FINAL

SAN JOSE INTERNATIONAL AIRPORT MASTER PLAN UPDATE

Environmental Impact Report

December 1997
Prepared for City of San Jose

State Clearinghouse # 95073066

PREFACE

This EIR is a consolidation of the Draft EIR (originally published on October 31, 1996) and the First Amendment to the Draft EIR (originally published in April 1997). This document is intended to provide the City decision-makers, City staff, and the public with a consolidated document that identifies the environmental impacts associated with adoption of a Master Plan for San Jose International Airport. The EIR was certified by the City of San Jose Planning Commission on April 30, 1997. The City of San Jose City Council denied the appeals to certification on June 10, 1997 and adopted the Project Case as the Master Plan for the San Jose International Airport.

This EIR includes the following: (1) the City Council's Resolution 67380 to approve a Master Plan for the Airport; (2) the text of the Draft EIR as revised by the Addenda to the Draft EIR in the First Amendment (see Chapters 1 through 9); and (3) the Agencies, Organizations, and Persons that Received the Draft EIR (see Chapter 10).

RESOLUTION NO. 67380

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JOSE MAKING CERTAIN FINDINGS CONCERNING MITIGATION MEASURES, ADOPTING A MITIGATION MONITORING AND REPORTING PROGRAM, MAKING FINDINGS CONCERNING ALTERNATIVES, AND ADOPTING A STATEMENT OF OVERRIDING CONSIDERATIONS IN ACCORDANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT FOR THE SAN JOSE INTERNATIONAL AIRPORT MASTER PLAN PROJECT CASE ALTERNATIVE FOR WHICH AN ENVIRONMENTAL IMPACT REPORT HAS BEEN PREPARED.

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SAN JOSE:

WHEREAS, the Council intends to approve a Mitigation Plan for the San Jose International Airport Master Plan that identifies mitigation measures that the Director of Planning must adopt as conditions of approval for development under the Master Plan.

WHEREAS, prior to the adoption of this Resolution, the Planning Commission of the City of San Jose has certified that the Final Environmental Impact Report ("FEIR") for the San Jose International Airport Master Plan Project Case Alternative ("Project") was completed in accordance with the requirements of the California Environmental Quality Act ("CEQA") and state and local guidelines; and

WHEREAS, the Project requires the City to adopt a Master Plan Alternative; and

WHEREAS, CEQA requires that, in connection with the approval of a project for which an EIR has been prepared which identifies one or more significant environmental effects, the decision-making agency make certain findings regarding those effects; and

NOW THEREFORE, BE IT RESOLVED

THAT THE CITY COUNCIL does hereby find that it has independently reviewed and analyzed the FEIR and other information in the record and has considered the information contained therein including the written and oral comments received at the public hearings on the FEIR and the Project, prior to acting upon or approving the Project, and has found that the FEIR represents the independent judgment of the City of San Jose as Lead Agency for the Project, and designates the Director of Planning, Building and Code Enforcement at his office at 801 North First Street, Room 400, San Jose California, 95110, as the custodian of documents and record of proceedings on which the decision is based; and

THAT THE CITY COUNCIL does hereby make the following findings with respect to the significant effect on the environment of such project, as identified in the hereinbefore mentioned FEIR:

I. LAND USE

1. **Impact:** The installation and operation of the new fuel storage facility would conflict with established land uses by posing a hazard to people employed at or temporarily occupying adjacent land uses. (Significant Impact)

2. **Mitigation:** Mitigation measures that are designed to minimize the possibility of an accidental release and the consequent risk of exposure of people on adjacent land. The installation of the fuel storage tanks would be subject to stringent design criteria, dictated by the Uniform Building Code, City of San Jose Building Code, and National Fire Protection Association Standards. The operation of the facility would be subject to implementation of Spill Prevention Control and Counter Measure Plan, Storm Water Pollution Prevention Plan, and Emergency Response Plan specifically designed for SJC.

3. **Finding:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact described above to a less-than-significant level.

II. CULTURAL RESOURCES

1. **Impact:** Earthmoving activities in conjunction with the construction of projects in archaeological sensitive areas at the Airport could result in the disturbance of archaeological resources associated with Sites SCL-311H and SCL-430. (Significant Impact)

2. **Mitigation:** The Airport will continue existing archaeological monitoring program for construction activity for all projects within the archaeological sensitive areas. A qualified archaeologist will monitor all subsurface construction activity for the identified projects located within designated archaeological sensitive areas. If any human remains are encountered, the County Coroner will be contacted immediately. If humans remains are determined to be Native American interments, the Coroner should contact the Native American Heritage Commission for determination as to reburial of remains. A report evaluating the find and identifying mitigation will be submitted by the archaeologist to the Director of Planning, Building, and Code Enforcement. If prehistoric or historic archaeological resources are uncovered during construction activities, the monitoring archaeologist will require that work be discontinued within a 100-foot radius of the find. A report evaluating the find and identifying mitigation for impacts will be prepared by the archaeologist and submitted to the City's Director of Planning, Building, and Code Enforcement and the Director of the Airport.

3. **Finding:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact described above and in the FEIR such that it will be mitigated to a less-than-significant level.

III. TRAFFIC AND TRANSPORTATION

A.

1. **Impact:** The number of vehicle trips generated by Project Case would result in significant impacts at five intersections in the year 2000, four intersections in the year 2005, and two intersections in the year 2010 in the Airport vicinity. (Significant Impact)

2. **Mitigation:**

a. For year 2000, at Coleman Avenue and Brokaw Road, restripe westbound Brokaw Road to allow for one exclusive left-turn lane and one shared left-turn / through / right-turn lane.

b. For year 2000, at De La Cruz Boulevard and Martin Avenue, prohibit left turns into the public and employee parking lots on Martin Avenue while those parking lots on the west side of the Airport are operational.

c. For year 2000, at De La Cruz Boulevard and Central Expressway, add a third eastbound left-turn lane on Central Expressway.

d. For year 2005, at North First Street and Brokaw Road, add a third westbound through lane on Brokaw Road.

e. For year 2005, at Airport Boulevard and North Terminal Drive, add a third northbound left-turn lane on Airport Boulevard.

f. For year 2005, at Airport Boulevard and Airport Parkway, add another northbound and southbound through lane on Airport Boulevard.

g. For year 2005, at Coleman Avenue and Airport Boulevard, add a second southbound left-turn lane on Coleman Avenue.

h. For year 2010, at North First Street and Old Bayshore Highway, add a third eastbound through lane on Old Bayshore Highway.

i. For year 2010, at North First Street and Skyport Drive, restripe an existing southbound lane plus add an exclusive southbound right-turn lane on North First Street.

3. Findings:

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the level of service at intersections in the Airport vicinity except for the intersections of Coleman Avenue and Airport Boulevard and Coleman Avenue and I-880 southbound ramps in the year 2000. The completion of the SR 87 project prior to the years 2005 and 2010 will result in an improvement at these intersections and these intersections will operate at an acceptable level of service in the years 2005 and 2010.

The mitigation measure for the short-term impact is the addition of a third southbound through lane on Coleman Avenue. The implementation of this mitigation would require the reconstruction of the I-880/Coleman Avenue interchange, including the widening or replacement of Coleman Avenue overcrossing over the freeway.

The existing interchange does not meet current Caltrans standards and, because this interchange is in proximity to the I-880/First Street interchange, the reconstruction of this interchange would require the reconstruction of both interchanges and the addition of an auxiliary lane on I-880 itself. Implementation of this mitigation measure would require project design, Caltrans approvals, Federal Highway Administration (FHWA) approvals, and the actual construction. If this project were part of an approved capital improvement program either locally, regionally, or statewide, the implementation of this mitigation measure would take at least five years. Since this project is not part of an existing approved capital improvement program, the implementation time will be substantially longer.

Given this lengthy process for implementation, the completion of this mitigation measure could not occur during the time period in which there are significant impacts (i.e., the year 2000). In addition, deferral of the adoption of the Project until after the completion of SR 87 would not mitigate the significant short-term impacts since they will occur whether or not the Project is implemented. Therefore, this impact remains significant and unavoidable.

There are no additional feasible mitigation measures that the City could adopt at this time to reduce this impact to a less than significant level. This impact, therefore, remains significant and unavoidable.

B.

1. **Impact:** Project-generated vehicle trips on various freeway segments in the Airport vicinity would be more than one percent of peak-hour capacity on four segments in 2005 and five segments in 2010. (Significant Impact)

2. **Mitigation:** A Transportation System Management (TSM) program will be established to reduce traffic congestion on freeways in the Airport vicinity by limiting auto use. The objective of the TSM program would be to reduce travel throughout the day by private automobile, especially single-occupant vehicles. The role of a TSM Manager would be to develop the specific program and coordinate it with activities of SJC, the Cities of San Jose and Santa Clara, the Santa Clara Valley Transportation Authority Congestion Management Program, shuttle / van / taxi companies that serve SJC, and other public agencies whose services or regulatory functions affect the mode of travel chosen by employees and air passengers.

3. **Finding:**

The implementation of an individual TSM program element would not have a large effect on reducing traffic. The implementation of several effective TSM program elements could help reduce the number of single-occupant vehicles generated by Airport activities. However, even with an effective TSM program, freeway impacts would not be reduced to a less-than-significant level.

There are no additional feasible mitigation measures that the City could adopt at this time to reduce this impact to a less-than-significant level. This impact, therefore, remains significant and unavoidable.

IV. AIR QUALITY

A.

1. **Impact:** Increases in air passenger and air cargo volumes at SJC would result in a net increase of more than 80 pounds per day each of ROG, NO_x, or PM_{10}. (Significant Impact)

2. **Mitigation:**

a. A construction emissions abatement program will be included in construction contracts under the Project Case to reduce PM_{10} and ROG/NO_x emissions from construction. Components include:

- Water all active construction areas at least twice daily.

- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).

- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.

- Sweep daily (preferably with water sweepers) all paved access roads, parking areas and staging areas at construction sites.

- Sweep street daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.

- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas.

- Enclose, cover, water twice daily or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).

- Limit traffic speeds on unpaved roads to 15 mph.

- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.

- Replant vegetation in disturbed areas as quickly as possible.

- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.

- Provide rideshare and transit incentives for construction personnel.

- Designate a person or persons to oversee the implementation of a comprehensive dust control program and to increase watering, as necessary.

- Maintain and operate construction equipment so as to minimize particulates from exhaust emissions. During construction, trucks and equipment should be

running only when necessary. Equipment should be kept in good condition and well-tuned, to minimize exhaust emissions.

