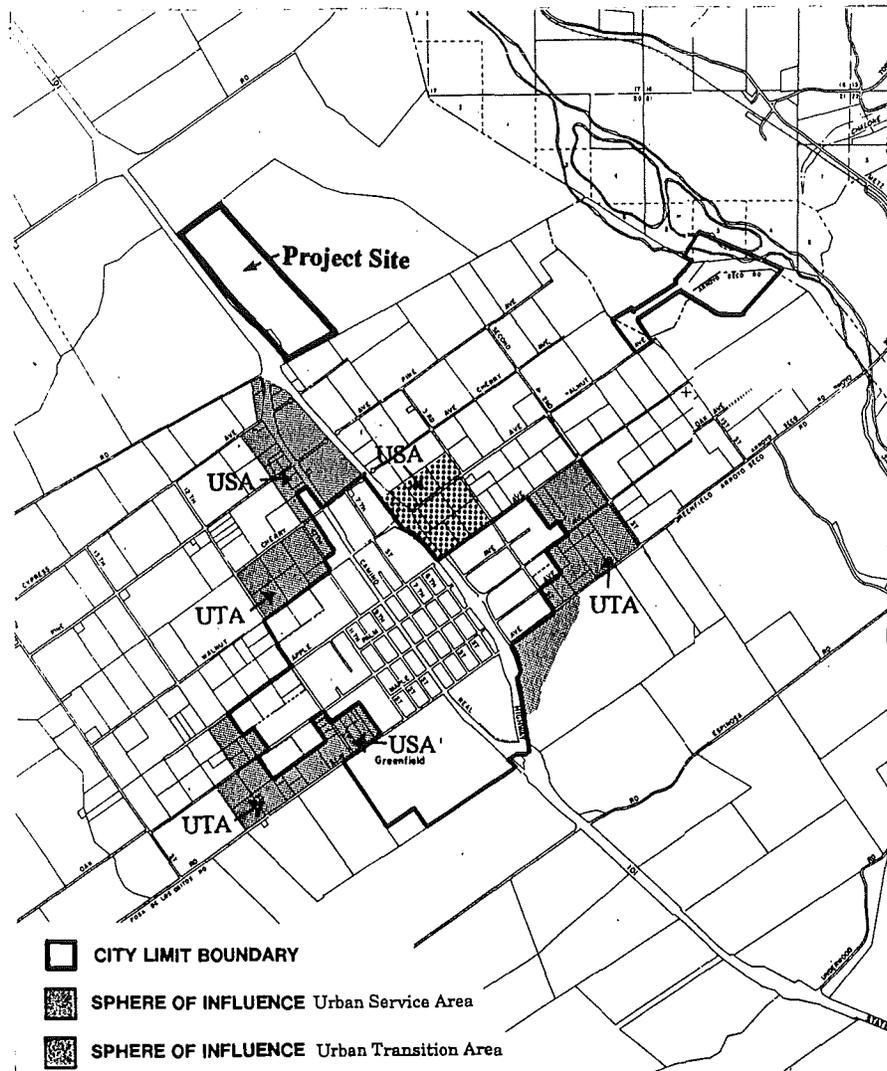
<sup>2</sup> State Department of Finance, January 4995 ~~1996~~



- HI-UR - Heavy Industrial-Urban Reserve
- HC-UR - Highway Commercial-Urban Reserve
- F/40-UR - Farming, 40 Acre Minimum-Urban Reserve
- F/40 - Farming, 40 Acre Minimum

Surrounding Land Uses

Figure  
9



-  CITY LIMIT BOUNDARY
-  SPHERE OF INFLUENCE Urban Service Area
-  SPHERE OF INFLUENCE Urban Transition Area



**City of Greenfield Sphere of Influence**

**Figure 10**

#### 4.2.2.3 Area Plans

Land use on the project site is guided by the Central Salinas Valley Area Plan, one of eight sub-components of the Monterey County General Plan. The Central Salinas Valley Area Plan (CSVAP) describes and designates various land uses within the planning area and identifies appropriate policies and standards which address local land use issues related to transportation and circulation, water supply, wastewater services, resource management, public services, and housing.

One of the fundamental goals of the CSVAP is to preserve viable agricultural lands and protect the existing agricultural productivity of the Salinas Valley. Specific policies of the Plan are designed to implement these general goals. Policies which implement the CSVAP goals as they apply to land use compatibility issues are identified in this section of the EIR.

According to the General Plan Land Use Map, the subject parcel is designated "Agricultural (Farmlands-40 ac. min.)". The "Farmlands" sub-category includes those farmlands designated by the USDA Soil Conservation Service Important-Farmlands Inventory system as prime, of statewide importance, unique or of local importance. The minimum parcel size is 40 acres.

#### 4.2.2.4 Existing Zoning District

The County of Monterey prepared and adopted a revised zoning ordinance in August, 1991 that is applicable to the unincorporated areas outside of the coastal zone. The new zoning ordinance, Title 21, reflects the land use designations identified in the General and Area Plans throughout the County. The project site is within the F/40 zoning district, consistent with the existing General Plan designation.

#### 4.2.2.5 Agricultural Resources

Agriculture is a major industry in Monterey County. The gross value of agricultural products in the county was \$1,934,702,390 in 1994, a 4.4% increase over the previous year. The three leading commodities in 1994 in terms of gross value were lettuce, broccoli and strawberries<sup>2</sup>.

The entire 430-acre property has been historically used for farming. Prior to 1988 the property was owned by Paul Masson Wine Incorporated. Paul Masson used the site for vineyards until the late 1970's or early 1980's. The vineyards were subsequently removed and the ranch laid fallow until 1988 when the applicant purchased the site. Broccoli, cauliflower, mixed lettuces, and head lettuce are currently grown on the property. The two agricultural wells, barns and other outbuildings associated with farming operations on the property are located on the ±111-acre project site.

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<sup>2</sup> "Monterey County Crop Report", Monterey County Agricultural Commissioner, 1994.

### Williamson Act Preserves

Several parcels in the vicinity of the project site are within agricultural preserves created under the Williamson Act, including the 329-acre parcel under the same ownership as the project site (Contact #71-41). The proposed project site was previously part of a Williamson Act contract encompassing a 430-acre parcel. No portion of the project site is currently under such contract. Under Williamson Act contracts, the property owner agrees to limit the use of the land to agriculture and associated uses for a period of at least ten years and the County agrees to tax the land at a rate based on the agricultural produce of the land rather than its real estate market value. Figure 11 depicts parcels in the project vicinity currently under Williamson Act contract.

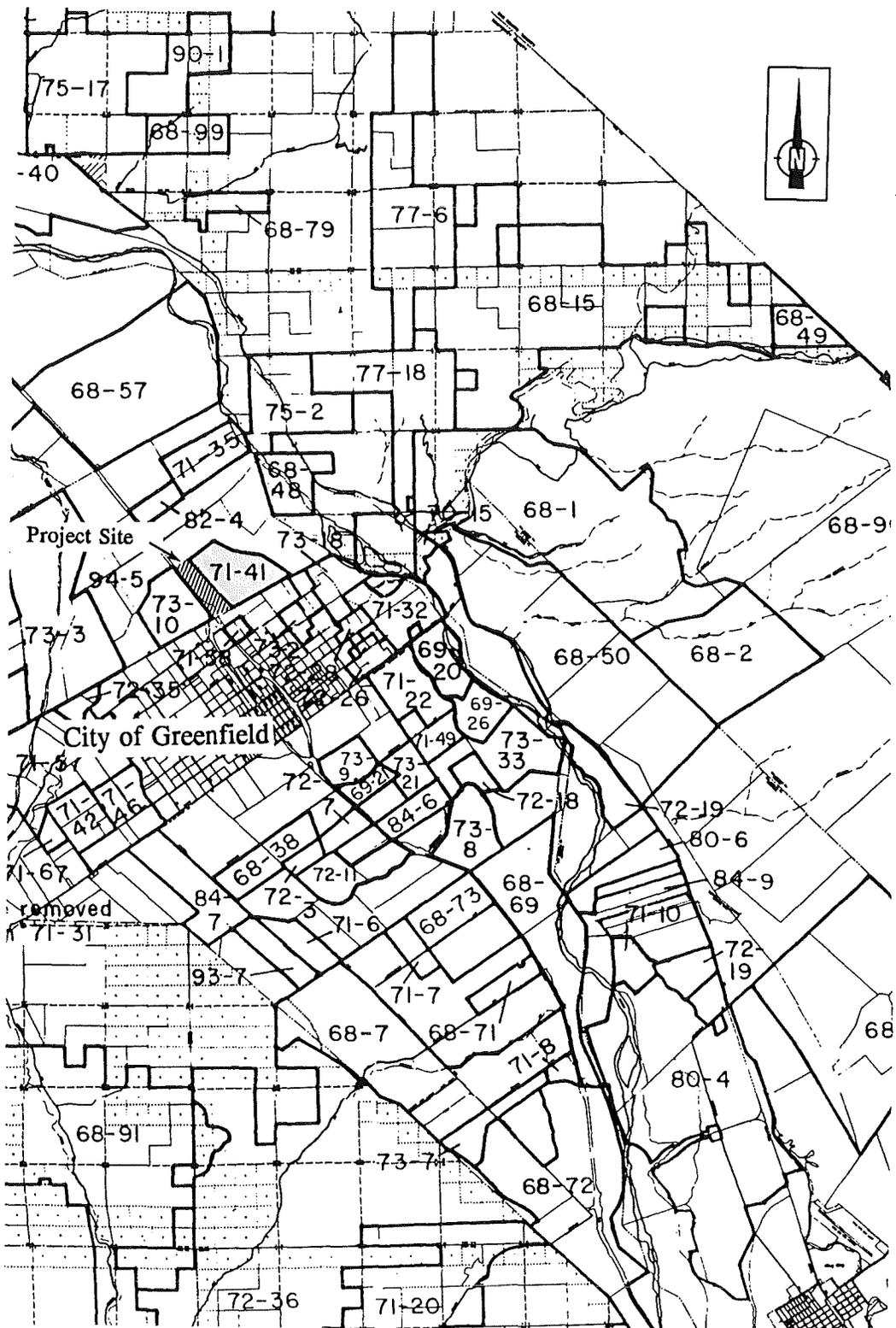
### Agricultural Suitability

The suitability of land for agricultural production is generally a function of topography, climate, water availability, and soil conditions. Soils on the project site can be grouped according to their suitability for general intensive farming. Capability grouping and the Storie index are used by the Soil Conservation Service (SCS) to categorize soils taking into consideration soil limitations including drainage and availability of water, land-forms, and climate. In general, lands with high capability and index ratings are considered "prime agricultural land". These are lands which the County places the highest priority on conserving and protecting. According to the Monterey County Important Farmland Map (July, 1986) the project site is categorized "Prime", defined as "land with the best combination of physical and chemical features for the production of agricultural crops".

Soils at the site have been classified by the SCS as Arroyo Seco series. The Arroyo Seco series (AsA) consists of well drained soils that formed in alluvium that was derived mostly from granitic and sedimentary rocks on old alluvial fans. These soils are considered important for agricultural purposes and comprise approximately 3% of soils in Monterey County.

The Soil Capability Classification categorizes soils primarily by their suitability for cultivation. Class I through IV soils are generally considered suitable for cultivation and Class V through VIII soils are generally not considered suitable for cultivation. AsA soils are categorized Class II soils which, while considered suitable for cultivation, have severe limitations that reduce the choice of plants or require special conservation practices or both.

The Storie Index expresses numerically the relative degree of suitability of a soil for general intensive farming at the time of evaluation. The rating is based on soil characteristics only. Factors such as availability of water, climate, and distance of the site from markets are not considered. A rating of 100 percent represents the most desirable conditions for crop production, and lower ratings are given for soil conditions that are less favorable. The Storie Index rating for AsA soils is 63 percent which equates to a grade 2 soil (60 to 80 percent). Grade 2 soils are good and well suited to farming, but are less desirable than grade 1 soils (80 to 100 percent).



Properties Under Williamson Act Contracts

Figure 11

## **4.2.3 Impacts and Mitigation Measures**

### **4.2.3.1 Standards of Significance**

In accordance with CEQA Guidelines and County policies, a project impact would normally be considered significant if it would conflict with adopted general plan designations or policies; create a land use incompatibility with existing land uses; convert prime agricultural land to non-agricultural use; or impair the agricultural productivity of prime agricultural land.

### **4.2.3.2 Proposed Changes in Land Use**

The applicant is requesting a general plan amendment and rezone to designate 111 acres of the subject parcel as a commercial land use for the proposed air museum and commercial uses. The remaining 329 acres will remain under the existing "Agricultural" land use designation and is currently under Williamson Act contract.

In addition, the applicant is requesting a lot line adjustment to create a separate and distinct parcel of land for the proposed air museum and commercial uses. Currently, Parcel No. 1 contains 427.70 acres and parcel No. 2 contains 12.84 acres. The total land owned by the applicant is 440.54 acres. The proposed lot line adjustment will create parcel No. 1 containing 111.29 acres and parcel No. 2 containing 329.25 acres.

Two easements will be created. One easement will provide access from the public frontage road to the easterly most parcel (Parcel No. 2) and the other easement will restrict land use on Parcel No. 2 adjacent to the aircraft runway which is proposed to be located in Parcel No.1.

### **4.2.3.3 Land Use Compatibility**

The project site is surrounded on the north, east and south by productive agricultural lands considered "prime" and currently farmed in row crops. The western boundary is formed by Highway 101. Development of the project site is not likely to create land use conflicts between agricultural operations and the proposed airport and commercial activities because the site plan allows for open space buffers and non-sensitive uses on each side. On the north, the winery is separated from farming operations by approximately 1,200 feet of landscaping, parking lots, and the hanger and museum storage facility.

On the east, the applicant proposes to create a ±329-acre parcel which will remain in agricultural production. The commercial facilities are separated from such farming operations by the taxiway and runway, a distance of over 350 feet. On the south, the nearest commercial facility to the farming operations is almost 400 feet away and is separated by a parking lot and landscaped buffers.

However, urban encroachment can make agricultural production more costly and difficult due to trespassing, potential vandalism, and restrictions on hours of operation and pesticide/fertilizer applications. Typical farming operations generate potential nuisances such as dust, pesticides, odor, and noise. The County of Monterey has adopted a right-to-farm ordinance whose purpose is "to express the intent of the County to preserve and protect agricultural activities and to insulate lawful agricultural activities from nuisance complaints from suburban or urban uses on adjoining properties. As stated above, development of the proposed project is not likely to create land use conflicts between agricultural operations and the proposed airport and commercial activities because the site plan allows for open space buffers and non-sensitive uses on two sides of the development. Chapter 21.66030 (F) (a) (b) (c) of the Zoning Ordinance requires that "new development adjacent to agricultural uses shall be required to establish a well defined buffer zone within the area to be developed. An easement shall be sufficient to protect agriculture from impacts of new residential or other incompatible development and to mitigate against the effects of agricultural operations on the proposed uses. ~~intended to promote understanding between farmers and urban uses. This is not a significant impact. No additional mitigation is recommended or necessary.~~

#### 4.2.3.4 Loss of Agricultural Land

The proposed project will result in the permanent conversion of approximately 111 acres of prime agricultural land to urban type development outside of the existing and proposed SOI for the City of Greenfield. The remaining 329 acres owned by the applicant is proposed to remain in agricultural production and is currently under Williamson Act contract.

**Impact:** The project will result in the conversion of approximately 111 acres of agricultural land to commercial and airport uses. As indicated by the Stories index ratings and soil grades, soils on the site are classified as "prime" and are well suited for general intensive farming. *This is a significant unavoidable impact.*

#### 4.2.3.5 Consistency With Central Salinas Valley Area Plan Land Use Policies

A key component and discretionary action of the proposed project is the general plan amendment and rezoning for the airport and commercial development. The proposed uses are not currently consistent with Monterey County General Plan land use designations which specify agricultural uses on the site. However, adoption of the proposed general plan amendment will, by definition, result in land use consistency with the General Plan.

Therefore, the following analysis focuses on project conformance and consistency with Central Salinas Valley Area Plan policies relating to the proposed commercial designation and land use, and not the existing agricultural designation or use.

28.1.1.2 (CSV) Recreation and visitor-serving commercial uses shall only be allowed if it can be proven that:

1. Areas identified by the Flood Control and Water Conservation District as prime-groundwater recharge areas can be preserved and protected from sources of pollution as determined by the Director of Environmental Health and the County Water Resources Agency [formerly known as the Flood Control and Water Conservation District];
2. Proposed development can be phased to ensure that existing groundwater supplies are not committed beyond their safe-long term yields where such yields can be determined by both the Director of Environmental Health and the County Water Resources Agency [formerly known as the Flood Control and Water Conservation District];
3. The main channels of either the Arroyo Seco River or the Salinas River will not be encroached on by development because of the necessity to protect and maintain these areas for groundwater recharge, preservation of riparian habitats, and flood flow capacity as determined by the County Water Resources Agency [formerly known as the Flood Control and Water Conservation District];
4. The proposed development meets both water quality and quantity standards expressed in Title 22 of the California Administrative Code and Title 15.0.4 of the Monterey County Code as determined by the Director of Environmental Health;
5. The proposed development meets the minimum standards of the Regional Water Quality Control Basin Plan when septic systems are proposed and also will not adversely affect groundwater quality, as determined by the Director of Environmental Health; and
6. The proposed development will not generate levels of runoff which will either cause erosion or adversely affect surface water resources as determined by the County Water Resources Agency [formerly known as the Flood Control and Water Conservation District].

**Consistency Analysis:** *The project satisfies each of the above referenced policy statements with the exception of a provision of a suitable potable water supply. Refer to section 4.4.5, Water Quality and Supply, for a discussion of deficiencies in the water supply for the proposed project. As an alternative, the project may connect to the City of Greenfield Municipal supply, provided that the connection to this service can comply with LAFCO requirements for the extension of urban services to non-incorporated areas or areas outside urban service lines.*

28.1.1.3 (CSV) Various discretionary permits would be required after the adoption of the general plan amendments and rezoning. All recreation and visitor-serving commercial land uses shall require a use various discretionary permits on sites of 10 acres or less. On sites greater than 10 acres, visitor serving recreation and commercial uses may be permitted in accordance with both a use permit and a required comprehensive development plan. The comprehensive development plan shall address hydrology, water quantity and quality, sewage disposal, fire safety, access, drainage, soils, and geology.

**Consistency Analysis:** *The EIR evaluates the consistency of the proposed air museum with this policy. The applicant has prepared and submitted to the County a comprehensive Master Plan which addresses the required subjects and is subject to CEQA documentation. The applicant is also required per County regulation to obtain a Use Permit subsequent to adoption of the general plan amendment and rezoning. The project, as revised by mitigation measures in this EIR could comply substantially with this policy.*

30.0.3.1 (CSV) Divisions of farmland shall be permitted only when such division does not adversely affect the land's long-term agricultural financial viability and shall be conditioned to ensure continued long-term agricultural use.

**Consistency Analysis:** *As noted above, the proposed project will permanently reduce the amount of prime farmland in the County. This is considered an unavoidable impact resulting from development. However, it is recommended that the applicant dedicate a agricultural conservation easement in perpetuity on the ±329-acre parcel to remain in agricultural production. The 329-acre parcel is currently under a Williamson Act contract. Therefore, long-term agricultural use will be ensured on that portion of the site. In addition, the developed portion of the subject property does include a winery, also considered an agricultural use. Therefore, the project with mitigation generally conforms with this policy.*

## 4.3 Airport Safety

### 4.3.1 Introduction

This section will review airport safety considerations for publicly owned airports under the guidelines established by the Federal Aviation Administration (FAA) and the State of California, Department of Transportation (Caltrans), Division of Aeronautics. The airport safety section of the Draft EIR is organized differently from the other sections of the EIR due to the structure of the information that needs to be provided in this section.

### 4.3.2 Airport Characteristics

The public use airport portion of the project site will consist of a runway, taxiway, aircraft storage and fuel storage. The following provides a description of these facilities:

*2*  
*Des 10/14/14*  
Runway: The proposed airport is comprised of a runway 4,235 ~~3,350~~ feet long by 75 feet wide running in a roughly north-south direction. The runway magnetic alignment is 140 degrees and 320 degrees and is proposed to be constructed of asphalt, with a design strength of 60,000 pounds. Runway lighting will be medium intensity and without runway end identifier or approach lighting. Runway Protection Zones (RPZs) will be established to accommodate a general utility runway. ~~However, future airport plans may change and could accommodate an appropriate instrument procedure.~~ Refer to Figure 3 for the layout of the project site.

Taxiway: A single primary taxiway will be oriented parallel to the runway with entry and exit taxiways at each end of the runway and at mid-field. The taxiway will have an aircraft warm up area sufficient in size to accommodate aircraft with a wing span of 40 feet to pass without conflict. The taxiways will have the same pavement design strengths as the runway.

Aircraft Storage: Approximately fifty (50) outside aircraft storage units (tiedowns) will be located on the north corner of the airport, adjacent to the approach end of Runway 14. This tiedown area will accommodate both transient and based aircraft. In addition to this, approximately 40 square hangars and 60 T-hangars will be provided in the northern portion of the site adjacent to the taxiway.

Fuel Storage: An aviation fueling station will be located on the northern portion of the site adjacent to the hangars and taxiway. The fuel provided will be 100 LL and Jet A. Both types of fuel will be stored in below-ground double wall containment tanks with leak detection sump and aural warnings.

#### 4.3.2.1 Airport Uses

The public use airport project has the potential to involve a number of uses including the following:

- The restoration and display operations of Yanks Air Museum;
- The establishment of a Fixed Base Operator (FBO) which will coincide with the opening of the airport;
- Fixed wing, helicopter, and ultra light aircraft rentals;
- Flight instruction;
- Glider operations;
- Hot air balloon flights;
- Skydiving;
- Radio controlled model aircraft;

- Delivery of aviation fuels (80 OCT, 10011 and Jet A) from a combination of underground storage tanks and refueller vehicles; and
- Occasional scheduled events such as air shows, antique and experimental aircraft gatherings and fly-byes.

#### 4.3.2.2 Airport Operations

Initially, aircraft growth at the Yanks Airport will be directly attributed to Yanks Air Museum aircraft. At the onset of airport operations, the following estimates of based aircraft are provided:

	<u>Piston Aircraft</u>		<u>Jet Aircraft</u>		Helo
	Single	Multi	Turboprop	Turbojet	
Yanks Airport	28	2	0	0	1

The applicant anticipates that the airport will experience a significant growth within the first twelve months of operations and steady growth consistent with area averages thereafter. The following provides the anticipated growth of Yanks Airport for the first five years:

	<u>Piston Aircraft</u>		<u>Jet Aircraft</u>		Helo
	Single	Multi	Turboprop	Turbojet	
12 Months	35	4	1	0	1
24 Months	36	5	1	0	1
60 Months	40	5	2	1	1

The applicant anticipates that the density of aircraft will stabilize at the five year mark. The forecast densities (with the exception of museum aircraft) reflects a reallocation of existing aircraft.

Flight activity is estimated at 25,000-30,000 annual operations. Highest activity levels will occur on weekends and holidays. Under these circumstances, daily operations could reach 100-150 operations daily with significantly increased weekend activity. A general utility airport will experience a greater number of touch and go operations as compared to the combined total of arrivals and departures. It can be assumed that touch and go operations will comprise 55-60% of total operations.

~~The project applicant will consider using a Global Positioning Systems (GPS) instrument approach procedure at the Yanks Airport. If this procedure is determined to be appropriate, the procedure review and publication will be requested from the FAA. To accommodate this alternative, the initial ALP shall include Runway Protection Zones (RPZ) and instrument approach transition areas so as to accommodate planned precision and/or non-precision approach procedures.~~

### 4.3.3 Airport Safety

Both the FAA and Caltrans have developed various standards to address airport safety issues. Airport safety can be divided into three categories. These are:

- Safety - From the perspective of minimizing the risks of aircraft accidents beyond the runway environment;
- Airspace Protection - Accomplished by limits on the height of structures and other objects in the airport vicinity, and restrictions on other uses which potentially pose a hazard to flight; and
- Overflight - The loosely defined impacts to routine flight activities over surrounding communities. @ a height of 1,000 feet ?

#### 4.3.3.1 Safety

The principal method of protecting surrounding land from noise and safety impacts created by the airport is through preparation of a Comprehensive Airport Land Use Plan (CLUP), as required by Section 21675 of the California Public Utilities Code. It is the responsibility of the Monterey County Airport Land Use Commission (ALUC) to prepare and adopt the CLUP.

Safety issues are considered to be the most difficult to address with respect to airport land use compatibility. Safety concerns are based on uncertain events which can and may occur, rather than on what will occur. In other words, the operation of an airport and aircraft flight operations, if carried out under certain prescribed rules and regulations, are not unsafe, but accidents do happen regardless. Because aircraft accidents happen infrequently and the time, place and consequence of their occurrence cannot be predicted Caltrans has adopted a "risk" concept for assessing safety issues.

In determining land use compatibility, Caltrans suggests two variables be used to determine the degree of risk posed by potential aircraft accidents:

- Accident Frequency - Where and when do aircraft accidents occur in the vicinity of an airport?
- Accident Severity - What land use characteristics contribute to the consequences of an accident if one occurs?

These are two objectives of airport safety criteria:

- Safety on the Ground - To provide for the safety of people and property in the event of an aircraft accident near an airport.
- Safety for Aircraft Occupants - To enhance the chances for survival of the occupants of an aircraft involved in an accident in the immediate vicinity of an airport.

Caltrans suggests that the primary safety strategy should be to limit the intensity of land uses in locations most susceptible to off-airport aircraft accidents. This can be accomplished by establishing criteria limiting the maximum number of dwelling units or people in areas close to an airport (density limitations), and by requiring open spaces to enhance the safety of occupants of aircraft forced to make an emergency landing away from a runway. Caltrans also suggests restrictions on particular types of land uses which should be restricted off the ends of runways, "particularly school, hospitals, and other uses in which the mobility of occupants is effectively limited..."

The establishment of safety criteria comes down to what degree of risk is acceptable to the local community. To some, it may seem ideal or even necessary to reduce risks to zero by prohibiting urban land use and development from areas near airports. Others would propose that local aircraft accident risks could be eliminated entirely by closing the airport. It is generally considered that safety criteria are established on a progressive scale with the most severe land use restrictions established for those locations with the greatest potential for aircraft accidents.

FAA safety guidelines contained in Advisory Circular 150/5300-14, "Airport Design", define a series of areas that focus on the area immediately in the vicinity of the runway surface and associated restrictions as to allowable uses. These areas will be developed by the project applicant, Caltrans Division of Aeronautics and the FAA when an airport permit is obtained from Caltrans as well as notice of proposed construction or alteration form 7460-1 is obtained from the FAA. The Airport Layout Plan will include the following:

- Runway Object Free Zone
- Object Free Area
- Runway Safety Area

The Object Free Zone (OFZ) located at each end of the runway is totally contained on the proposed project. Runway Protection Zones (RPZs) are trapezoid areas located off each end of the runway. The RPZ for the proposed airport begins 150 feet beyond the runway end and extends a distance of 1,000 feet. For the assumed critical aircraft, the required RPZ has an inner width of 500 feet and an outer width of 700 feet. Currently, there are no structures located within the RPZ areas.

~~In the case of the proposed Yanks Airport, these areas are most likely to occur on adjacent properties not owned by the project applicant, but currently zoned for agricultural land uses.~~

~~Runway Protection Zones (RPZs) are designed to enhance protection of people and property on the ground from aircraft either landing short of the runway or overrunning the runway on take-off. The RPZs will be defined during the airport permitting process. No significant impacts are anticipated.~~

The surrounding area within a one-mile radius of the airport runway is designated as agricultural (40 acre minimum). The majority of the surrounding property is subject to Williamson Act contracts which have a 20-year term. The County's General Plan and Zoning restrict the surrounding area to a very low density residential use of land (i.e. one dwelling unit per 40 acres).

Requests for development within the proposed runway protection zones will be subject to environmental review, height limitations, and development that would not allow for the accumulation of population. The maximum height limitation of any future structures that may be located at the southerly property line of the project will be approximately 12 feet. In order to develop in the vicinity of public airports, building sponsors must file with FAA, FAA Form 7460-1, Notice of Proposed Construction or Alteration. As part of the FAA review of these notices, location with respect to the runway protection zones is considered. FAA will typically not approve development within the RPZ.

#### 4.3.3.2 Airspace Protection

The protection of an airport's airspace (the area above ground level used for maneuvering of aircraft in flight) is critical to reducing the potential for aircraft accidents. As a result of the stringent height limitation and obstruction clearance criteria, relatively few aircraft accidents are caused by land use conditions which are considered hazards to flight. The potential still exists, and airspace protection is an essential component of airport land use compatibility.

Land uses which can increase the risk of accident by posing hazards to flight should be avoided. Of particular concern are:

- Obstructions to airspace; and
- Land uses which attract birds, or create visual or electronic interference with air navigation.

Airspace protection requirements are distinct to each airport, including:

- The layout and dimensions of the runway system;
- The type of operating procedures established for the airport; and
- The performance characteristics of aircraft operated at the airport.

The acceptable height of an object near an airport is determined by the application of standards set forth in Part 77 of the Federal Aviation Regulations (FAR Part 77), "Objects Affecting Navigable Airspace." This regulation establishes three-dimensional imaginary surfaces around an airport. The size and shape of these surfaces is determined by the type of airport, its runway layout, and the nature of its approaches (i.e., visual, non-precision instrument, precision instrument). Any object penetrating these surfaces is considered an obstruction and may affect the use of the airspace.

Strategies for the protection of airport airspace are related directly to the type of hazard:

- Airspace Obstructions. Buildings and other structures, trees, and antennae should be limited in height so as not to penetrate any of the airport obstruction clearance surfaces.
- Other Hazards to Flight. Land uses generating smoke, glare, electro-magnetic interference or other hazards to flight, including bird attractants should be avoided or modified.

The criteria for determining airspace obstructions and other hazards to flight have been established in the FARs and other regulations and guidelines since the mid-1970's. The State of California utilizes the same obstruction clearance criteria as set forth in FAR Part 77. With regard to the requirements of FAR Part 77, "Objects Affecting Navigable Airspace", there are no known existing close-in obstructions penetrating the defined surfaces. *No significant impacts are anticipated.*

#### 4.3.3.3 Overflight

Aircraft overflight is based on the fact that many people are sensitive to the frequent presence of aircraft overhead even at noise levels lower than typically considered significant (i.e., less than 65dB CNEL). This sensitivity is often expressed in terms of fear or annoyance by people residing in communities around an airport. The State of California's recommended approach to address this issue is to avoid development of residential land uses in affected areas. The proposed airport project is surrounded by agricultural land uses to the north, south, east and west. Future development within the runway protection zones will be restricted.

Figure 12A depicts the overall airport impact area, RPZ and approach surface. Figure 12B depicts the runway protection zone and approach surface over an aerial photograph. Figure 12C depicts the dimensions of the RPZ and approach zones. The overflights will occur at an elevation of 800 to 1,000 feet. The flight pattern will be primarily from south to north with a right hand turn to the down wind leg of the approach to the runway. The runway will be operated primarily in a single direction (i.e., south to north). The airport impact boundary is approximately one mile or less from the runway. The normal flight pattern will be from south to north with a left hand turn to the west for out bound aircraft.

There are three residential dwelling units located north of Hudson Road approximately 1,800 feet from the northerly project boundary. The noise modeling of aircraft operations reflects this runway use pattern and the CNEL contours are shown on Figure 12. The dwelling units are located outside the 60 CNEL. FAR Part 150 states that all land uses are considered compatible with noise levels of less than 65 Ldn.