- Prohibit trucks and equipment to idle without purpose for long periods.

b. The City will encourage operators of the van/shuttle and rental car fleets that regularly serve SJC to convert their on-road vehicles to alternative fuels (i.e., compressed natural gas (CNG) or electricity) to reduce pollutant emissions.

c. The City will implement a TSM program (see Section III.B.2).

d. The City will comply with all Bay Area Air Quality Management (BAAQMD) Rules and Regulations with respect to new and modified stationary sources at SJC and will ensure that tenants secure the appropriate BAAQMD permits with respect to new or modified stationary sources that may accompany new or expanded fuel storage and aircraft/ equipment maintenance facilities.

3. **Finding:**

The above feasible mitigation measures would effect substantial reductions in PM_{10}. However, the net change in emissions of regional emissions of ROG, NO_x, and PM_{10} would still exceed 80 lb/day and thus the impact would not be reduced to a level of insignificance.

B.

1. **Impact:** Changes in activity levels at SJC would result in changes in NO_2 concentrations in the Airport vicinity. (Significant Impact)

2. **Mitigation:** No reasonable or feasible mitigation measures are available to reduce the significance of this impact.

3. **Finding:**

EDMS dispersion modeling indicates that NO_2 concentrations in the vicinity of Runways 30L and 30R may violate the State one-hour average ambient NO_2 standard. No mitigation measures have been identified that would reduce the NO_2 concentrations. This is based on the fact that State and local entities are pre-empted from imposing emission standards on any aircraft or aircraft engines that are different from those established under federal law.

V. NOISE

A.

1. **Impact:** In 2005, the Project would result in significant increases in the Community Noise Equivalent Level (CNEL) at two reference grid locations inside the 65 CNEL contour and at five reference grid locations between the 60 CNEL and 65 CNEL contours. In 2010, the Project would result in significant increases in the CNEL at one reference grid location inside the 65 CNEL contour and at six reference grid locations between the 60 CNEL and 65 CNEL contours. (Significant Impact)

2. **Mitigation:** The City will implement specific measures, including the continued application and modification of the Noise Control Program, continued implementation and modification of the Noise Compatibility Program, and implementation of additional measures at site-specific locations to reduce interior noise levels at affected residential and other noise-sensitive land uses in the vicinity of SJC.

Continued Application of Noise Control Program

- The City will continue working with the airlines and air cargo carriers to encourage the use of the quietest available aircraft for their operations at SJC.
- The City will continue implementation of the time-of-day operational restrictions currently applicable to operations at SJC.
- The City will continue its ongoing program of identifying opportunities for, and assessing the feasibility of, further and future modifications to existing flight tracks for the purpose of minimizing noise impacts on the community. The City will actively pursue FAA concurrence for any flight track change that reasonably can be expected to provide noise reduction benefits in San Jose, and which maintains all necessary levels of air safety of aircraft operations in the Bay Area airspace.
- The City will continue the existing ban on the use of the Airport by jet aircraft for training purposes.

Modification of Noise Control Program

- The City will conduct noise measurements upon construction of the blast fences at the ends of Runway 12L/30R to determine the best location for aircraft run-ups so that noise impacts on noise-sensitive land uses from such operations will be minimized. The City will continue the existing program limiting high-power engine run-ups during the curfew hours. However, if the number of high-power run-ups average more than four per month during the curfew hours in any 12-month period after adoption of the Project, the City will re-consider constructing a noise attenuation facility.

- Subject to the concurrence and approval of the FAA, the City will impose the existing restrictions on jet take-offs for Runway 12R/30L on Runway 12L/30R.

Continued Implementation of Noise Compatibility Program

- The City will continue to implement the ACT Program in order to mitigate interior residential noise exposure from aircraft noise to interior noise levels of 45 dba CNEL.

- The City will request that the County ALUC update the *Land Use Plan for Areas Surrounding Santa Clara County Airports* in a manner consistent with the adopted Master Plan for SJC and current FAA land use compatibility guidelines. The City will continue to require avigation easements for new development within the 65 CNEL contour projected for 2010.

Modification of Noise Compatibility Program

- In coordination with the ACT Program, any residential units that are determined to be not feasible for acoustical treatment either will be acquired by the Airport or will be converted to compatible land uses.

- The City will relocate remote monitoring stations or add additional remote monitoring stations as required to monitor the noise levels from the Project consistent with the California Airport Noise Regulations.

Additional Measures

- The City will monitor noise levels in the Rosemary Gardens neighborhood (reference grid location 13) after the construction of the SR 87 soundwall to determine whether or not to include those residential units in the ACT Program. If the monitoring shows that these units would be at interior noise levels of 45 dba CNEL or greater, then this neighborhood will be added to the ACT Program.

- The City will offer to sponsor acoustical insulation of this school (reference grid location 17) so that interior classroom noise levels do not exceed an hourly Equivalent Noise Level (Leq) criterion of 45 dba during peak aircraft activities occurring during the normal school day.

- The City will offer to sponsor acoustical insulation of the long-term care units at Agnews State Hospital (reference grid location 9) so that interior noise levels do not exceed 45 dba CNEL due to aircraft noise.

3. **Finding:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with interior noise levels to a less-than-significant level. However, they will not avoid or substantially lessen the significant environmental impact associated with exterior noise levels to a less-than-significant level. Therefore, this impact remains significant and unavoidable.

B.

1. **Impact:** The Project would result in significant increases in single-event aircraft noise at eight locations. (Significant Impact)

2. **Mitigation:** The City will implement specific measures to reduce interior noise levels at affected residential and other noise-sensitive land uses in the vicinity of SJC (see V.A.2).

3. **Finding and Supporting Facts:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with interior noise levels to a less-than-significant level. However, they will not avoid or substantially lessen the significant environmental impact associated with exterior noise levels to a less-than-significant level. Therefore, this impact remains significant and unavoidable.

C.

1. **Impact:** In 2005, the Project would result in significant increases in the TA 75 at seven reference grid locations. In 2010, the Project would result in significant increases in the TA 75 at seven reference grid locations.

2. **Mitigation:** The City will implement specific measures to reduce interior noise levels at affected residential and other noise-sensitive land uses in the vicinity of SJC (see V.A.2).

3. **Findings:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with interior noise levels to a less-than-significant level. However, they will not avoid or substantially lessen the significant environmental impact associated with exterior noise levels to a less-than-significant level. Therefore, this impact remains significant and unavoidable.

VI. HYDROLOGY AND WATER QUALITY

A.

1. **Impact:** Development of the Project would increase storm water runoff volumes and peak runoff flow rates by 16.9 percent by the year 2010. Increased runoff could result in temporary localized on-site flooding on runways and contribute to off-site flooding on U.S. 101 below the De La Cruz Boulevard overpass. (Potentially Significant Impact)

2. **Mitigation:**

a. Ponding capacity at the north end of the Airport and/or pumping capacity will be increased to meet the additional runoff quantities during major storm events. This could be achieved by constructing runway and taxiway improvements at an elevation equal to or higher than that existing lowest runway elevation, and/or by excavating the infield areas between runways and taxiways eight to twelve inches to increase the ponding capacity.

b. As part of the Phase 1 runway/taxiway extensions, the Airport will include a retention wall less than two feet in height around the north end of SJC to prevent runoff onto U.S. 101.

3. **Finding:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact described above to a less-than-significant level.

B.

1. **Impact:** Expansion of impervious surfaces at SJC in combination with increased aircraft and ground vehicle operations, would lead to elevated levels of contaminants in storm water discharges and in groundwater. Contaminant spills and leaks at proposed project facilities could also reach storm water discharges and groundwater. (Significant Impact)

2. **Mitigation:** The Airport's Storm Water Pollution Prevention Plan (SWPPP) will continue to be implemented and updated as necessary to reduce the potential for contamination of storm water and groundwater both on- and off-site. A General Storm Water Permit will be submitted for major elements of construction.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

C.

1. **Impact:** Installation of the new fuel storage facility adjacent to the Guadalupe River would raise the potential for short-term impacts to the quality of surface water or groundwater in the event or a leak or spill. (Significant Impact)

2. **Mitigation:** The facility will be designed to meet current requirements for storage of fuel in above-ground tanks including secondary containment positive drainage to an oil/water separator and an automatic shut-off device to control spills. The secondary containment would be a five-foot high concrete wall that results in a one million gallon secondary system and an impervious membrane to prevent any spills from escaping. The SJC Storm Water Pollution Prevention Plan (SWPPP) and other applicable plans will be amended to cover the new site. The SWPPP would describe a new storm drain system to be designed and installed as part of the fuel farm development.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

VII. GEOLOGY AND SEISMICITY

A.

1. **Impact:** New or expanded major structures at SJC, including terminals, parking garages, and fuel storage tanks would be susceptible to potential damage resulting from settlement of weak and/or expansive soils or local subsidence, posing a substantial hazard to property and/or human life. (Significant Impact)

2. **Mitigation:** Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to fuel storage tanks, and be consistent with the most current engineering practice. The application of these higher design standards ensures an acceptable level of risk is established in the design. All feasible engineering design and methods would be used to reduce the potential for damage due to various types of geologic hazards.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact described above to a less-than-significant level.

B.

1. **Impact:** Growth in aviation activity and new development would increase the number of people and facilities that could be exposed to seismically-induced structural and nonstructural damage hazards. The presence of a new above-ground fuel storage facility would pose hazards to the environment in the event of earthquake-induced failure. (Significant Impact)

2. **Mitigation:** Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to places of public assembly (essential facilities) and potentially hazardous facilities, and be consistent with standard engineering practice to achieve an acceptable level of risk. Special attention will be given in the design of building interiors and exteriors to reduce non-structural hazards from earthquakes. Building designs would contain as many measures as are practical and economically feasible to eliminate non-structural hazards.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact described above to a less-than-significant level.

VIII. BIOLOGICAL RESOURCES

A.

1. **Impact:** Replacement of 38 acres of ruderal and grassland habitat with paving or structures, together with earthmoving and construction activities, would alter and/or destroy nesting habitat for burrowing owl. If construction activities occurred during the nesting season, there also would be a significant risk of mortality of individual burrowing owls (a California species of special concern and federal sensitive species). (Significant Impact)

2. **Mitigation:** The Airport will implement the Burrowing Owl Management Plan prepared for SJC including the following activities:

Maintain Runway Safety Areas. In order to reduce the potential for burrowing owl strikes, the Runway Safety Areas, extending 175 feet out from the edge of runways 30L/12R and 30R/12L, along the length of

each runway will be maintained free of nesting burrowing owls. Burrows that could be occupied by burrowing owls in any Runway Safety Area or on pavement shoulders will be closed and compensated by installing one artificial burrow in an adjacent burrowing owl management area.

Airport Construction Mitigation. The steps listed below will be implemented to mitigate impacts of Airport construction on burrowing owls and their habitat. The objective is to relocate burrowing owls away from planned construction areas with minimum impacts to nesting owls. This will be achieved by providing replacement artificial burrows and passively relocating owls away from construction zones outside the nesting season.

- Conduct pre-construction surveys prior to ground-disturbing activity.
- Conduct pre-construction burrow monitoring for owl occupancy.
- Provide artificial burrows for burrows that will be impacted by construction.
- Excavate and physically close natural burrows prior to ground-disturbing activities.

Burrowing Owl Management Areas. Approximately 84 acres of infield will be designated specifically for burrowing owl management at the ends of the runways and between taxiways Y and Z. Burrowing owls that have established nests in Runway Safety Areas or construction area will be relocated to designated management areas. Burrowing owl management areas will be mowed according to the regular mowing regime throughout the Airport infields to maintain the low, open vegetation that is an important characteristic of burrowing owl habitat.

Burrowing Owl Population Monitoring. The following activities will be implemented to monitor the burrowing owl population at SJC.

- Continue collecting data on the distribution and abundance of burrowing owls throughout the Airport.
- Monitor burrowing owl use of designated management areas.
- Conduct two censuses of the population of burrowing owls on the Airport: a breeding season census and a non-breeding season census.
- Prepare an annual survey report on the status of the burrowing owl population at the Airport including population estimates for the non-breeding (winter) and breeding (summer) seasons, and an estimate of the annual production of young.

3. **Finding:** The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact described above to a less-than-significant level.

B.

1. **Impact:** The construction of the bridge over the Guadalupe River would result in temporary significant adverse impacts to the spawning/breeding habitat of certain special status species that inhabit the Guadalupe River corridor. (Significant Impact)

2. **Mitigation:** Development of the Project will include the following measures to protect the physical, chemical and biological integrity of the Guadalupe River and its wetlands and aquatic habitat.

- The Airport will consult with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Game (DFG) and determine whether spawning winter-run Chinook salmon are present in the construction area, at least 30 days prior to construction. If individuals are present, passage to upstream spawning grounds would not be blocked if construction would occur during the salmon run.

- Surveys for special status species will be conducted by a qualified biologist 30 days prior to construction. If any special status species are located within the construction area, the Airport will consult with DFG and USFWS and develop appropriate methods for relocation of specific individuals and/or modification of the construction schedule.

- Bridge construction will be limited to the late summer and early fall when water levels are lowest and nesting/spawning is least likely to occur. The most sensitive nesting and breeding periods extend from February through August (e.g., southwestern pond turtles lay eggs from April through August, and many bird species nest from February through August).

- If southwestern pond turtles are present, fences (small enough to prevent the passage of fry and small turtles) will be placed in the river - around the construction area - to prevent entrance by sensitive species.

- Prior to construction activities within the riparian corridor, the limits of the construction zone will be clearly marked and fences (under the supervision of a qualified biological monitor) to protect vegetation outside of the established construction zone. A biological monitor will make regular site inspections to ensure that the fence remains in place and that construction activities are confined to the delineated impact areas.

- All in-channel construction will take place outside of the spawning season for anadromous salmonids, which occurs from the time of the first fall storms to the end of the rainy season (generally October through late April). During in-channel activities, diversion techniques that minimize water turbidity and that prevent dewatering of the channel downstream will be used.

- Best (construction) management practices will be implemented. These will include, but not be limited to, the following:

  - limit vehicles and equipment within the levee banks to those essential for bridge construction;
  - avoid spillage or drip of oil, grease, and other vehicular fluids within the river construction area;
  - install coffer dams immediately up and down stream from the construction site as necessary, divert stream flow, and divert potential construction-related runoff away from the Guadalupe River;
  - avoid construction during periods of rain;
  - install erosion control measures, such as silt fences and straw bales, to eliminate migration of sediment-laden runoff into wetlands and waters, and to prevent accidental damage to habitat due to construction activities;
  - specify dust control measures in all relevant project contracts, which may include watering of the construction area (including areas being graded) as necessary; and
  - re-seed graded or excavated areas with grasses and appropriate species native to the Guadalupe River riparian habitat, once construction is complete.

3. **Finding:**

The above feasible mitigation measures, which are incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

C.

1. **Impact:** Construction of a new fuel storage facility on lands adjacent to the Guadalupe River could result in impacts to water quality and, therefore, to aquatic and wetland biota of the river, in the unlikely event of tank failure. (Significant Impact)

2. **Mitigation:** The fuel tank storage facility will be designed with measures to prevent fuel or other pollutants migrating off-site and entering surface waters of the Guadalupe River. The installation will include a secondary containment structure sufficient to hold one million gallons of fuel in the event of a major failure or release. The fuel storage facility will be located 100 feet away from the top of the bank of the river, in conformance with City policy. Response to an accidental release will involve cooperation with agencies charged with the responsibility for clean-up measures.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

IX. AESTHETICS

1. **Impact:** Construction of the new fuel storage facility on the north side of U.S. 101 would alter the visual character of the area and affect views from a scenic highway. (Significant Impact)

2. **Mitigation:** The new fuel storage facility will be designed so that the above-ground storage tanks are screened to the highest degree practicable from U.S. 101 and adjacent uses. Screening may include the following actions: landscaping, berming, and/or construction of walls or facades.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

X. HAZARDOUS MATERIALS

A.

1. **Impact:** Placement of a new bulk fuel storage facility on an undeveloped site and transfer piping under a public highway would create the potential for accidental release of a hazardous material and exposure of the public traveling on U.S. 101, biota inhabiting the Guadalupe River, and persons occupying adjacent properties to hazardous materials, in the event of a catastrophic event. (Significant Impact)

2. **Mitigation:** The new fuel storage facility and pipeline will be designed, constructed, and maintained in compliance with all applicable regulatory standards and policies, including provisions for full on-site containment, leak detection systems, and cathodic protection. On-site containment would be of sufficient size to contain a volume of fuel equivalent to the contents of one million gallons. In addition, a 100-foot setback from the Guadalupe River will be maintained. The Airport will prepare and implement a program to minimize accident risks at the fuel handling and storage facilities.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

B.

1. **Impact:** Construction workers may be exposed to hazardous materials at contaminated locations, both known and unknown, and would follow remediation procedures prescribed by City, County, and/or the Regional Water Qualify Control Board (RWQCB). (Significant Impact)

2. **Mitigation:** Potentially contaminated sites will be screened for hazardous materials contamination prior to beginning construction. If the potential for workers to encounter hazardous materials is identified, necessary precautions will be taken to protect the health and safety of site workers.

3. **Finding:**

The above feasible mitigation measure, which is incorporated into the Project as a condition of approval, will avoid or substantially lessen the significant environmental impact associated with the quality of storm water runoff to a less-than-significant level.

FINDINGS CONCERNING ALTERNATIVES

An EIR must describe a range of reasonable alternatives to the project, or the location of the project, which would feasibly obtain most of the basic objectives of the project, but would avoid or substantially lessen any of the significant environmental effects of the project, and evaluate the comparative merits of the alternatives. Even if a project alternative will avoid or substantially lessen any of the significant environmental effects of the project, the decision-maker may reject the alternative if it determines that specific considerations make the alternative infeasible. The EIR evaluated three on-site alternatives, four on-site variants, and four off-site variants to the Project. These include:

On-Site Alternatives

No Project Alternative
Project Case Alternative A
Project Case Alternative B

On-Site Variants

C.A.A.P. "Alternative 8"
Alternate Fuel Storage Facility Location
Accommodate More General Aviation
Accommodate Mid-Point Air Cargo Demand With One Commercial Runway

Off-Site Variants

Use of Moffett Field
Relocate SJC or Construct New Airport
Expand Metropolitan Oakland International Airport or San Francisco International Airport In Lieu of SJC

The findings with respect to alternatives identified in the FEIR are described below.

The No Project Alternative, while having no significant impacts, would not meet a primary objective of the project which is to serve present and future air transportation needs of the local community. Therefore, the City Council rejects the No Project Alternative.

Project Case Alternative A would have significant and unavoidable traffic, noise, and air quality impacts similar to those of the Project. Although Project Case Alternative A would serve a portion of the present and future air transportation needs of the local community, it would not adequately accommodate air passenger and air cargo demand. Therefore, the City Council rejects Project Case Alternative A.

Project Case Alternative B would have significant and unavoidable traffic, noise, and air quality impacts similar to those of the Project. Although Project Case Alternative B would serve a portion of the present and future air transportation needs of the local community, it would not adequately accommodate air passenger and air cargo demand. Therefore, the City Council rejects Project Case Alternative B.

CAAP Alternative 8 does not constitute a set of physical development projects at the Airport. It is, instead, a series of "environmental benchmarks" and "service directives" to be imposed on the Airport for the purpose of minimizing potential environmental effects on the surrounding community. These limitations on the operation of theAirport would result in conditions similar to those of the No Project Alternative. As such, CAAP Alternative 8 would not meet a primary objective of the project which is to serve present and future air transportation needs of the local community. Therefore, the City Council rejects CAAP Alternative 8.

The Alternative Fuel Farm Location was evaluated as a variant to the three Project Case Alternatives. This variant was found to result in the same set of environmental impacts as those associated with constructing the fuel farm at its proposed location. Further, the alternative location on the west side of the Airport was found to have several disadvantages when compared to the proposed location. These disadvantages include 1) greater distance from the fuel farm to the aircraft fueling locations, 2) greater distance from the Southern Pacific pipeline bulk distribution facility, and 3) preclusion of uses requiring airfield access at that location. Therefore, the City Council rejects the Alternative Fuel Farm Location variant.

The Accommodation of More General Aviation Aircraft was evaluated as a variant to the three Project Case Alternatives. This variant, while accommodating more general aviation at SJC, would result in the tradeoff of accommodating less of the demand for air passenger and air cargo facilities at SJC. While this variant would still result in significant and unavoidable noise, traffic, and air quality impacts, the degree of these impacts would be reduced, when compared to the three Project Case Alternatives without this variant. The City Council rejects this variant because 1) SJC is currently the only airport in the greater South Bay area where air cargo and air passenger demand can be accommodated, and 2) there are adequate general aviation facilities at nearby Reid-Hillview, Palo Alto, and South County Airports to fully accommodate the general aviation demand.

The Accommodation of Mid-Point Air Cargo Demand is a variant which resembles Project Case Alternative B. It would have one air carrier runway and would replace general aviation facilities on the west side of the Airport with air cargo facilities. This variant would have significant and unavoidable traffic, noise, and air quality impacts similar to those of Project Case Alternative B. Although this variant would serve a portion of the present and future air transportation needs of the local community, it would not adequately accommodate air passenger and air cargo demand. Therefore, the City Council rejects this variant.