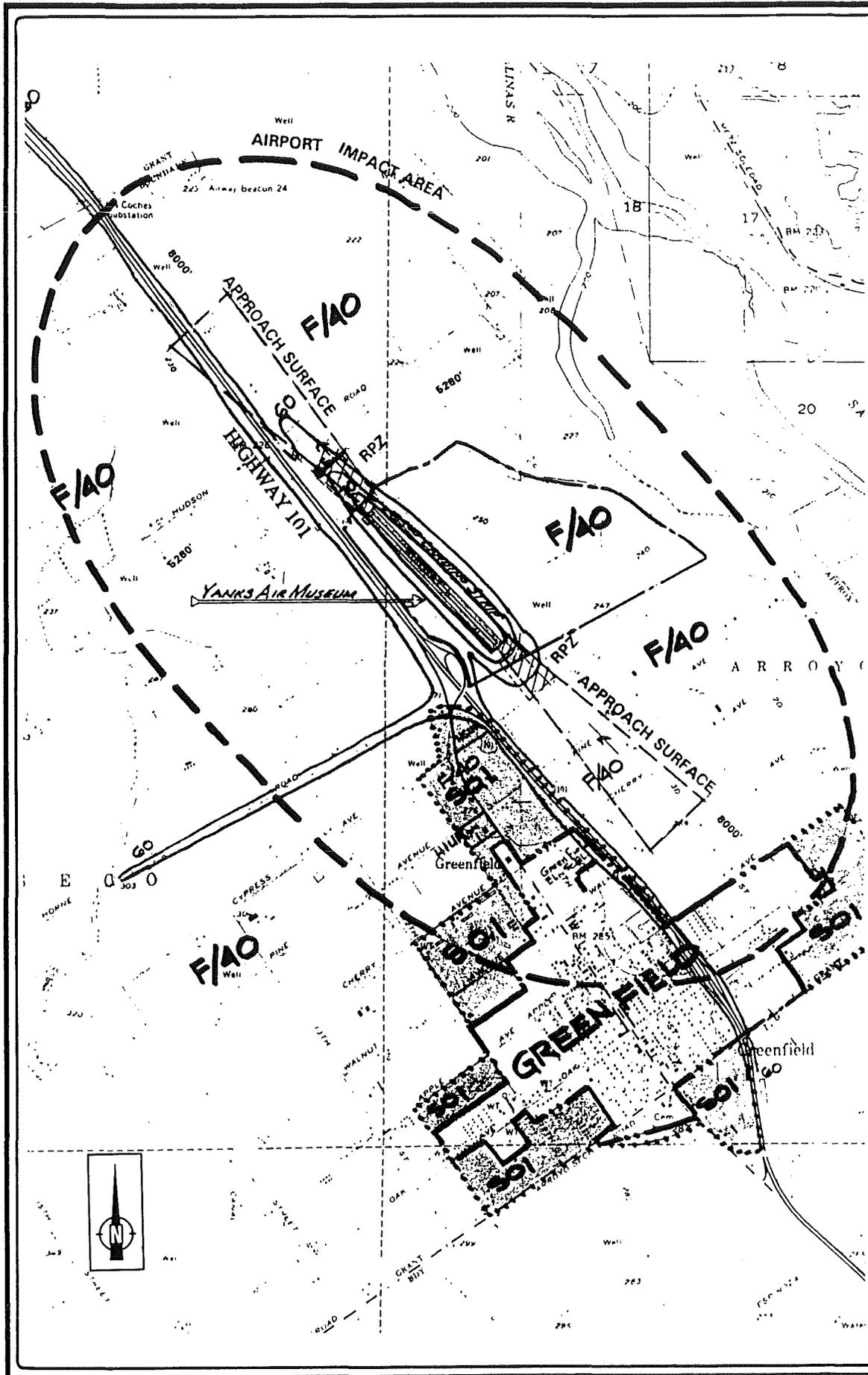
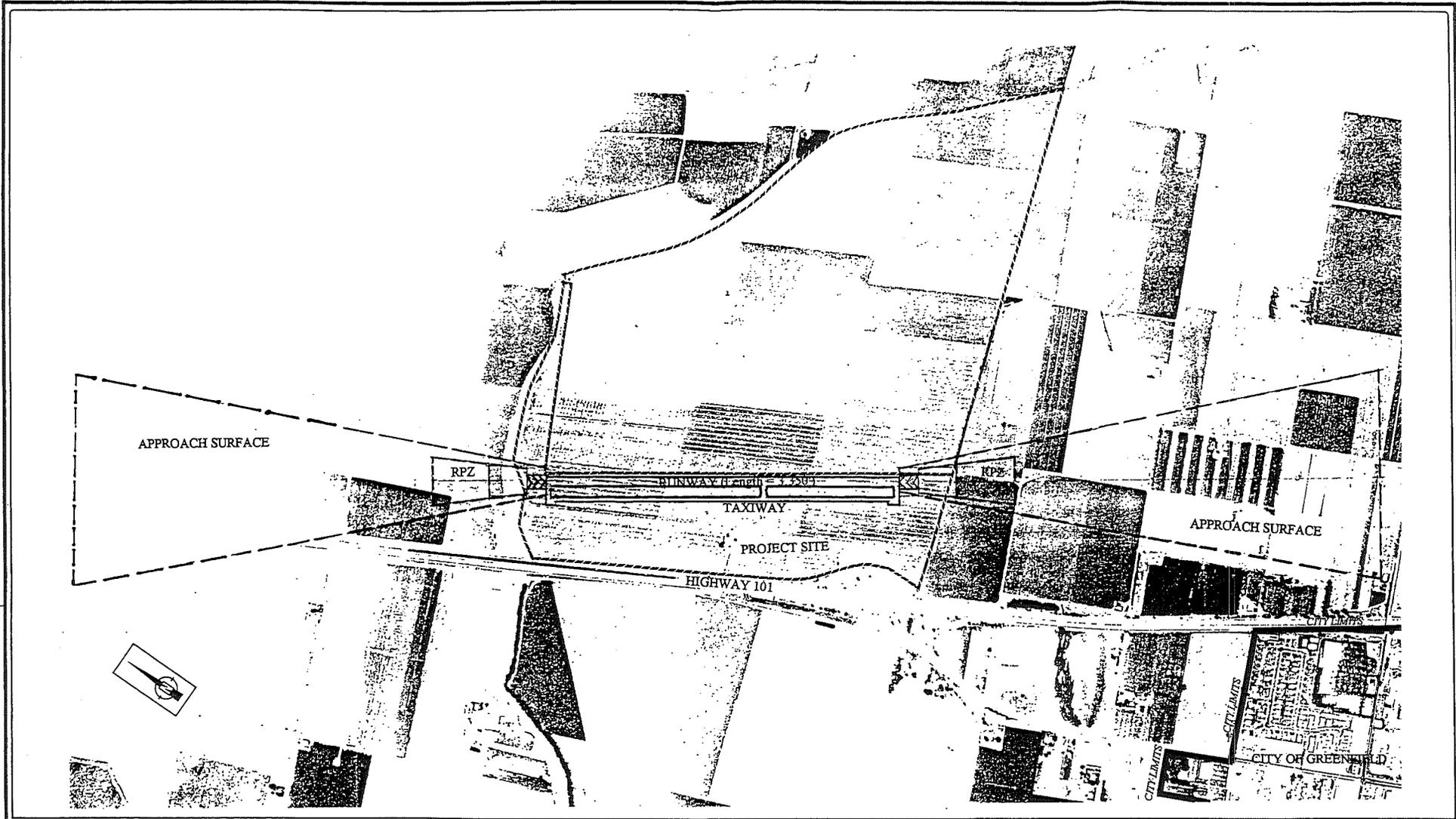


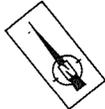
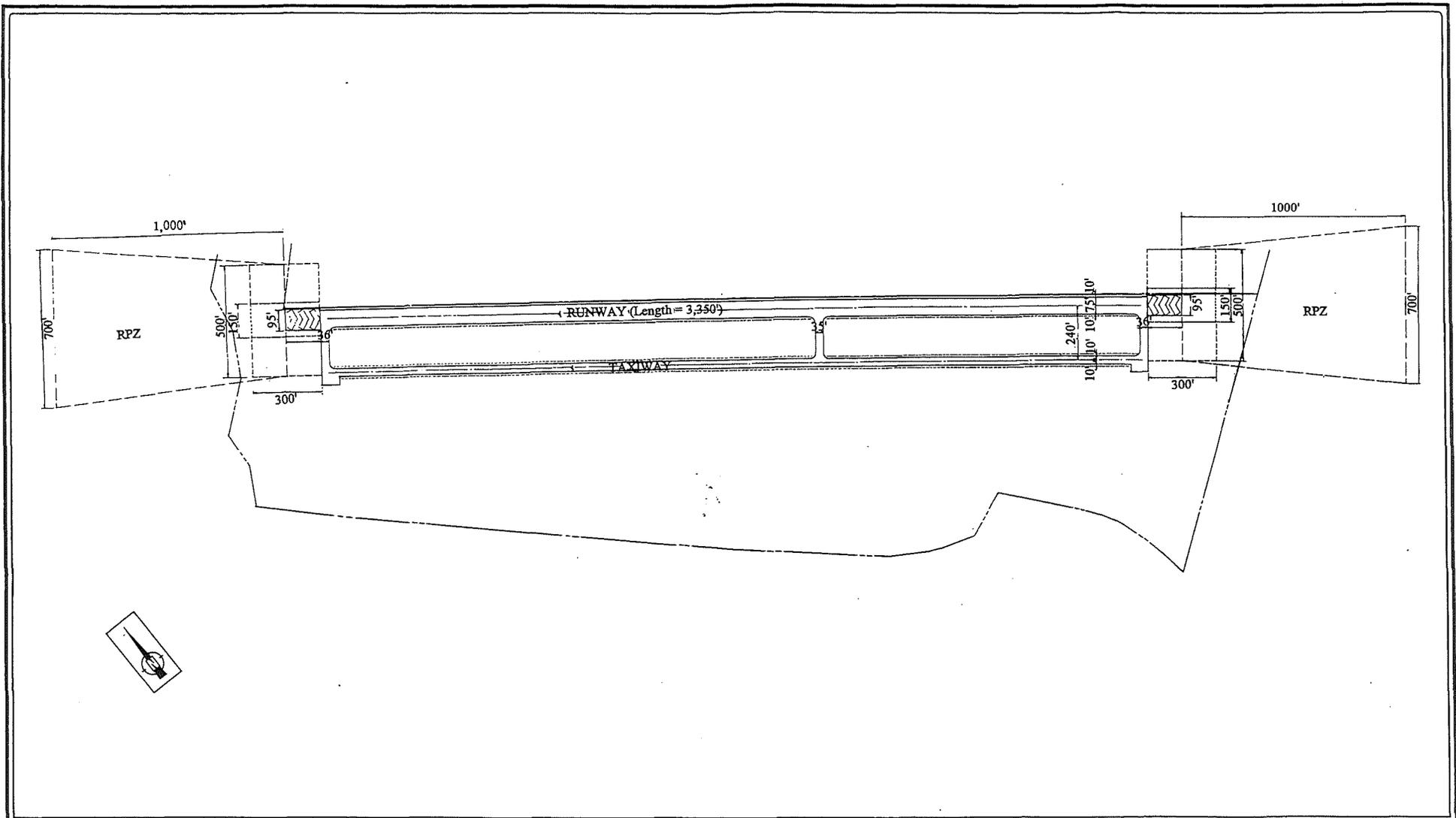
Figure  
12A

Airport Impact Area



Runway Protection Zone

Figure 12B



Dimensions of RPZ & Approach Zones

Figure 12C

The applicant has provided noise contours prepared by Giroux & Associates, based upon the highest level of flight operations anticipated at the airport - 25,000-30,000 annual operations. The noise contours were calculated based on an FAA Handbook (FAA-AS-75-1) with predominantly northwest traffic because of prevailing winds. The calculations were made for an annual average noise contour as required by Title 21, Subchapter 6, Article 1 of the California Code of Regulations (Section 5001). Please note that peak daily noise levels during a special event may be greater than the annual average.

The projected noise contour plot is shown in Figure 12. Contours are shown for 60, 65, and 70 dB(A) CNEL. The 60 dB CNEL contour represents the noise "footprint" within which an analysis is required for any proposed noise-sensitive development. The 65 dB CNEL contour is the noise "exclusion area" for residential or similarly noise-sensitive land uses. As seen from the figure, the 65 dB CNEL contour is confined to very close proximity to the runway and should create minimal development constraint beyond the immediate project boundary. ~~No significant impacts are anticipated.~~

**Impact:** The proposed project has the potential for complaints from occasional and periodic overflights. This is a potentially significant environmental impact that can be reduced to a less than significant level by implementation of the following mitigation measures.

#### **Mitigation Measure:**

1A. The airport landing strip shall only be used during daylight hours.

1B. Prior to approval of the Runway Use Permit, the project applicant shall work with the County to develop specific operating procedures to reduce overflights of certain areas.

## **4.4 Geologic and Geotechnical Hazards**

### **4.4.1 Introduction**

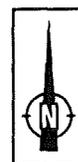
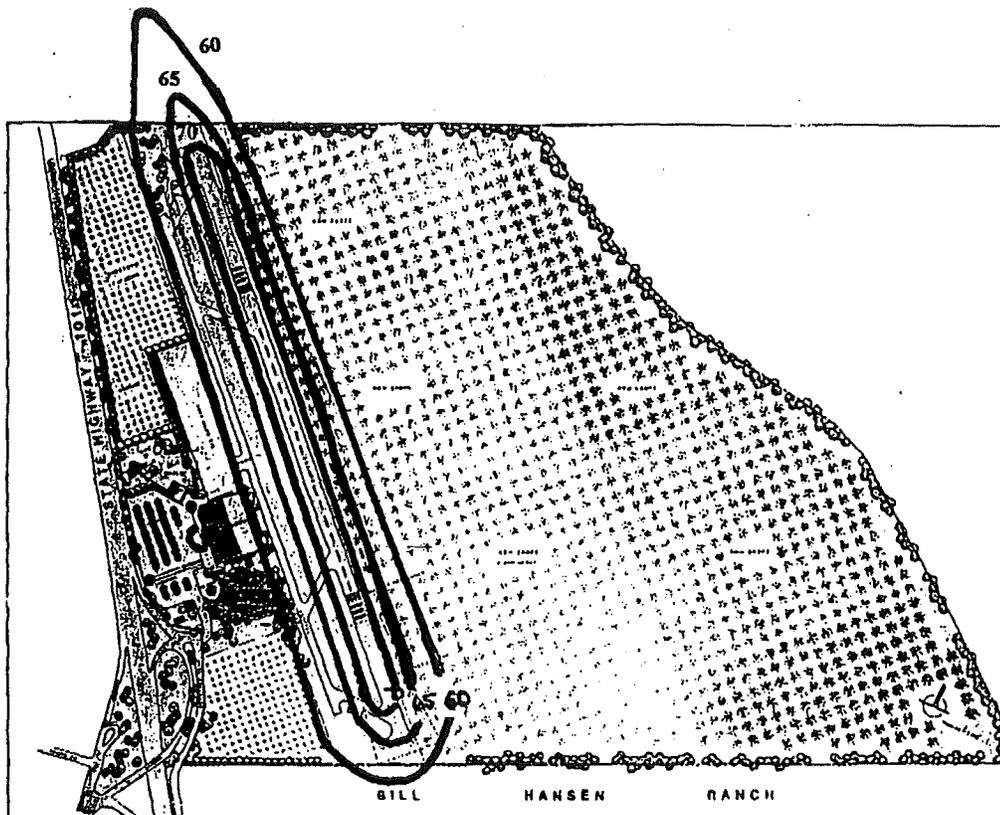
This analysis is based on the analysis and conclusions contained in a preliminary geologic investigation prepared for the proposed project by Rogers Johnson & Associates in association with Haro, Kasunich & Associates (a copy of this report is on file with the County Planning Department). The purpose of this study was to evaluate the general geologic conditions on the subject property.

### **4.4.2 Setting**

#### **4.4.2.1 Regional Geology**

The project site is located at the approximate center of the Salinas Valley, the largest inter-mountain valley in the Coast Range. The valley extends approximately 80 miles inland in a southeasterly direction from Monterey Bay. The Sierra de Salinas Mountain range forms the southwest boundary of the valley and the Gabilan Mountain range forms the northeast boundary. These ranges rise to elevations of approximately 5,000 and 3,500 feet respectively.

Thick accumulations of alluvium that has been eroded from the surrounding mountains have been deposited between these mountain ranges to form the relatively flat Salinas Valley.



**CNEL Noise Contours (DbA) - Year 2010+**

**Figure  
12**

#### 4.4.2.2 Regional Faulting

California's broad system of strike-slip faulting has had a long and complex history. Some of these faults present a seismic hazard to the subject property. The most important of these are the San Andreas fault, the San Gregorio fault and related faults (Palo Colorado and Sur-Nacimiento), and the Rinconada fault. These faults are either active or considered potentially active. Other faults in the area are of lesser importance, but may also affect the project site. Each pertinent fault is discussed below.

The project site is not located within a state designated Alquist-Priolo Special Studies Zone. The property lies in Geologic Hazard Zone II according to the Monterey County Geologic Hazard map. Zone II is generally associated with areas of low to moderate geologic hazard.

#### San Andreas Fault

The San Andreas fault is active and represents a major seismic hazard in northern California. The main trace of the San Andreas fault trends northwest-southeast and extends over 700 miles from the Gulf of California through the Coast Ranges to Point Arena where it trends offshore. At its closest point, the main trace of this fault lies about 14 miles northeast of the project site.

The segment of the San Andreas fault closest to the property is called the central creeping segment. Because the rate of movement or creep along this segment appears to be identical to the long term rate of strain along the San Andreas fault, there is probably no accumulations of elastic stress along this segment of the fault. Consequently, the potential for damaging earthquakes generated by the central creeping segment of the San Andreas fault, the segment closest to the project site, is very low.

Historic earthquakes along the San Andreas fault have caused significant seismic shaking in the Monterey County area. The two largest historical earthquakes to affect the area were the magnitude 8.3 (estimated) San Francisco earthquake of 1906, and the magnitude 7.1 Loma Prieta earthquake of October, 1989. The San Francisco earthquake caused severe seismic shaking and structural damage to many buildings over a broad area of central California. The Loma Prieta earthquake, which was centered on a southwest-dipping fault that may not have ruptured in 1906, appears to have caused more intense seismic shaking than the 1906 event in localized areas even though its regional effects were not as extensive.

A common method of describing the shaking associated with an earthquake is the Modified Mercalli Intensity Scale, a subjective measure of the affect of ground shaking on man, man-made structures, and the earth's surface. The scale ranges between I, no damage, and XII, near total destruction. Intensity generally decreases with distance from the epicenter, but can also vary greatly with local geologic setting and other factors. The Greenfield area experienced a Modified Mercalli Intensity of IV for the 1989 Loma Prieta earthquake.

### San Gregorio Fault

The San Gregorio fault trends northwest-southeast for over 100 miles. At its northern end it joins the San Andreas fault near Bolinas in Marin County. Southward, it skirts the coast of San Mateo and Santa Cruz Counties, crosses the mouth of Monterey Bay and intersects land again north of Point Sur, joining either the Palo Colorado or Sur faults. At its closest approach, this fault lies about 18 miles southwest of the project site.

The San Gregorio fault should be considered active. This fault could cause intense seismic shaking at the site if it generated a great earthquake. The next episode of strong seismic shaking on this fault could occur within days or, conversely, hundreds of years from now.

### Rinconada Fault

The Rinconada fault occupies the eastern foothills of the Santa Lucia Mountains and parallels the western edge of the Salinas Valley. The Rinconada fault is a high angle, right lateral strike-slip fault which shows about 40 miles cumulative offset since the Miocene age. Although it is considered potentially active in the Monterey County Seismic Element, no historic earthquakes have been reported on this fault. The Rinconada fault is not zoned as a special studies zone by the California Division of Mines and Geology, indicating the state does not consider it active enough to warrant mandatory investigation. This fault is located about 3.5 miles southwest of the project site.

#### 4.4.2.3 Site Soils

Soils at the site have been classified by the USDA Soil Conservation Service as Arroyo Seco Series. The Arroyo Seco Series consists of well-drained would that formed in alluvium that was derived mainly from granitic and sedimentary rocks on old alluvial fans.

The Arroyo Seco gravelly loam (AsA) consists of gently rolling hill soils formed on alluvial fans, terraces and flood plains. Textures include sand, loamy sand, silt loam and fine sandy loam that is gravelly and cobbley in places. Runoff is slow and erosion hazard is slight.

Analysis of the borings conducted for the field investigation indicate soils that were formed with stratified alluvium and deposited by the slope wash from the Santa Lucia range. The surfaces of the sample borings, to a depth of 30 inches, are in strong contrast to the lower deposits. The upper 30 to 42 inches is highly disturbed from farming operations. Textures of the surfaces consist of loamy sand, fine silty and clayey loam. Below the surface, the alluvium is mostly fine and medium sand with clay binder.

#### 4.4.2.4 Subsurface Materials

In order to explore and profile the subsurface conditions within the property, 17 exploratory borings using mechanical equipment were drilled for the applicant by Haro, Kasunich. In addition, 17 bore holes were drilled in the proposed leach field. Two of the exploratory borings were drilled to 51.5 feet below existing grade.

The subsurface soil conditions consist generally of 3 to 4 feet of very loose topsoil gradually becoming denser at about 5 feet. Basically, by 10 feet the soils are moderately dense. Below 10 feet, the consistency of the soils remained about the same to 20 to 30 feet then grading to very stiff silty clay. The silty clay was not penetrated at 51.5 feet.

#### 4.4.2.5 Percolation

Haro, Kasunich performed a percolation study to determine percolation rates in the area of the proposed leach fields. Percolation tests were performed in 6 locations across the proposed leachfield. The percolation test results indicate the soils within the top 15 feet have moderate to high permeability. The lowest percolation rates are confined to the upper 5 feet of sandy loam. Table 2 summarizes percolation rates found on the site.

#### 4.4.2.6 Ground Water Conditions

The property occupies a very gently northeasterly sloping (about 1% grade) alluvial fan associated with the Arroyo Seco drainage. However, the project site is elevated well above the potential 100 year flood zone of the Salinas River and Arroyo Seco River flood plains.

Groundwater was not encountered in any borings performed on the site. The depth to groundwater was measured in a Well Log prepared by Rauch Drilling Company, Inc. for an onsite well at approximately 70 to 80 feet below existing ground elevation.

### **4.4.3 Impacts and Mitigation Measures**

#### 4.4.3.1 Standards of Significance

In accordance with CEQA Guidelines, a project would normally have a significant effect on the environment if it were to cause substantial erosion or siltation; if there is evidence of geologic hazards, such as landsliding or excessively steep slopes that could result in exposure to hazards or slope failure due to improper grading or design; if it would expose people or structures to major geologic hazards; or if the subsurface soils conditions are subject to liquefaction or other secondary seismic hazards in the event of ground shaking.

#### 4.4.3.2 Geologic Hazards

##### *Seismic Shaking*

Given their relative rates of activity and seismic potential, the San Andreas and San Gregorio faults represent the most probable seismic hazards to the project site, but because of its proximity to the site, the Rinconada fault is the chief potential source of seismic shaking. Table 3 summarizes the distance from the site, estimated recurrence intervals, and the expected or Maximum Credible Earthquake for each of these four fault systems. The Maximum Credible Earthquake (MCE) is the largest earthquake that can reasonably be expected to occur on the fault, and may be significantly larger than the one that will actually occur within the lifetime of the project.

<b>Table 2. Percolation Rate Summary</b>		
<b>Boring No.</b>	<b>Depth (ft)</b>	<b>Percolation Rate (Inches/Hour)</b>
P-1	5	22
P-2	10	36
P-3	15	200
P-4	15	180
P-5	10	108
P-6	5	72
P-7	5	36
P-8	15	360
P-9	10	180
P-10	15	22
P-11	5	22
P-12	10	54
P-13	10	25
P-14	15	360
P-15	5	36
P-16	5	540
P-17	10	216

Source: *Feasibility Study for Yanks Air Museum Project*, Haro, Kasunich & Associates, September 1994

<b>Table 3. Summary of Fault Data</b>				
	MCE	Recurrence Interval (Yrs)	Distance from Site (Miles)	Peak Horizontal Ground Acceleration at Site
San Andreas Fault				
South Santa Cruz Mountain Segment	7.0	?	40	0.20 g
San Gregorio Fault	7.7	500-600	18	0.30
Rinconada Fault	7.6	1900	3.5	0.50
Source: Rogers E. Johnson & Associates, September 5, 1994				

Based on the results summarized in Table 3, the maximum earthquake ground motion expected at the site is about 0.50 g from the maximum credible event on the Rinconada fault. This is adopted here as the "design" earthquake. The duration of strong shaking is dependent on magnitude. The duration of strong shaking associated with a magnitude 7.7 earthquake is estimated to be about 31 seconds.

**Impact:** The project site will likely be subject to severe ground shaking in the event of a major earthquake. The degree of potential property damage would vary with the magnitude and duration of the seismic event. *This is a significant impact that can be mitigated to a less-than-significant level by implementation of existing Uniform Building Codes and the following mitigation.*

### Mitigation

1. All engineering analysis and structural design shall incorporate the following design seismic parameters: 0.50g mean peak horizontal ground acceleration; 0.35g repeatable high ground acceleration; duration 31 seconds.
2. Incorporate recommendations concerning foundation design criteria included in the geotechnical feasibility study prepared for the project by Haro, Kasunich & Associates (Report # M4394).

### Ground Surface Rupture

No major mapped faults lie closer than 3.5 miles from the property. Therefore, the hazard from fault generated ground rupture on the site is low. *This is a less-than-significant impact. No mitigation is recommended or necessary.*

### Slope Stability

The property and surrounding terrain is essentially flat, consequently slope stability is not a significant issue. *This is a less-than-significant impact. No mitigation is recommended or necessary.*

### 4.4.3.3 Soil Hazards

#### Liquefaction

In addition to ground shaking, seismic disturbance could include liquefaction, soil densification and lateral spreading. Soil liquefaction is a phenomenon in which loose, saturated sandy soil deposit undergoes a loss of internal strength as a result of increased pore water pressure. These soils transform from a solid to a liquefied state as a result of reduced effective stresses within the soils mass. This behavior is commonly induced by strong ground shaking associated with earthquakes. Documented conditions for soils that have liquefied indicate that from a general standpoint, soils susceptible to liquefaction are sands of low to medium relative density, relatively free of silt and clay, and saturated. Variables required to induce liquefaction include duration of earthquake loading, earthquake acceleration, depth to groundwater, and the potential influence of man-made structures.

An analysis was performed using the preliminary assessment of the probable peak ground acceleration and current static ground water table elevation. Considering the depth to ground water, it does not appear likely the upper cohesionless material will be saturated throughout as ground water was not encountered in the deep borings. Consequently, the potential for liquefaction of the upper stratum in the project site is low. Densifications of the unsaturated cohesionless soils is possible, but should be somewhat uniform across the site. *This is a less-than-significant impact. No mitigation is recommended or necessary.*

#### 4.3.3.4 Consistency with Applicable Central Salinas Valley Area Plan Policies

15.1.1.1 (CSV) The Central Salinas Valley Seismic Hazards Map shall be used to delineate high seismic hazards areas addressed by the county wide General Plan. Areas shown as moderately high, high, and very high hazard shall be considered as "high hazard" areas for the purpose of applying General Plan policies.

**Consistency Analysis:** *The project site is located within a "low hazard" area according to the Seismic Hazards Map included in the Central Salinas Valley Area Plan.*

## 4.5 Water Quality and Supply

### 4.5.1 Introduction

This section of the EIR analyzes key issues related to ground water quality from: a) the subsurface disposal of treated wastewater, and 2) the drainage of storm water runoff into retention/infiltration basins. Both of these processes have the potential to introduce new pollutants into the local groundwater basin that could degrade the water quality for existing and potential water uses. This is of particular concern since the project itself proposes to utilize local ground water for a new domestic water supply system.

The following discussion is based on the "Water Issues" and "Sewage Disposal" sections of the Yanks Master Plan prepared for the project by P&A Consultants including the revisions and supplementary information dated May 15, 1996 (copies of these reports are on file with the County of Monterey). The conclusions and recommendations of that report were independently reviewed by Questa Engineering for inclusion in this EIR.

### 4.5.2 Setting

#### 4.5.2.1 Regional Hydrogeology

The proposed project is located in the Salinas Valley ground water basin. The Salinas Valley is 120 mile long, broad, flat bottomed drainage that flows northwest towards Monterey Bay in central coastal California. The valley is filled with river alluvium up to several hundred feet thick in the vicinity of the project.

This basin is commonly divided into four subareas for purposes of analysis: Pressure, East Side, Forebay, and Upper Valley. The project site is located within the Forebay subarea which extends from Gonzales to Greenfield. The alluvial deposits underlying the riverbed are deepest in the Forebay subarea and relatively shallow along the coast and at the southern end of the valley. The Upper Valley and Forebay subareas are unconfined and in direct hydraulic connection with the Salinas River.

The Pressure subarea is composed primarily of confined and semi-confined aquifers separated by clay layers (aquitards) that limit the amount of vertical recharge. These deposits include at least three separate fresh water aquifers labeled the "180-foot", "400-foot", and Deep Zone. Extensive groundwater pumping for agricultural, municipal, and industrial uses has affected the groundwater supplies of the basin in terms of both quantity and quality. Annual pumping in excess of recharge has caused a gradual lowering of water tables and pressure heads. This "overdraft" condition is the primary cause of salt water intrusion into the Pressure subarea. Both the 180-foot and 400-foot aquifers are in contact with the salt water of Monterey Bay which has intruded inland causing agricultural and

domestic water supply wells along the coast in the Pressure subarea to be abandoned<sup>3</sup>. The exact nature of the connection between the Deep Zone and the ocean is unknown, but it is assumed that some connection exists<sup>4</sup>.

The State Water Resources Control Board (SWRCB) is concerned about seawater intrusion and nitrate contamination in the Salinas Valley groundwater basin and has requested the County develop and implement an adequate plan to stop the seawater intrusion problem. The SWRCB has started the process for adjudication, in preparation for state takeover of local decision making over water resources management in the Salinas Valley<sup>5</sup>. The County is currently preparing a Draft Basin Management Plan and EIR which will recommend programs to address these issues. That document(s) is scheduled to be available in the beginning of 1997. At that time, the SWRCB will make a determination regarding pursuing the adjudication process.

A number of solutions to the seawater intrusion problem have been identified by the County at this time. The Monterey County Water Resources Agency (WRA) is currently working on water reclamation and irrigation projects to re-establish higher ground water levels by relieving pumping stresses in the aquifers in the Pressure and East Side subareas.

The Castroville Seawater Intrusion Project has been established to use reclaimed water from the Regional Water Pollution Control Agency (MPWPCA) wastewater treatment plant near Marina for crop irrigation in the Castroville area thereby reducing the need to pump ground water. Additional efforts to relieve overdraft in the East Side subarea are required to halt seawater intrusion.

The WRA has proposed the conjunctive use of surface water and ground water storage. Runoff is stored in San Antonio and Nacimiento Reservoirs and within the storage basin. ~~As proposed by the WRA, ground water extracted from wells in the Forebay and East Side subareas would be conveyed to the Pressure and East Side subareas. Monterey County is currently considering this project. The Monterey County WRA is in the process of developing the Salinas River Basin Management Plan (BMP). The BMP will address the sea water intrusion problem through conjunctive use - several alternatives, which are comprised of structural and non-structural components, are under consideration for the BMP. The Draft EIR and Draft Plan Document for the BMP should be out in early 1997.~~

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<sup>3</sup> *Physical Features and Natural Resources of Monterey County, December 1980.*

<sup>4</sup> *Hydrogeology and Water Supply of Salinas Valley, Monterey County Water Resources Agency, June 1995.*

<sup>5</sup> "Water Resources Quarterly", William F. Hurst, September, 1993.

#### 4.5.2.2 Regional Ground Water Quality

Total ground water storage in the basin is estimated in the millions of acre-feet. The usable storage of ground water is generally only a portion of total volume in storage because all of the ground water is not available for extraction without causing undesirable effects such as land subsidence, seawater intrusion, lower ground water levels, and depletion of supplies. Usable storage can be greatly influenced by the distribution of water extraction and recharge facilities, water management practices, and storage and distribution facilities.

The Salinas Valley basin is only slightly out of balance with total inflow to the aquifer system less than total outflow. Fresh water inflow consists of recharge from precipitation, streamflow, and recirculated irrigation water. Outflow consists of ground water extraction, which currently total 20,000 acre-feet per year (AFY) more than total fresh water inflow. Note that seawater inflow total 17,000 AFY. Therefore, the average fresh water deficit is 37,000 AFY in the basin.

Other factors affecting water quality in the Salinas Valley include nitrate increases in the Forebay and Upper Valley subareas. Nitrate contamination of ground water is considered a significant threat to the beneficial use of ground water for drinking water and for some agricultural uses. The principal source of nitrates in ground water is excess fertilizer that is leached by rainfall and applied irrigation water. Nitrates also originate from animal and human waste. The contribution of nitrate from various sources has been estimated at 90% from agricultural and 10% from urban sources such as wastewater treatment plants and individual septic systems. Nitrate contamination can be controlled in agricultural operations by integrated fertilizer and water management practices and from urban sources by conscientious well drilling, maintenance and operating practices.

In August 1995, the WRA published a monitoring report entitled "Nitrates in Ground Water, 1987-1993 Salinas Valley, California". The report provides a general overview of groundwater nitrate concentrations, geographical distribution, and trends over time. The Greenfield area, in which the project site is located, is indicated in the MCWRA report to have numerous water wells with nitrate concentrations exceeding the drinking water limit of 45 mg/l. But, the report offers no clear distinction of specific groundwater depths or localized areas where groundwater quality is better.

#### 4.5.2.3 On-Site Ground Water Quality

The project site is currently used for irrigated agriculture, primarily row crops. As such, a variety of agricultural chemical are applied to the land at various times during the year. These chemicals are most likely to include nitrogen-based fertilizers and a number of different fertilizers. There are no reported water quality problems associated with the current or historical agricultural operations on the site.

One of the on-site wells at the project site was sampled in December 1994 and analyzed for a broad range of water quality parameters. The depth to the water table is reported to be about 80 feet. The results are presented in Table 4, along with data for one of the Greenfield municipal supply wells and a list of the corresponding drinking water standards. As apparent from the table, the on-site well water quality is very poor as a source of domestic or municipal supply. Several water quality parameters, notably nitrate sulfate and total dissolved solids, are well in excess of established drinking water limits, making this well water unfit for potable use.

In contrast with the project site well water, the existing water quality for the Greenfield municipal supply wells is substantially better in terms of mineral content (TDS of 320 mg/l) and nitrates (19 mg/l). The Greenfield water supply system is in conformance with all drinking water quality standards.

#### 4.5.2.4 On-Site Ground Water Production

The project site is currently undeveloped and is used to grow row crops. Two existing agricultural well located approximately 300 feet apart on the site provide water for the existing agricultural operations. These wells combined produce 4,500 gallons per minute (gpm) at the well head with approximately 62 pounds per square inch (psi) of water pressure. ~~According to the applicant, existing water use on the ±111-acre project site is 1,969 acre feet per year (AFY). The present estimated agricultural use of water on the 111-acre site is 277 to 333 acre feet/year.~~

According to data compiled by the UC Agricultural Cooperative, average water use for irrigated crops in the central Salinas Valley is 2.5 acre feet per acre per year.

#### 4.5.2.5 Monterey County Regulations

The WRA has jurisdiction over matters pertaining to water within Monterey County, including both incorporated and unincorporated areas. The WRA is authorized to manage the ground water in the Salinas Valley Groundwater basin, and to conserve water, prevent waste, and prevent ground water extractions which are considered harmful to the present and future uses of the ground water basin.

**Table 4.**  
**Water Quality Data for Existing On-site Well  
& Greenfield Municipal Supply Well**

Parameter (mg/l)	On-Site Water Well (December 1994)	Greenfield Well #1 (1993)	Maximum Contaminant Level
<b>Primary Standards</b>			
<b>Clarity</b>			
Turbidity (NTU)	1.2	20.0	0.5
<b>Inorganic Chemicals</b>			
Aluminum	< 50	ND	1.0
Arsenic	< 2.0	ND	0.05
Barium	< 100	ND	1.0
Cadmium	< 1	ND	0.010
Chromium	< 10	ND	0.05
Fluoride	0.67	0.3	1.4 - 2.4
Lead	< 5.0	ND	0.05
Mercury	< 1.0	ND	0.002
Nitrate (as NO <sub>3</sub> )	92	19.0	45.0
Selenium	-	ND	0.01
Silver	10	ND	0.05
<b>Secondary Standards</b>			
Color (units)	5	20.0	15
Odor-Threshold (units)	ND	< 1.0	3
Chloride	220	17.0	500
Copper	< 50	ND	1.0
Foaming Agents (MBAS)	1.5	< 0.05	0.5
Iron	< 100	ND	0.3
Manganese	< 30	ND	0.05
Sulfate	760	90.0	500
Zinc	< 50	ND	5.0
Total Dissolved Solids	1,737	320	1,000
<b>Additional Constituents Analyzed</b>			
pH (in units)	7.35	7.8	No Standard
Hardness (as CaCO <sub>3</sub> )	1,300	230	No Standard
Sodium	108	23.0	No Standard
Sodium	357	63.0	No Standard
Calcium	-	3.0	No Standard
Potassium	100	17.0	No Standard
Magnesium	315	160	No Standard
Total Alkalinity (as CaCO <sub>3</sub> )	< 1	< 1.0	No Standard
Hydroxide	< 2	< 1.0	No Standard
Carbonate	315	200	No Standard
Bicarbonate	2,470	ND	No Standard
Specific Conductance			

In response to continued overdraft conditions in the Salinas Valley basin contributing to the intrusion of seawater into the basin along the coast, the County Board of Supervisors adopted a water conservation and allocation ordinance in March, 1994. Under County Ordinance 3744, each water district within the County must develop and implement an urban water conservation and allocation plan to reduce consumption to 85% of their 1987 water consumption. As of January 1996, the County has not yet developed such a plan for the unincorporated county jurisdiction.

Nitrate in drinking water can have serious health effects and is addressed through primary drinking water standards. The limit is 45 mg/l as NO<sub>3</sub> and 10 mg/l as N<sup>6</sup>. Since the Salinas Valley ground water basin serves as a major source of water supply, nitrate effects from sewage disposal, agricultural operations and other land use activities are of concern in the project area. In 1991, the County adopted an ordinance (Code Chapter 15.23) which specifically limits the nitrate-nitrogen discharge from wastewater reclamation/land disposal facilities to a maximum concentration of 6.0 mg/l. This criterion is established to assure that the percolating wastewater is within the drinking water limit of 10.0 mg/l, including a reasonable factor of safety.

#### **4.5.3 Impacts and Mitigation Measures**

##### **4.5.3.1 Standards of Significance**

In accordance with CEQA Guidelines, a project will normally have a significant effect on the environment if it will substantially degrade or deplete ground water resources; interfere substantially with ground water recharge; or use water in a wasteful manner.

##### **4.5.3.2 Ground Water Quality**

The applicant has submitted a report (by P & A Consultants) which describes a proposed plan for obtaining the domestic water supply for the project, as well as the supply for fire protection. Under the plan, two options are identified. Under option #1, a new on-site water well would be drilled and developed to supply domestic uses, fire flow requirements, and landscape irrigation needs. The existing agricultural wells, in conjunction with tertiary treated wastewater, would continue to supply irrigation water for portions of the 440-acre property that will remain in agricultural use. Under option #2, the domestic uses fire flow and landscape irrigation water supply would be provided by connection to the City of Greenfield water system. The P&A Consultants report includes considerable detail relative to the location and capacity of fire hydrants and the overall construction and phasing of the water distribution system. Under option #1, a 500,000 gallon water tank would be constructed on-site to meet fire flow requirements. Under option #2, fire flow needs would be met by a future 1,000,000-gallon tank to be constructed in the immediate area by the City.

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<sup>6</sup> 1.0 mg/l as N is equal to 4.43 mg/l as NO<sub>3</sub>.

### Nitrate Loading Analysis

To assess the nitrate loading effects of the project, two analyses have been made: first, the annual mass loading of nitrogen (in pounds) was estimated and compared with the existing agricultural use of the property. Secondly, a water-chemical mass balance analysis was constructed to provide an estimate of the projected concentration of nitrate in percolating recharge waters (i.e., percolate) beneath the site.

**Existing Conditions:** Under existing conditions, the annual mass loading of nitrogen is a function of the amount of nitrogen-based fertilizer applied for cultivation of row crops. The annual amount of nitrogen-fertilizer applied to row crops is estimated to be in the order of 150 pounds per acre (lbs/acre). Since the on-site well water apparently has high nitrate concentrations, this can satisfy some of the nutrient requirements of the crops, thus reducing the amount of fertilizers that is actually applied. For the purposes of this analysis it is assumed that this is properly accounted for by the farmer(s), such that the combined total amount of applied nitrogen (from fertilizer and the irrigation supply) meets the fertilizer needs. Ideally, the nitrogen is applied just to match the crop requirements. However, losses to percolation and runoff are unavoidable. A nitrogen fertilizer efficiency of 75 percent (i.e., 25% losses) is a reasonable estimate for irrigated agriculture. Therefore, the nitrogen losses to the ground water for row crops is estimated to be about  $(0.25) \times (150 \text{ lbs/acre}) = 37.5 \text{ lbs/acre}$  per year. For the 111-acre site, the total current annual nitrogen loading to ground water is roughly estimated to be about 4,160 lbs.

**Project Conditions:** Under the proposed project, the current fertilizer use for row crops will be replaced with up to 20 acres of vineyard and landscaping (up to 25 acres). Also the project proposes to treat and dispose of domestic sewage via spray irrigation of agricultural crops (i.e., reclamation). The estimated annual mass loading of nitrogen from these sources is as follows:

- **Vineyards.** Nitrogen fertilizer requirements for wine grapes are roughly one-third of that for traditional row crops, or about 50 lbs/acre per year. As above, the fertilizer value of the nitrate in the irrigation water is assumed to be taken into account. Assuming a similar 75% fertilizer intake, the remaining 25%, 12.5 lbs/acre, is projected to be lost to percolation in the vineyard or in the onsite storm water infiltration basins. For 20 acres of vineyard, this amounts to an annual nitrogen-ground water loading of about 250 lbs.
- **Landscaping.** Nitrogen fertilizer requirements for landscaping can be equal to or greater than crops. Using the highest demand, that for turf grass, the annual nitrogen application rate would be about 200 lbs/acre. Again, assuming 25% losses to runoff and deep percolation, the annual loading from 25 acres of fertilized landscaping would be about 1,250 lbs. This would be the highest or worst-case scenario.
- **Wastewater Reclamation.** The treated wastewater will be required, by County ordinance, to meet a maximum nitrate-nitrogen concentration of 6.0 mg/l. The applicant estimated the annual volume of wastewater generated for reclamation to be approximately 70,000 gallons per day, or 25.55 million gallons per year. It is estimated that approximately 75% of the nitrate in the wastewater will be utilized by the crops, and that the remaining 25%

will pass through the root zone and percolate downward to the ground water. The mass loading of nitrogen from the wastewater is calculated from these assumptions to be:

$$\text{Mass Loading} = (8.34)(22.55 \text{ million gallons})(6.0 \text{ mg/l})(0.25) = 282 \text{ lbs/year}$$

The total mass loading of nitrogen to ground water from the project would be estimated as the sum of the above three sources or:

Vineyard:	250 lbs/year
Landscaping:	1,259 lbs/yr
Wastewater Reclamation	<u>282 lbs/year</u>
Total	1,791 lbs/year

As compared with the estimated annual nitrogen loading of 4,160 lbs/year from the existing agricultural uses, the proposed project will result in a reduction of about 2,369 lbs of nitrogen per year, a reduction of 57%.

#### Water Chemical Mass Balance

The average long-term concentration of percolating recharge water, including wastewater and site drainage waters, can be estimated from the previously calculated mass nitrogen loading and the estimated annual volume of recharge water. The nitrogen mass loading was estimated above to be approximately 1,791 lbs/year. The annual recharge volume includes approximately 22.55 million gallons or 78.4 acre-feet of wastewater, plus recharge of rainfall runoff via the on-site infiltration basins. The applicant's engineer has estimated the annual recharge of captured runoff to be 15.69 acre feet. Additionally, there will be a small amount of direct rainfall percolation-recharge over the approximately 65 acres of the site that will be used for landscaping and vineyards and other permeable surfaces. The combined recharge from these three sources is approximately 100 acre-feet per year, or roughly 32.6 million gallons per year. The combined nitrate-nitrogen concentration is then estimated to be:

$$\begin{aligned} N_c &= (1,791 \text{ lbs/year}) + [(8.34)(32.6 \text{ million gallons})] \\ N_c &= 6.6 \text{ mg/l} \end{aligned}$$

From this calculation, it appears that the reduction in mass nitrate loading due to the project will result in a projected concentration of percolating recharge water that is well within the drinking water limit of 10.0 mg/l. This is a worst-case analysis since it includes an estimate of maximum landscaping with turf grass requiring high fertilizer use. The nitrogen percolate concentration can be reduced even further below the County's target of 6.0 mg/l if turf grass landscaping is minimized in favor of native and drought tolerant vegetation which require minimum fertilizer application.

**Impact:** The projected concentration of percolating recharge water will be below the drinking water limit of 10.0 mg/l of nitrogen, but slightly above the County's target concentration of 6.0 mg/l of nitrogen. This is a significant impact which can be reduced to a less-than-significant level with implementation of the following mitigation measure.

## Mitigation

3. The applicant shall submit a landscaping plan subject to the review and approval of the Monterey County Planning Department which describes the methods to be employed to ensure that trees and plants that do not require high nitrogen-based fertilizer use are maximized on the site, and that plants such as turf grass which require high fertilizer use are minimized.

### On-site Well Water Quality

Although the quantity of water from existing on-site wells is adequate for the needs of the project, the water quality is unacceptable for domestic uses. The mineral content (e.g., TDS and sulfate) are in excess of secondary drinking water standards, which are based on consumer acceptance criteria. More importantly, the nitrate concentration of 92 mg/l in the well water exceeds the primary drinking water standard of 45 mg/l. The nitrate limit is based on public health criteria. The well water cannot be used for domestic supply unless the nitrate is removed by treatment and the project includes no provision for water treatment. Even then, it is the policy of Monterey County to not approve water supplies for new development that require treatment to meet primary drinking water standards, e.g., for nitrates. To be feasible the project requires the development of an alternate source of domestic water supply. The applicant's engineer has indicated that a new on-site well will be drilled and developed, but there is no concurrence that a new well will have adequate quality without testing.

By correspondence of November 1994 and September 1995, the City of Greenfield has indicated the ability to and interest in extending domestic water service to the project site. The City has sufficient source capacity and adequate water quality from their municipal wells. According to the City Public Works Director, water service to the property would be accomplished with the extension of a 12-inch diameter water main approximately 1¼ miles long, at an estimated cost of about \$310,000. The water main would connect to the existing City distribution system in the vicinity of ~~Walnut Street~~ Pine Avenue and El Camino Real on the north side of the City.

**Impact:** The water quality of the onsite wells is unacceptable for domestic uses. The mineral content (e.g., TDS and sulfate) are in excess of secondary drinking water standards, which are based on consumer acceptance criteria. More importantly, the nitrate concentration of 92 mg/l in the well water exceeds the primary drinking water standard of 45 mg/l. The well water cannot be used for domestic supply unless the nitrate is removed by treatment and the project includes no provision for water treatment. The applicant's plan to develop a new on-site water well with better quality has not, thus far, been proven feasible. *This is a significant impact that can be mitigated to a less-than-significant level by implementation of the following mitigation.*

## Mitigation

4. To ensure a suitable source of potable water for the project, the applicant shall install necessary pipeline facilities and obtain water service from the City of Greenfield. ~~This will include the requirement for annexation to the City, which requires LAFCO approval. Annexation to the City of Greenfield is not required - LAFCO could consider extending services in accordance with Government Code 56133.~~

Alternatively, if the applicant elects not to obtain domestic water service from Greenfield in favor of on-site groundwater, then additional investigations, testing and engineering studies shall be completed to verify the ability to provide an on-site domestic water supply that meets all applicable drinking water requirements. If this option is pursued it shall constitute a "future study" that would be subject to additional environmental review in accordance with CEQA.

### 4.5.3.3 Ground Water Supply

Water supply for the proposed project is proposed to be provided either by a new on-site well or connection to the City of Greenfield water system to satisfy the fire protection, domestic and landscaping needs of the project. The existing on-site wells would continue to provide the irrigation water supply for the adjacent 329 acres of row crop farming. By reclaiming treated wastewater for irrigation crops, including the adjacent farm land and the proposed vineyard, the project will reduce the amount of water required to be pumped from on-site wells.

**Operation and Maintenance.** An on site well water supply that meets all drinking water standards would be the simplest alternative from an operation and maintenance (O+M) standpoint. Extension of water service from Greenfield would require somewhat greater O&M for the distribution system. An on site water treatment plant would require substantially more O & M than either of the other alternatives.

**Regulatory Compliance.** The Greenfield water system meets all drinking water standards. There is uncertainty as to whether or not an on-site well can be developed that meets drinking water standards. An on-site well requiring treatment would have even greater uncertainty and difficulties associated with regulatory compliance.

**Public Health Risk.** The rating of the water supply alternatives in terms of public health risk is based on regulatory compliance. The Greenfield system is an established, proven supply that meets public health criteria. The on site well options presently pose uncertainty as to the ability to meet minimum public health requirements.

**Water Conservation.** An on site treatment plant (e.g., for reduction of minerals or nitrate concentration) could involve the production of a brine waste stream, requiring greater pumping of groundwater.

**Energy Use.** Construction and operation of an on-site water treatment plant would have the greatest energy requirements. Piping of water from Greenfield to the project site would have slightly greater energy requirements than an on-site well. However, this could change, depending upon how deep an on-site well would have to be drilled to obtain suitable water quality.

As indicated in the summary shown in Table 4A, connection to the City of Greenfield and the development of an on-site well not requiring treatment would be roughly equal with regards to environmental impacts.

#### Domestic Peak Flows

Peak flows for domestic use for the Project will be approximately 200 gpm for a three hour period during midday with two lesser peaks in the early morning and early evening.

#### Fire Flow

Fire flow requirements for the project are intended to be supplied from a water storage tank. If an on-site water well is proven to be feasible (from a water quality standpoint), then the project will include a 500,000 gallon on-site water tank. If the project is committed to the Greenfield water system, the fire flow would be obtained from the City's mains and a new ~~400,000~~ 1,000,000 gallon storage tank to located near the project.

<b>Table 4A Comparative Ranking of Water Supply Alternatives*</b>			
<b>Impact Issue</b>	<b>On-Site Well</b>		<b>Connection to Greenfield Water System</b>
	<b>No Treatment Required</b>	<b>With Treatment Plant</b>	
<b>Operation and Maintenance</b>	<b>1</b>	<b>3</b>	<b>2</b>
<b>Regulatory Compliance</b>	<b>2</b>	<b>3</b>	<b>1</b>
<b>Public Health Risk</b>	<b>2</b>	<b>3</b>	<b>1</b>
<b>Water Conservation</b>	<b>1</b>	<b>2</b>	<b>1</b>
<b>Energy Use</b>	<b>1</b>	<b>3</b>	<b>2</b>
<b>Total</b>	<b>7</b>	<b>14</b>	<b>7</b>
Source: Questa Engineering Corporation, Nov. 1996. * Low score = best ranking			

The quantity of water necessary for fire protection varies with the type of development, occupancy, and the degree of fire hazard. The adequacy of fire flow for a given area is based on required fire flow, response distance from the existing fire station, and the Fire Marshal's judgement of needs in the area. Required fire flow is directly related to land use. According to the fire district, improvements to the proposed water system will be required pursuant to the Monterey County General Plan recommendations to provide sufficient fire flow rates and durations.

Fire protection planned for this project will provide for fire hydrant spacing of approximately 350 feet. The flow for each hydrant will be a minimum of 750 gpm with a 20 psi residual water pressure.

The applicant proposes that the winery, museum, hanger, hotel and the northerly commercial buildings will have the ability to have 4 fire hydrants flowing simultaneously providing 3,000 gpm. ~~The applicant is not proposing fire sprinklers.~~

Potable Water Demand

The project will rely upon the Salinas Valley Groundwater Basin for water supply and has the potential to affect long-term groundwater levels and yield from the Basin. The applicant's engineer has estimated the average domestic water demand for the project to be as follows:

Winery	=	5,800 gpd
Museum	=	7,375 gpd
Hanger	=	875 gpd
Service Stations	=	3,750 gpd
Fast Food Restaurants	=	8,750 gpd
Retail Commercial	=	1,500 gpd
Hotel	=	28,780 gpd
Restaurant	=	<u>8,450 gpd</u>
Total Domestic Demand	=	<del>78,280 gpd</del> <u>65,280 gpd</u>

These estimates were established as 125% of the estimated sewer flow from the various features of the project (see section 4.7.3.2) These estimates are reasonable for the proposed visitor-serving project. For example, the estimate of 28,780 gpd for the 150-room hotel is equivalent to about 190 gpd/hotel room which is consistent with literature values. Assuming full occupancy/usage of the facilities year-round, this domestic water demand equates to an average annual water use of approximately 88 acre-feet.

The irrigation water requirement for landscaping (up to 25 acres) and vineyards (up to 20 acres) have been estimated by the applicant's engineer to have annual water demands of 5.65 acre-feet and 9.04 acre-feet, respectively. These estimates are unrealistically low. Using an estimated crop water requirement of 36 inches/year (3 feet) for turf grass and 9 inches (0.75 feet) for wine grapes gives the following projected annual irrigation water demand.

• Landscaping - 25 acres @ 3'/acre	=	75 acre-feet
• Vineyards - 20 acres @ 0.75'/acre	=	<u>15 acre-feet</u>
Total Project Irrigation	=	90 acre-feet

This estimated irrigation requirement is the maximum expected for the project. It would be reduced with less irrigated area and the extensive use of drought tolerant landscaping and drip irrigation systems incorporated in the project design.

The project also includes an artificial lake, covering approximately 2 acres and holding up to about 8 acre-feet of water. The water supply to maintain the lake will come from direct precipitation and ground water from on-site wells. The applicant's engineer has estimated the net annual evaporative loss of water from the lake to be 2.58 acre-feet, or 15.5 inches. The documentation for this estimate is not provided, and it appears to be low. Based on average annual rainfall of about 10.5 inches for the project area, and an approximate lake

evaporation rate of 55 inches per year, the net evaporation loss is more likely to be on the order of about 45 inches per year. For the proposed 2-acre lake, the annual make-up requirement to compensate for evaporation would be approximately 7.5 acre-feet, rather than the 2.58 acre-feet estimated by the applicant's engineer.

On the other side of the equation, by reclaiming treated wastewater for irrigation of crops, the project will reduce the amount of water required to be pumped from on-site wells. This amounts to an annual savings of about 78.4 acre-feet.

**Impact:** The total average annual water demand for the project (domestic supply, irrigation water, and lake evaporation) is estimated to amount to 185.5 acre-feet. This represents a reduction in ground water pumping of approximately 170 to 226 acre-feet/year as compared with the present estimated agricultural use of water on the 111-acre project site of 277 to 333 acre-feet/year. The preceding estimate of net reduction in local ground water pumping is applicable if the project obtains its entire water supply from on-site wells. *This represents a net positive effect on ground water in the immediate project area and the Salinas Valley as a whole.*

As discussed earlier in regard to ground water quality, the project may need to elect to obtain a portion of its water supply from the City of Greenfield. If so, this would most likely be limited to meet the domestic water supply needs and landscape irrigation, which amount to an estimated 178 acre-feet per year. The 7.5 acre-feet of lake make-up water could be supplied from the on-site wells. Under this scenario, the benefit to the local ground water would be even greater because of the off-site (Greenfield) domestic supply plus the reuse of treated wastewater for irrigation (78.4 acre-feet per year), amounting to an annual reduction of nearly 250 acre-feet of local pumping.

However, the City of Greenfield's water supply also is from wells and there would be a substantial increase in pumping needed at the City's wells to supply domestic water to the project. In regard to the Salinas Valley ground water basin as a whole, the net beneficial effect would not change regardless of whether the water comes from on-site wells or the City of Greenfield. Also the preceding estimates of water use and ground water pumping impacts are based on the fully developed project. During the construction phases the benefits to the ground water basin will be even greater. This is because the existing agricultural use of the site (and its accompanying irrigation demands) will have to cease when the initial site development begins, and the full water needs for the project will take years to be realized as the development is built and occupied. *While this is a beneficial impact of the project, the following water conservation measures should be implemented to prevent waste and reduce pumping from the ground water basin.*

## Mitigation

5. Should the County require the use of an on-site wastewater treatment plant, the applicant shall submit a wastewater treatment plant design subject to the review and approval of the Monterey County Health Department and Public Works Department, which provides for the safe and convenient use of reclaimed water on the adjacent farmlands owned by the applicant, and the proposed vineyard.
6. Design of the proposed project facilities shall include provisions to minimize impacts on the ground water basin by implementing water conservation practices. At a minimum, these design considerations include:
  - Use of low-flow fixtures, including shower heads with a maximum flow capacity of 2.5 gallons per minute and toilets using 1.5 gallons per flush.
  - Use of low water use or native plant material and low precipitation sprinkler heads, bubblers, drip irrigation system and timing devices.
7. Design of the proposed detention ponds shall include provisions to increase infiltration rates for runoff such that detention ponds function as percolation ponds.

### Construction Impacts

Construction water demands fall into two primary categories, water required for fill placement, and water required for temporary purposes such as dust control.

Water use for temporary purposes is heavily dependent on the construction schedule. Assuming a construction schedule which includes 4 weeks of intensive grading and 8 weeks of intermittent grading, and assuming water use at 6,000 gallons/day, 5 days per week for weeks of intensive grading and 3 days per week for 8 weeks of intermittent grading, it is estimated that approximately 215,000 gallons of water would be required for temporary purposes.

**Impact:** Construction related water use could total almost 0.65 acre-feet. *While this is a temporary, less-than-significant impact affecting relatively small volumes of water, the use of non-potable water should be encouraged to ensure that domestic water supply impacts are reduced to the greatest extent possible.*

## Mitigation

8. Water supplied for fill compaction and dust minimization shall be reclaimed or subpotable where feasible.

### 4.5.3.4 Consistency with Applicable Central Salinas Valley Area Plan Policies

5.1.2.0 (CSV) Areas identified by the County as prime ground water recharge areas shall be preserved and protected from sources of pollution. Development in prime ground water recharge areas shall be restricted to land uses which will not cause ground water contamination as determined by the Director of Environmental Health.

**Consistency:** *The project, with implementation of recommended mitigation measures, will reduce nitrate-nitrogen loading compared with existing levels. The project is consistent with this policy.*

6.1.3 (CSV) New development shall be phased to ensure that existing ground water supplies are not committed beyond their safe-long term yields in areas where such yields can be determined by both the Director of Environmental Health and the Flood Control and Water Conservation District (renamed the Water Resources Agency). Development levels which generate a water demand exceeding the safe-long term yields of local aquifers shall only be allowed when additional-satisfactory water supplies are secured.

**Consistency:** *The total net average annual water demand for the project (domestic and irrigation water) is estimated to amount to 107 acre-feet. This represents a reduction in groundwater pumping of approximately 170 to 226 acre-feet/year as compared with the present estimated agricultural use of water on the 111-acre project site of 277 to 333 acre-feet/year. This represents a net positive effect on groundwater in the immediate project area and the Salinas Valley as a whole. The project is consistent with this policy.*

6.3.2 (CSV) New development which will have a high water use potential should be approved in accordance with an integrated, basin wide, long-range-water-resource plan which will be developed by the County.

**Consistency:** *The project does not conflict with this policy.*

21.1.2.1 (CSV) Groundwater recharge areas must be protected from all sources of pollution. Groundwater recharge systems shall be designed to protect groundwater from contamination and shall be approved by both the Director of Environmental Health and the Flood Control and Water Conservation District (renamed the Water Resources Agency).

**Consistency:** *The project, with implementation of recommended mitigation measures, will reduce nitrate-nitrogen loading compared with existing levels. The project is consistent with this policy.*

21.3.1.4 (CSV) Development shall meet both water quality and quantity standards expressed in Title 22 of the California Administrative Code and Title 15.04 of the Monterey County Code subject to review of the Director of Environmental Health.

**Consistency:** *The existing onsite wells are proposed to be used for potable water and do not currently meet state or county water quality standards. Treatment for nitrate contamination is costly and has not been proposed. It is recommended that the project connect to the Greenfield Municipal water supply which does meet water quality standards. The project, with implementation of mitigation measures recommended in this EIR, is consistent with this policy.*

## **4.6 Surface Hydrology and Drainage**

### **4.6.1 Introduction**

This section of the EIR analyses the existing hydrology in the vicinity of the site and changes expected due to development of the project in terms of runoff and recharge. This analysis summarizes technical data prepared for the project by P&A Consultants (a copy of this report is on file with the County of Monterey Planning Department) and reviewed by Questa Engineering for this EIR.

### **4.6.2 Setting**

#### **4.6.2.1 Watershed Summary**

The Salinas Valley has a climate typical of Central Coastal California inland valleys, receiving the majority of its rainfall in the winter season, from October to April. Average annual rainfall in the project region ranges from a high of about 14 inches per year along the margins of the basin to about 11 inches per year towards the center of the basin. Average annual rainfall in the city of King City, roughly in the center of the basin, for the period of 1950 to 1993 was 11.17 inches per year.

The principal drainage in the project area, the Salinas River, drains an area of about 5,000 square miles. Prior to development of the San Antonio and Nacimiento reservoirs, the river flowed primarily during and shortly after the rainy season. River flow is now maintained through summer months by release from these reservoirs.

#### **4.6.2.2 Existing On-site Drainage**

The project site is located on a flat to gently sloping alluvial terrace in the center of the Salinas Valley. The land slopes generally in a north to northeasterly direction towards the Salinas River.

There are no streams or defined drainage channels on or near the project site. Because of the flat topography, lack of any buildings or impervious surfaces and permeable alluvial soils, a large percentage of the rainfall percolates readily into the soil and there is very little runoff from the site. When rainfall is heavy enough to cause runoff, the runoff generally consists of sheetflow in several broad drainage swales that traverse the property in a southwest-to-northeast direction.

Drainage onto the site from upstream areas historically included a narrow tributary area of 100-plus acres extended approximately a mile to the southwest of the site. However, construction of Highway 101, immediately west of the site, cut off the drainage from this upstream area. Presently, off-site drainage onto the site is limited to the runoff from the east side of the Highway 101 freeway right-of-way and the adjoining frontage road. The offsite tributary drainage area amounts to about 25 acres, about 36% of which is paved. Under current conditions some of this offsite runoff ponds alongside the frontage road, some percolated into the soil, and some flows onto the project site. The project site is not in a

flood prone area and has no existing drainage problems. Figure 13 depicts the existing drainages on the site.

### **4.6.3 Impacts and Mitigation Measures**

#### **4.6.3.1 Standards of Significance**

In accordance with CEQA Guidelines, a project would normally be considered to have a significant impact if increased runoff may exceed capacity of storm drain facilities or cause downstream or offsite drainage problems; if increased runoff would result in potential water quality degradation or lead to significant increases in erosion and sedimentation; or if the project would be constructed within a flood hazard zone.

#### **4.6.3.2 Proposed Drainage Plan**

The project will convert existing farmland to a visitor-serving facility with large paved areas, roads, buildings, and other developed landscaped areas. This will result in a substantial increase in the amount of impervious surfaces and will generate significant runoff and drainage needs, which currently do not exist. The applicant's drainage plan is detailed in a report prepared by P&A Consultants. The plan calls for the installation of various drainage "V" ditches and underground piping to collect all onsite and offsite runoff (i.e., the Highway 101 right-of-way drainage) and to convey the runoff to a series of onsite retention-infiltration basins on the north and northeast side of the site. Four infiltration basins are proposed, with acreages and contributing drainage areas.