The relocation of all SJC operations to Moffett Field was evaluated conceptually in the EIR. This alternative would essentially transfer the environmental effects of the Airport from SJC to Moffett Field; it would not eliminate these impacts. Further, the City of San Jose has no jurisdiction over the use of Moffett Field, as that facility is owned and operated by the federal government. Thus, even if San Jose had the ability to transfer all (or a portion of) SJC operations to Moffett Field, such a decision would not avoid any of the significant and unavoidable environmental impacts of the Project Case. Therefore, the City Council rejects this alternative.

The Placement of Aviation Facilities at Off-Airport Locations was evaluated in the EIR. The analysis found that there is currently no vacant City property in proximity to the Airport which would accommodate such facilities. In addition, even if appropriate site(s) were available, the significant and unavoidable environmental effects of the Project Case Alternatives would still occur. Therefore, the City Council rejects this alternative.

Relocation of SJC or Construction of a New Airport was evaluated in the EIR. This alternative would require a large parcel of land (at least 1,000 acres in size) in the greater San Jose area. The analysis did not identify any such parcels. Even if such a parcel were found to be available, operation of an airport at that site would simply transfer the environmental effects from the present location to the new location. Significant and unavoidable noise, traffic, and air quality impacts would still occur. For these reasons, the City Council rejects this alternative.

The Expansion of San Francisco or Oakland Airports in Lieu of SJC was evaluated in the EIR. This alternative would relocate operations from SJC to either or both of these airports. This alternative would not avoid the significant impacts of the Project but, rather, would transfer them to one or both of these other airports. Further, the air quality impacts of this alternative would be greater than those of the Project because of the longer vehicle trips associated with driving from the San Jose area to San Francisco and/or Oakland. This alternative would also have substantial land use and economic implications with regard to the many businesses presently located near SJC that take advantage of doing business near the Airport. Therefore, the City Council rejects this alternative.

STATEMENT OF OVERRIDING CONSIDERATIONS

There will be three unavoidable significant environmental impacts which will occur directly as a result of the implementation of the Project for the SJC Master Plan Update. These three impacts are traffic, air quality, and noise.

Notwithstanding the existence of three significant environmental effects which cannot be mitigated to less-than-significant levels, the City Council of the City of San Jose does hereby find that the benefits of the Project outweigh the above-identified unavoidable significant environmental impacts of the project and, therefore, finds the environmental effects to be acceptable. The overriding consideration is the benefit to the residential and business community of the greater San Jose area. The Project will provide the community with an airport which meets air passenger and air cargo demand at an acceptable level of service.

The City Council finds that each impact identified in Section II, above, is acceptable because mitigation measures have been required in order to reduce these effects to the extent feasible, and on balancing the benefits to be realized by the approval of the Project against the remaining environmental risks, the following economic, social, and other considerations outweigh the effects, and support approval of the proposed project:

- The Project is the Alternative which most closely meets the City's General Plan Policy for San Jose International Airport by meeting "existing and future air transportation needs of local residents and the business community and which minimizes impacts on the surrounding community."

- The Project has the following benefits with regard to meeting the residential and business community's air transportation needs:

  - ◊ It provides San Jose with the ability to meet passenger and air cargo demand forecast for the year 2010.

  - ◊ It provides the City's residents and business community with an acceptable level of customer service without unacceptable delays in accessing the Airport and in circulating within the Airport. These delays are already occurring on a daily basis and will significantly worsen in the future without adequate facilities.

  - ◊ Two 11,000-foot runways provide the greatest degree of operational safety for passengers.

  - ◊ It allows the Airport's main runway to be shut down for badly needed rehabilitation and, at the same time, guarantees the retention of San Jose's premier flight - the daily non-stop service to Tokyo, Japan. The Tokyo flight has a $200 million annual benefit to the local economy.

  - ◊ It fully accommodates Airport-related services (e.g., rental car facilities).

  - ◊ It provides the City with the flexibility to design and build smaller facilities if projected future demand does not materialize. In contrast, the smaller facilities of Alternatives A or B could not be enlarged to accommodate increased demand without a significant amendment to the Master Plan.

- The Project includes the following features and measures to avoid or reduce the environmental effects of the Airport on the surrounding community:

  - ◊ It has the nation's most comprehensive acoustical treatment program for residences and schools, including areas located outside of the 65 dB CNEL contour.

  - ◊ It continues the Airport's Noise Control Program, including restrictions on nighttime operations.

  - ◊ It has two 11,000-foot runways which reduce off-Airport noise levels compared to other alternatives with shorter runways, because the aircraft are higher in the air above residential neighborhoods.

- ◊ It has two 11,000-foot runways which allow the Airport's noise impacts to be reduced, as opposed to being concentrated near the Airport's westside residential neighborhoods such as the Rose Garden, Shasta-Hanchett, and Bellarmine.

- ◊ It includes the conversion of the Airport's ground service equipment (including shuttle buses) from diesel and gasoline engines to compressed natural gas or electricity.

- ◊ It is the Alternative with the lowest 1-hour concentration of nitrogen dioxide at the Airport's closest residential neighborhood on Chestnut Street.

- ◊ It minimizes off-Airport traffic, noise, and air quality impacts by locating airport-related services (e.g., rental car facilities) at the Airport.

- ◊ It moves the Airport's existing fuel farm to an industrial area - away from the Rosemary Gardens Neighborhood.

- ◊ It allows commute-hour tanker truck deliveries of jet fuel to the Airport to be avoided because it provides sufficient on-site storage of fuel.

- ◊ It implements all feasible traffic mitigation measures at nine intersections in the vicinity of the Airport.

- ◊ By accommodating locally-generated demand at San Jose, the Project reduces the traffic, air quality, noise, and energy impacts associated with extended drives to the San Francisco and Oakland Airports.

- ◊ It includes a Transportation Demand Management (TDM) program to reduce vehicle trips to and from the Airport.

- The Project provides the greatest economic benefit to the region:

  - ◊ The Airport is the County's largest publicly-owned economic base with a current annual economic level in excess of $4 billion.

  - ◊ The Airport provides local companies with a gateway to markets that support thousands of jobs for San Jose residents.

  - ◊ The Airport is a major employment site, providing thousands of jobs for this region.

- The Project can be implemented without using any General Fund monies. All Airport projects are funded through Airport user fees.

- The Project is the Alternative which is most consistent with the Metropolitan Transportation Commission's Regional Airport System Plan. MTC states that San Jose Airport should provide facilities to serve locally-generated demand at San Jose.

ADOPTED and issued this 10th day of June, 1997, by the following vote:

AYES: DIAZ, DIQUISTO, FERNANDES, FISCALINI, JOHNSON, POWERS, SHIRAKAWA, WOODY; HAMMER

NOES: PANDORI

ABSENT: DANDO

Susan Hammer

Susan Hammer, Mayor

ATTEST:

Patricia L. O'Hearn

Patricia L. O'Hearn, City Clerk

AIRPORT.MMR/JC/PL

67380

MITIGATION MONITORING AND REPORTING PROGRAM

SAN JOSE INTERNATIONAL AIRPORT MASTER PLAN UPDATE

CITY OF SAN JOSE

JUNE 1997

67380

PREFACE

Section 21081 of the California Environmental Quality Act (CEQA) requires a Lead Agency to adopt a Mitigation Monitoring and Reporting Program whenever it approves a project for which measures have been required to mitigate or avoid significant effects on the environment. The purpose of the monitoring and reporting program is to ensure compliance with the mitigation measures during project implementation.

On June 10, 1997, the City Council of the City of San Jose approved the Project Case Alternative for the San Jose International Airport (SJC) Master Plan Update. The Project Case Alternative was analyzed in an Environmental Impact Report (EIR). The EIR concluded that the implementation of the Project Case Alternative would result in a number of significant effects on the environment. The EIR also disclosed and described measures to mitigate or avoid these significant effects. This document lists all of the mitigation measures, and describes:

- How the measures will be implemented
- Who will implement the measures
- When the measures will be implemented

This document does *not* discuss those subjects for which the EIR concluded that the impacts from implementation of the Project Case Alternative would be less-than-significant.

Description of Measure	Timeframe for Implementation	Responsibility for Implementation	Oversight for Implementation
LAND USE			
Design the fuel storage facility in accordance with applicable building and safety codes.	Design phase of fuel storage facility	Airport & Public Works Departments	Review and approval of plans by Fire Department and Planning, Building & Code Enforcement Dept.
Amend the Airport's Emergency Response Plan to include the fuel storage facility.	Prior to operation of the fuel storage facility	Airport Department	San Jose Fire Department coordination
Operate the fuel storage facility in accordance with applicable environmental & safety procedures.	Ongoing	Airport Department	Inspections & monitoring by San Jose Fire Department, U.S. EPA, and Regional Water Quality Control Board
CULTURAL RESOURCES			
Monitoring by a qualified archaeologist of the construction of all airport improvement projects located within archaeologically-sensitive areas, as delineated on Figure 3.2.1 of the EIR. Archaeologist has authority to stop construction within a 100-foot radius of a "find" of cultural resources & will recommend appropriate measures.	During the phase(s) of construction which involve subsurface work	Airport Department	Planning, Building & Code Enforcement Department
TRAFFIC			
Add a third westbound through lane on Brokaw Road at the Brokaw Road/North First Street intersection.	Prior to completion of Terminal B or 2005, whichever is earlier	Airport & Public Works Departments	Public Works Department
Add a third eastbound through lane on Old Bayshore Highway at the Old Bayshore Highway/North First Street intersection.	Prior to completion of Terminal C remodeling or 2010, whichever is earlier	Airport & Public Works Departments	Public Works Department
Restripe an existing southbound lane to add an exclusive southbound right turn lane at the Skyport Drive/North First Street intersection.	Prior to completion of Terminal C remodeling or 2010, whichever is earlier	Airport & Public Works Departments	Public Works Department
Add a third northbound left-turn lane at the Airport Boulevard/Terminal Drive North intersection.	Prior to completion of Terminal B or 2005, whichever is earlier	Airport & Public Works Departments	Public Works Department