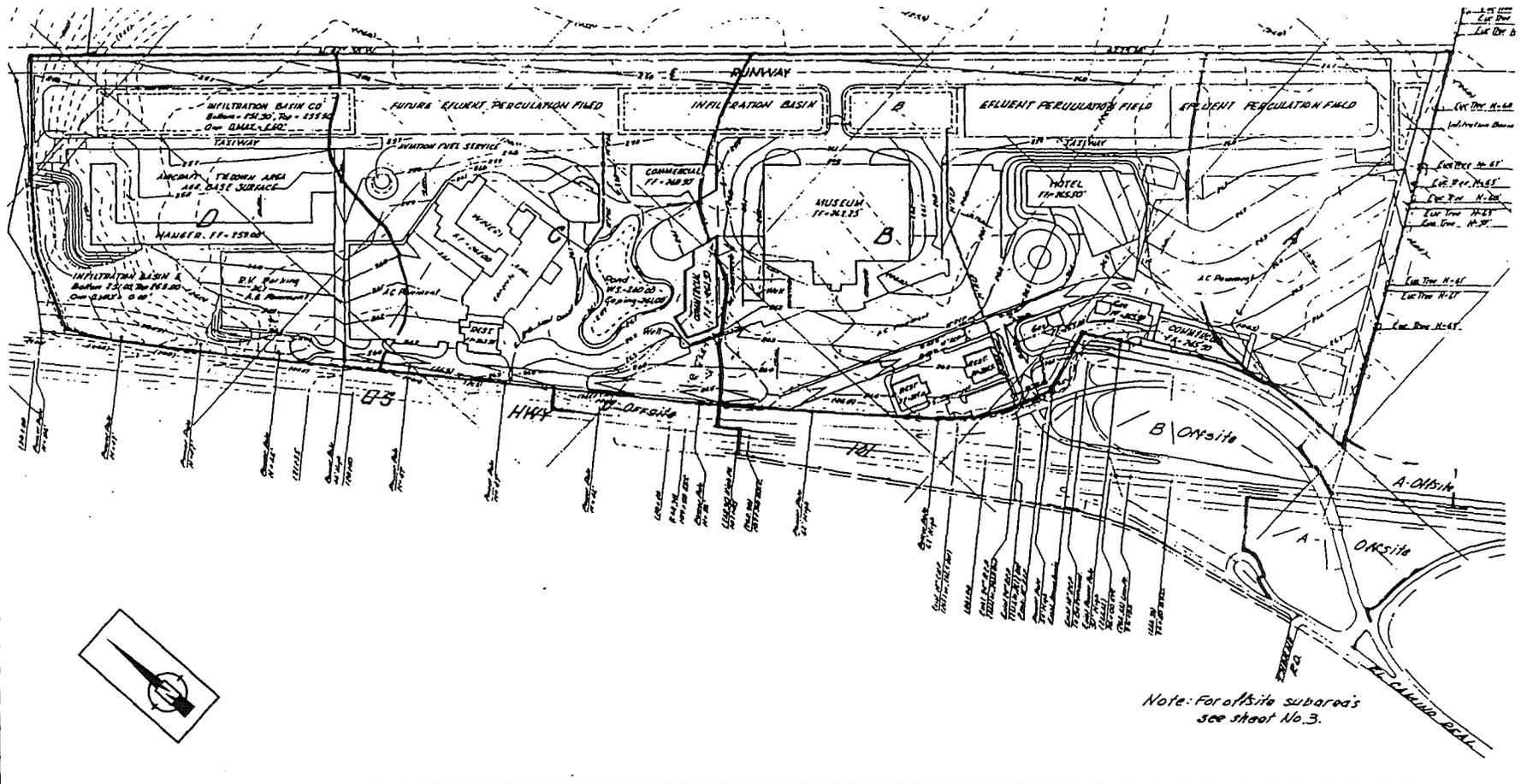
The retention-infiltration basins are planned to be shallow, with a maximum depth of three feet. Sizing of the basins was determined by P&A Consulting based on the projected runoff from a 24-hour, 100 year storm flow, and accounting for a uniform infiltration rate of 2-inches per hour. A small lake, proposed as a visual amenity, is also planned to be included in the project. The lake would be supplied by rainfall and pumping of ground water.

**D**  
 A = 23.55 Ac.  
 C = 0.20  
 L<sub>25</sub> = 19.17 Min.  
 Q<sub>25</sub> = 4.33 CFS  
 L<sub>100</sub> = 19.17 Min.  
 Q<sub>100</sub> = 5.36 CFS

**C**  
 A = 26.50 Ac. (Onsite)  
 A = 27.28 Ac. Gross  
 C = 0.21  
 L<sub>25</sub> = 33.53 Min.  
 Q<sub>25</sub> = 3.91 CFS  
 L<sub>100</sub> = 33.53 Min.  
 Q<sub>100</sub> = 4.86 CFS

**B**  
 A = 37.86 Ac. (onsite)  
 A = 56.51 Ac. Gross  
 C = 0.28  
 L<sub>25</sub> = 45.98 Min.  
 Q<sub>25</sub> = 9.31 CFS  
 L<sub>100</sub> = 44.80 Min.  
 Q<sub>100</sub> = 12.18 CFS

**A**  
 A = 16.48 Ac. (onsite)  
 A = 22.43 Ac. Gross  
 C = 0.27  
 L<sub>25</sub> = 41.08 Min.  
 Q<sub>25</sub> = 3.86 CFS  
 L<sub>100</sub> = 40.83 Min.  
 Q<sub>100</sub> = 4.90 CFS



Note: For offsite subarea's see sheet No.3.

DENISE DUFFY & ASSOCIATES

Hydrology and Drainage Map - Undeveloped Condition

Figure 13

#### 4.6.3.2 Drainage System Capacity

The P&A Consultants drainage report provides detailed calculations of the projected peak runoff conditions for the developed project, based on the rational Method and utilizing standard rainfall intensities for the County drainage reference charts. A runoff coefficient ("C" value) of 0.2 and 0.9 was used, respectively, for undeveloped and developed areas.

The assumptions and calculations for site runoff and infiltration were reviewed for this EIR and were found to be reasonable and accurate for planning purposes. The critical aspect of the drainage system is the performance of the infiltration basins, i.e., the drainage or infiltration capacity. The design rate of 2 inches per year hour is very reasonable for the coarse textured alluvial soils which are reported to underlay the project site. Percolation testing at depths of 5, 10, and 15 feet have shown rates of 22 to over 500 inches per hour. These tests confirm the very permeable nature of the soils at the site, and show that there is no apparent clay layer or other subsurface condition that would restrict downward percolation from the storm water infiltration basins. As long as the surface of the basins is maintained free of debris, silt, and oil buildup and "matting" by decaying vegetation, the drainage capacity of the proposed infiltration basins should adequately serve the long-term needs of the project.

**Impact:** While the drainage plan is adequate as proposed, no provision for maintenance has been provided in the Master Plan. Since maintenance affects the long-term viability of the proposed drainage system, *this is a potentially significant impact which can be reduced to a less-than-significant level with implementation of the following mitigation measure.*

#### **Mitigation**

9. The applicant shall submit a comprehensive plan for drainage system maintenance, subject to the review and approval of the Monterey County Public Works Department. At a minimum, the plan should address the design features, personnel, equipment, scheduling, and procedure for cleaning and maintenance of the infiltration basins to prevent the development of nuisance conditions and to maintain the long-term infiltration capacity of the basin soils.

#### 4.6.3.3 Drainage Water Quality

The U.S. Environmental Protection Agency has regulations for NPDES (National Pollutant Discharge Elimination System) permitting of storm water discharge. These regulations are implemented in California by the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB). In order to reduce or prevent pollutants resulting from construction activities from entering storm water discharge as required by the SWRCB and any other applicable regulations, the applicant must obtain a General Construction Activity Storm Water Permit from the SWRCB. Generally, this permit requires that the applicant submit a Notice of Intent (NOI), develop and implement a Storm Water Pollution Prevention Plan (SWPPP), and establish a monitoring and certification program. The SWPPP shall, at a minimum, include the following general measures (refer to Appendix C for a detailed description of applicable Best Management Practices):

- Minimize exposure of disturbed areas.
- Stabilize disturbed areas except where active construction is taking place.
- Protect slopes and channels.
- Control site perimeter.
- Control internal erosion.

**Impact:** Storm water discharges associated with construction activities where clearing, grading, and/or excavation of land occurs would have the potential for polluting the waters of the United States. *This is a significant impact which can be reduced to a less-than-significant level through implementation of the following mitigation measure.*

### **Mitigation**

10. The applicant shall submit evidence of a General Construction Activity Storm Water Permit obtained from the RWQCB to the Monterey County Planning and Building Inspection Department.

#### 4.6.3.3 Groundwater Recharge

With the exception of direct rainfall on the lake that later evaporates, the proposed drainage plan provides for complete capture and onsite recharge of rainfall into the ground. Under present conditions, substantially all existing rainfall percolates readily onsite with very little runoff leaving the property as surface flow. Despite the conversion of a large percentage of the 111-acre site to impervious surfaces, the proposed drainage plan will provide for maintenance of the existing rate of ground water recharge, and it will likely increase the recharge to a small degree. *The effect of the project on ground water recharge will be beneficial and a less-than-significant impact.*

#### 4.6.3.4 Consistency with Applicable Central Salinas Valley Area Plan Policies

5.1.2.1 (CSV) Development shall be designed to maintain ground water recharge capabilities on the property.

**Consistency:** *Despite the conversion of a large percentage of the 111-acre site to impervious surfaces, the proposed drainage plan will provide for maintenance of the existing rate of ground water recharge, and it will likely increase the recharge to a small degree. The project is consistent with this policy.*

5.1.2.2 (CSV) The County should identify and protect areas in the Central Salinas Valley which are valuable for the purposes of either natural-ground water recharge or the development of artificial-ground water recharge projects. Development shall not diminish the ground water recharge capabilities of such areas, especially those which are highly susceptible to water quality degradation because of either high water tables or rapid percolation rates. Existing agricultural land uses in such areas should be maintained to preserve ground water quality.

**Consistency:** *Despite the conversion of a large percentage of the 111-acre site to*

*impervious surfaces, the proposed drainage plan will provide for maintenance of the existing rate of ground water recharge, and it will likely increase the recharge to a small degree. The project is consistent with this policy.*

16.2.1.1 (CSV) Site plans for new development shall indicate all flood plains, flood hazards, perennial or intermittent streams, creeks, and other natural drainages. Development shall not be allowed to occur within these drainage courses nor shall development be allowed to disturb the natural banks and vegetation along these drainage courses, unless such disturbances are approved by the Flood Control and Water Conservation District. Development shall adhere to all regulations and ordinances related to development in flood plains.

*Consistency: The project site is not in a flood-prone area and has no existing drainage problems. The project is consistent with this policy.*

16.2.1.2 (CSV) Increased storm water runoff from urban development shall be controlled to mitigate impacts on agricultural lands located downstream.

*Consistency: The overall feasibility and capacity of the proposed drainage system is adequate for the project. The project is consistent with this policy.*

## **4.7 Wastewater Disposal**

### **4.7.1 Introduction**

This section of the EIR analyzes key issues related to sanitary sewer collection, treatment and disposal. Disposal of treated wastewater has the potential to introduce new pollutants into the local groundwater basin that could degrade the water quality for existing and potential water uses. This is of particular concern since the project itself proposes to utilize local ground water for a new domestic water supply system.

The following discussion is based on the "Sewage Disposal" section of the Yanks Master Plan prepared for the project by P&A Consultants, including revisions and supplementary information dated May 15, 1996. Copies of these reports are on file with the County of Monterey. The conclusions and recommendations of that report were independently reviewed by Questa Engineering, in consultation with County and City of Greenfield staff, for inclusion in this EIR.

### **4.7.2 Setting**

The project site is located in an incorporated area of Monterey County about one mile northwest of the City of Greenfield. There are no existing wastewater treatment and disposal facilities on the site; and the property is beyond the current service area of the Greenfield sanitary sewer system.

#### **4.7.2.1 Greenfield Sewer System**

The City of Greenfield owns and operates its own municipal sanitary sewer system. The main elements of the system include: (a) conventional gravity sewers throughout the City; (b) a 24-inch diameter gravity sewer line from the City to the treatment plant; (c) a primary treatment plant located approximately one mile northeast of the city at the edge of the Salinas River floodplain; and (d) percolation ponds for final effluent disposal at the treatment plant site.

The treatment plant was upgraded in 1992 to its present capacity of 1.0 million gallons per day (mgd). Present flows at the treatment plant are approximately 700,000 gallons per day for the present population of 10,000 people in Greenfield. The existing facilities have capacity for additional connections, and there is also considerable land area available to the City at the treatment plant for future expansion, should it be required.

The treatment and disposal system operates in accordance with Waste Discharge Requirements adopted by the Central Coast Regional Water Quality Control Board, which were last revised in 1992 to reflect the expansion of the capacity to 1.0 mg. As part of the treatment-disposal system operation, the City is required to monitor groundwater in the vicinity of the percolation ponds to determine wastewater impacts, particularly in regard to nitrate concentrations. Monitoring, to date, has shown no violation of nitrate standards established in the Waste Discharge Requirements.

#### 4.7.2.2 Wastewater Treatment and Disposal Requirements

Wastewater treatment and disposal in the Salinas Valley is governed by a variety of policies and regulations established by the Central Coast Regional Water Quality Control Board (Regional Water Board) and the Monterey County Health Department. Most of the pertinent requirements affecting the proposed wastewater facilities for the proposed project are contained in the following:

- Monterey County Code Chapter 15.20-Sewage Disposal and Chapter 15.23-Sewage Treatment and Reclamation Facilities; and
- Water Quality Control Plan for the Central Coast Region.
- Title 22, Division 4, California Administrative Code - Wastewater Reclamation Criteria.

The requirements pertaining to the various elements of the wastewater system are briefly described below.

#### Treatment Facilities

Requirements for centralized treatment facilities in Monterey County are established principally by the Regional Water Board with provision for additional conditions that may be imposed by the Monterey County Health Department and Public Works Department. The requirements are formalized as permit conditions in what are termed "Waste Discharge Requirements", issued by the Regional Water Board for the individual facility. The requirements typically specify final effluent quality and mass pollutant loadings, based upon the ultimate method and location for disposal.

Treatment requirements for wastewater reclamation uses are specified in Title 22 (California Administrative Code) and are typically incorporated by the RWQCB as permit conditions. The Title 22 Wastewater Reclamation Criteria are presently in the process of being amended. Use of wastewater for unrestricted crop and landscape irrigation requires that the effluent be adequately oxidized, coagulated, clarified, filtered and disinfected or be treated by an equivalent sequence of unit processes. This constitutes tertiary treatment. Table 5 lists the Title 22 treatment standards for different reclamation uses, including the pending changes.

Table 5. Wastewater Treatment & Quality Criteria for Reuse		
Treatment Level	Coliform Limits	Type of Use
<u>Secondary</u> Oxidation & disinfection	N/A	<ul style="list-style-type: none"> <li>• Surface irrigation of orchards &amp; vineyards</li> <li>• Fodder, fiber &amp; seed crops</li> </ul>
	≤ 23/100 ml	<ul style="list-style-type: none"> <li>• Pasture for milking animals</li> <li>• Landscape impoundments</li> <li>• Landscape irrigation (restricted access, golf courses, cemeteries, etc.)</li> </ul>
	≤ 2.2/100 ml	<ul style="list-style-type: none"> <li>• Surface irrigation of food crops (no contact between water &amp; edible portion of crop)</li> </ul>
<u>Tertiary</u> Oxidation, coagulation <sup>1</sup> , clarification, filtration <sup>2</sup> & disinfection	≤ 2.2/100 ml, maximum = 23/100 ml.	<ul style="list-style-type: none"> <li>• Spray irrigation of food crops</li> <li>• Landscape irrigation at parks, playgrounds, school yards, &amp; private properties</li> <li>• Non-restricted recreational impoundments</li> </ul>
<sup>1</sup> Coagulation optional provided turbidity of filtered effluent is <5 NTU. <sup>2</sup> The turbidity of filtered effluent cannot exceed a) an average of 2 NTU during any 24-hour period, b) 5 NTU more than 5% of the time, and c) 10 NTU at any time.		
Source: Questa Engineers, February 1996.		

The County of Monterey, via Code Chapter 15.23, also regulates wastewater facilities in the County that involve disposal of wastewater to land for percolation or reuse (i.e., reclamation). Chapter 15.23, adopted in 1991, requires an initial application and annual renewal of an operating permit for all reclamation facilities. The key technical provision of Chapter 15.23 requires that the final effluent quality (for water that percolates into the ground) not contain nitrate-nitrogen at concentrations greater than 6.0 mg/l. This standard was implemented to deal specifically with the increasing incidence of groundwater nitrate contamination in various areas of Monterey County.

### Disposal

Requirements for wastewater disposal are primarily set by the RWQCB, with input from the Health Department. Disposal facilities that rely upon spray disposal facilities are permitted based upon evidence of adequate terrain, soils and groundwater conditions that assure adequate absorption and treatment of the applied effluent by the soil and plants. Unlike percolation pond systems or septic tank-leachfields, there are no specific soil depth or percolation standards that apply to spray disposal. This is because the spray disposal operations are confined to the irrigation season when essentially all of the wastewater would be absorbed and utilized by the vegetation. Lands used for irrigated agriculture are normally very well suited for application of reclaimed wastewater. The pending changes to Title 22 Wastewater Reclamation Criteria specify a minimum 50-foot setback between water supply wells and areas irrigated with tertiary treated effluent. Additionally, the spray fields must be on property controlled by the owners/operators of the wastewater facility (i.e., the discharger). This may be satisfied with long-term contract agreements.

Monterey County Code Chapter 15.23 contains specific requirements pertaining to spray disposal (i.e., reclamation) facilities. The code mandates a maximum nitrate-nitrogen concentration of 6 mg/l in wastewater effluent disposed into soils at reclamation facilities. This code also requires a discharge monitoring program to be approved by the Director of Environmental Health.

### Facility Operation and Maintenance

Community-type wastewater systems are required to be operated and maintained by a licensed wastewater treatment plant operator (or operators), with specific monitoring and reporting responsibilities specified by the Regional Water Board and the County Health Department. If all properties served by the facility are under common ownership, the wastewater system may be maintained as a private wastewater treatment system. If multiple ownerships are served, then the wastewater system must be owned and operated by a public agency, such as a city, community services district (CSD), county service area (CSA), or other special district. The public agency would be named as the "discharger" in the Waste Discharge Requirements issued by the Regional Water Board. Actual day-to-day operations could be performed by employees of the public agency or by contractors.

#### 4.7.2.3 On-Site Percolation Testing

On-site percolation testing was conducted in August 1994 by the applicant to determine the feasibility and general design requirements for a leachfield-percolation system on the project site. This was done because the initial plan for wastewater disposal involved the use of an on-site leachfield system. Seventeen percolation tests were completed in accordance with Monterey County procedures. The tests were done at depths of 5, 10 and 15 feet, using 6-inch diameter percolation holes. The test results are summarized in Table 2 (section 4.4, *Geology and Soils*).

The data indicate consistently rapid percolation rates of 22 to 540 inches per hour, which equate to 2.7 to 0.1 minutes per inch (MPI), respectively. The average rate was 145 inches per hour, or 0.4 MPI. For standard septic tank-leachfield systems, the percolation rate is required by Regional Water Board policies to be in the range of 5 to 60 MPI. Percolation rates of 1 to 4 MPI require that the depth to groundwater beneath the leachfield/percolation bed be at least 20 feet; for percolation rates faster than 1 MPI, the depth to groundwater requirement increases to 50 feet. The reported depth to groundwater at the project is in the order of about 80 feet.

### **4.7.3 Impacts and Mitigation Measures**

#### **4.7.3.1 Standards of Significance**

A project impact would be considered significant if sewage treatment and disposal does not conform to the standards and guidelines established by local, regional and state regulatory agencies; substantially degrade water quality; substantially degrade or deplete groundwater resources; and/or create a potential public health hazard.

#### **4.7.3.2 Proposed Wastewater System**

The applicant has submitted information (by P&A Consultants) describing plans to construct and operate a private on-site wastewater treatment and disposal system for the project. The proposed wastewater system consists of: a) a conventional gravity sewer collection system (with two lift stations); b) a "package" type Sequencing Batch Reactor (SBR) treatment plant, including a coagulation/filtration process and disinfection, located in the southeast corner of the site; and, c) final disposal of reclaimed wastewater via irrigation of agricultural crops on the remaining farmland not used for the project. The applicant has not indicated whether a private operator or a County Service Area or Sanitation District will operate and maintain the wastewater treatment system.

An aerobic digester (10,000-gallon tank) will be provided for stabilization of bio-solids (i.e., sludge). The sludge is proposed to be disposed of by pumping and hauling to an approved receiving facility.

Wastewater storage facilities included in the proposed design include the following: a) 14,000 gallon inlet/surge tank at the treatment plant, and 2) 20-day wet weather storage reservoir for treated wastewater, occupying the interior area of the on-site man-made lake. The reservoir is planned to have a surface area of about 18,500 square feet, a depth of 15 feet, and a total storage volume of about 3.8 acre-feet (1.24 million gallons). The reservoir will be lined and will also have a secure physical barrier separating the wastewater storage area from the man-made lake, which will encircle it. Treated wastewater will be pumped into the reservoir from the SBR plant, and be pumped from the reservoir into the farm irrigation system. The applicant's engineer has also prepared cost estimates for the construction of a long-term wastewater storage reservoir with capacity for 120 days of wastewater flow, but no specific plan has been presented or described to clarify how or when such a reservoir would be included in the project.

The wastewater facilities are planned to be constructed with a capacity of about 70,000 gpd. The estimated total wastewater flow for the completed project is 62,000 gpd; the basis for this flow estimate is included in Appendix D. The package treatment plant will occupy an area of about 14,000 square feet.

The winery floor plan (Figure 6) shows that wine making operations will occur on the site by including a crush pad, bottling facilities, and tank room. The sanitary sewer flows summarized in Appendix D do not account for wastewater from wine making. Typical wine making operations occur during peak periods followed by longer periods of relatively little activity. The wastewater is likely to be higher in BOD, but with proper engineering, the proposed on-site treatment plant could effectively accept and treat liquid wastes from the winery.

#### Collection System

Because of the flat terrain, the sewer system will include at least two lift stations to pump raw sewage to the treatment plant site. The pump station is a critical item in the collection system; it may be subject to mechanical failure of pumps or power outages, either of which could cause a back-up in the sewer system or discharge of raw sewage to the ground surface. Proper design and maintenance normally reduces these potential problems to levels of insignificance. For instance, a duplex or triplex pump system can be constructed to have reserve pumping units on-line in the event of a mechanical failure. Alarm systems with auto-dialers, standby generator for emergency power, and emergency storage capacity at the pump station are also common in modern sewer pump station designs.

One other pump station impact has to do with the venting of sewage odors, which will be present in the immediate area of the pump station. Normal odor control is achieved by venting through sub-surface soil "scrubber" trenches, or above-ground activated carbon canister-type filters. If properly maintained, these measures can be expected to reduce pump station odors to a level of insignificance.

#### Treatment Plant

The on-site treatment plant is a source of potential nuisance odors and is also subject to breakdown of mechanical or electrical systems. The treatment plant is proposed to be located about 300 feet southeast of the hotel complex (the nearest building), which should provide an adequate buffer for dissipation of sewage odors. The applicant's engineer has indicated that an emergency generator will be provided for stand-by power in the event of power outages. Spare equipment and redundancies are normally included in modern treatment plant designs to assure continuous operations. The treatment plant site will be securely fenced to prevent public access, and minimize public safety risks, but the plant will be clearly visible from the hotel and the adjacent parking area. Screening with vegetation would minimize any objectional visual effects of the treatment plant.

### Treatment Plant Operation

The proposed treatment plant will require skilled operators for routine maintenance and monitoring and to assure consistent compliance with treatment requirements, including the County's nitrogen effluent limitation. The operator will also be responsible for management of the collection, treatment and percolation systems to avoid nuisance or public health impacts to the visiting public. The applicant's sewage disposal report provides no discussion of the intended plans for operation and maintenance of the wastewater facilities.

### Wastewater Storage

The proposed wastewater system includes a 14,000-gallon surge tank for incoming sewage (i.e., short-term emergency) and a 20-day (3.8 acre-feet) storage reservoir for long-term storage of treated wastewater. These storage capacities are not sufficient to meet the requirements that the County of Monterey will impose on the wastewater system. According to State Wastewater Reclamation Criteria (Title 22), the minimum requirements for a wastewater reclamation facility of this type are one-day of short-term emergency storage (62,000 gallons) and 20 days of long-term storage (3.8 acre-feet). The policy of the County of Monterey is to increase these requirements to three days short-term storage (86,000 gallons) and 120-days long-term storage (22.8 acre-feet). The applicant has not described a plan to meet these requirements.

### Spray Disposal

The use of reclaimed wastewater for crop irrigation would expose humans to possible physical contact with treated wastewater and with residue transferred via food crops. State wastewater Reclamation Criteria recognize crop irrigation as a suitable use for treated wastewater, and contain standards to protect against unacceptable risks to public health. For the proposed project, the treatment of wastewater would be to a tertiary level, which meets reclaimed wastewater standards for unrestricted irrigation uses, as defined in Title 22, California Administrative Code. The type of treatment system under consideration for the project has a good track record in producing reclaimed wastewater, and, with diligent compliance with waste discharge requirements, the risks to public health should be minimal.

### Effects on Groundwater

The proposed package treatment plant utilizes an SBR process which is a proven technology for producing effluent with a low nitrate-nitrogen content. The County's nitrate requirement of 6.0 mg/l is very stringent for most package treatment plants, but there is supporting evidence that the SBR system can meet this requirement consistently. Also, if the treated wastewater is routed through the storage reservoir prior to irrigation, additional nitrate removal will occur (in the ponded water); and the final quality of water discharged through the farm irrigation system would likely be below 5 mg/l nitrate nitrogen.

The proposed package treatment plant includes an aerobic digester for stabilization of the sludge (bio-solids). However, the plans for dewatering and final disposal of the sludge are not fully described; the plans only indicate that the sludge will be disposed of by a local septic tank contractor. The sludge disposal options are either to: a) dewater the sludge on-

site and periodically haul the consolidated sludge to an approved disposal site (e.g., landfill); or, b) haul the liquid sludge to an approved sit for further treatment, dewatering and disposal. This aspect of the proposed wastewater plan requires further details. The method of sludge handling and disposal could affect local nuisance problems as well as the overall maintenance and costs associates with facility operation.

#### Wastewater Alternatives Comparison

The proposed on-site wastewater system is technically feasible, pending more detailed information on nitrogen removal effectiveness of the particular treatment plant that is planned. However, the decision to pursue an on-site treatment/disposal system was based, at least partly, on a determination by the applicant's engineer (P&A Consultants) that connection to the existing Greenfield sanitary sewer system is infeasible. This analysis is contradicted by the City of Greenfield who have indicated, by correspondence of November 1994 and September 1995, both a willingness and ability to extend sanitary sewer service to the project.

According to the City's Public Works Director adequate capacity exists in the sewage collection system and at the treatment plant to accommodate the estimated sewage flows of 62,000 gpd from the proposed project. The treatment plant presently has surplus capacity of 300,000 gpd. The City has indicated that sewer service to the project would be provided most effectively by extending a new 12-inch sewer main to the site, beginning in the vicinity of 3rd and Walnut Street on the north side of the City. Figure 14 depicts the City of Greenfield's required connection route between the project site and the City's sewer treatment plant. A 12-inch sewer would have more capacity than needed for the project wastewater flows, and would be intended to serve other future development between Greenfield and the project site. The overall length of pipeline required would be about 10,560 feet, and one lift station would be required. The estimated cost of the sewer extension is about \$730,000, but the cost to the project would ultimately be reduced as other new development on the north side of the City utilized the sewer line.

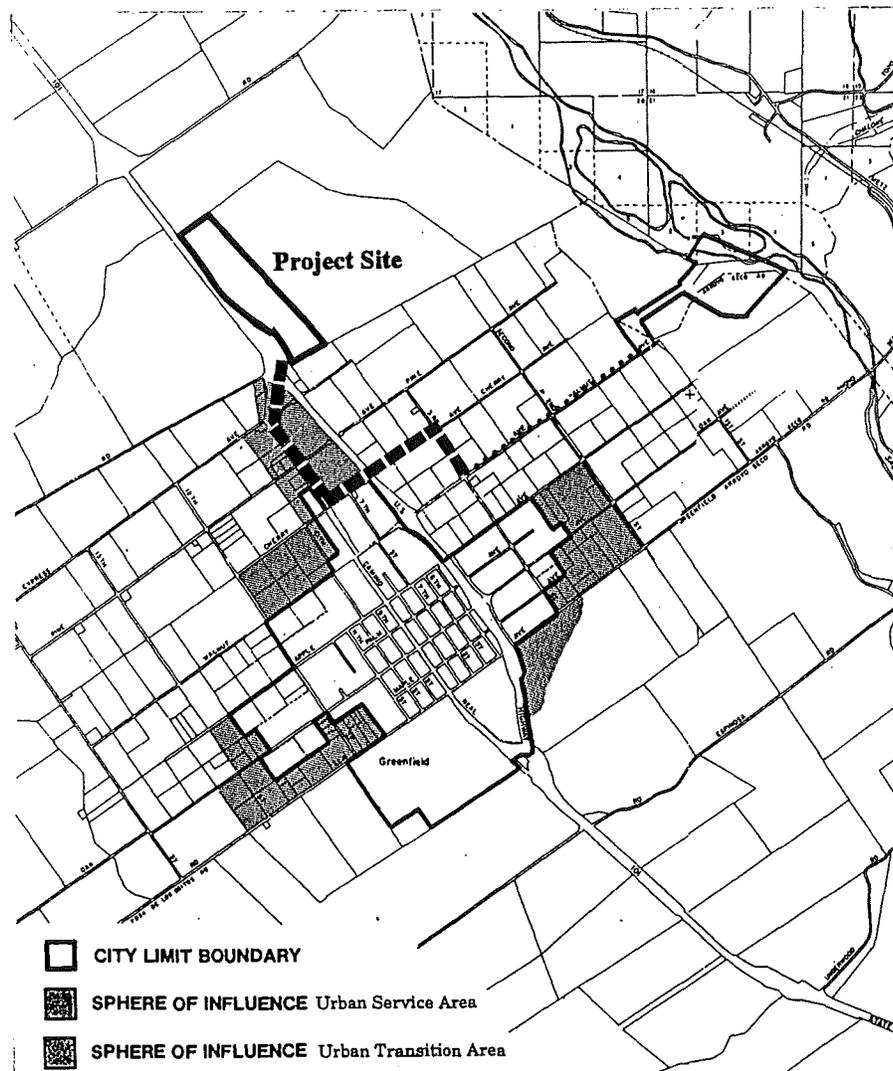
The City of Greenfield may provide services by contract or agreement only if it first requests and then receives approval from LAFCO as required by Government Code Section 56133. LAFCO policy requires consideration of several factors before making its decision. The Commission would consider the sphere of influence, the impact on agricultural land, consistency with County and City plans, efficient development patterns and other factors.

Connection of the project to the Greenfield sewer system would eliminate all of the identified impacts associated with an on-site treatment plant. Additionally, it would minimize or eliminate the duplication of wastewater management and regulatory activity in the area.

The following is a comparative review of the two wastewater treatment options:

- **Operation and Maintenance.** The existing Greenfield sewer system is a primary treatment plant with percolation ponds, which is simpler to operate and maintain than the on-site reclamation plant proposed by the applicant.

- **Regulatory Compliance.** Neither system would be permitted to operate is not in compliance with regulatory requirements of the Regional Water Board. However, as presently proposed, the on-site reclamation system does not meet the County requirements for short and long-term storage, and the Greenfield system does not meet the County's requirements for 6 mg/l nitrate-nitrogen in their final effluent. No preference is given between the two alternatives on this impact issue.
- **Public Health Risk.** The Greenfield treatment plant and percolation ponds are isolated well away from the public. An on-site reclamation plant has increased public health risks due to the proximity to the public and the reuse of the treated water for irrigation of food crops.
- **Nitrate Loading to Ground Water.** The on-site reclamation plant would meet the County's strict 6 mg/l (NO<sub>3</sub>-N) discharge limit; the Greenfield system does not meet it.
- **Water Conservation.** The on-site reclamation plant would put treated wastewater to direct beneficial use. The Greenfield system recharges the ground water system (via percolation ponds), which provides only indirect water conservation benefit.



**Sewer Connection to City's Treatment Plant**

**Figure 14**

- **Nuisance Odors and Aesthetics.** The Greenfield system is an existing wastewater treatment plant in a relatively isolated agricultural setting; connection to this system would not create any new nuisance problems. The potential for public exposure to nuisance odors and aesthetic impacts is greater for the on-site reclamation system.
- **Land Area Requirement.** The on-site reclamation system will require substantial land area for the treatment plant and storage reservoirs. Very little additional land would be required to accommodate the project sewage flows at the Greenfield plant.
- **Energy Use.** Treatment to tertiary level quality for reclamation requires significantly more energy than required to convey the sewage flows to the Greenfield plant for primary treatment and percolation.

As indicated in the summary shown in Table 6, connection to the Greenfield sewer system is the environmentally superior wastewater alternative for the project.

<b>Table 6. Comparative Ranking of Wastewater Alternatives</b>		
<b>Impact Issue</b>	<b>Alternative</b>	
	<b>On-Site Package Plant &amp; Reclamation</b>	<b>Greenfield Sewer Connection</b>
Operation & Maintenance	2	1
Regulatory Compliance	2	2
Public Health Risk	2	1
Nitrate Loading to Ground Water	1	2
Water Conservation	1	2
Nuisance Odors & Aesthetics	2	1
Land Area Requirement	2	1
Energy Use	2	1
<b>TOTAL</b>	<b>14</b>	<b>11</b>
* Low score = best ranking		
Source: Questa Engineers, June 1996.		

**Impact:** Operation of the proposed wastewater treatment system could result in health and safety impacts due to plant upset, failure or improper operation. *This is a significant impact that can be reduced to a less-than-significant level with implementation of the following mitigation measures.*

## Mitigation

11. The applicant shall prepare and submit, for review by the Monterey County Health Department and Public Works Department, a comprehensive plan for operation and maintenance (O&M) of the proposed wastewater treatment and disposal facilities. This plan need not be detailed to the level of an O&M Manual, but it should provide sufficient description of the required/planned maintenance personnel, activities, equipment and procedures to assure that the proposed on-site treatment and disposal system will be adequately operated for the protection of public health. The plan shall identify the preferred operator of the plant, either a certified plant operator under private contract, or a County Sanitation District or County Service Area. Contingency plans must be provided for emergency situations such as power outages, equipment failure, plant upset conditions, etc. Having a pond available for diversion to during upset conditions may be prudent.

The treatment plant capacity should be expanded to approximately 72,000 gpd, in order to accommodate estimated peak winery wastewater flows during the "crush" period. Any operational changes during the "crush" period should be evaluated and identified in the O & M Manual.

As an alternative to completing the identified mitigation for an on-site treatment wastewater system, the applicant shall make necessary arrangements to extend sanitary sewer service from Greenfield to the project site. ~~This will also entail annexation to the City, which requires LAFCO approval.~~ Annexation to the City of Greenfield is not required. LAFCO could consider approval of contracts extending services to the site in accordance with Government Code 56133.

- 11A. If an on-site sewerage disposal system is approved, the formation of a County Service Area or other governmental entity may be necessary and require LAFCO approval.
12. The applicant shall provide a revised wastewater facilities plan, for review and approval by the Monterey County Health Department and the Public Works Department, identifying and describing the means for complying with the County requirements for 3-day short-term storage and 120-day long-term wastewater storage.
13. The applicant shall supply supporting information, for review and approval by the Health Department and Public Works Department, describing the plans for sludge disposal, indicating the method of dewater and the available capacity at the receiving facility.

**4.7.3.4 Consistency with Applicable Central Salinas Valley Area Plan Policies**

21.3.1.5 (CSV) New development shall meet the minimum standards of the Regional Water Quality Control Basin Plan when septic systems are proposed. The minimum lot size shall be one acre. New development shall provide evidence to the Director of Environmental Health that any proposed septic systems will not adversely affect groundwater quality.

***Consistency: No septic systems are proposed to serve the project. All wastewater will be collected and treated onsite by an SBR treatment system and either stored in holding ponds or used on adjacent agricultural crops, or treated through the Greenfield treatment system.***

## 4.8 Traffic and Circulation

### 4.8.1 Introduction

This report presents the results of the traffic impact analyses and parking study for the proposed Yanks Air Museum prepared by Greer & Company Engineers and Planners (September 1994). This study analyzes existing, pre-project, post-project, and cumulative traffic conditions at the three nearest intersections adjacent to the site. The traffic analysis also examines the geometrics of the site access as particularly related to the freeway ramps and the adequacy of storage space on the northbound off-ramp. A peer review of the traffic study was prepared by Keith B. Higgins & Associates for this EIR.

### 4.8.2 Setting

This section presents a discussion of the primary street system within the vicinity of the project site and presents the existing traffic volume data. This is followed by the results of the level of service analyses of the existing conditions at the three study intersections.

#### 4.8.2.1 Existing Street System

Automobile access to the project site is currently provided via the U.S. Highway 101 interchange at Thorne Road and El Camino Real.

U.S. Highway 101 is a north/south, four-lane freeway connecting to Soledad and Salinas to the north, and further north, to San Francisco. U.S. 101 connects to the south to King City, Paso Robles and Santa Barbara, and further south, to Los Angeles. Local interchanges serving the City of Greenfield include El Camino Real (south), Oak Avenue, Walnut Avenue, and El Camino Real/Thorne Road (north). The El Camino Real/Thorne Road interchange provides direct access to the project site. Current daily traffic volumes range between 21,500 and 18,700 vehicles per day north and south of El Camino Real (north), respectively. Peak hour traffic volumes range between 2,100 and 1,850 vehicles per hour north and south of El Camino Real (north), respectively.

El Camino Real is a north/south, arterial street through the City of Greenfield, connecting to U.S. Highway 101 north and south of the City and serving the downtown area. Daily traffic volumes on El Camino Real at Thorne Road is 3,500 vehicles per day, and between Thorne and Walnut, 4,600 vehicles per day.

Thorne Road is an east/west, two-lane local street extending west from El Camino Real (north) in the vicinity of the U.S. 101 interchange. Thorne intersects with the southbound freeway off-ramp at El Camino Real. Daily traffic volumes on Thorne Road west of El Camino Real are approximately 700 vehicles per day.

#### 4.8.2.2. Study Intersections

Based on discussions with Caltrans staff and a review of recent traffic study reports, Greer & Company identified the following intersections as study intersections:

- El Camino Real/Thorne Road/U.S. 101 southbound off-ramp
- El Camino Real/U.S. 101 southbound on-ramp/overpass road to northbound ramps
- Overpass road/U.S. 101 northbound on- and off-ramps

#### 4.8.2.3 Existing Traffic Conditions

##### Existing Traffic Volumes

Automatic 24-hour traffic counts on the northbound and southbound ramps were conducted on Friday, June 10, 1994. Peak hour traffic volumes were extracted from the traffic data and are illustrated on Figure 15.

##### Existing Conditions Intersection Analyses

An analysis of existing conditions was conducted by Greer & Company for the three study intersections using the CMA analysis methodology for the study intersections. The analyses are based on the existing intersection geometrics and current a.m. and p.m. peak hour traffic volumes. Table 7 presents the Volume-to-Capacity ratios (V/C) and the Levels of Service (LOS) for each study intersection under current conditions. The LOS is an index of the quality of traffic flow through an intersection as defined by the Highway Capacity Manual<sup>7</sup>. The LOS definitions qualitatively describe operating characteristics under various conditions. The LOS definitions and corresponding V/C ratios are presented in the Appendix of this report.

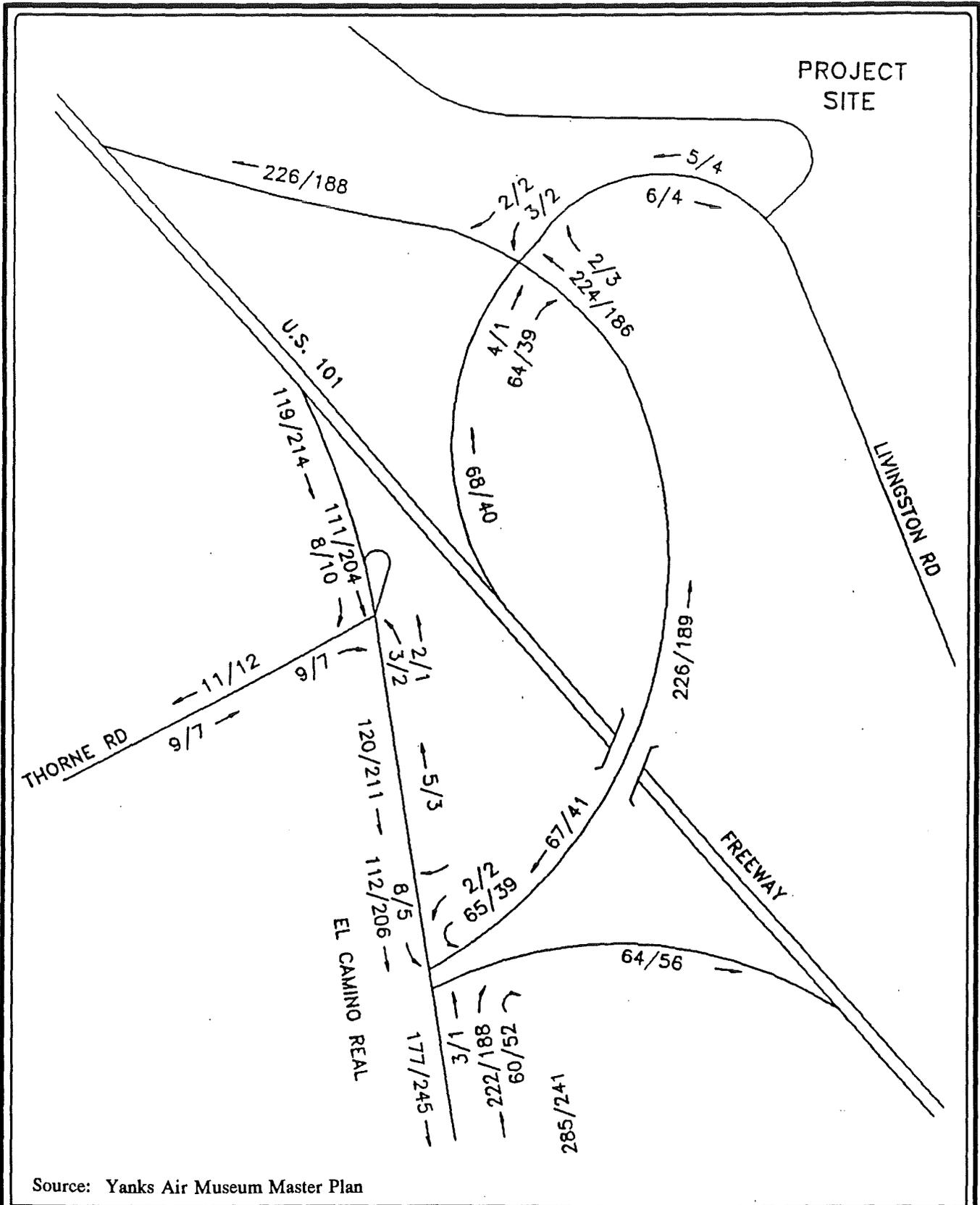
As can be noted on Table 7, the LOS at each of the intersections indicates a high level of service with all intersections currently operating at LOS "A" during both a.m. and p.m. peak hours.

#### 4.8.2.4 Pre-Project Traffic Conditions

A review of recently approved development projects within the City of Greenfield did not indicate any increase in traffic at the study intersections. The planning staff for the County of Monterey indicated that there were no development projects in the unincorporated area in the vicinity of the project.

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<sup>7</sup> Highway Capacity Manual, Transportation Research Board, National Academy of Sciences, Washington, D.C., 1985.



Existing Peak Hour Traffic Volumes

Figure 15

<b>Table 7. Level of Service - Existing Conditions (1994)</b>				
	<b>Existing Conditions</b>			
	<b>A.M. Peak Hour</b>		<b>P.M. Peak Hour</b>	
	<b>V/C<sup>1</sup></b>	<b>LOS<sup>2</sup></b>	<b>V/C</b>	<b>LOS</b>
<b>Intersection</b>				
Thorne Rd/U.S. 101 SB Off-ramp	0.09	A	0.15	A
El Camino Real/U.S. 101 SB On-ramp	0.31	A	0.33	A
El Camino Real/U.S. 101 NB Ramps	0.20	A	0.16	A
<sup>1</sup> V/C = Volume to Capacity Ratio <sup>2</sup> LOS = Level of Service				
Source: Greer & Co., Engineers and Planners				

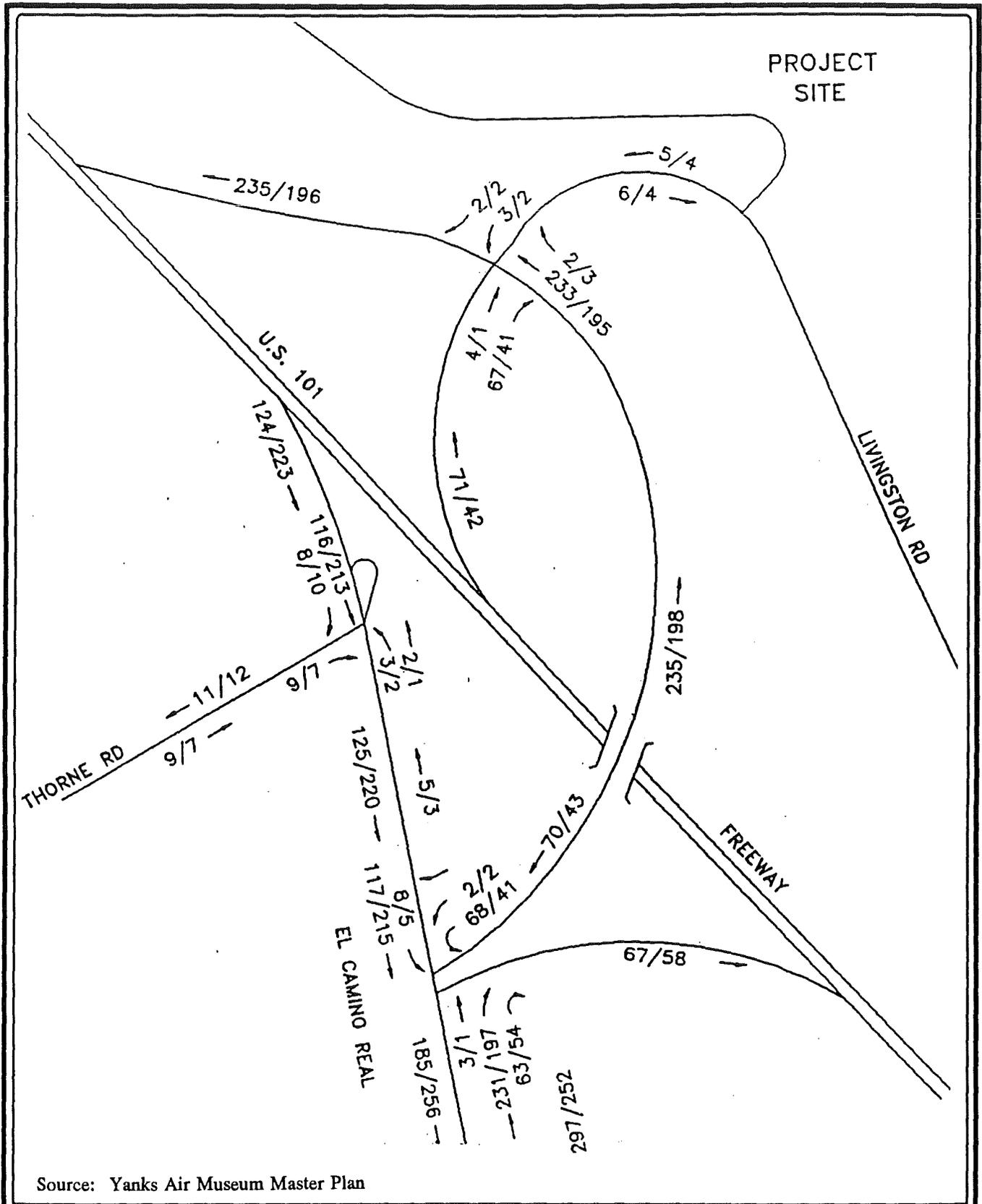
*Pre-Project Traffic Conditions Analysis*

The study intersections were analyzed to identify the expected operational conditions based upon the pre-project traffic volume estimates and the existing intersection geometrics. The analyses use the CMA methodology as was used for the existing conditions analysis. Table 7 presents the analysis results showing the V/C ratios and the subsequent levels of service for each peak hour at each of the study intersections. The analysis worksheets are contained in the Appendix E of this report. Figure 16 illustrates pre-project peak hour traffic volumes.

As illustrated in Table 8, all three study intersections will continue to operate at LOS "A" during both a.m. and p.m. peak hours.

4.8.2.5 Transit Service

The Monterey-Salinas Transit District provides general transit services to the greater Salinas and Monterey areas. However, no routes are provided to serve the Greenfield area. Transit services in Greenfield are provided by Greenfield Autolift, a demand responsive system for intracity trips, as well as Rural Rides and Greyhound Lines for intercity travel.



Pre-Project Peak Hours Traffic Volumes - 1996

Figure 16

<b>Table 8. Level of Service - Existing Conditions (1994) + Pre-Project Conditions (1996)</b>				
	Existing Conditions			
	A.M. Peak Hour		P.M. Peak Hour	
	V/C <sup>1</sup>	LOS <sup>2</sup>	V/C	LOS
<b>Intersection</b>				
Thome Rd/U.S. 101 SB Off-ramp	0.09	A	0.16	A
El Camino Real/U.S. 101 SB On-ramp	0.33	A	0.34	A
El Camino Real/U.S. 101 NB Ramps	0.21	A	0.16	A
<sup>1</sup> V/C = Volume to Capacity Ratio <sup>2</sup> LOS = Level of Service				
Source: Greer & Co., Engineers and Planners				

All of these TDM applications could assist in the reduction of auto trips generated by the proposed project. While the project as proposed has limited significant traffic impacts, the TDM program could further reduce the project's traffic impacts on the surrounding roadway network.

### 4.8.3 Impacts and Mitigation Measures

#### 4.8.3.1 Standards of Significance

In accordance with the CEQA Guidelines, a project would normally result in a significant impact if it would cause existing acceptable roadway LOS designations to drop to unacceptable levels; create unsafe conditions or require a new signal or major revisions to a signal; or contribute to substantial cumulative traffic impacts. The Monterey County 1994 Regional Transportation Plan Policy 1.2.1 established the following applicable LOS standards:

- No degradation below LOS D for those urban roads now operating at LOS D or better.
- No degradation below LOS C for those rural roads now operating at LOS C or better.
- No degradation below existing LOS for all other roads.

#### 4.8.3.2 Project Generated Traffic

The traffic generated by a proposed land use is a function of the land use type, size, and location. Institute of Transportation Engineers' (ITE) trip rates<sup>8</sup> have been used by Greer & Company to estimate the project generated trips for those land uses for which trip data is available.

ITE does not have available trip data for museums and winery land uses. Trip generation estimates for these uses were calculated based on visitor estimates and the expected number of employees. The museum is expected to generate 60,000 to 100,000 visitors per year, or approximately an average of 175 to 300 visitors per day. Using an average auto occupancy rate of 2.5 persons per vehicle results in 70 to 120 vehicles, 140 to 240 trips per day. The higher value was used for conservative results in the traffic analysis. Peak hour estimates were calculated assuming that the number of p.m. peak hour trips would be approximately 10 percent of the number of daily trips, and assuming that the opening of the museum would be after 9:00 a.m., the resulting number of a.m. peak hour trips would be zero. In addition to the visitor trips, trips would also be generated by the estimated 40 to 60 employees of the museum. Assuming a vehicle occupancy of 1.1 persons per vehicle would result in 36 to 55 vehicles, or 72 to 110 vehicle trips per day. Estimating that the two peak hours would constitute 85 percent of the employee vehicle trips, there would be 130 total daily trips with 44 trips (40 trips in and 4 trips out) during the a.m. peak hour, and 50 trips (5 trips in and 45 trips out) during the p.m. peak hour. The employee trips were combined with the visitor trips to estimate the total trip generation for the museum.

A similar estimate of employee trips was calculated for the winery. With 20 to 30 employees and a vehicle occupancy of 1.1 persons per vehicle would result in 64 daily employee trips with 22 trips (20 trips in and 2 trips out) during the a.m. peak hour and 25 trips (3 trips in and 22 trips out) during the p.m. peak hour. Visitor trips were calculated based on the tasting room, delicatessen and dining area totally approximately 3,000 square feet generating trips similar to a high-turnover restaurant. Again, assuming that the winery would not open until after 9:00 a.m., the trip generation during the a.m. peak hour would be zero.

Calculated trip estimates for the museum and winery are presented in Table 9, along with trip generation for other proposed project uses based on the ITE trip generation rates.

In order to assign the project generated traffic to the area roadway system, the directional distribution of the project traffic was determined. The directional distribution estimates by Greer & Co. were based upon the existing traffic volumes, area roadway system, and general area demographics. The project generated trips for the early phases of the project through 1996 are illustrated in Figure 17 for both peak hours of an average day. Figure 18 presents the project generated trips for latter phases of the project through 2000.

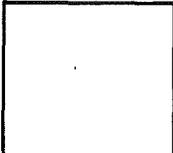
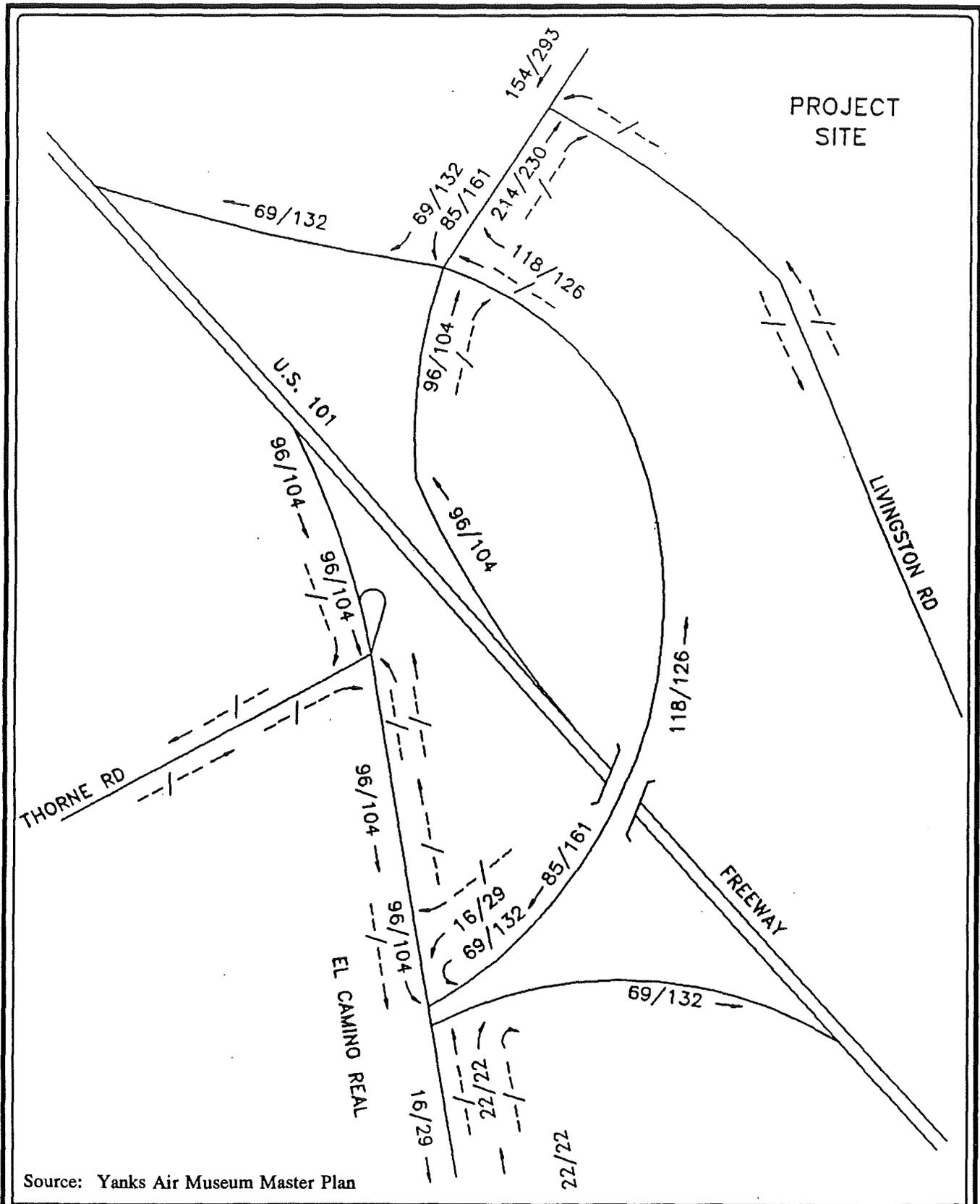
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<sup>8</sup> Trip Generation, Fifth Edition, Institute of Transportation Engineers, Washington, D.C., 1991

**Table 9.**  
**Trip Generation Rates and Estimated Trip Generation**

Land Use	Units	Daily	In	A.M. Peak Hour Out	Total	In	P.M. Peak Hour Out	Total
<b>1996 -- PHASE 1</b>								
Museum	180,000 gsf visitors	240	—	—	—	6	18	24
	employees	130	40	4	44	5	45	50
<b>Subtotal</b>		<b>370</b>	<b>40</b>	<b>4</b>	<b>44</b>	<b>11</b>	<b>63</b>	<b>74</b>
Winery	30,000 gsf employees	64	20	2	22	29	44	73
3,000 gsf of food service	rates	(205.36)	(0.0)	(0.0)	(0.0)	(8.78)	(7.48)	(16.26)
	trips	816	0	0	0	26	22	48
<b>Subtotal</b>		<b>680</b>	<b>20</b>	<b>2</b>	<b>22</b>	<b>55</b>	<b>66</b>	<b>121</b>
Hangers/Tiedowns	75,000 gsf							
General Aviation with est. 50-60 tiedowns	rates	(6.61)	(0.38)	(0.29)	(0.67)	(0.48)	(0.52)	(1.00)
	trips	397	23	17	40	29	31	60
Gas Stations	2 @ 2,000 gsf each							
	rates	(819.5)	(32.80)	(32.80)	(65.60)	(40.98)	(40.98)	(81.95)
	trips	3,278	131	131	282	164	164	328
<b>TOTAL 1996 Project Trips</b>		<b>4,726</b>	<b>214</b>	<b>164</b>	<b>368</b>	<b>269</b>	<b>324</b>	<b>683</b>
Mixed Use	Gas Stations	-120	—	—	—	-3	-9	-12
<b>NET 1996 PROJECT TRIPS</b>		<b>4,606</b>	<b>214</b>	<b>164</b>	<b>368</b>	<b>266</b>	<b>315</b>	<b>671</b>
<b>1997 -- PHASE 2</b>								
Hotel	150 rooms							
	rates	(8.70)	(0.40)	(0.27)	(0.67)	(0.41)	(0.35)	(0.76)
	trips	1,305	60	41	101	62	53	115
Freeway Commercial	60,000 gsf							
	rates	(40.67)	(0.60)	(0.36)	(0.96)	(2.81)	(2.12)	(4.93)
	trips	2,440	36	22	58	169	127	296
Restaurant	7,000 gsf							
	rates	(96.51)	(0.86)	(0.06)	(0.92)	(5.36)	(2.30)	(7.66)
	trips	676	6	—	6	38	16	54
Fast Food	2 @ 2,200 gsf each							
	rates	(632.12)	(28.34)	(27.22)	(55.56)	(19.00)	(17.53)	(36.53)
	trips	2,781	125	120	245	84	77	161
<b>TOTAL 1997 Project Trips</b>		<b>7,202</b>	<b>227</b>	<b>183</b>	<b>410</b>	<b>353</b>	<b>273</b>	<b>626</b>
Mixed Use	Hotel 15%	-196	-9	-6	-15	-9	-8	-17
	Commercial 15%	-366	-5	-4	-9	-25	-19	-44
	Gas Stations 25%	-819	-33	-33	-66	-41	-41	-82
	Fast Food 25%	-695	-31	-30	-61	-21	-19	-40
	<b>Total</b>	<b>-2,076</b>	<b>-78</b>	<b>-73</b>	<b>-151</b>	<b>-96</b>	<b>-87</b>	<b>-183</b>
<b>NET 1997 PROJECT TRIPS</b>		<b>5,126</b>	<b>149</b>	<b>110</b>	<b>259</b>	<b>257</b>	<b>186</b>	<b>443</b>
<b>TOTAL GROSS PROJECT TRIPS</b>		<b>11,927</b>	<b>441</b>	<b>337</b>	<b>778</b>	<b>612</b>	<b>597</b>	<b>1,209</b>
<b>TOTAL NET PROJECT TRIPS</b>		<b>9,731</b>	<b>363</b>	<b>264</b>	<b>627</b>	<b>513</b>	<b>501</b>	<b>1,014</b>

Source: Trip Generation, Fifth Edition, Institute of Transportation Engineers, Washington, D.C., 1991; Greer & Co., Engineers and Planners.



Project Peak Hour Traffic Volume - 1996

Figure 17



#### 4.8.3.3 Transportation Demand Management (TDM) Program

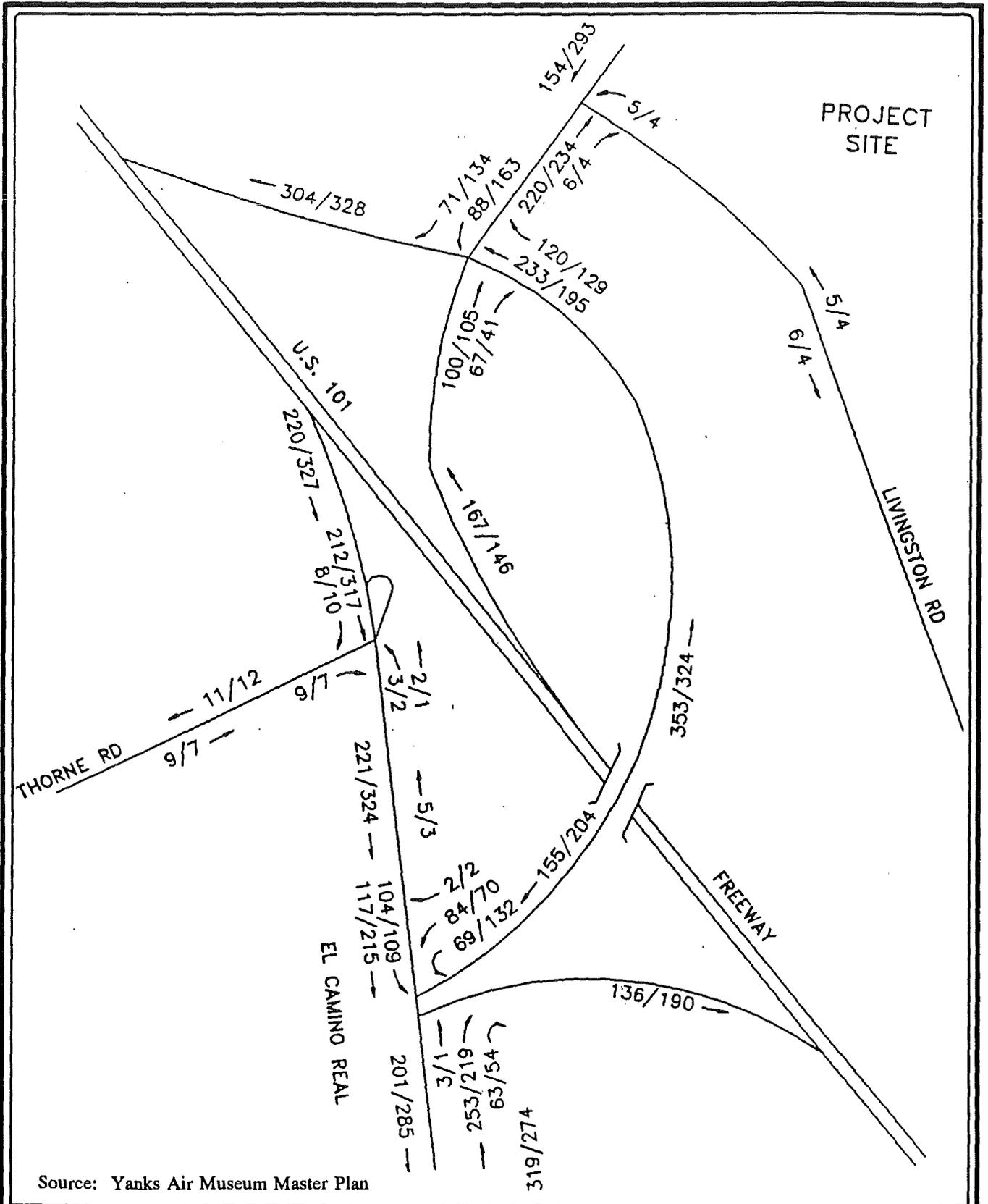
The project proposes to implement a basic transportation demand management program by encouraging carpooling through parking incentives and by providing ridesharing parking close to building entrances. Bicycling will be encouraged through the provision of secure bicycle parking facilities. Since the only local transit provider is the Greenfield Autolift, a demand responsive transit provider within the City of Greenfield, a drop-off, pick-up site will be provided within the site close to the museum and hotel area to encourage local residents and/or local employees to use the transit service. Contact will be made with Greyhound Lines to determine if a Greyhound stop can be achieved on-site to provide public transportation services directly on-site for intercity travel.

#### 4.8.3.4 Post-Project Traffic Conditions Analysis

Post project traffic volumes combine the pre-project traffic volumes with the project traffic volumes. Post project traffic volumes for the early phases of the project through 1996 are presented in Figure 19. Post project traffic volumes for the complete project combine the pre-project traffic volumes with project traffic volumes for all phases through 2000. Post project traffic volumes through 2000 are presented in 20.