Description of Measure	Timeframe for Implementation	Responsibility for Implementation	Oversight for Implementation
Add a third northbound and southbound through lane on Airport Blvd at the Airport Blvd/Airport Pkwy intersection.	Prior to completion of Terminal B or 2005, whichever is earlier	Airport & Public Works Departments	Public Works Department
Add a second left-turn lane from southbound Coleman Avenue onto Airport Boulevard at the Coleman Avenue/Airport Boulevard intersection.	Prior to completion of Terminal B or 2005, whichever is earlier	Airport & Public Works Departments	Public Works Department
Restripe the westbound approach on Brokaw Road to include an exclusive left-turn lane and one shared left/through/right lane at the Coleman Avenue/Brokaw Road intersection.	Prior to year 2000	Airport & Public Works Departments	City of Santa Clara intersection
Prohibit left-turns into the public and employee parking lots on Martin Avenue while these interim parking lots on the west side of the Airport are operational.	Restriction becomes effective when parking lots become operational	Airport & Public Works Departments	Martin Avenue is a City of Santa Clara facility
Add a third left-turn lane from eastbound Central Expressway onto northbound De La Cruz Boulevard at the De La Cruz Boulevard/Central Expressway intersection.	Prior to year 2000	Airport & Public Works Departments	City of Santa Clara/County of Santa Clara intersection
Implement a TSM Program for SJC, as described on page 3.3-78 of the Draft EIR and on page 125 of the First Amendment to the Draft EIR.	Prior to completion of Terminal B or 2005, whichever is earlier	Airport Department	Coordinate with Valley Transportation Authority (VTA)
AIR QUALITY			
Implement the measures listed in the Draft EIR beginning on page 3.4-33 to control emissions of pollutants during the construction of all capital improvement projects.	During the construction phase of all capital improvement projects	Airport & Public Works Departments	BAAQMD oversight. BAAQMD permit required for onsite concrete batch plant(s)
Encourage operators of private van, shuttle, and rental car fleets to convert vehicles to alternative fuels. Such operators will have access to the Airport's onsite fueling station(s).	Letters to be sent prior to 2000 and again after on-Airport fueling station(s) are operational	Airport Department	City Manager
Implement a TSM Program for SJC, as described on page 3.3-78 of the Draft EIR and on page 125 of the First Amendment to the Draft EIR.	Prior to completion of Terminal B or 2005, whichever is earlier	Airport Department	Coordinate with Valley Transportation Authority (VTA)

67380

Description of Measure	Timeframe for Implementation	Responsibility for Implementation	Oversight for Implementation
All new stationary sources of emissions (e.g., fueling facilities) will comply with latest requirements for reduction of emissions.	During design & operational phases	Airport & Public Works Departments	Permits required from BAAQMD
Advise airline tenants in writing that the City supports the use of single or reduced engine taxiing to the extent that it would provide identifiable air quality benefits, and to the extent that the FAA and the airlines determine this procedure to be safe and efficient.	Letters to be sent prior to 2000	Airport Department	FAA
NOISE			
Continue working with airlines and air cargo operators to encourage the use of quietest available aircraft at SJC.	Ongoing	Airport Department	City Manager
Continue to implement the existing time-of-day operational restrictions.	Ongoing	Airport Department	City Manager
Continue process of working with the FAA to identify the feasibility of modifying flight tracks for noise reduction purposes.	Ongoing	Airport Department	FAA
Conduct noise measurements to determine the best location for engine runups.	Upon completion of blast fences at ends of Runway 12L/30R	Airport Department	City Manager
Continue existing program of limiting engine runups between 11:30 PM and 6:30 AM.	Ongoing	Airport Department	City Manager
Re-consider the construction of a noise attenuation facility if the number of high-power runups during the curfew average more than four per month in any 12-month period.	Ongoing	Airport Department	City Manager

08279

Description of Measure	Timeframe for Implementation	Responsibility for Implementation	Oversight for Implementation
Existing restrictions on jet takeoffs on Runway 12R/30L will be applied to Runway 12L/30R when Runway 12L/30R is extended to 11,050 feet.	Upon completion of the extension of Runway 12L/30R	Airport Department	FAA
Implement the ACT Program for all residences within the worst-case 65 dB CNEL contour to achieve an interior noise level of 45 dB CNEL (due to aircraft noise).	Complete prior to 2001[1]	Airport Department	City Manager
Measure and insulate all eligible structures outside the 65 dB CNEL contour in those areas which were determined in the EIR to be significantly affected by noise (see page 12 of the First Amendment to the Draft EIR).	Complete prior to 2006	Airport Department	City Manager
Request the ALUC to update the SJC portion of the *Land Use Plan for Areas Surrounding Santa Clara County Airports* consistent with the Project Case Alternative.	Prior to 1998	Airport Department	City Manager
Require avigation easements for new development located within the projected 2010 65 dB CNEL contour for the Project Case Alternative.	Ongoing	Airport & Planning Departments	ALUC and appropriate local jurisdiction (City of San Jose or City of Santa Clara)
In coordination with the ACT Program, any residential units that are determined to be not feasible for acoustical treatment either will be acquired or will be converted to compatible land uses.	Ongoing	Airport Department	City Manager
Relocate or add RMSs to the Airport's aircraft noise monitoring system, as required to monitor noise levels from the Project Case Alternative consistent with California Airport Noise Regulations.	Ongoing	Airport Department	Caltrans Division of Aeronautics

[1]After this date, the Airport Department will continue to monitor actual CNEL values at the Airport. In the event that the actual CNEL values exceed the projected CNEL values, any additional homes which become eligible for the ACT Program will be insulated in an expeditious manner.

J8379

Description of Measure	Timeframe for Implementation	Responsibility for Implementation	Oversight for Implementation
Offer to acoustically insulate Bachrodt Elementary School such that interior classroom noise levels due to aircraft noise do not exceed a peak-hour Leq of 45 dB during peak aircraft activities occurring during the normal school day.	Prior to 2006	Airport Department	City Manager
HYDROLOGY AND WATER QUALITY			
Ponding capacity at the north end of the Airport and/or pumping capacity will be increased to meet the additional runoff quantities during major storm events.	As part of the Phase I taxiway and runway improvements	Airport & Public Works Departments	SCVWD coordination
Construct a retention wall around the north end of the Airport to prevent runoff onto U.S. 101.	As part of the Phase I taxiway and runway improvements	Airport & Public Works Departments	Public Works Department
Continue to implement (and update as necessary) the Airport's Storm Water Pollution Prevention Plan.	Ongoing	Airport & Public Works Departments	SCVWD and RWQCB coordination/oversight
Design the fuel storage facility in accordance with applicable building and safety codes.	Design phase of fuel storage facility	Airport & Public Works Departments	Review and approval of plans by Fire Department and Planning, Building & Code Enforcement Dept.
GEOLOGY AND SEISMICITY			
All new facilities, including the fuel storage facility, will adhere to applicable building codes.	Design and construction phases of all new facilities	Airport & Public Works Departments	For fuel storage facility, oversight by Fire Department
All new facilities will adhere to applicable seismic codes, including those applicable to places of public assembly (essential facilities) and to potentially hazardous facilities.	Design and construction phases of all new facilities	Airport & Public Works Departments	For fuel storage facility, oversight by Fire Department
BIOLOGICAL RESOURCES			
Areas within 175' of the edges of Runways 12R/30L and 12L/30R will be maintained free of nesting burrowing owls; each burrow that could be occupied by burrowing owls will be closed & compensated by installing one artificial burrow in an adjacent burrowing owl management area.	Ongoing	Qualified biologist retained by Airport Department	Relocation of owls requires permit from California Department of Fish & Game (CDFG)

673380

Description of Measure	Timeframe for Implementation	Responsibility for Implementation	Oversight for Implementation
Projects occurring within non-paved areas will be preceded by a burrowing owl pre-construction survey; artificial burrows will be provided for impacted burrows; natural burrows will be excavated and physically closed prior to construction.	Within 30 days prior to start of ground-disturbing activities	Qualified biologist retained by Airport Department	Relocation of owls requires permit from CDFG
Approximately 84 acres of the infield will be designated specifically for burrowing owl management (see Figure 7 of Appendix 3.8.B of the EIR); these areas will be mowed on a regular basis.	Effective immediately	Airport Department	Planning, Building & Code Enforcement Department
The burrowing owl population at SJC will be monitored, including a breeding season census and a non-breeding season census each year; an annual survey report will be prepared.	Ongoing	Qualified biologist retained by Airport Department	Copies of survey reports to be provided to the Director of Planning and to the CDFG
For construction of a new bridge across the Guadalupe River to the parking island: obtain permits from CDFG, RWQCB, SCVWD, and Corps of Engineers; provide mitigation for impacted habitat; conduct pre-construction surveys for raptors, red-legged frogs, & southwestern pond turtles; undertake construction during non-rainy season; convey low-flow of river around construction site in an open channel.	Prior to and during construction of the new bridge	Airport & Public Works Departments	Permits required from Corps, CDFG, RWQCB, & SCVWD. Coordination with USFWS required on California red-legged frog issues.
Design the fuel storage facility in accordance with applicable building and safety codes.	Design phase of fuel storage facility	Airport & Public Works Departments	Review and approval of plans by Fire Department and Planning, Building & Code Enforcement Dept.
Amend the Airport's Emergency Response Plan to include the fuel storage facility.	Prior to operation of the fuel storage facility	Airport Department	San Jose Fire Department coordination
Operate the fuel storage facility in accordance with applicable environmental & safety procedures.	Ongoing	Airport Department	Inspections & monitoring by San Jose Fire Department, U.S. EPA, and Regional Water Quality Control Board

67386

FINAL

SAN JOSE INTERNATIONAL AIRPORT MASTER PLAN UPDATE

Environmental Impact Report

December 1997
Prepared for City of San Jose

State Clearinghouse #95073066

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TABLE OF CONTENTS

SAN JOSE INTERNATIONAL AIRPORT MASTER PLAN UPDATE ENVIRONMENTAL IMPACT REPORT

	Page
CITY RESOLUTION #67380	
1. INTRODUCTION AND EXECUTIVE SUMMARY	1-1
1.1. Background and Project History	1-2
1.2. Summary of the Project Case Alternatives	1-5
1.3. Summary of Significant Environmental Impacts and Proposed Mitigation Measures	1-8
1.4. Areas of Controversy and Issues to be Resolved	1-72
1.5. Incorporation of Studies and Other Documents	1-73
1.6. The Scoping Process	1-74
2. PROJECT CASE ALTERNATIVES	2-1
2.1. Project Objectives	2-1
2.2. Project Location and Characteristics	2-2
2.3. Description of the Project Case Alternatives	2-2
2.3.1. Project Case	2-5
2.3.2. Project Case Alternative A	2-20
2.3.3. Project Case Alternative B	2-33
2.3.4. No Project Alternative	2-43
2.3.5. Comparison Matrix of Project Case Alternatives	2-43
2.4. Summary of Variants to the Project Case Alternatives Considered and Rejected	2-55
2.5. Reviews or Approvals for Which the EIR Will Be Used and Requested Federal, State, and Local Actions	2-57
2.6. Plans and Policies	2-61
3. EXISTING CONDITIONS, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	
3.1. Land Use	3.1-1
3.1.1. Overview of Land Use Regulations	3.1-1
3.1.2. Setting and Existing Conditions	3.1-5
3.1.3. Land Use Impacts	3.1-8
3.1.4 Mitigation Measures for Significant Land Use Impacts	3.1-14