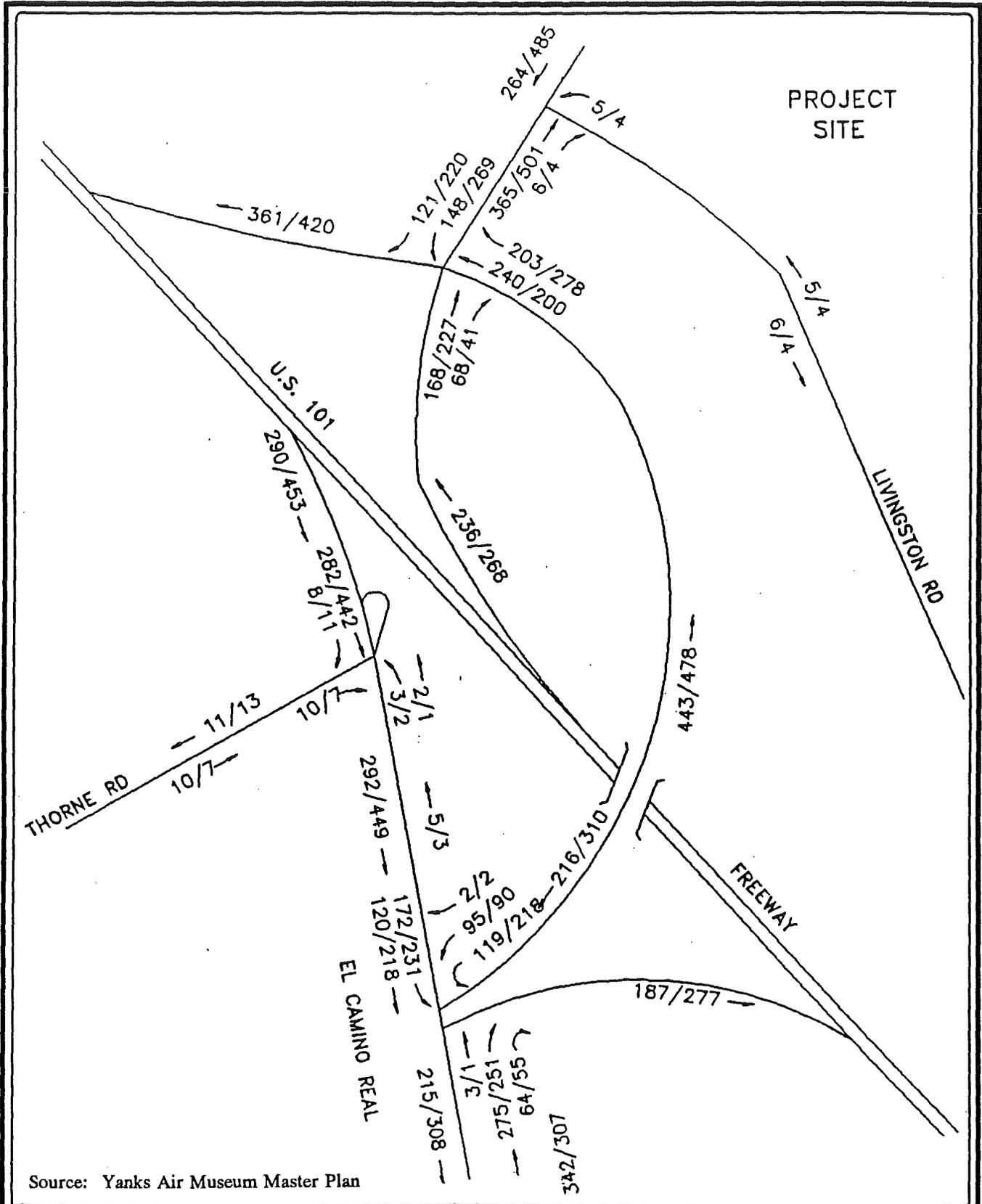
The same CMA intersection analysis methodology was applied at each of the study intersections using the post project traffic volumes for both the early phases through 1997 and existing geometrics at all of the study intersections. The resulting LOS and V/C ratios for both scenarios are presented in Table 10, The analysis worksheets are contained in Appendix E.

In order for project generated traffic to reach the project site from southbound freeway access, a heavy left turn movement results from southbound El Camino Real to the overpass road. Although the intersection capacity is not significantly impacted, the result will be a long queue of traffic in a single southbound lane. Southbound through traffic will be obstructed by vehicles waiting to make the southbound left turn to the overpass road. It is recommended that the roadway be widened to accommodate a single southbound through lane and a separate left turn lane.



Post Project Peak Hours Traffic Volume - 1996

Figure 19



Post Project Peak Hours Traffic Volume - 2000

Figure 20

Similarly, project traffic exiting the project site to access the southbound on-ramp to the U.S. 101 freeway will result in long traffic queues on the overpass road waiting to make the left turn. The left turn to the southbound on-ramp should also be separated from the westbound approach to El Camino Real from the overpass road. The overpass road should be widened westerly of the overpass structure to provide a separate left turn lane to the southbound on-ramp with a single through lane to El Camino Real to accommodate both left and right turn movements at that intersection. In order to avoid any sight distance problems for westbound vehicles coming over the crest of the overpass, the widening should be done on the south side of the overpass road and, as a result, may require some modification to the entrance of the on-ramp as well. None of these improvements envision the need to widen the overpass structure itself.

**Impact:** Traffic generated by the proposed project will cause the intersection of the overpass road of El Camino Real with the northbound ramps to the Highway 101 to drop from LOS A under existing conditions to LOS D in the p.m. peak hour. *This is a significant impact that can be reduced to a less-than-significant level by implementing the following mitigation measures.*

**Impact:** Traffic generated by the project will substantially increase the turning movements at the intersection of El Camino Real with the southbound on-ramp to U.S. 101 and the El Camino Real overpass road. *This is a significant impact that can be reduced to a less-than-significant level by implementing the following mitigation measures.*

## **Mitigation**

Even though the traffic mitigation requirements pertain to Phase 2 of the project, it will be necessary to implement the mitigation for the intersection of the El Camino Real overpass road and the Highway 101 northbound ramps with Phase 1, since it will establish the entrance location to the site. The mitigation requirements at the intersection of El Camino Real and the southbound on-ramp will be required with the implementation of phases through year 2000.

### *Phases of the Project Through 1996*

In order to mitigate project traffic impacts at the overpass road of El Camino Real with the northbound ramps of the U.S. 101 freeway, the following traffic mitigation improvements are recommended:

14. The applicant shall submit detailed design plans to the Monterey County Public Works Department that identifies the bridge configuration required to accommodate project traffic. The design plans shall include the following items: widen the northbound off-ramp to accommodate two lanes, one through lane and one through/right lane, and relocate the intersection approximately 100 to 150 feet northerly in order to increase the length of the off-ramp and its storage capability. (Refer to Mitigation 19 below.)
15. The developer shall widen the south leg of the intersection to provide one through lane and an added separate right turn lane into the project site. (Refer to Mitigation 19 below.)
16. The developer shall establish the project entrance opposite the relocated intersection (northbound on/off ramp and Livingston Road) and provide two inbound lanes and two outbound lanes.
17. The developer shall realign and extend the County's access road Livingston Road to the properties south of the project site along the east side of the freeway to connect into the project access road. The developer shall install a traffic signal or provide funds for future traffic signal installation.
18. The applicant shall dedicate to the County of Monterey the Livingston Road County road extension and the project access road between the County Livingston Road and the freeway right of way.

Phases of the Project Through 2000

19. The developer shall widen the overpass road on the southerly side, westerly of the overpass structure without widening the structure itself, to provide a separate left turn lane to the southbound on-ramp with a single through lane to El Camino Real to accommodate both left and right turn movements at that intersection.
- 19A. The applicant shall prepare and submit to Caltrans and the Monterey County Public Works Department a Project Study Report (PSR) for all proposed future work within the Caltrans right-of-way for the widening of the overpass roadway at El Camino Real and modification to the southbound on-ramp to U.S. 101, and for the widening of the overpass road and modification of the northbound on and off-ramps for U.S. 101. Mitigations required in the PSR and the PSR itself shall be completed prior to issuance of any occupancy permit on any phase of the project. The following improvements shall be constructed and completed as applicable prior to occupancy of any structure, unless replaced or amended by mitigations required by the PSR.
  - a. The applicant shall submit detailed design plans to Caltrans and Monterey County Public Works Department. The design plans shall include the following items: widen the northbound off-ramp to accommodate two lanes, one through lane and one through/right lane, and relocate the intersection approximately 100 to 150 feet northerly in order to increase the length of the off-ramp and its storage capability.

- b. The developer shall widen the south leg of the newly relocated intersection to provide one through lane and an added separate right turn lane into the project site.
- c. The developer shall widen the overpass road on the southerly side westerly of the overpass structure to provide a separate left turn lane to the southbound on-ramp with a single through lane to El Camino Real to accommodate both left and right turn movements at that intersection.
- d. The developer shall modify, as necessary, the entrance of the southbound on-ramp to accommodate the widening of the overpass road. The developer shall signalize this intersection or provide funds for future signalization.

20. The developer shall modify as necessary, the entrance of the southbound on-ramp to accommodate the widening of the overpass road.

*Implementation of the mitigation measures will reduce this impact to a less-than-significant level.*

#### 4.8.3.4 Consistency with Applicable Regional Transportation Plan Policies

1.1.1 (RTP) Land use planning shall be coordinated with transportation planning to fully mitigate the traffic impacts of new development.

**Consistency:** *The project as proposed and as modified by mitigation measures recommended in this EIR does not result in significant traffic impacts.*

1.1.3 (RTP) Bicycle and pedestrian access, and transit access shall be incorporated into the design of new residential and commercial developments by amending development standards, zoning ordinances, and applicable subdivision ordinances.

**Consistency:** *The project proposes to include transit access directly to the museum and hotel for the use of guests and employees. The project also proposes bicycle parking facilities. However, the site plan does not include bicycle facilities as part of improvements to the Highway 101 overpass at Thorne Road. This may result in unsafe conditions for bicyclists or discourage bicyclists traveling to and from the site.*

1.1.4 (RTP) New recreational and visitor-oriented development should be designed to encourage visitor use of alternative modes of transportation.

**Consistency:** *The project proposes a draft trip reduction program which is described in this EIR (refer to Section 4.8.3.3). The applicant is required to submit a Trip Reduction Checklist to the County as part of the permit review process per the County Trip Reduction Ordinance. In addition to those programs offered by the applicant, the County may require the developer to provide bicycle amenities, bus pull-outs, and pedestrian facilities as part of the plan. In addition, during special events, the County may require remote parking lots, shuttle services, and other methods to reduce congestion of area roadways as a condition of special event permits.*

1.2.2 (RTP) To ensure long-range cost effectiveness for new or expanded transportation facilities, a design standard of LOS C should be striven for. This does not preclude consideration of other improvements for alternative transportation modes.

*Consistency: The project as proposed and as modified by mitigation measures recommended in this EIR does not degrade existing LOS A on existing roads.*

1.3 (RTP) Minimize environmental impacts and conflicts with existing land use patterns that could result from construction of new transportation facilities.

*Consistency: The project as proposed and as modified by mitigation measures recommended in this EIR does not result in significant traffic impacts or conflict with existing land use patterns.*

#### 4.8.3.5 Cumulative Traffic Conditions Analysis

This section provides traffic projections under cumulative conditions. The cumulative traffic volumes were derived by Greer & Co. from the City of Greenfield Transportation Master Plan Update<sup>9</sup> prepared for the ultimate buildout of the Urban Service Area (USA). Project traffic at full buildout was added to the buildout traffic volumes for the urban service area to identify future cumulative traffic conditions.

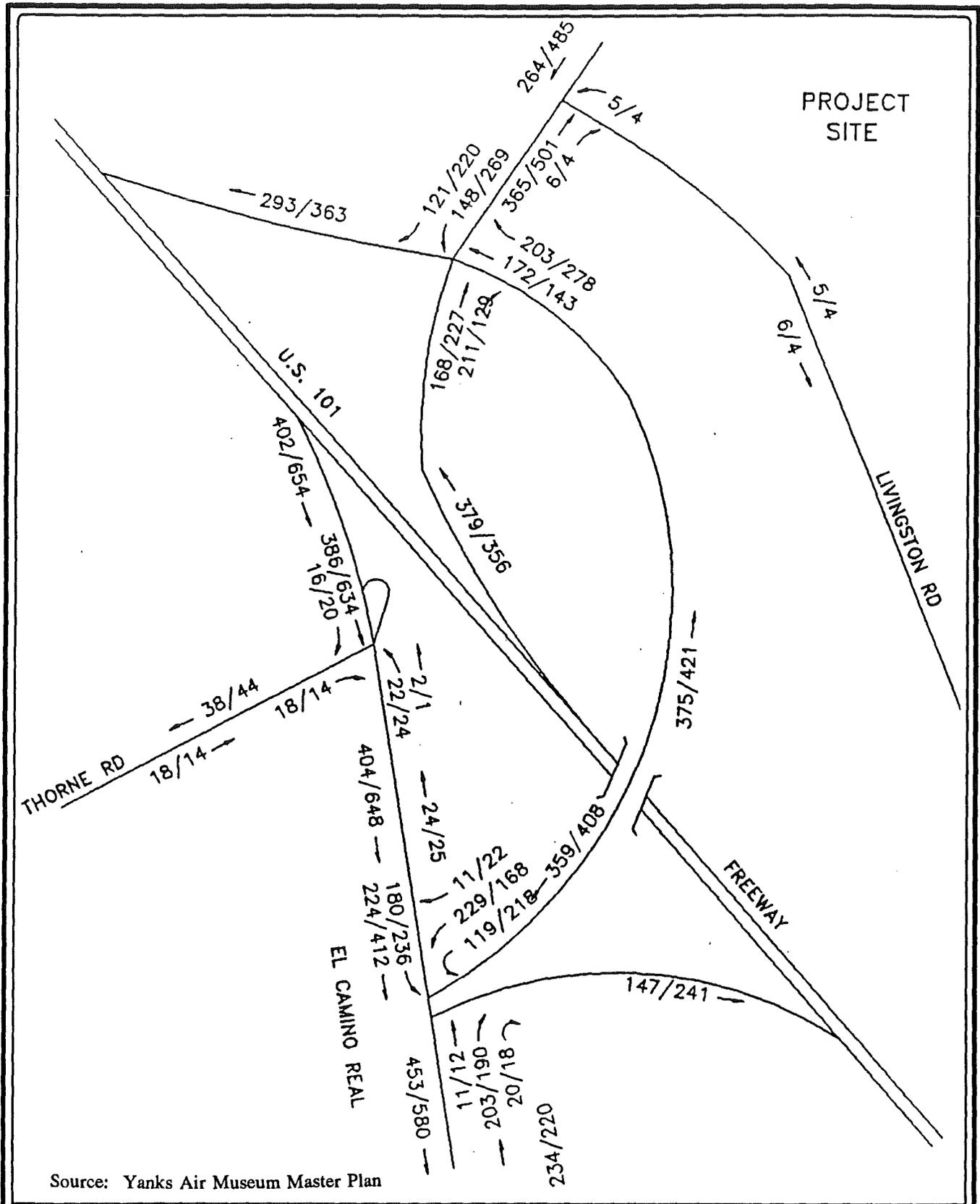
The Master Plan Update documented existing daily traffic volumes on roadway segments throughout the City of Greenfield, and specifically on the streets and freeway ramps in vicinity of the proposed project. The Master Plan Update also projected future buildout daily traffic volumes. The prorata increase (or decrease, due to implementation of the Walnut Avenue freeway ramps) in daily traffic volumes was applied to the respective existing peak hour traffic volumes to obtain future USA buildout peak hour traffic volumes. These future peak hour volumes were analyzed for the three study intersections to identify future traffic operations. Project traffic volumes for the complete buildout of the proposed project were added to the future USA buildout traffic volumes to obtain cumulative traffic volumes and again analyzed for the three study intersections.

The future USA buildout traffic volumes and the cumulative traffic volumes including the proposed project are presented in Figures 21 and 22 for a.m. and p.m. peak hours. The results of the intersection capacity analyses for the USA buildout and cumulative traffic conditions are presented in Table 11. With the existing improvements, the levels of service at all of the study intersections with the U.S.A. buildout will improve with all intersections projected to operate at LOS "A" during both a.m. and p.m. peak hours. This occurs primarily as a result of the construction of the proposed ramps at Walnut Avenue. With these new ramps in place existing and projected new traffic from developments within the City of Greenfield are diverted away from the ramp interchange at El Camino Real north.

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<sup>9</sup> City of Greenfield Transportation Master Plan Update, Greenfield, CA., January, 1990.





Source: Yanks Air Museum Master Plan

Cumulative Traffic Peak Hour Volumes

Figure 22

With the addition of projected project traffic, the cumulative traffic conditions are projected to deteriorate for the intersections of El Camino Real and the southbound freeway on-ramp and for El Camino Real and the northbound freeway ramps. Levels of service will deteriorate to LOS "B" at both intersections during the a.m. peak hour, which still results in an acceptable level of service. During the p.m. peak hour, the level of service will deteriorate to LOS "D", which is an unacceptable level of service for the County of Monterey.

Table 11 also presents the results of the intersection capacity analyses for cumulative conditions with the recommended project mitigation improvements in place. With the mitigation improvements, the two impacted intersections will be improved to LOS "A" for both peak hours. The recommended improvements will clearly mitigate project traffic impacts as well as restore the study intersections to a high level of service for future conditions.

**Table 10.**  
**Level of Service -- Post Project Conditions 1996 and 1997**

<u>Intersection</u>	<u>Pre-Project Volumes</u>		<u>Post Project - 1996</u>		<u>Post Project - 1997</u>	
	<u>A.M. Pk Hr</u> <u>LOS<sup>1</sup> V/C<sup>2</sup></u>	<u>P.M. Pk Hr</u> <u>LOS V/C</u>	<u>A.M. Pk Hr</u> <u>LOS V/C</u>	<u>P.M. Pk Hr</u> <u>LOS V/C</u>	<u>A.M. Pk Hr</u> <u>LOS V/C</u>	<u>P.M. Pk Hr.</u> <u>LOS V/C</u>
Thome Rd/101 SB Off-ramp	A 0.09	A 0.16	A 0.16	A 0.22	A 0.20	A 0.31
El Camino Real/101 SB On-ramp	A 0.33	A 0.34	A 0.46	A 0.53	A 0.57	C 0.71
El Camino Real/101 NB Ramps	A 0.21	A 0.16	A 0.45	A 0.51	B 0.63	D 0.82 *

<sup>1</sup>LOS - Level of Service

<sup>2</sup>V/C - Volume to Capacity Ratio

\* Significant Impact

Source: Greer & Co., Engineers and Planners

**Table 11.  
Level of Service -- USA Buildout and Cumulative Traffic Conditions**

Intersection	Post Project Volumes				USA Buildout Volumes				Cumulative Volumes			
	A.M. LOS <sup>1</sup>	Pk. Hr. V/C <sup>2</sup>	P.M. LOS	Pk. Hr. V/C	A.M. LOS	Pk. Hr. V/C	P.M. LOS	Pk. Hr. V/C	A.M. LOS	Pk. Hr. V/C	P.M. LOS	Pk. Hr. V/C
Thome Rd/U.S. 101 SB Off-ramp	A	0.20	A	0.31	A	0.19	A	0.31	A	0.30	A	0.46
El Camino Real/U.S. 101 SB On-ramp	A	0.57	C	0.71	A	0.43	A	0.48	B	0.66	D	0.85
El Camino Real/U.S. 101 NB Ramps	B	0.63	D	0.82	A	0.26	A	0.19	B	0.68	D	0.84
<b><u>With Mitigation</u></b>												
El Camino Real/U.S. 101 SB On-ramp	A	0.49	A	0.57	A	0.43	A	0.36	A	0.59	A	0.43
El Camino Real/U.S. 101 NB Ramps	A	0.33	A	0.45	A	0.26	A	0.18	A	0.37	A	0.48

<sup>1</sup>LOS - Level of Service  
<sup>2</sup>V/C - Volume to Capacity Ratio

Source: Greer & Co., Engineers and Planners

## 4.9 Air Quality

### 4.9.1 Introduction

This analysis is based on the analysis and conclusions contained in the Air Quality Analysis prepared for the proposed project by Giroux & Associates (a copy of this report is on file with the County of Monterey Planning Department). The purpose of this study was to evaluate general meteorological conditions and assess project effects on local and regional air quality. Indirect emission forecasts are generated based on conclusions and assumptions about trip characteristics identified in section 4.8, *Traffic and Circulation*.

### 4.9.2 Setting

#### 4.9.2.1 Climate and Meteorology

The climate in the project vicinity, as with all Central California coastal areas, is dominated by the massive thermal capacity of the ocean, by cool coastal ocean currents, and by the strength and position of the high pressure ridge near Hawaii. The resulting climate is cool and damp with only small daily and seasonal oscillations. Summers are cool, winters are mild, rainfall is usually light and infrequent, there is a persistent onshore breeze up the Salinas River Valley from northwest to the southeast, and there is a high frequency of nocturnal fog and low coastal clouds, especially in the summer. The onshore breezes are typically unpolluted, but the weather conditions that create the marine climate also combine to limit the dispersive capacity of the atmosphere over the region. Fortunately, emission levels throughout the valley are sufficiently low such that ambient air quality is generally healthful.

The annual average temperature of the Greenfield area is 59° F ranging from the upper 30's on winter mornings to the mid 80's on the warmest days. The thick clouds over Monterey Bay in July and August burn off much sooner in Greenfield than along the coast. Diminishing strength of the onshore, upriver flow in late summer reduces marine influence. The warmest days in the project area are often in early September. Extremes of temperature are very unusual because of the moderating effects of the sea breeze with only a few days ever reaching 90° in late summer and with correspondingly only a few days reaching freezing in an average year.

In contrast to the very homogeneous distribution of temperature throughout the year, rainfall is highly variable, and falls almost exclusively from late October to early May. Rainfall varies markedly with location and elevation around the valley, but averages around 12 inches per year. Rainfall generally decreases in moving up the valley from around 15 inches per year in Salinas to around 10 inches per year south of King City.

Winds are dominated by thermal contrasts between ocean and land. The local flow from the cool ocean to the warm Central Valley produces a prevailing onshore flow from the northwest up the river valley. At night, especially in winter when colder air drains to the valley floor and then flows seaward, winds blow down the valley from the southeast into Monterey Bay. Cross-valley winds generally only occur during very light wind disorganized flow. Except for brief transition periods in the morning and evening, winds are usually strong enough to preclude any local stagnation, and the area is therefore well ventilated almost year-round.

The strong onshore flow of cool marine air undercuts a large dome of warm, sinking air within the eastern edge of the Pacific high pressure ridge. The boundary between the marine air below and the dry air above is the base of a marine/subsidence temperature inversion that acts like a large lid over the region. While coastal areas are well ventilated, the marine air moves inland, decelerates, and air pollutants are added from below without any dilution from above. As these pollutants react and undergo photochemical transformations, they may cause clean air standards for ozone (the primary constituent of smog) to be exceeded in downwind valleys.

A second inversion type forms on clear nights when the air near the ground cools by contact while the air aloft remains warm. These radiation inversions, in conjunction with nearly calm winds, may lead to accumulations of automotive exhaust near freeways or other traffic concentrations. While a potential exists for such air pollution "hot spots" in the Salinas Valley, traffic densities are typically too low for any significant concentrations of such pollutants to occur.

In summary, there are meteorological conditions during both the summer and winter that have the potential for causing unhealthy air quality. Fortunately, the level of emissions from both stationary and mobile sources is sufficiently low such that this potential for degraded air quality is almost never realized in the project vicinity.

#### 4.9.2.2 Ambient Air Quality Standards (AAQS)

In order to assess the air quality impact of any proposed development such as the Yanks Air Museum, that impact, together with baseline air quality levels, must be compared to the applicable ambient air quality standards. These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect "sensitive receptors" defined as that segment of the public most susceptible to respiratory distress or infection such as asthmatics, the very young, the elderly, people weak from other illness or disease, or persons in heavy work or exercise. Healthy adults can tolerate periodic exposure to air pollution levels somewhat above these standards before adverse health effects are observed.

The Clean Air Act Amendments of 1990 established national AAQS with states retaining the option to adopt more stringent standards or to include other pollution species. Because California already had standards in existence before federal AAQS were established, and because of unique meteorological problems in the state, there is considerable diversity between state and federal standards currently in effect in California as shown in 12. The state standards are in most cases more stringent than the federal standards.

<b>Table 12. Federal and State Ambient Air Quality Standards</b>			
<b>Pollutant</b>	<b>Averaging Time</b>	<b>Federal Primary Standard</b>	<b>State Standard</b>
Ozone	1-Hour	0.12 PPM	0.09 PPM
Carbon Monoxide	8-Hour	9.0 PPM	9.0 PPM
	1-Hour	35.0 PPM	20.0 PPM
Nitrogen Dioxide	Annual	0.053 PPM	NA
	1-Hour	NA	0.25 PPM
Sulphur Dioxide	Annual	0.03 PPM	NA
	24-Hour	0.14 PPM	0.04 PPM
	1-Hour	NA	0.25 PPM
PM-10	Annual Average	50 ug/m <sup>3</sup>	30 ug/m <sup>3</sup>
	24-Hour	150 ug/m <sup>3</sup>	50 ug/m <sup>3</sup>
PPM = parts per million; NA = not applicable; ug/m <sup>3</sup> = micrograms per cubic meter			
Source: CEQA Air Quality Guidelines, MBUAPCD, October 1995.			

Further amendments to the Act promulgated in 1977 specified that all areas of the country must attain all national AAQS by 1982 with a possible extension to 1987 for some pollution constituents if reasonable further progress had been demonstrated by the 1982 interim deadline. For those areas of the country where attainment was not anticipated for given pollution constituents within the specified timetable, the Clean Air Act required that a comprehensive plan be prepared that outlined the tactics and growth assumptions through which increased emissions associated with growth was to be offset by even greater emissions reductions such that attainment with federal standards was to be realized by the 1987 deadline.

With the passing of the 1987 attainment deadline with many areas of California still far from compliance, and with uncertainty about reauthorization of the federal Clean Air Act, California adopted its own California Clean Air Act (CCAA; AB-2595). AB-2595 requires air quality attainment planning to achieve the more stringent state AAQS. An Air Quality Management Plan (AQMP) was prepared in 1989 by the Monterey Bay Unified Air Pollution Control District (APCD) in response to CCAA requirements and updated in 1991. The

AQMP identifies measures to reduce basinwide emissions as a basis for future attainment of standards. These measures include both stronger controls on industrial sources as well as emissions reductions from vehicular sources beyond any year to year improvement from retirement of older, polluting cars. The APCD produced the 1994 Air Quality Management Plan (AQMP) which updated the 1991 AQMP and addresses state requirements, and the Federal Maintenance Plan and Rate of Progress Plan both of which address federal requirements.

#### 4.9.2.3 Baseline Air Quality

Violations of ambient air quality standards are determined through data collected at air quality monitoring stations located throughout the air basin. Ambient air quality measurements are conducted by the APCD at its Salinas air quality monitoring station. This station measures both regional pollution levels such as dust and smog, as well as primary vehicular pollution levels such as carbon monoxide and nitrogen dioxide. A monitoring station was also operated in King City for several years as part of a special research program. Ozone monitoring is also conducted at the Pinnacles station which is operated by the National Park Service. Monitoring data from this station, which is the closest station to the project site, violated the federal ozone standard once in 1991 and the state ozone standard numerous times in the past five years.

Ambient air quality monitored by the APCD within Monterey County violated the state ozone standards 2 days in 1993 and no days in 1994. The state PM<sub>10</sub> 24-hour standard was violated 2 days in 1993 and no days in 1994. The federal standards for ozone has not been exceeded at APCD monitoring stations since 1989 in the air basin. Regulatory efforts to reduce ozone primarily focus on reductions in NO<sub>x</sub> and ROG produced daily in the County.

PM<sub>10</sub> is particulate matter of 10 microns or less and has a wide variety of sources including paved road dust, dust from construction and demolition, agricultural operations, and particulate matter released during fuel combustion. Violations of the 24-hour state standard occur infrequently throughout the County; only seven nine days since 1986. Federal standards for PM<sub>10</sub> are not exceeded in the NCCAB. Regulatory efforts to reduce PM<sub>10</sub> focus on controls on fugitive dust.

#### 4.9.2.4 Air Quality Planning

An attainment plan to achieve the federal ozone standard is attained when the maximum hourly average concentrations above the standard is equal to or less than one. If the request for redesignation is approved, the federal attainment plan converts to a maintenance plan to insure that the standard will continue to be met.

Planning for attainment of state standards is embodied in the 1994 AQMP. The 1994 update demonstrates that the 20 percent reduction target in ozone precursor emissions from the 1987 baseline has been met and that no new control measures (contingency measures) are needed beyond those already in the plan.

~~A visitor-oriented development such as the proposed project does not directly relate to the AQMP which addresses specific stationary source controls while treating mobile source emissions through more general transportation control measures (TCMs). The AQMP addresses all sources of emission growth including mobile source emissions in the emissions forecasts, and consistency with these forecasts is used to address the cumulative air quality impacts on regional pollution (ozone). The Transportation Agency of Monterey County (TAMC) has developed a model trip reduction ordinance (TRO) which has been adopted by the City of Greenfield. Emissions controls from storage or dispensing of fuels is the only project component that has a detailed relationship to the rules of the APCD, and hence the AQMP. Indirect source control is clearly important because the primary source of impact from the proposed project is from vehicles. Such controls, however, are "softer" compared to the "hard-and-fast" rules and regulations governing specific source controls.~~

### **4.9.3 Impacts and Mitigation Measures**

#### **4.9.3.1 Standards of Significance**

In accordance with CEQA Guidelines and APCD Thresholds and Guidelines, a significant adverse air quality impact would normally result if a project releases emissions that exceed specified thresholds; would result in a violation of ambient air quality standards; contribute substantially to an existing or project violation; is inconsistent with adopted air quality plans and projections; exposes sensitive receptors to substantial pollutant concentrations; exposes people to unhealthful levels of toxic or hazardous pollutants; or causes odors or other nuisances impacting a considerable number of people.

#### **4.9.3.2 Overview**

A visitor commercial oriented use such as the proposed Yanks Air Museum will impact air quality primarily through increased automotive emissions. These emissions will be widely dispersed in space and time by the mobile nature of the mobile source itself. While individual projects do not generally, in themselves, result in exceedances of the ozone standards, they can result in exceedances of ambient standards for localized pollutants (i.e., PM10 and CO). Secondary emissions during construction from increased fossil-fueled energy utilization and from increased aviation activities will be generated, but these are usually much smaller in both duration and volume than the mobile source emissions generated by project operations.

The proposed project will be characterized by a large number of days with "routine" site operations, mainly pass-by trips associated with the service stations, fast-food restaurants, and overnight stays, "new" trips associated with the museum, RV park, hangars and employee commute trips. In addition, the applicant has proposed that special events such as air shows be held at the site on weekends several times per year. Special events are likely to generate substantial traffic volumes in the vicinity in addition to normal traffic volumes in the area. As stated in the project description, the applicant will be required to gain approvals and permits for special events at the site. At such time and based on the specific characteristics nature of such special events not available at this time, the applicant will be required to satisfy the requirements of the County concerning traffic congestion, parking, scheduling, etc. Therefore, this analysis does not address the air quality impacts associated with special events at the site.

Project buildout will remove 100 acres of agricultural uses. Removal from agriculture will reduce dust and other emissions associated with tilling practices. Heavy construction, however, increases airborne dust temporarily, and increased trips to and from the site is also a source of fugitive dust over the long-term.

#### 4.9.3.3 Construction Impacts

##### Particulates and Fugitive Dust

Short-term construction operations generate fugitive dust, approximately 64% of which is PM<sub>10</sub>. The primary sources of construction-related dust includes grading, excavation, building of roads and travel on unpaved surfaces. During construction, fugitive dust is generated when wheels or blades pulverize and break down surfaces. The resulting dust is subsequently entrained by wind or vehicle tires, potentially causing a nuisance and health hazard to those working nearby. Other sources (e.g., exhaust from heavy-duty diesel-powered equipment) can also contribute to PM<sub>10</sub> levels at and around the construction site.

For purposes of analysis of any short-term impacts, it has been assumed that as much as 20 acres of the 100 acre project site will be under simultaneous development during the five year construction phasing. Dust emissions from soils in the Salinas Valley are generally substantial during soil disturbance because the soil contains a high proportion of fine material. The average uncontrolled dust emission rate during construction is about 71 pounds per day per acre of disturbance<sup>10</sup> for a total of 1,429 pounds per day per 20 acres. This dust loading represents particles up to 30 microns in diameter called total suspended particles (TSP).

The respirable fraction (10-micron diameter or less particulate matter -- PM<sub>10</sub>) of TSP typically comprises 64% of TSP. This ratio suggests that the project-related construction PM<sub>10</sub> dust burden will be approximately 230 769 pounds per day (38 lbs/day/acre x 20 acres

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<sup>10</sup> Assumes 1.2 tons of fugitive dust per acre of construction per month of activity (EPA AP-42, Vol. I, 1985), 22 working days per month. Assumptions apply to construction operations with: 1) medium activity level, 2) soils with moderate silt content (30%), & 3) semiarid climate.

= 760 lbs/day) plus combustion PM<sub>10</sub> emissions of 9 lbs/day). This level is substantially above the significance threshold used by the APCD of 82 pounds per day for evaluating project impact significance.

While the estimate of project construction related PM<sub>10</sub> emissions exceeds APCD thresholds based on the assumptions described above, the only sensitive receptors (two residences) in the vicinity are located more than 2,000 feet to the north and south of the site. In addition, the site has historically been farmed and is surrounded by actively farmed lands. Farming operations also generate substantial PM<sub>10</sub> emissions. The project will result in 110-acres taken out of agricultural production. Agricultural production generates substantial PM<sub>10</sub> emissions approximately three to four times per year when fields are disked and worked. During these times, the fields lay without vegetation for several weeks and PM<sub>10</sub> levels are approximately 4,180 lbs/day (38 lbs/day/acre x 110 acres = 4,180 lbs/day). The proposed project will result in a reduction of 3,420 lbs/day in PM<sub>10</sub> creating a positive impact. Additionally, the proposed project will only be graded one time where as the existing agricultural fields continue to create PM<sub>10</sub> impacts several times each year.

In addition to smaller particles that will remain suspended in the air semi-indefinitely, construction dust is comprised of large diameter inert silicates that are chemically non-reactive and are further readily-filtered out by human breathing passages. They settle out again soon after they are released into the air. These fugitive dust particles are, therefore, more of a potential soiling nuisance as they settle out on parked cars, landscape foliage or outdoor furniture rather than any adverse health hazard.

**Impact:** Construction of the air museum, runway and commercial facilities will generate temporary emissions of fugitive dust from soil disturbance and combustion emissions from on-site construction equipment and from off-site trucks moving dirt, delivering construction materials, and from worker travel. ~~This is a less-than-significant impact which can be reduced to a less-than-significant level with implementation of the following mitigation measures will reduce impacts even further.~~

## Mitigation

21. Limit the area under construction up to 10 acres at any one time ~~where feasible.~~
22. During construction, grading efforts shall ~~seek to~~ minimize dust generation through the implementation of the following dust suppression techniques and applied ~~as appropriate~~ (the following mitigation measures, when implemented, can reduce fugitive PM<sub>10</sub> an average of 50 to 90%):
  - Water all active construction areas at least twice daily. Frequency should be based on the type of operation, soil, and wind exposure;
  - Apply chemical soil stabilizers on inactive construction areas (disturbed lands within construction projects that are unused for at least four consecutive days);

- Plant vegetative ground cover per the specifications of a landscape plan approved by the County of Monterey Planning & Building Inspection Department as soon as possible;
  - Prohibit all grading activities during periods of high wind (over 15 miles per hour);
  - Cover inactive storage piles;
  - Install wheel washers at the entrance to construction sites for all exiting trucks;
23. Post a publicly visible sign which specifies the telephone number and person to contact regarding dust complaints. This person shall respond to take corrective actions within ~~48~~ 24 hours, or sooner as the situation warrants.

### Construction Equipment Combustion Emissions

The MBUAPCD's CEQA Guidelines do not require quantification of Reactive Organic Gasses (ROG) and Nitrogen Oxides (NO<sub>x</sub>) emissions from construction activities because these temporary emissions of these ozone precursors have been accommodated in State and Federally required air plans. Tables 13 and 14 present exhaust emission factors for various types of equipment used during construction operations. Exhaust emissions vary substantially from day to day, depending on the level of construction activity, and cannot be quantified without appropriate information on the numbers and types of equipment needed. Based on experience with similar types of projects, construction exhaust emissions will not measurably increase existing ambient air pollutant levels.

This analysis is based on development of previously ungraded raw land. For the already flattened project site, grading requirements, and hence heavy equipment emissions, will likely be less than the maximum calculated above. While APCD standards will probably not be exceeded in practice, any reasonable measures to reduce NO<sub>x</sub> equipment emissions should be pursued.

On-site and off-site construction equipment (primarily diesel powered) requires an average of 200,000 Brake Horsepower Hours (BHP-HR) of operations to build out one acre of land into roads and building pads. For the project site under an assumed 20-acre simultaneous construction schedule, with heaviest construction occurring during a 6-month period, this translates into the following daily construction equipment combustion emissions:

Reactive Organics (ROG)	-	18 pounds/day
Carbon Monoxide (CO)	-	57 pounds/day
Nitrogen Oxides (NO <sub>x</sub> )	-	258 pounds/day
Combustion PM <sub>10</sub>	-	9 pounds/day
Sulfur Dioxide	-	18 pounds/day

~~Although the daily NO<sub>x</sub> emissions during construction may be substantial, the mobile nature of the construction equipment will prevent any localized violation of the NO<sub>x</sub> standard.~~

Emissions will also be spread out over a wide area and over an extended buildout schedule. There may be localized instances when the characteristic diesel exhaust odor might be noticeable from passing trucks or nearby heavy equipment, but such transitory exposure is a brief nuisance and will not threaten air quality standards.

~~Impact: During construction, NO<sub>x</sub> emissions are predicted to potentially exceed the APCD threshold of 150 pounds per day. This is a potentially significant impact that can be reduced to a less than significant level by implementing mitigation measure 21 and the following mitigation:~~

<b>Table 13.                      Emission Factors for Heavy-Duty                      Diesel-Powered Construction Equipment                      (pounds per hour of operation)</b>		
<b>Equipment Type</b>	<b>Reactive Organic Gases</b>	<b>Oxides of Nitrogen</b>
Tractor	0.12	1.26
Wheeled Tractor	0.19	1.27
Wheeled Dozer	0.19	4.16
Scraper	0.28	3.83
Motor Grader	0.04	0.05
Wheeled Loader	0.25	1.89
Track-type Loader	0.10	0.83
Off-highway Truck	0.19	4.16
Roller	0.07	0.87
Miscellaneous	0.15	1.69
Source: U.S. E.P.A. AP-42, Volume II, September 1985		

<b>Table 14. Emission Factors for Heavy-Duty Gasoline-Powered Equipment (pounds per hour of operation)</b>		
<b>Equipment Type</b>	<b>Reactive Organic Gases</b>	<b>Oxides of Nitrogen</b>
Wheeled Tractor	0.50	0.43
Motor Grader	0.56	0.32
Wheeled Loader	0.70	0.52
Roller	0.79	0.36
Miscellaneous	0.73	0.41

Source: EPA AP-42, Volume II, September 1985

## Mitigation

24. ~~Perform low-NO<sub>x</sub> tuneups on all construction equipment operating on the site for more than sixty (60) days.~~

### 4.9.3.4 Mobile Source Impacts

The primary source of long-term emissions associated with the proposed project is motor vehicle trips to and from project site. Generally, vehicle trips associated with the project are employee trips, museum visitors, winery visitors, hotel and restaurant visitors, and gas and food customers. The characteristics of the trips associated with proposed land uses on the site have been identified in section 4.8, *Traffic and Circulation*. The following assumptions about the various types of vehicle trips have been made by DD&A for this air quality analysis:

- Employees will come predominantly from the Greenfield area, including King City, Soledad, and Gonzales. The applicant estimates that the project could support as many as 383 employees upon buildout. With an average of 1.2 employees per vehicle, total number of employee average daily trips is 319 trips. Average trip length used for employee trips is the county wide average for all trips of 8.4 miles<sup>11</sup>.

<sup>11</sup> CEQA Air Quality Guidelines, MBUAPCD, October 1995.

- The museum will attract both visitors from the region as a destination and pass-by trips already traveling Highway 101 adjacent to the site. Pass by trips are defined as those vehicles that stop on their way between their origin and their true destination. The percentage of pass by trips is difficult to predict. Current average daily traffic volume on Highway 101 is 21,500 trips north of El Camino Real in the vicinity of the project site. Estimated museum average trip generation is 240 trips per day. Pass by trips are likely to account for 40% of that average, leaving 144 destination trips. Average trip length for museum destination trips is assumed to be 40 miles.
- The winery, hotel, restaurants and gas stations are also likely to generate a significant number of pass by trips, as well as trips in conjunction with museum visits. The traffic report forecasts a total of 11,096 trips per day for the those uses. A conservative estimate of pass by trips is 60%, leaving 4,438 destination trips. Average trip length for highway services destination trips is assumed to be 15 miles.
- Trips associated with the RV park are also likely to be a combination of pass by trips and destination trips. However, many of the "destination" trips are more likely primarily associated with the air museum or winery. The number of "new" trips generated by this use is likely to be nominal, up to 20% of the 32 average daily trips.

The California Air Resources Board (ARB) has developed a land use and air pollution emissions computer model that allows one to readily calculate the daily emissions increase associated with the proposed project. This model, called the ~~URBEMIS3~~ **URBEMIS5** model, was run by ~~Giroux & Associates and verified by~~ Denise Duffy & Associates for the year 2000 based on the assumptions described above with the understanding that buildout would occur somewhere within that time frame. Pass by trips are not factored into the model run. Although they may be new driveway trips in terms of local roadway impacts, regional vehicular emissions will not be increased by this component of project-related trip generation. Output of the model run is attached as Appendix F. The vehicular emissions burden associated with the project is summarized in Table 15.

Levels of CO would slightly exceed the APCD threshold at project completion. However, according to the traffic analysis performed for this EIR, ~~no intersections within the study area would operate below LOS D under cumulative traffic projections which include the project; the project does not result in degradation of intersection or road segments from LOS D to below, therefore CO modeling is not required, and the project does not have a significant impact on CO levels.~~ All other pollutant emissions are within the thresholds established by the APCD.

~~Because of the substantial CO emissions associated with project traffic, microscale air quality considerations must be analyzed near the project site. In order to determine whether any possible traffic congestion may contribute to localized air pollution standard violations, a screening procedure based on the California roadway dispersion model CALINE4 was run at three intersections near the project area. CO was used as an indicator pollutant to determine "hot spot" potential. Peak hour traffic was combined with minimum dispersion~~

~~conditions in order to create a theoretical worst-case impact estimate. The results of these AM and PM peak-hour calculations are shown in Table 16 for the three intersections analyzed. With a background concentration of perhaps 4 ppm, a CO concentration of 16 ppm would be needed to create a violation of the 1-hour standard. With peak hour microscale impacts of less than 2 ppm, maintaining the CO standard is not a significant concern in the project area.~~

~~**Impact:** The project will result in an increase in vehicle pollutant emissions below the threshold values identified by the APCD. CO concentrations are estimated to be slightly higher than APCD thresholds. However, the project as proposed, with implementation of mitigation measures 14 through 20 from section 4.8, *Traffic and Circulation*, will not contribute to significant congestion. *This is a less-than-significant impact and no further mitigation is necessary.*~~

#### 4.9.3.5 AQMP Consistency Analysis

The proposed project is intended to attract visitors to the area. Proposed uses will include services that are geared towards tourists from outside the region. Therefore, the proposed project is considered a commercial use not associated with population growth. In order to be considered consistent with the 1994 AQMP, it must be determined that ozone precursors from such uses have been accommodated for in the AQMP.

A consistency determination analysis was provided by the APCD on October 3, 1995. The APCD found that the proposed hotel is within the growth in hotel and motel facilities that is accommodated by the AQMP between 1987 and 2000. Therefore, the hotel land use is consistent with the 1994 AQMP. The remaining commercial uses related to the hotel are also determined to be consistent. Appendix F contains the consistency determination prepared by the APCD.

#### 4.9.3.6 Secondary Impacts

Growth introduces a number of secondary emissions sources that are individually and cumulatively small, but are nevertheless a significant portion of the county pollution burden when summed over all basinwide activities. These sources typically include energy consumption (off-site electrical generation and on-site fuel combustion), evaporative emissions from paints and solvents used in construction and maintenance, evaporative losses from fuel dispensing at gas stations and for aircraft, dust emissions from manufacture of aggregates, emissions from utility equipment such as mowers, or cooking emissions from fast food broilers. Even for the entire project, these emissions are much less than the mobile source component. *This is a less-than-significant impact. No additional mitigation is recommended or necessary.*

**4.9.3.7 Odors**

Potential components of the project which could generate pollutants associated with objectionable odors are the on-site waste collection and treatment system and airplane refueling and maintenance facilities. The treatment system proposed is an extended aeration/denitrification process. This plant will not produce obnoxious odor during normal operation. Unpleasant odor is produced when the sludge is disturbed in the aerobic digester. This condition generally only occurs when the sludge is pumped from the aerobic digester which is expected to occur about four times per year for about 2 hours each occurrence. This odor is dissipated within a very short time period and is not expected to reach downwind sensitive receptors. *This is a less-than-significant impact.*

<b>Table 15. Project Generated Mobile Source Emissions (pounds per day)</b>					
Type of Use	Trip Length (miles)	Net ADT	ROG <sup>a</sup>	CO	NOx
Museum	40	274 370	3.8 3.9	46.8 30.89	7.4 5.3
Winery	15	310 680	3.8 7.2	42.6 56.98	8.3 9.8
Fast Food Restaurants	15	4112 2086	13.2 223	441.2 177.91	29.5 30.3
Sit Down Rest.	15	270 676	3.3 7.2	35 57.05	7.2 9.8
Motel	40	522 1109	6.5 11.7	71.7 93.59	13.9 16.0
Gas Stations	15	1311 2339	15.5 24.6	164.4 195.28	34.7 33.8
Aircraft Hangars	15	397	4.7 4.2	50.8 33.03	10.5 5.7
RV Park	40	6	0.1	0.8	0.2
<i>Total</i>		<del>4,202.00</del> 7,657.0	<del>50.90</del> 102.83	<del>553.30</del> 819.74	<del>111.70</del> 140.81
<b>MBUAPCD Threshold</b>			150	-- <sup>b</sup>	150
<b>Notes:</b>					
a. Reactive Organic Gases (ROG) total 91% of Total organic Gases.					
b. LOS at intersection/road segment degrades from D or better to E or F or V/C ratio at intersection/road segment at LOS E or F increases by 0.05 or more or delay at intersection at LOS F increases by 10 seconds or more or reserve capacity at unsignalized intersection at LOS E or F decreases by 50 ore more. Modelling should be undertaken to determine if the project would cause or substantially contribute (550 lb/day) to exceedance of CO AAQS.					
Source: URBEM163 URBEM155 Model Run, DD&A, January 1996; October 1996					

<b>Table 16. CO Concentrations Over Background (PPM)</b>						
<b>Location</b>	<b>1994</b>	<b>Pre-I</b>	<b>Phase I</b>	<b>Phase II</b>	<b>Ultimate</b>	<b>W/Project</b>
Thorne/SB Ramp	0.5	0.5	0.6	0.7	0.2	0.4
EI Cam/SB Ramp	0.7	0.6	0.6	1.1	0.2	0.6
EI Cam/NB Ramp	0.5	0.4	0.6	1.3	0.1	0.4
<b>Note: Background CO level is 4 ppm, 1-Hour Standard is 20 ppm.</b>						
<b>Source: Giroux &amp; Associates, Air Quality Analysis for Yanks Air Museum, November 10, 1994</b>						

## **4.10 Noise**

### **4.10.1 Introduction**

This analysis is based on the analysis and conclusions contained in the Noise Analysis prepared for the proposed project by Giroux & Associates (a copy of this report is on file with the County of Monterey Planning Department). The purpose of this study was to evaluate general noise conditions and assess project effects on local ambient noise levels

### **4.10.2 Setting**

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is defined as unwanted sound. Acoustic energy is characterized by various parameters that describe the rate of oscillation of sound waves, the distance between successive troughs or crests, the speed of propagation, and the pressure level or energy content of a given sound.

In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level. The unit of sound pressure ratioed to an assumed zero sound level is called a decibel (dB). Because sound or noise can vary in intensity by over one million times within the range of human hearing, a logarithmic loudness scale is used to keep sound pressure level values at a convenient and manageable level. Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, noise levels at maximum human sensitivity (middle A and its higher harmonics) are factored more heavily into sound descriptions in a process called "A-weighting" written as dBA.

Time variations in noise exposure are typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called Leq), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period.

Finally, because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL). An interior CNEL of 45 dBA is mandated for multiple family dwellings, and is considered a desirable noise exposure for single family dwelling units as well. Since typical noise attenuation within residential structures with closed windows is about 20 dB, an exterior noise exposure of 65 dB CNEL is generally the noise/land use compatibility guideline for residential dwellings in California. Commercial or industrial uses have exterior noise exposure standards that are somewhat less stringent because such uses generally are less noise sensitive.

Table 17 shows the community noise and land use compatibility guidelines set forth in the Noise Element in the Monterey County General Plan. The guidelines are based primarily

on noise/land use recommendations from the State Department of Health Office of Noise Control. Noise levels of less than 55 dB CNEL for low density residential uses and 60 dB CNEL for multi-family residences, hotels, schools, churches, etc. are considered "normally acceptable". Each of these uses is considered "conditionally acceptable" up to 70 dB CNEL because interior levels can still be maintained at comfortable levels even if the exterior is noisy. Noise sensitive uses are "normally unacceptable" above 70 dB CNEL.

Because noise intrudes into the ability to carry on a normal conversation at 65 dB, an exterior level of 65 dB CNEL on patios, porches or other exterior recreational space is typically a maximum desirable level even if 70 dB CNEL is considered the upper end of the "conditionally acceptable" range.

Existing noise levels within the project area derive almost exclusively from transportation sources, especially vehicular sources on U.S. 101. Existing noise levels were estimated using the Federal Highway Traffic Noise Prediction Model (FHWA-RD-77-108) initialized with traffic data supplied by the project traffic consultant. Current traffic noise levels relative to the various acceptability categories specified in the Monterey County Noise Element are shown in Table 18 for various Greenfield area roadways.

The optimum level of 55 dB CNEL for very sensitive land uses is not achieved within 1000 feet of Highway 101 in areas where there is a direct line of sight from the roadway to the receiver. Local roadway noise contributions are considerably less. Using 65 dB CNEL as a more realistic exterior noise exposure goal, the 65 dB contour extends less than 300 feet from the freeway and is generally within the roadway right of way at any non-freeway locations. Project implementation would exacerbate an existing moderately degraded noise environment. Conversely, the presence of an already elevated baseline will mask any project contribution such that the individual project impact would be less than perceptible by Greenfield area residents.

**Table 17.**  
**Land Use Compatibility for Exterior Community Noise**

Land Use Category	Noise Ranges (Ldn or CNEL) dB			
	I	II	III	IV
Passively Used Open Space	50	50-55	55-70	70+
Auditoriums, concert halls, amphitheaters	45-50	50-65	65-70	70+
Residential - low density single-family, duplex, mobile homes	50-60	55-70	70-75	75+
Residential multi-family	50-60	60-70	70-75	75+
Transient lodging - motels, hotels	50-60	60-70	70-80	80+
Schools, libraries, churches, hospitals, nursing homes	50-60	60-70	70-80	80+
Actively used open spaces - playgrounds, neighborhood parks	50-67	---	67-73	73+
Golf courses, riding stables, water recreation, cemeteries	50-70	---	70-80	80+
Office buildings, business commercial & professional	50-67	67-75	75+	---
Industrial, manufacturing, utilities, agriculture	50-70	70-75	75+	---

Noise Range I: Normally Acceptable. Specific land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Noise Range II: Conditionally Acceptable. New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Noise Range III: Normally Unacceptable. New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Noise Range IV: Clearly Unacceptable. New construction or development should generally not be undertaken.

Source: Office of Noise Control, California Department of Health, 1976

### 4.10.3 Impacts and Mitigation Measures

#### 4.10.3.1 Standards of Significance

In accordance with CEQA Guidelines, a project would normally result in a significant adverse impact if it caused a substantial increase in the ambient noise level in the vicinity of sensitive receptors adjacent to the project site. Sensitive receptors are land uses where the members of the population spend a substantial amount of time, e.g., residences, schools, hospitals and convalescent homes. For purposes of analysis, the Monterey County standard is 65 dB CNEL for residential exterior recreational uses and transient loading. Business commercial uses such as gas stations and fast food outlets near the freeway are considered acceptable with noise levels up to 75 dB CNEL.

<b>Table 18. Existing Traffic Noise</b>					
Location	CNEL (dBA) @ 100' to C/L	Distance from C/L to:			
		55 CNEL	60 CNEL	65 CNEL	70 CNEL
<b>US 101</b>					
N of El Camino	71.8	>1000'	614'	285'	132'
S of El Camino	71.2	>1000'	560'	260'	121'
<b>El Camino Real</b>					
N of Thome	57.5	148'	69'	<50'	<50'
Thome - Walnut	58.7	177'	82'	<50'	<50'
<b>Thome Road</b>					
W of El Camino	52.1	64'	<50'	<50'	<50'

Source: Giroux & Associates, October 10, 1994

#### 4.10.3.2 Sources of Impact

Noise impacts from a visitor commercial development derive almost exclusively from the traffic generated by site activities. Limited on-site noise impacts may occur from flight activities at the air museum, but the flight activity during most days will be minimal. Temporary construction noise will also result during site preparation and building assembly. Such sources are short-term and will thus not affect the long-term noise exposure in the project vicinity.

#### 4.10.3.3 Sensitive Receptors

The basic strategy for achieving noise compatibility in an airport vicinity is to limit the development of land uses which are particularly sensitive to noise. Sensitive receptors are land uses where the members of the population spend a substantial amount of time, e.g., residences, schools, hospitals and convalescent homes. Because of the rural character of the vicinity, there are no sensitive receptors located immediately adjacent to the project site. Two residences are located more than 2,000 feet of the site, one to the north and one to the south. The nearest residential development is located in the City of Greenfield, approximately 1 mile to the south. The Greenfield Elementary School is also located approximately 1 mile to the south on the corner of Walnut and El Camino Real. The existing middle school, and proposed high school and elementary school sites are located on the south end of Greenfield. No hospitals, convalescent homes or libraries are currently located within a one mile radius of the proposed airport.

#### 4.10.3.4 Construction Noise Impacts

Temporary construction noise impacts vary markedly because the noise strength of construction equipment ranges widely as a function of the equipment used and its activity level. Short-term construction noise impacts tend to occur in discrete phases dominated initially by large, earth-moving sources, then by foundation and parking lot construction, and later for finish construction. The loudest semi-continuous equipment operation noise typically ranges around 90 dBA at 50 feet from the source. Because of the mobility and variable duty cycle of construction equipment, equipment noise emissions tend more to be peaks instead of steady state averages.

Point sources of noise emissions are attenuated by a factor of 6 dB per doubling of distance by spherical spreading of sound waves. The loudest general construction noises may thus require around 1,000 feet of distance between the source and a nearby receiver to reduce the 90 dBA source strength to a generally acceptable 65 dB exterior exposure level. Highway traffic noise will provide a masking effect such that the perception of any temporary noise intrusion during construction will be much less than its theoretical maximum.

In later phases of finish construction, equipment such as generators, compressors, saws, etc. are somewhat less noisy, and the physical barrier created by partially completed on-site facilities further breaks up line of sight propagation. As also indicated by on-site noise calculations, Highway 101 traffic noise intrudes somewhat into the project site and will partially mask the noise from construction activity. The temporary noise impact, especially after the completion of the initial heavy-equipment intensive operations, will be, therefore, confined to the site itself.

In terms of any adjacent residential community noise exposure, construction noise sources are not strictly relatable to a 24-hour noise standard because they occur only during selected times and the source strength varies sharply with time. Construction activities are, therefore, treated separately in the county noise ordinance because they do not represent

a chronic, permanent noise source. To abate the potential nuisance from construction noise, especially in very close proximity to any noise-sensitive development, the county code prohibits construction activities between the hours of 7 pm to 7 am. Code compliance will limit construction noise impacts to periods of reduced noise sensitivity and thus reduce sleep disturbance and other noise nuisance potential.

Construction noise impacts will be reduced by limiting hours of operation as required by the Monterey County Code, and can be further reduced by controls on the location of activities and/or noise levels of equipment used in construction. Specific measures to implement these objectives include:

- Construction activities shall be prohibited during the hours from 7 p.m. to 7 a.m.
- Construction equipment should be equipped with properly operating mufflers.
- Construction staging areas should be located on the northern portion of the site far away from the nearest noise-sensitive receiver locations as possible.

#### 4.10.3.4 Mobile Source Noise Impacts

Conversion of the project site into visitor commercial uses will generate new daily trips on the roadway system surrounding the project. Localized noise impacts in the project vicinity were calculated based on the ratio of future to existing traffic volumes. Phase 2 buildout in 1997 was selected as a worst-case analysis year because future cumulative traffic growth will progressively mask the project increment. Along already heavily traveled roadways in the project vicinity, noise exposure will be little affected by the additional project traffic increment. The primary noise concern is therefore along roadways without an existing elevated baseline.

Noise level increases attributable to the combined project traffic increment are as follows:

U.S. 101 N of El Camino Real	-	0.5 dB
U.S. 101 S of El Camino Real	-	0.5 dB
El Camino at Thorne	-	1.5 dB
El Camino - Thorne - Walnut	-	0.4 dB
Thorne W of El Camino	-	negligible

Noise level increases of less than 1 dB are not detectable by humans even in a laboratory setting, and it requires a change of 3 dB for people to begin to complain that they perceive a substantial degradation in the noise environment. A marginal noise increase will thus occur on El Camino near the southbound off-ramp with all other changes in noise levels at less than significant levels.

Mitigating a finding of even marginal significance is that most traffic to the gas stations, fast food outlets or the hotel would be on the freeway regardless of the proposed project. The increased ramp traffic noise is off-set by the fact that the same vehicles are not on the freeway at much higher rates of speed. Any freeway impact increment is overstated because only a limited fraction of the assumed project-related traffic is actually "new" traffic. Traffic sources during normal site operations thus have an insignificant noise impact within a wide margin of safety.

Special event traffic noise impacts would indeed be new traffic that would temporarily affect the local noise environment. However, routing plans for such traffic, including satellite parking with shuttle services, have not yet been developed. Given the expected festive nature of such events, and the probability that traffic speeds during major events will be reduced, noise impacts are not likely to be substantial or to be perceived as intrusive. *This is a less-than-significant impact.*

#### 4.10.3.5 Aircraft Noise Impacts

Airports have traditionally been identified as a source of noise/land use conflict. Land use compatibility relative to aircraft noise is evaluated relative to average conditions. For the proposed facility, average conditions will represent only a few flights per day. Even for aircraft with "souped up" engines such as vintage fighter aircraft, the zone of noise incompatibility from only a few flights per day will remain within the airport boundary itself. Except for special show events which are treated differently from chronic daily exposure, no adverse noise impacts on local Greenfield residents are anticipated from the aircraft museum component of the proposed project. *This is a less-than-significant impact.*

On-site noise generation for any mechanical equipment such as winery refrigeration compressors or air conditioning will require compliance with county codes for mechanical equipment noise. *Code compliance is presumed to create a less than significant impact.*

Special events entailing noisy activities will require a permit from County staff. Acceptability of the time, location and magnitude of noise generating events will be evaluated by County staff as part of the activity permit.

#### 4.10.3.6 Sewage Treatment Collection and Treatment Noise

The treatment system proposed is an extended aeration/denitrification process. Noise emissions from this system may normally be generated by the lift station pump motors and the blower compressors and motors. The lift station motors will be located in an underground vault and submerged in water. A medium frequency noise can be heard to about 50 feet from this source, well away from sensitive noise receptors. The blower compressors and motors will be located within an area which will be screened on three sides by a 6' high concrete wall and covered with a roof. These units are also equipped with a sound proof cover. Noise should not be noticeable at a range of 300 feet which is also well away from sensitive noise receptors. *This is a less-than-significant impact.*

## 4.11 Public Services

### 4.11.1 Introduction

This section contains an analysis of potential impacts to public services and infrastructure that would be extended to the project site. This analysis is based on consultation with the City of Greenfield Public Works Department and Police Department, the Greenfield Fire Protection District, the Monterey County Sheriff's Department, and other affected agencies, a review of technical documents and reports, and the *City of Greenfield 1990 Sphere of Influence and General Plan Recommendations*.

The categories of continuous public services analyzed in this section are: fire protection, police protection, solid waste disposal, and private utilities. Water supply and wastewater collection and treatment are ~~considered separately because the applicant proposes to provide water service and wastewater treatment privately onsite.~~ discussed in Chapter 4.5 ~~Water Quality and Supply and Chapter 4.7 Wastewater Disposal.~~

### 4.11.2 Fire Protection

Fire protection service for the project site is currently provided by the Greenfield Fire Protection District (GFPD). The GFPD includes the City of Greenfield and the surrounding unincorporated area. A volunteer chief and 22 volunteer firefighters man the fire station located at Oak Avenue near El Camino Real in downtown Greenfield. The GFPD has two pumper-type fire engines and a patrol vehicle. Response time for the GFPD to calls in town is approximately five minutes from the time a call is made to arrival at the scene. This response time is considered adequate by the fire chief, given the size and nature of the Greenfield community.

#### 4.11.2.1 Impacts and Mitigation Measures

**Impact:** The development of the proposed buildings associated with the project will have an impact on the demand for fire protection. The proposed buildings will be constructed in compliance with the applicable uniform building and safety codes ~~applicable fire codes appropriate fire flow capacity, and access to the site, buildings and facilities acceptable to the Greenfield Fire Protection District.~~ ~~s, no additional mitigation measures are required.~~ *This is a less-than-significant impact.*

#### Mitigation

25. The applicant shall submit the project ~~site plan and~~ circulation plan to the Greenfield Fire Protection District for review and approval.

**Impact:** Uses associated with the development of the airport landing strip may require additional fire fighting equipment for the GFPD. General aviation airports that are not certified as a FAR Part 139 air carrier airport, do not maintain and operate Airport Rescue and Firefighting Facilities. The applicants insurance carrier will require applicable firefighting capabilities to be within reach of the airport. *This is a significant impact that can be reduced to a level of insignificance with implementation of the proposed mitigation measure.*

Uses associated with the proposed project include: aircraft landings and takeoffs, helicopter and ultra light aircraft rentals, flight instruction, glider operations, hot air balloon flights, sky diving, radio controlled model aircraft, and occasionally, scheduled events such as air shows, antique and experimental aircraft gatherings and fly byes.

## Mitigation

26. The project applicant shall consult with the volunteer chief and his consultant prior to completion of the preliminary design for the Greenfield Fire Protection District to review project plans to determine the need for mitigation and ensure that adequate on site and off site facilities are available to support the proposed airstrip based on proposed levels of activity.

### 4.11.3 Police Protection

The project site is located within the jurisdiction of the Monterey County Sheriff's Department. The site is located within Patrol Beat 10, served by the Department's King City Office. The authorized strength of the King City office is eighteen deputy sheriffs. Beat 10 includes the Greenfield/Soledad area. During the last two years, the deputies assigned to Beat 10 have also been responsible for portions of Beat 5 from Soledad to Gonzales that has increased the workload. The Sheriff's Department attempts to maintain at least one patrol unit available in the Beat 10 area from 6:00 a.m. to 2:00 a.m. From 2:00 a.m. to 6:00 a.m. a two man unit covers the entire district. Average response time to a call varies greatly given the season, activity and man power available. Response time can vary between 1 to 5 minutes to 45 minutes.

The last five years have seen a significant increase in the number of people living in the area of responsibility of the King City Sheriff's office (Grebmeier, 11/21/95, letter).

#### 4.11.3.1 Impacts and Mitigation Measures

**Impact:** The development of the proposed project will have an impact on the demand for police protection. *This is a significant impact that can be reduced to a level of insignificance with implementation of the proposed mitigation measure.*

The airport boundary will provide a 6 foot high chain link fencing on all sides of the airport except where fencing is between adjacent buildings. Between buildings, all fencing will be 4 feet in height and consist of a mix of chain link, concrete block and wrought iron.

Security lighting will produce an average illumination of 10 candle power per square foot in the vicinity of the building and parking areas (automobile and aircraft) and will be light sensor activated. Lighting in the vicinity of aircraft movement areas must be shielded to not create a visual distraction for arriving and departing aircraft.

The project applicant will implement private security patrols and install security lighting and alarm systems into the project design.

## Mitigation

27. Architectural concessions to decrease vulnerability to crime, such as improved lighting, locks, landscaping, alarm systems, and video surveillance cameras shall be implemented into the project. Architectural plans shall be reviewed by the Crime Prevention Unit, Community Services Division, of the Sheriff's Department prior to issuance of the building permit.
28. Prior to issuance of occupancy permit, the project applicant shall consult with the Monterey County Sheriff's Department and the Greenfield Police Department to determine the need for the provision of onsite private security. A memorandum of understanding shall be developed between the Monterey County Sheriff's Department and Greenfield Police Department regarding a mutual aid agreement.

### 4.11.4 Solid Waste Disposal

Solid waste collection and disposal in the project area is performed under contract to the County of Monterey by Rural Dispos-All of Salinas. Solid waste is collected and hauled to the Johnson Canyon Road Disposal Site in Gonzales. The Johnson Canyon Road Disposal Site is owned by Monterey County and operated by Rural Dispos-All under a county permit. The expected service life of this landfill is over 50 years (Rural Dispos-All, letter dated 10/23/95).