		Page
3.2.	Cultural Resources	3.2-1
	3.2.1. Setting and Existing Conditions	3.2-1
	3.2.2. Cultural Resources Impacts	3.2-5
	3.2.3. Mitigation Measures for Significant Cultural Resources Impacts	3.2-12
3.3.	Transportation and Circulation	3.3-1
	3.3.1. Setting and Existing Conditions	3.3-1
	3.3.2. Transportation and Circulation Impacts	3.3-24
	3.3.3. Mitigation Measures for Significant Transportation and Circulation Impacts	3.3-71
3.4.	Air Quality	3.4-1
	3.4.1. Setting and Existing Conditions	3.4-1
	3.4.2. Air Quality Impacts	3.4-11
	3.4.3. Mitigation Measures for Significant Air Quality Impacts	3.4-33
3.5.	Noise	3.5-1
	3.5.1. Setting and Existing Conditions	3.5-1
	3.5.2. Noise Impacts	3.5-31
	3.5.3. Mitigation Measures for Significant Noise Impacts	3.5-88
3.6.	Hydrology and Water Quality	3.6-1
	3.6.1. Setting and Existing Conditions	3.6-1
	3.6.2. Hydrology and Water Quality Impacts	3.6-6
	3.6.3. Mitigation Measures for Significant Hydrology and Water Quality Impacts	3.6-18
3.7.	Geology and Seismicity	3.7-1
	3.7.1. Setting and Existing Conditions	3.7-1
	3.7.2. Geology and Seismicity Impacts	3.7-6
	3.7.3. Mitigation Measures for Significant Geology and Seismicity Impacts	3.7-13
3.8.	Biological Resources	3.8-1
	3.8.1. Setting and Existing Conditions	3.8-1
	3.8.2. Biological Resources Impacts	3.8-21
	3.8.3. Mitigation Measures for Significant Biological Resources Impacts	3.8-29
3.9.	Energy Supply and Natural Resources	3.9-1
	3.9.1. Setting and Existing Conditions	3.9-1
	3.9.2. Energy Supply and Natural Resources Impacts	3.9-4
	3.9.3. Mitigation Measures for Significant Energy Supply and Natural Resources Impacts	3.9-9
3.10.	Aesthetics	3.10-1
	3.10.1. Setting and Existing Conditions	3.10-1
	3.10.2. Aesthetics Impacts	3.10-9
	3.10.3. Mitigation Measures for Significant Aesthetics Impacts	3.10-18

Page

3.11. Public Services and Utilities 3.11-1
3.11.1. Setting and Existing Conditions 3.11-1
3.11.2. Public Services and Utilities Impacts 3.11-4
3.11.3. Mitigation Measures for Significant Public Services and Utilities Impacts 3.11-14

3.12. Hazardous Materials 3.12-1
3.12.1. Setting and Existing Conditions 3.12-1
3.12.2. Hazardous Materials Impacts 3.12-6
3.12.3. Mitigation Measures for Significant Hazardous Materials Impacts 3.12-20

3.13. Air Safety 3.13-1
3.13.1. Setting and Existing Conditions 3.13-1
3.13.2. Air Safety Impacts 3.13-10
3.13.3. Mitigation Measures for Significant Air Safety Impacts 3.13-14

4. ANALYSIS AND COMPARISON OF ALTERNATIVES 4-1
4.1. On-Site Variants 4-1
4.2. Off-Site Variants 4-12
4.3. No Project Alternative 4-17
4.4. Environmentally Superior Alternative 4-22

5. CUMULATIVE IMPACTS 5-1
5.1. Past, Present, and Reasonably Anticipated Future Related Projects 5-1
5.2. Summary of Environmental Effects of Related Projects 5-2
5.3. Summary of Cumulative Impacts of Related Projects 5-4

6. GROWTH INDUCING IMPACTS AND SECONDARY EFFECTS 6-1
6.1. CEQA Definition of Growth Inducement 6-1
6.2. Growth Inducement Potential 6-1
6.3. Proposed Services Relative to Forecast Demand 6-2
6.4. Growth Inducement Effects 6-5

7. OTHER REQUIRED CEQA ANALYSES 7-1
7.1. Significant Unavoidable Impacts if Master Plan Update is Implemented 7-1
7.2. Significant Irreversible Environmental Changes 7-1
7.3. Environmental Effects Found Not to Be Significant 7-2

8. REFERENCES 8-1
8.1. Organizations and Persons Consulted 8-1
8.2. Bibliography 8-3

9. LIST OF PREPARERS 9-1

10. AGENCIES, ORGANIZATIONS, AND PERSONS THAT RECEIVED THE DRAFT EIR 10-1

LIST OF APPENDICES

VOLUME 1

Appendix 1.A: Public Scoping Comments; Comments on NOP and NOI
Appendix 1.B: MOU Between FAA and City of San Jose
Appendix 2.A: Initial Study
Appendix 3.2.A: Cultural Resources Analysis Methodology
Appendix 3.3.A: Traffic Analysis Data and Methodology

VOLUME 2

Appendix 3.4.A: Air Quality Analysis Data and Methodology
Appendix 3.5.A: Noise Analysis Data and Methodology
Appendix 3.5.B: Federal Aviation Regulation Part 161.205 Study
Appendix 3.5.C: Noise Attenuation Facility Study for the San Jose International Airport
Appendix 3.6.A: Hydrology Methodology and Results
Appendix 3.6.B: Storm Water Discharge Data
Appendix 3.8.A: Special Status Species - Regulatory Framework
Appendix 3.8.B: Burrowing Owl Management Plan
Appendix 3.8.C: Wetland Regulation and Protection
Appendix 3.9.A: Energy Consumption Analysis
Appendix 3.12.A: Hazardous Materials Supporting Documentation
Appendix 4.2.A: Effect of Proposed Limited Air Cargo Operations at Moffett Federal Airfield on the Master Plan Alternatives for San Jose International Airport

VOLUME 3

Background Data and Analysis for Appendix 3.5.B

VOLUME 4

First Amendment to Draft EIR

Page

LIST OF FIGURES

1.3.1	Comparison of CNEL Contours for the Project Case Alternatives in the Year 2010	1-71
2.2.1	Regional Location Map	2-3
2.2.2	SJC Vicinity	2-4
2.3.1	Project Case Phase 1 - Development	2-7
2.3.2	Project Case Phase 2 - Development	2-8
2.3.3	Project Case Phase 3 - Development	2-9
2.3.4	Project Case Ultimate Development 2010	2-10
2.3.5	Project Case Alternative A Phase 1 - Development	2-21
2.3.6	Project Case Alternative A Phase 2 - Development	2-22
2.3.7	Project Case Alternative A Phase 3 - Development	2-23
2.3.8	Project Case Alternative A Ultimate Development 2010	2-24
2.3.9	Project Case Alternative B Phase 1 - Development	2-34
2.3.10	Project Case Alternative B Phase 2 - Development	2-35
2.3.11	Project Case Alternative B Phase 3 - Development	2-36
2.3.12	Project Case Alternative B Ultimate Development 2010	2-37
2.3.13	No Project Alternative	2-44
3.1.1	Existing Land Uses	3.1-2
3.1.2	*General Plan* Land Use Designations in Airport Vicinity	3.1-4
3.1.3	Existing FAA Runway Protection Zones and ALUC Safety Zones	3.1-6
3.2.1	Archaeological Sensitive Areas at San Jose International Airport	3.2-3
3.3.1	Study Area and Project Intersections	3.3-2
3.3.2	Freeway and State Highway Traffic Volumes	3.3-3
3.3.3	Existing Intersection Lane Geometrics	3.3-6
3.3.4	Existing Lane Geometrics and Parking Location	3.3-9
3.3.5	Existing Transit Service in Vicinity of SJC	3.3-10
3.3.6	Bicycle Routes	3.3-13
3.3.7	Existing AM Peak Hour Traffic Volumes	3.3-17
3.3.8	Existing PM Peak Hour Traffic Volumes	3.3-19
3.5.8a	1994/95 Freeway and Expressway Level of Service AM Peak	3.5-23a
3.5.8b	1994/95 Freeway and Expressway Level of Service PM Peak	3.5-23b
3.3.9	General Aviation Airports in the Greater San Jose Area	3.3-25
3.3.10	Proposed Skyport Interchange	3.3-27
3.3.11	Trip Distribution	3.3-34
3.4.1	Receptor Locations for Dispersion Modelling	3.4-24
3.5.1	Typical Aircraft Noise Event	3.5-6
3.5.2	Remote Monitoring Site (RMS) Locations and 1994 Noise Contours	3.5-20
3.5.3	Reference Grid Points	3.5-22
3.5.4	1994 Base Year / No Project Alternative SEL 90 dB Contours	3.5-23
3.5.5	No Project Alternative Noise Contours - Year 2000	3.5-35
3.5.6	No Project Alternative Noise Contours - Year 2005	3.5-36
3.5.7	No Project Alternative Noise Contours - Year 2010	3.5-37
3.5.8	Project Case Noise Contours - Year 2000	3.5-50
3.5.9	Project Case SEL 90 dBA Contours	3.5-53

Page

LIST OF FIGURES (Continued)

3.5.10	Project Case Noise Contours - Year 2005	3.5-55
3.5.11	Project Case Noise Contours - Year 2010	3.5-58
3.5.12	Project Case Alternative A Noise Contours - Year 2000	3.5-63
3.5.13	Project Case Alternative A SEL 90 dBA Contours	3.5-67
3.5.14	Project Case Alternative A Noise Contours - Year 2005	3.5-69
3.5.15	Project Case Alternative A Noise Contours - Year 2010	3.5-72
3.5.16	Project Case Alternative B Noise Contours - Year 2000	3.5-76
3.5.17	Project Case Alternative B SEL 90 dBA Contours	3.5-80
3.5.18	Project Case Alternative B Noise Contours - Year 2005	3.5-82
3.5.19	Project Case Alternative B Noise Contours - Year 2010	3.5-85
3.5.20	ACT Program Area for the Project Case	3.5-89b
3.5.21	ACT Program Area for the Project Case Alternative A	3.5-90b
3.6.1	Existing 100-Year Floodplain	3.6-3
3.7.1	Regional Fault Map	3.7-3
3.8.1	Study Areas for Biological Resources	3.8-2
3.8.2	Locations of Burrowing Owls at San Jose International Airport	3.8-16
3.8.3	Burrowing Owl Distribution and Potential Habitat at SJC During 1994 and 1995 Breeding Censuses	3.8-17
3.8.4	Reported Bird Strikes at SJC, 1980 to 1995	3.8-19
3.8.5	Conceptual Design of Proposed Rental Car Bridge (Part of Project S-3)	3.8-23
3.10.1	Viewpoints at SJC	3.10-2
3.10.2	Existing Visual Character of SJC	3.10-3
3.10.3	Existing Visual Character of SJC	3.10-4
3.10.4	Existing Visual Character of SJC	3.10-5
3.10.5	Existing Visual Character of SJC	3.10-7
3.10.6	Views of Airport Looking North from Airport Boulevard East of Coleman Avenue	3.10-11
3.10.7	Views of Airport Looking Southeast from De La Cruz Boulevard Overpass of U.S. 101	3.10-12
3.10.8	Views of Fuel Storage Facility Site from the Northbound Lanes of U.S. 101 North of the Guadalupe Parkway Interchange	3.10-14
3.11.1	Existing (1994) and Future Water, Wastewater, and Solid Waste Volumes	3.11-5
3.13.1	Comparison of Fatal Accident Rates Over Time: Part 121 Scheduled U.S. Air Carriers	3.13-9
3.13.2	Comparison of Fatal Accident Rates Over Time: Part 135 Scheduled Commuter Air Carriers	3.13-9
3.13.3	Comparison of Fatal Accident Rates Over Time: General Aviation	3.13-10
6.1	2010 Air Passenger Levels Vs. Forecast Demand for the Project Case Alternatives	6-3
6.2	2010 Air Cargo Tonnage Vs. Forecast Demand for the Project Case Alternatives	6-4
6.3	2010 General Aviation Based Aircraft Vs. Forecast Demand for the Project Case Alternatives	6-5