California law requires a reduction in waste going to landfills by 50% in the year 2000 (AB 939). The Johnson Canyon Road Disposal Site offers a centralized recycling center where residents of Greenfield and the surrounding rural areas can dispose of newspaper, glass, and cans. This material is trucked to either Salinas or Castroville for processing. Curbside recycling is not offered to commercial businesses in this area at this time.

Rural Dispos-All has indicated that they have adequate facilities to service the site and impacts are considered less-than-significant.

#### 4.11.4.1 Impacts and Mitigation Measures

**Impact:** Development of the proposed project will create solid waste during construction and after completion of new buildings and other facilities. *The proposed project and impacts are considered less-than-significant, although recycling will be required.*

## Mitigation

29. The applicant shall submit final plans which indicate specific areas where recycling materials may be handled and stored. Recycling should be promoted at the airport and at all other facilities in the project area.

## 4.12 Human Health & Safety

### 4.12.1 Introduction

This section of the EIR reviews the potential impacts to human health and safety due to buildout of the project site. The proposed project may expose people to natural and man-made hazardous conditions.

### 4.12.2 Setting

A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local regulatory agency or if it has characteristics defined as hazardous by such an agency. The federal Environmental Protection Agency (EPA) classifies a material as hazardous if it has one or more of the following properties: ignitability (including compressed gases and flammable liquids), corrosivity, reactivity, or toxicity. The California Department of Health Services (DHS) defines a hazardous material as one which "because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either: 1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating irreversible illness; or 2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed or otherwise managed."

The following hazardous conditions/materials may be associated with the proposed project.

Aviation Activities: Safety issues associated with aircraft take-offs and landings are discussed in the Airport Safety section of this EIR.

Earthquake Hazards: The proposed project will expose more people and property to potentially hazardous conditions associated with earthquake hazards resulting from active and potentially active faults in this area. Please refer to the Geology section of this EIR.

Aircraft Fuel Storage: The proposed project will store aircraft fuel in below ground double wall containment tanks with leak detection sumps and aural warnings. All piping will also be constructed with a double wall systems and vapor recovery delivery nozzles.

Chlorine: The proposed project will need to store, transport and utilize chlorine to disinfect the treated wastewater.

**Hazardous Waste and Surface Water Controls:** Paint stripping for all runway and taxiway marking will utilize water base paints, thus eliminating VOC and VOX concerns. The project applicant will prepare the Storm Water Pollution Prevention Program (SWPPP) prior to development of the site. The SWPPP will most likely require the installation of oil/water separators for runoff from the aircraft and automobile parking and aircraft maintenance areas. Other required best management practices (BMP) required by the Regional Water Quality Control Board (RWQCB) will be included in the SWPPP. ~~The project site may store pesticides on the project site and will dispose pesticide containers. Refer to the water quality section of this document.~~ The project site may occasionally store a small amount of pesticides on the project site for landscaping purposes. The small amount of pesticides to be stored will be insignificant.

#### 4.12.3 Impacts and Mitigation Measures

##### 4.12.3.1 Standards of Significance

A project would normally be considered to have a significant effect on public safety if it were to pose an unacceptable threat to human lives or private property as a result of unsafe design, construction or operation. The project would be considered to have a significant adverse impact if the quality of water delivered to consumers posed an unacceptable risk to public health by violating any applicable water quality standards. In addition, implementation of a project that would create the potential for accidental release of hazardous materials or wastes would be considered a significant impact.

**Impact:** A source of potential groundwater contamination is the aviation fueling station facility. The storage of fuel (either above or below ground), transfer of fuel from tank trucks to storage tanks, from storage tanks into fuel trucks, and the transporting of fuel to various points on the airfield represent a potential for fuel spills through leaks, carelessness, or upset. Although the possibility of a major spill is deemed to be rather low, the amounts of fuel which could be spilled is relatively high. *This is a significant impact that can be reduced to a level of insignificance with implementation of the proposed mitigation measure.*

Aviation fuel, particularly Jet-A fuel, contains petroleum-based mid-distillate hydrocarbons, primarily kerosene. Benzene is the other component of Jet-A fuel. Benzene amounts to less than 0.05 percent by volume. It is the more soluble constituent of jet fuel and is highly toxic. For example, the recommended maximum concentration of benzene in drinking water is less than 1 part per billion. Therefore, the relatively small amount of benzene in jet fuel has the potential to contaminate large volumes of ground or surface water unless adequate precautions are taken to prevent spills or upset. Gasoline has similar concentrations of these volatile organic compounds, and the storage of this material as part of the fuel farm would also represent a potentially significant impact on the quality of water resources if mismanaged.

## Mitigation

The following mitigation measures are set forth as means by which to reduce the potentially significant adverse effects of the proposed aviation fueling station to a level of insignificance:

30. As a minimum, the proposed aviation fueling station will incorporate standard engineering and monitoring techniques and measures for fuel storage, spill containment, and cleanup as required by current federal, state, and local regulations.
31. In addition, construction of the fuel storage facility will require the use of state of the art safety and spill diversion and containment systems. Such a system is controlled and monitored by a microprocessor-based control system which would perform a variety of safety and maintenance/record keeping functions. It would also monitor fire alarms, notify appropriate fire suppression agencies in an emergency, monitor spill and leak detection systems, and activate emergency shutoff valves as required. The system would also activate external and built-in foam fire suppression devices, as well as air and water pollution control measures.
32. Regular cleaning of fill stands and hard stands will be carried out to minimize potential discharge of pollutants into surface runoff.
33. A spill prevention control and countermeasure (SPCC) plan will be adopted to provide procedures for mitigating any fuel, lubricant, or hydraulic fluid spill which might occur as a result of operating the aviation fueling station. The SPCC plan will also include provisions for fueling personnel to be trained in the recovery of spilled substances.
34. Any underground fuel storage tanks would be subject to Monterey County permit requirements, and would be of double wall construction with leak detectors between the walls. Any underground tanks would also have external leak detection and monitoring systems installed.
35. Any above ground tanks would be constructed in accordance with American Petroleum Institute (API) standards for Zone 4 earthquake potential (API 650). The tanks will employ set points for overflow protection that will be interlocked with associated filling mechanisms through the microprocessor-based control system.
36. The principal means of controlling spillage or leakage from any above-ground tanks in the fuel storage area will be by means of an earthen berm with an impervious concrete liner with manual drain valves to direct any spillage to an oil/water separator. The drain valves would be maintained in a closed position to prevent any inadvertent or premature diversion of spillage or leakage to the oil/water separator. The containment berm would be designed to contain a complete failure of the largest tank.

37. Spill containment for the truck fill stands and truck unloading areas will be accomplished by impervious diversion pads. These pads will be capable of accommodating a spill from the largest truck, tender or lighter (i.e., small trucks used to transport fuel to aircraft for fueling) using the facility.

## **4.13 Viewshed & Aesthetics**

### **4.13.1 Introduction**

This section contains an assessment of the existing visual quality of the project area and any potential changes to the visual environment that would result from construction and operation of the proposed project.

### **4.13.2 Setting**

#### **4.13.2.1. Project Viewshed**

The project site is located in a rural setting and is not lighted at night. The project site is located on the relatively flat floor of the central Salinas Valley which is approximately nine miles wide at Greenfield. In the project vicinity, relatively flat farmlands dominate the foreground views, the slopes of the surrounding mountain range dominate the middle ground views, with the distant steeply sloping ridgelines and canyons of the Gabilan Range framing the background view. The urban boundary of the City of Greenfield is located approximately 1.5 miles to the south. The Salinas River is located approximately 1 miles to the east and Highway 101 is located immediately adjacent to the site to the west.

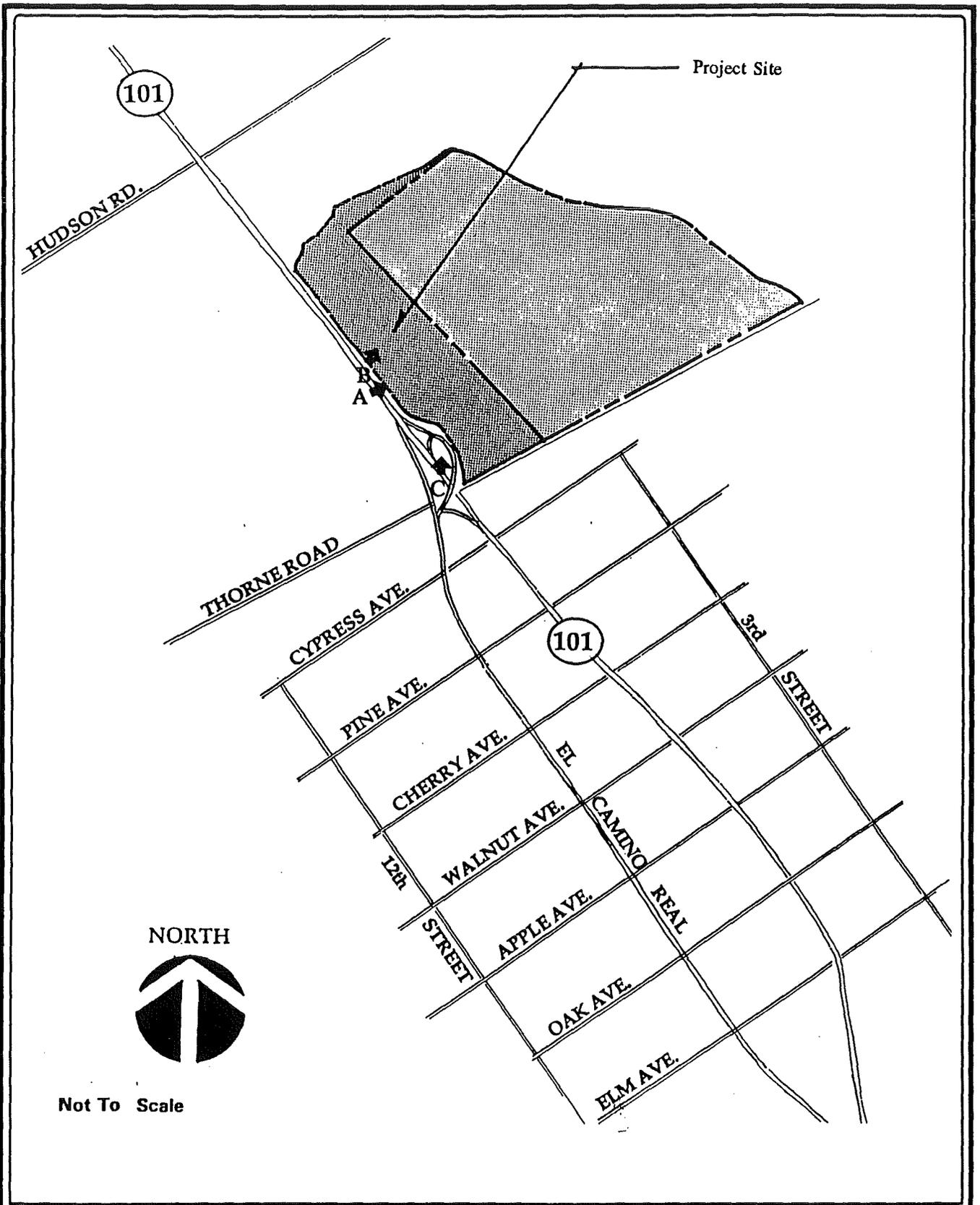
The lands immediately surrounding the project site are characterized by agricultural open space and rural uses. The mostly flat agricultural fields surrounding the site are interrupted by occasional farm structures and stands of trees, many of which serve as windbreaks for farming operations. A service station/"mini-mart" is located on the west side of Highway 101 along the southbound Greenfield offramp.

Lighting on the site is limited to the farm related agricultural buildings. Consequently, the site and surrounding farms offers a rural setting, especially at night.

#### **4.13.2.2. Site Visibility**

The project site is relatively level with a slope of less than 2%. There is a row of Eucalyptus trees along the southern property line on the adjacent parcel. Buildings associated with the farming operations are located in the central portion of the site. Several large trees are located in this area.

The project site is visible to varying degrees from several key public vantage points (Figure 23 depicts these vantage points and Figures 24 through 26 depict the corresponding views):



Key Public Vantage Points

Figure  
23



Source: Denise Duffy & Associates

Views to the East from Southbound Highway 101

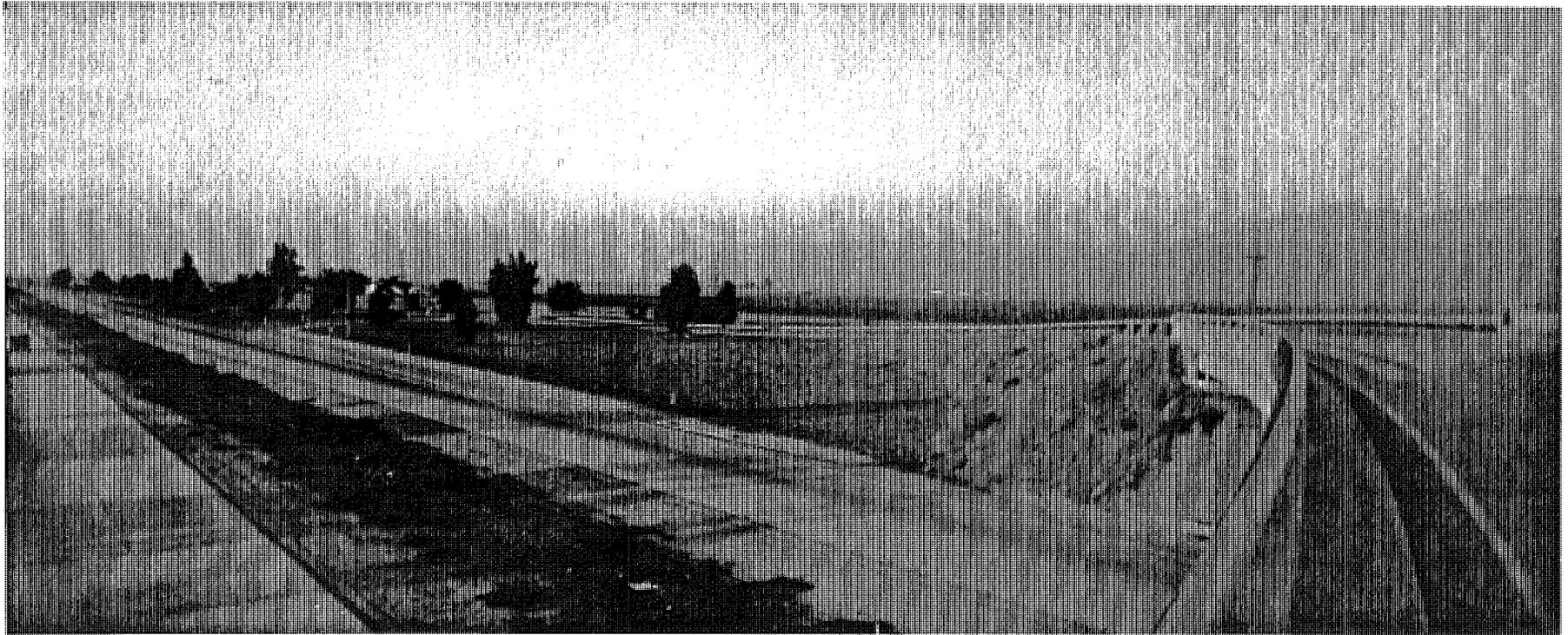
Figure  
24



Source: Denise Duffy & Associates

Views to the East from Northbound Highway 101

Figure  
25



Source: Denise Duffy & Associates

Views to the East from Highway 101 Overpass at Thorne Road

Figure  
26

- A. views to the east from southbound Highway 101,
- B. views to the east from northbound Highway 101,
- C. views to the east from the Highway 101 overpass at Thome Road.

The most prominent public views of the site are from both travel lanes of Highway 101 and from the Thome Road overpass. View of the site are also available from private properties surrounding the site and on the west side of Highway 101.

As seen on the photographic reproductions, agricultural fields and the agricultural buildings on the site dominate the foreground views east from Highway 101, while the Gabilan Range forms the background. Agricultural fields and the Salinas River riparian channel establish the middle ground views.

According to the Central Salinas Valley Area Plan, relevant "visually sensitive" areas include the foothills of the Gabilan and Sierra de Salinas Mountains, and the floor of the Salinas Valley. "Visually sensitive" areas are those scenic resources visible from existing, proposed or potential scenic routes. Neither Highway 101 or Thome Road is a designated scenic route. The project site is not a designated sensitive area<sup>12</sup>.

### **4.13.3 Impacts and Mitigation Measures**

#### **4.13.3.1 Standards of Significance**

In accordance with CEQA Guidelines, aesthetic impacts are defined as "having a substantial, demonstrable negative aesthetic effect." Potential visual impacts are considered significant if the existing visual quality of the area would be substantially degraded. Furthermore, significant impacts would occur if the project were to conflict with aesthetic principles or policies of the area's governing jurisdictions.

#### **4.13.3.2 Public Viewshed Impacts**

In assessing the visual quality of a site, it is important to consider that visual quality is not determined solely by the physical attributes of a proposed project, but also by the relationship between the project and the site to the total visual environment and to the human sense of the aesthetic. Visitors drawn to a scenic area known for its physical character would be highly sensitive to its dramatic visual elements. Residents of the area, going about their daily routine activities, would be expected to respond to more subtle aspects of the area's visual quality.

For most people, the perception of visual quality is created by the impressions formed when viewing a place from several vantage points. With this in mind, a field survey of the site was conducted to assess the existing visual character of the site and adjacent areas, and the quality of views into the proposed site area from other public vantage points and circulation

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<sup>12</sup> Monterey County, *Central Salinas Valley Area Plan*, Figure 5, November 1987.

routes. The field reconnaissance was used to identify the important visual features of the site.

Development of the project site would result in the development of commercial and visitor serving structures and parking lots visible from each of the public vantage points depicted in Figure 23. Figures 5 and 7 show preliminary elevations for the air museum and winery, respectively. The applicant has not submitted elevations for other proposed uses on the site for use in this EIR. The site would not be substantially graded and would remain relatively flat. The site plan shows a landscaped strip between the highway right-of-way and the edge of the paved parking surfaces.

Because the project is a commercial enterprise, the applicant proposes to incorporate signs identifying entrances to the project and on-site advertising of the highway-related businesses according to County and Caltrans standards. The applicant proposes to prepare a sign plan for review by the County. In general, the sign plan will establish the locations, materials and size of signs. The applicant proposes that the maximum allowable height for free-standing signs will be 25 feet, and 60 feet for free-standing freeway signs. The freestanding sign identifying the air museum is proposed to be 300 square feet in area.

**Impact:** Development of the project will result in a change in views to and from the project site, particularly from public vantage points on Highway 101 and the Thorne Road overpass. While the development will alter the rural character of the site, neither Highway 101 or Thorne Road is a scenic route; therefore, the site is not considered a sensitive visual resource. However, the intensity of development will differ from what exists in the immediate vicinity. *This is a potentially significant impact.*

## Mitigation

38. The applicant shall submit a landscape plan to the Monterey County Planning and Building Inspection Department for review and approval. The plan shall provide for landscape screening, appropriate to the surrounding climate and terrain (drought resistant, native vegetation). Visual screening of the parking lots and buildings shall be provided to integrate the project with the visual setting.
39. The applicant shall submit design guidelines that provide on-site advertising signs, fences, walls, and entry gates consistent with applicable Monterey County Codes, except as otherwise approved. The design guidelines shall include: a sign plan drawn to scale, delineating the proposed site and the general location of all signs; drawings or sketches indicating the exterior surface details of all buildings on the site on which wall signs, directory signs, or projecting signs are proposed; drawings indicating typical sign design, colors, faces and methods of construction. At a minimum, the sign plan shall avoid clutter in the location and size of free standing signs.

#### 4.13.3.3 Lighting and Glare

The project will introduce increased glare and night lighting to the project site and surrounding farmlands. Businesses on the site will require security and advertising lighting. The signs identifying highway-related services are proposed to be lighted.

**Impact:** Development of the site would result in an increase in external lighting. Night lighting for advertising, security and street lighting could be perceived as intrusive to surrounding residences because the site has not had intrusive night lighting in the past. *This is a significant impact. Because there is no clear criteria available to ascertain with precision the level of impact night lighting represents, it is difficult to determine if available mitigation measures can reduce the impact to a less-than-significant level.*

#### **Mitigation**

40. The applicant shall use non-reflective materials, subdued colors, and lighting that does not create off-site glare in all phases of project development subject to the approval of the Monterey County Planning and Building Inspection Department.
41. The applicant shall provide a public space lighting plan subject to the review and approval of the Monterey County Public Works Department, the Monterey County Planning and Building Inspection Department and Caltrans, as necessary. The type, height, and spacing of security lighting, parking lot lighting, and advertising lighting shall conform to County guidelines. In particular, street lights shall be directed downward and be of minimum intensity necessary for proper safety lighting.

## 4.14 Cultural Resources

### 4.14.1 Introduction

This section evaluates the potential impacts of the proposed project on cultural, historic, and paleontological resources and is based on a records search of the Historical Resources Information System through the Northwest Information Center, Sonoma State University. The results of that records search are in Appendix G.

### 4.14.2 Setting

The project area lies within the currently recognized ethnographic territory of the Salinan linguistic group, though the area was close to borders of both the Esselen and Costanoan groups. The Salinan group followed a general hunting and gathering subsistence pattern with partial dependence on the natural acorn crop.

Habitation is considered to have been semi-sedentary and occupation sites can be expected most often at the confluence of streams, other areas of similar topography along streams, or in the vicinity of springs. These original sources of water may no longer be present or adequate. Also, resource gathering and processing areas, and associated temporary campsites are frequently found on the coast and in other locations containing resources utilized by the group.

Factors which influence the location of these sites include the presence of suitable exposures of rock for bedrock mortars or other milling activities, ecotones, the presence of specific resources (oak groves, marshes, game trails, trade routes, etc.), proximity to water, and the availability of shelter. Temporary camps or other activity areas can also be found along ridges or other travel corridors.

### 4.14.3 Impacts and Mitigation Measures

#### 4.14.2.1 Standards of Significance

In accordance with CEQA Guidelines, significant impacts on archaeological resources are those actions that would result in disruption of, or have an adverse effect on, a prehistoric or historic archaeological site, a property of historical or cultural significance to a community, ethnic or social group, or a local landmark of cultural importance.

**Impact:** Based on the background research and surface reconnaissance, the project area does not contain surface evidence of potentially significant cultural resources. *This is a less-than-significant environmental impact.*

## **Mitigation**

Because of the possibility of unidentified (e.g., buried) cultural resources being found during construction, the following mitigation measures are recommended:

42. If archaeological resources or human remains are accidentally discovered during construction, work shall be halted within 150 feet of the find until it can be evaluated by a qualified professional archaeologist. If the find is determined to be significant, appropriate mitigation measures shall be developed and implemented according to Appendix K of CEQA.

## **4.15 Energy**

### **4.15.1 Introduction**

This section describes and evaluates the project's use of nonrenewable energy resources (oil and natural gas). The overall energy efficiency of the project will be discussed and evaluated. Finally, the capacity of Pacific Gas and Electric Company (PG&E) to supply the energy needs of the project will be reviewed.

### **4.15.2 Setting**

The proposed project is expected to use both electricity and natural gas to fuel household and subdivision operations. PG&E is the primary provider of electricity and natural gas in the region. Electricity is provided to the existing farm buildings, natural gas is not.

#### **4.15.2.1 Local and State Energy Requirements**

Title 24 of the California Administrative Code establishes energy conservation standards for new development. Compliance with these standards is required by State law and restricts unnecessary residential and non-residential energy consumption. These requirements regulate insulation, window space and type and other building features to maximize structural energy efficiency. The long sides of a structure can be oriented to face as near to south or southeast as possible in order to gain maximum solar exposure to the winter sun. For efficient use of solar energy, rooms that require warmer temperatures (i.e., living rooms, dining rooms, studies) could be located on the southern side of buildings, and rooms that can remain cooler (bedrooms, kitchen, etc.) could be located together in another section of the building. South-facing windows capture the greatest amount of solar exposure and are thus the most desirable from an energy conservation standpoint. Provision of eaves and overhangs and native deciduous trees on the south sides of structures would help to avoid excessive solar heating of interior space during the warm season, but allow penetration of winter sunlight.

Buildout of the project will be required to comply with Title 24 Energy Conservation standards. Minimum requirements set by Title 24 include wall and ceiling insulation, infiltration control, properly sized space conditioning and hot water equipment, setback thermostats, requirements governing shower heads and faucets, and switching devices to control lighting.

### **4.15.3 Impacts and Mitigation Measures**

#### **4.15.3.1 Standards of Significance**

In accordance with CEQA Guidelines, a project would normally be considered significant if it would result in the use of large amounts of fuel or energy; if it would use fuel or energy in a wasteful manner; or if the energy supplier cannot meet the project's energy needs with existing and planned energy capacity.

#### **4.15.3.2 Energy Supply and Consumption**

Long-term energy impacts would result from general gas and electrical needs which will depend upon final orientation of buildings, design, building materials, type of energy source (i.e., gas, electric, solar) and size of the structures. *This is a less-than-significant impact.*

## **4.16 Biological Resources**

### **4.16.1 Introduction**

This section has been prepared using background information prepared for the site by the applicant, the Central Salinas Valley Area Plan, and . Because of the history of farming on the site and its disturbed condition, the presence of sensitive plant or animal species is unlikely.

### **4.16.2 Setting**

Row crops have been grown on the property since 1988 when the applicant purchased the site. Prior to 1988, the ranch was owned by the Paul Masson Winery Incorporated. Paul Masson used the site for vineyards until the late 1970's or early 1980's. The vineyards were subsequently removed and the ranch laid fallow until the current owner purchased the property in 1988.

Several trees are located among the existing farming buildings in the central portion of the site. A row of mature Eucalyptus trees lies along the southern boundary of the property on adjacent property. The trees are approximately 25 feet tall and will not be removed in order to accommodate the proposed air strip.

### **4.16.3 Impacts and Mitigation Measures**

#### **4.16.3.1 Standards of Significance**

In accordance with CEQA Guidelines, project impacts on vegetation and wildlife would normally be considered significant if development substantially effects a rare or endangered species of plant or animal or the habitat of the species; interferes substantially with the movement of any resident or migratory fish or wildlife species; or substantially diminish habitat for fish, wildlife or plants.

#### **4.16.3.2 Impacts to Biological Resources**

Intensive farming of the site and the surrounding lands has altered natural communities, eliminating original native vegetation and limiting the area's natural habitat value. Tilling of the soil surface as part of field maintenance after each seasonal harvest eliminates all vegetative soil cover and may even effect perimeter ditches and uncultivated lands bordering fields which can support riparian and ruderal (weedy) vegetation. Such intensively managed land provides only poor wildlife habitat due to the lack of protective cover and frequent disturbance be management practices. Agricultural fields and ruderal cover provide little food, nesting substrate or other resources and tend to support highly adaptive species able to colonize new development rapidly.

*Development of the site as proposed and modified by mitigation measures recommended in this EIR which require the installation of native drought resistant landscaping will not result in significant adverse impacts to biological resources.*

### **4.17 Employment**

#### **4.17.1 Introduction**

This section presents an assessment of the impacts that the project will have on employment in the Central Salinas Valley area, including the City of Greenfield. The format of this section differs from previous sections of this EIR because employment or economic effects are not considered by CEQA to be environmental effects. Therefore, no setting or environmental evaluation are provided.

The employment estimates for this project have been provided by the applicant. Data on employment characteristics of Monterey County and the Central Salinas Valley area have been obtained from the Association of Monterey Bay Area Governments (AMBAG) and the County.

## **4.17.2 Employment Characteristics**

### **4.17.2.1 Employment Overview**

The largest employment sector in Monterey County is agriculture which accounted for approximately 22% of all employment in the County. Other large employment sectors include services, retail trade, and local government and education. Construction, manufacturing and financial/real estate sectors combined average approximately 15% of the jobs in the County. Generally, the County, with a recent average employment growth rate of 1.2% annually, does significantly better than the state which experienced an average annual decrease in employment.

In general, most employment sectors experienced increases in the County. The largest increases occurred in services (approximately +3%), agriculture (approximately +2.5%), and local government and education (approximately +2%). Manufacturing, retail trade, and federal government experienced an average decrease in employment over the past five years.

Unemployment rates in the County have been consistently higher than those in the rest of the state. The seasonal nature of key industries in the County accounts for high unemployment rates in the winter when agriculture, food processing, construction and tourism experience reduced activity. In general, annual average unemployment rates in the County are between 3 and 3.5%. However, the monthly unemployment rate may rise as high as 9%. Rates in the agriculture employment-dependent Central Salinas Valley cities can be as high as 26% in the winter. For example, the City of Greenfield experienced unemployment of 13% in January 1994.

### **4.17.2.2 Employment Forecast**

Employment growth is expected to be modest through the end of the decade. The slow growth will be principally due to the transfer of federally controlled lands at Fort Ord to public and private ownership. Labor force numbers and activity will be strongly influenced by this re-use process. Non-agricultural employment in the County is expected to average 115,200 jobs in 1998, which will be 5,800 jobs above the 1992 annual average. This modest gain reflects the effects of the closure of Fort Ord as a significant military base.

Employment in the retail trade is forecasted to grow by 2,000 jobs by 1998 according to the County Employment Development Department. The largest employment growth in this sector is forecast in eating and drinking establishments. Most employment growth is created during the summer which is the peak tourism period. While tourism is a key industry on the Monterey Peninsula which contributes substantial jobs and revenues through employment and taxes, tourism is a relatively underutilized industry in the Central Salinas Valley. For example, combined Transient Occupancy Tax (TOT) revenues for the County were \$22,719,008 in 1993, with the Cities of Gonzales, Greenfield and King City contributing only

\$208,752. The majority of TOT revenues in the County is produced on the Monterey Peninsula.

Employment trends within the construction sector in Monterey County are forecast to change considerably within the next decade. According to AMBAG, employment within the construction sector has increased steadily since 1980 in Monterey County, from 5,500 jobs in 1980 to 8,000 jobs in 1990. However, it is forecasted that construction employment will decrease by approximately 800 jobs through 1996. This is primarily due to the closure of Ft. Ord and the resulting loss of population and jobs. Although it is noted construction employment in Monterey County will benefit by re-use strategies, including the development of California State University at Monterey Bay, when implemented, construction employment is expected to only grow at a rate of 0.2% per year until 2015.

#### **4.17.3 Potential Direct and Indirect Employment Impacts**

The economy of Monterey County and the South Monterey County area is largely dependent on agriculture. However, agriculture is not a constant source of employment due to its cyclical nature, with most jobs occurring during harvesting and planting seasons. Non-agricultural jobs within the County are mostly provided by retail trade, services, and government. Other industry sectors such as construction, manufacturing, wholesale trade, etc. provide between 4 to 9 percent of total non-agricultural employment within the County. Employment projections conducted by AMBAG indicate that current employment trends will continue even after the closing of Fort Ord in 1994.

##### **4.17.3.1 Short-Term Construction Employment**

Construction activity is somewhat strong in the Salinas area and south county. A significant number of new homes are being constructed in Salinas, Soledad, Greenfield and King City. Commercial construction has slowed in the County; however, several new projects are in the planning stages throughout the Salinas Valley, including the proposed project, new commercial/retail development in Salinas, and industrial development in Chualar.

In the short term, approximately 60 local construction jobs are projected to be created as a result of this proposed project. Construction activity is expected to continue in phases over 5 years. As stated in the Chapter 2.0, *Project Description*, the winery, air museum and air strip will be constructed first with the hotel and other visitor serving facilities constructed as market conditions warrant.

##### **4.18.3.2 Long-Term Job Market**

Upon completion of the project, it is projected that a total of between 306 and 383 jobs will be created as shown in Table 19. These jobs will range from entry level to skilled and professional positions. Some entry level and skilled jobs in the winery, restaurant and hotel/motel will be part-time, many will be full time. It is unknown at this time the proportion of jobs which will be full-time.

The proposed project is projected to have a beneficial direct impact on the long-term job market within the Central Salinas Valley as well as a beneficial indirect impact on the job market. *No mitigation measures are required with regards to impacts to the job market.*

<b>Table 19. Job Creation - Yanks Air Museum &amp; Visitor Serving Facility</b>	
Air Museum	40 -60
Winery	20-30
Hotel/Motel	150-160
Service Stations	16-20
Retail Commercial	30-40
Fast Food Restaurants	20-25
Aircraft Storage Hangars	5-8
<u>Free-Standing Restaurant</u>	<u>25-40</u>
<b>TOTAL</b>	<b>306-383</b>
Source: <i>Yanks Air Museum Master Plan, November 1994</i>	