Page

LIST OF TABLES

1.2.1	Project Actions Accommodated in 2010	1-8
1.3.1	Impacts and Mitigation Measures for the Project Case	1-10
1.3.2	Impacts and Mitigation Measures for the Project Case Alternative A	1-27
1.3.3	Impacts and Mitigation Measures for the Project Case Alternative B	1-44
1.3.4	Project Case Alternatives Impacts Summary	1-59
1.6.1	Distribution List for the Notice of Preparation	1-75
2.3.1	Summary of Airport Master Plan Update Alternatives Part I - Year 2010 Activity Levels	2-5
2.3.2	Summary of Airport Master Plan Update Alternatives Part II - Year 2010 Facilities	2-6
2.3.3	Project Components of Airport Master Plan Update Alternatives	2-45
2.5.1	Potential Reviews, Approvals, and/or Permits Required for Implementing the Airport Master Plan Update	2-58
2.6.1	Applicable City of San Jose *General Plan* Goals and Policies	2-62
3.2.1	Historic Properties within the Existing 65 CNEL Noise Contour	3.2-6
3.2.2	Master Plan Projects Located in Archaeological Sensitive Areas	3.2-7
3.2.3	Historic Properties within the 65 CNEL Noise Contour - Year 2010	3.2-10
3.3.1	Mode Split at SJC	3.3-14
3.3.2	Existing Parking Supply and Demand at SJC	3.3-16
3.3.3	Existing Intersection Level of Service	3.3-22
3.3.4	Future Trip Generation at SJC	3.3-31
3.3.5	Future Level of Service, Year 2000 Scenarios	3.3-36
3.3.6	Future Level of Service, Year 2005 Scenarios	3.3-42
3.3.7	Future Level of Service, Year 2010 Scenarios	3.3-46
3.3.8	Freeway Analysis, Year 2000	3.3-51
3.3.9	Freeway Analysis, Year 2005	3.3-53
3.3.10	Freeway Analysis, Year 2010	3.3-54
3.3.11	General Aviation Based Aircraft Demand and Capacity - Year 2000	3.3-58
3.3.12	General Aviation Based Aircraft Demand and Capacity - Year 2005	3.3-59
3.3.13	General Aviation Based Aircraft Demand and Capacity - Year 2010	3.3-60
3.3.14	Reallocation of General Aviation Based Aircraft	3.3-61
3.3.15	Future Level of Service, Years 2000, 2005, and 2010, Mitigated Conditions	3.3-72
3.4.1	Air Pollutant Summary for SJC Vicinity, 1991-1995	3.4-6
3.4.2	Average Ambient Toxic Air Contaminant Concentrations in San Jose and the Bay Area	3.4-9
3.4.3	SJC Criteria Air Pollutant Emissions Inventory, 1994	3.4-10
3.4.4	SJC Toxic Air Contaminant Emissions Inventory, 1994	3.4-12
3.4.5	Summary of Air Quality Impacts Among the Project Case Alternatives	3.4-13
3.4.6	Criteria Pollutant Emissions Associated with SJC	3.4-14
3.4.7	Criteria Pollutant Concentrations in SJC Vicinity	3.4-15
3.4.8	Carbon Monoxide Concentrations Near Selected Intersections in SJC Vicinity	3.4-16
3.4.9	Toxic Air Contaminant Emissions Associated with SJC	3.4-17
3.4.10	Criteria Air Pollutant Emissions, Project Case	3.4-19

Page

LIST OF TABLES (Continued)

3.4.11	Criteria Pollutant Emissions Associated with SJC Assuming Equal Commercial Operations	3.4-22
3.4.12	Criteria Air Pollutant Emissions, Project Case Alternative A	3.4-29
3.4.13	Criteria Air Pollutant Emissions, Project Case Alternative B	3.4-31
3.4.14	Criteria Air Pollutant Emissions, No Project Alternative	3.4-32
3.5.1	Examples of A-Weighted Sound Levels and Relative Loudness	3.5-2
3.5.2	Effect of Existing Noise Control Measures at SJC	3.5-18
3.5.3	Reference Grid Locations and Noise Exposure	3.5-24
3.5.4	Single Event Noise Exposure - 1994 Base Case	3.5-25
3.5.5	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - 1994 Base Case	3.5-26
3.5.6	Time Above Analysis at Reference Grid Locations - 1994 Base Case	3.5-27
3.5.7	Annual Average Daily Jet Aircraft Operations - 1994 Base Case	3.5-28
3.5.8	Non-Aircraft Noise Levels at SJC Monitoring Sites - October 1, 1994 to December 31, 1994	3.5-30
3.5.9	Traffic Noise Levels - Existing Conditions (1995)	3.5-33
3.5.10	Comparison of CNEL Values - Year 2000	3.5-38
3.5.11	Comparison of CNEL Values - Year 2005	3.5-39
3.5.12	Comparison of CNEL Values - Year 2010	3.5-40
3.5.13	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - No Project Alternative - Year 2000	3.5-41
3.5.14	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - No Project Alternative - Year 2005	3.5-42
3.5.15	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - No Project Alternative - Year 2010	3.5-43
3.5.16	Comparison of Time Above 75 and 85 dBA - Year 2000	3.5-44
3.5.17	Comparison of Time Above 75 and 85 dBA - Year 2005	3.5-45
3.5.18	Comparison of Time Above 75 and 85 dBA - Year 2010	3.5-46
3.5.19	Annual Average Daily Jet Aircraft Operations - No Project Alternative	3.5-47
3.5.20	Traffic Noise Levels - No Project Alternative - Year 2010	3.5-48
3.5.21	Annual Average Daily Jet Aircraft Operations - Project Case	3.5-51
3.5.22	Single Event Noise Exposure - Project Case Compared to No Project Alternative	3.5-52
3.5.23	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case - Year 2000	3.5-54
3.5.24	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case - Year 2005	3.5-57
3.5.25	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case - Year 2010	3.5-59
3.5.26	Traffic Noise Levels - Project Case Compared to No Project Alternative - Year 2010	3.5-61
3.5.27	Typical Construction Equipment Noise Levels	3.5-61
3.5.28	Annual Average Daily Jet Aircraft Operations - Project Case Alternative A	3.5-64

Page

LIST OF TABLES (Continued)

3.5.29	Single Event Noise Exposure - Project Case Alternative A Compared to No Project Alternative	3.5-65
3.5.30	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case Alternative A - Year 2000	3.5-68
3.5.31	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case Alternative A - Year 2005	3.5-70
3.5.32	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case Alternative A - Year 2010	3.5-73
3.5.33	Traffic Noise Levels - Project Case Alternative A Compared to No Project Alternative - Year 2010	3.5-74
3.5.34	Annual Average Daily Jet Aircraft Operations - Project Case Alternative B	3.5-77
3.5.35	Single Event Noise Exposure - Project Case Alternative B Compared to No Project Alternative	3.5-79
3.5.36	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case Alternative B - Year 2000	3.5-81
3.5.37	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case Alternative B - Year 2005	3.5-83
3.5.38	Estimated Effects of Aircraft Noise Exposure on Noise-Sensitive Land Uses - Project Case Alternative B - Year 2010	3.5-86
3.5.39	Traffic Noise Levels - Project Case Alternative B Compared to No Project Alternative - Year 2010	3.5-87
3.6.1	Master Plan Projects that Would Increase Impervious Surfaces at the Airport	3.6-8
3.6.2	Increase in Rate of Storm Water Runoff: All Project Case Alternatives	3.6-9
3.7.1	Comparison of Major Facilities and Activity Levels Subject to Significant Geologic Impacts	3.7-7
3.8.1	Special Status Species that Occur within the Airport Vicinity	3.8-11
3.8.2	Acres of Burrowing Owl Habitat Calculations at SJC	3.8-19
3.9.1	Energy Consumption Estimates for the Project Case Alternatives	3.9-6
3.12.1	Scaling Factors Used to Estimate Increases in Hazardous Materials Use Under Each Project Case Alternative	3.12-7
3.12.2	Proposed Above-Ground Fuel Storage Facilities	3.12-9
3.13.1	National Accident Statistics Associated with Aviation Activity Based on Aircraft Hours Flown	3.13-3
3.13.2	National Accident Statistics Associated with Aviation Activity Based on Aircraft Departures	3.13-6
3.13.3	Summary of Accidents at SJC from 1982-1995	3.13-11
3.13.4	SJC Annual Operations and Accidents	3.13-12
3.13.5	Existing and Proposed Waivers from Existing FAA Airfield Design Guidelines	3.13-13
5.1	Level of Service Comparison with and without Skyport Drive Extended, Project Case - 2010 PM Peak Hour	5-6
5.2	Cumulative Conditions: Reallocation of General Aviation Based Aircraft	5-8
5.3	Net Change in Criteria Pollutant Emissions as Percent of Region	5-10

INTRODUCTION AND EXECUTIVE SUMMARY

CHAPTER 1

INTRODUCTION AND EXECUTIVE SUMMARY

This Environmental Impact Report has been prepared by the City of San Jose as the Lead Agency in conformance with the California Environmental Quality Act (CEQA) and Title 21, the San Jose Environmental Clearance Ordinance. The City of San Jose has determined that an Environmental Impact Report (EIR) is required for the proposed San Jose International Airport (Airport or SJC) Master Plan Update. In compliance with requirements of the National Environmental Policy Act (NEPA), as implemented through Federal Aviation Administration (FAA) guidelines (Order 5050.4A), a separate Environmental Impact Statement (EIS) is also being prepared for this project.

In accordance with CEQA, this EIR provides environmental review to assist the Lead Agency in considering the approval or denial of the proposed Master Plan Update and the actions involved in implementing the project.

This is a Project EIR which examines the environmental impacts of the Master Plan Update. This EIR focuses on the changes in the environment that would result from the implementation of the Master Plan Update. It examines all phases of the project including planning, construction and operation. Recognizing the fact that the project would be implemented over a 15-year period, and that background conditions may change during that period, implementation of the specific elements in Phases 2 and 3 may require further environmental review.

In conformance with the CEQA Guidelines (*CEQA Statutes and Guidelines*, Office of Planning and Research, 1994), the EIR provides objective information to the decision makers regarding the environmental consequences of the proposed project. The following sections of the CEQA Guidelines are summarized to clarify the role of an EIR:

15121(a) Informational Document. An EIR is an informational document which will inform public agency decision makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency.

15151 Standards for Adequacy of an EIR. An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the

environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

The following sections in this chapter detail the project background and history and provide a summary of the project and alternatives, impacts and mitigation measures, issues of controversy, the incorporation of studies and other documents, and a description of the scoping process.

1.1 BACKGROUND AND PROJECT HISTORY

In 1980, an Airport Master Plan was adopted for the Airport. Since 1980, the City has developed the Airport and its facilities pursuant to the 1980 Airport Master Plan. In 1988, following the commencement of construction of a new terminal and garage at the Airport, the Airport Department initiated an update to the Airport Master Plan in order to guide development at the Airport into the next two decades. The City Council approved the application for an FAA planning grant and authorized staff to retain consultants for the preparation of a revised Airport Master Plan in June, 1988.

In 1988, the City retained the aviation consulting firm of TRA to update the 1980 Airport Master Plan. The planning process included preparation of revised demand forecasts, facilities requirements, and potential development scenarios for a revised Airport Master Plan. In 1989, the City convened the Airport Master Plan Advisory Committee ("AMPAC") to review and provide advice to the Airport Department on the various technical studies and alternatives which were being developed. AMPAC has comprised representatives of the City Planning Commission, the City Airport Commission, Airport users, the City of Santa Clara, neighborhoods affected by the Airport from both San Jose and Santa Clara, the FAA, the Air Transport Association, the Airline Pilots Association, air cargo, fixed base, and corporate operators, and general aviation based aircraft owners. From 1989 until the present, AMPAC was convened ten times to review various aspects of the revisions to the Airport Master Plan. During these meetings, the committee developed the concept: the Project Case and Project Case Alternatives A and B.

TRA performed technical analyses early in the Airport Master Plan work program that concluded that future demand at SJC will significantly exceed the capacity of existing facilities and that total demand in the year 2010 cannot be accommodated adequately with existing facilities. Consistent with FAA guidelines for airport master planning, and in light of the demand levels and site constraints, an analysis was conducted to identify and evaluate a number of development scenarios for the Airport and to formulate a preferred development plan (a "Project Case"). A three-step process was utilized whereby a set of very basic or conceptual development alternatives was evaluated, followed by evaluation of a limited number of more focused

conceptual alternatives, ultimately leading to selection of a staff-preferred conceptual development alternative (the staff-proposed "Project Case").

The TRA analysis demonstrated that, by 2010, the total demand for facilities at the Airport by all user groups (e.g., commercial passenger, commercial cargo, general aviation, etc.) would significantly exceed the space available at the Airport for facilities development. The conceptual approach developing an initial set of alternatives was to assign maximum priority in terms of usage and facilities to each of the three segments of activity: future air carrier, air cargo and general aviation demand. Each alternative would be designed to fully accommodate the demand of one user group while the other user groups would be allocated any remaining airfield and landside capacity. Thus, three conceptual alternatives were identified: (1) air carrier build-out; (2) air cargo build-out; and (3) general aviation build-out. A fourth conceptual alternative, consisting of limiting Airport development to only those projects already planned for implementation under the adopted 1980 Airport Master Plan, was identified for comparative purposes. Although each of the four alternatives represented an extreme growth scenario, the evaluation was intended to provide a basis for formulating more refined development alternatives.

Each of the four alternatives was evaluated against six criteria selected as measurements of operational, environmental, and economic performance: demand accommodation (the level of year 2010 forecast demand adequately accommodated); aircraft delay (the average length of time an operation is delayed in 2010 and its annual cost); noise (the change from the current number of acres of incompatible land use within the 65 dB CNEL area by 2010); surface traffic (the change from the current number of vehicle trips generated by the Airport during the peak hour in 2010); capital cost (the cost of construction for new and expanded facilities needed by 2010); and community economic impact (the Airport's estimated economic impact on the community in 2010).

Airport staff analyzed the operational, environmental, and financial trade-offs identified by the four conceptual alternatives and recommended that future growth focus on accommodating the full level of anticipated passenger air carrier demand, with provision for as much cargo growth as could reasonably be accommodated (assuming sufficient facilities are built to accommodate the full level of projected air carrier passenger demand), and a reduced level of general aviation activity that could be efficiently served by Runway 11/29. This recommendation was based on the staff's conclusion that a high level of service, and resulting economic benefits, could be provided to the community by fostering air carrier growth without a corresponding increase in noise impacts.

Consistent with the conclusions derived from the analysis of Alternatives 1-4, three additional conceptual development alternatives were formulated. Designated as Alternatives 5, 6, and 7, these alternatives all consisted of facility improvements designed to fully accommodate air carrier demand in 2010, varying, however, in the physical layout of facilities and the level of air cargo

and general aviation that would be adequately accommodated. The three refined conceptual alternatives were then evaluated against the same six performance criteria as Alternatives 1-4.

After evaluating the second set of alternatives, Airport staff tentatively recommended selection of Alternative 6 as the staff preferred conceptual alternative for the Airport (the staff-recommended "Project Case"). The recommendation was based on the conclusion that Alternative 6 provided the most efficient use of the airfield, the optimum operational facility layout, and the highest level of air cargo demand accommodation. The staff recommendation to designate Alternative 6 as the "Project Case" was then reviewed with the AMPAC, the general public at two community information meetings, and was ultimately presented to the City Council for concurrence before further analysis was to be undertaken.

Due to extraordinary public interest in the development of the Airport and increasing concerns from citizens on airport noise, the City Council conducted a study session on Airport noise and development issues in March of 1991. From that study session and with testimony at public hearings on these issues in April and May of 1991, the City Council approved a workplan in June of that year to proceed with the development and analysis of additional alternatives for inclusion as Project Cases in the environmental process, in addition to Alternative 6 (the staff-recommended "Project Case"), as follows:

- A "Moderate Growth Project Case" ("Alternative #9"); and
- A citizen-proposed alternative ("Alternative #8"), submitted to the City by Citizens Against Airport Pollution ("C.A.A.P.").

The Council further directed staff to evaluate the Project Case Alternatives at an equal level of detail so that the Council could select any of the Project Case Alternatives for implementation after full consideration of all of the information.

The Council direction commenced a two- and one-half-year process to fully identify and develop the Project Case Alternatives and potential mitigation measures for study in the EIR.

For the "moderate growth alternative," staff and the consultant developed Project Case Alternative A (formerly "Alternative 9") and reviewed this proposed Project Case Alternative with the City Council's Transportation and Development Committee at five (5) public meetings, and at one meeting with AMPAC.

The single commercial air carrier runway alternative, Project Case Alternative B (formerly "Alternative 10"), was included in the Airport Master Plan Update as a result of a settlement of litigation with C.A.A.P., in September, 1992. The development of this Project Case Alternative and its refinement with the citizen's group commenced in October, 1992, and there were a series of meetings with C.A.A.P.'s representatives, and a review by AMPAC and before the Transportation and Development Committee throughout 1992 and 1993.

In August, 1993, after considerable work and analysis by staff, the Airport Master Plan consultant, and the City Attorney's Office in defining a project description for the C.A.A.P. proposal, "Alternative #8," staff determined (with Council approval) that the proposal could not be sized or effectively developed. The proposal in reality was a series of environmental parameters rather than a proposal for development of facilities. Therefore, staff recommended to the Transportation and Development Committee and to the Council that the proposal from C.A.A.P. be studied as a series of proposed mitigation measures, and not as a Project Case Alternative. This recommendation was approved and the proposed regulatory and operational constraints in the C.A.A.P. proposal were referred to the EIR study for analysis (see Sections 4.2, Off-Site Variants, 3.3.3, Traffic and Transportation Mitigation, 3.4.3, Air Quality Mitigation, and 3.5.3, Noise Mitigation).

Having established a range of Project Case Alternatives for analysis, the Council then directed the Airport Master Plan process to continue in March, 1994 with environmental review of three Alternatives: the Project Case and Project Case Alternatives A and B, along with a "No Project" alternative required by both State and federal environmental statutes. All alternatives would be subject to an update of forecasts of demand and facility descriptions. The updating of forecasts was completed in October, 1994, and approved by the FAA in December, 1994. The updating of facility descriptions for environmental analysis was completed in May, 1995.

In July, 1995, the City and the FAA, respectively, issued a Notice of Preparation (NOP) and a Notice of Intent (NOI) for preparation of an Environmental Impact Report/Environmental Impact Statement (EIR/EIS). At that time, the State and federal requirements for environmental analysis of the effects of the proposed Master Plan Update were to be evaluated in a single joint document. In June, 1996, the City and the FAA made the decision to separate the joint document and prepare a separate EIR and an EIS (see Appendix 1.B). These documents will be subject to individual review and approval processes by the respective agencies.

1.2 SUMMARY OF THE PROJECT CASE ALTERNATIVES

The following is a summary of the three Project Case Alternatives and the No Project Alternative. In addition, a comparison of the Project Case Alternatives and the No Project Alternative by project component is provided.

1.2.1 SUMMARY OF THE PROJECT CASE

The Project Case would involve three phases of development through the year 2010. For a detailed description of each of the proposed elements by phase, see Section 2.3, Description of the Project Case Alternatives.

The Project Case would fully accommodate the forecast annual air carrier demand in the year 2010 of 17.6 million passengers (MAP), based on accepted airport design standards.

Runways 12L/30R and 12R/30L would be reconstructed and extended to their maximum on-site lengths, from 4,400 feet to 11,050 feet and 10,200 feet to 11,000 feet, respectively. The runways would be supported by numerous taxiway system improvements, including strengthening, widening, and lengthening. Eighteen new air carrier gates, for a total of 49 gates, would be provided through construction of a new Terminal B and reconstruction and expansion of the existing Terminal C.

All air carrier and support facilities needed to accommodate forecast passenger air carrier demand would be provided on-site, including construction of multi-story garages for public, employee, and rental car parking, and a new fuel storage area. The forecast annual air cargo operational and cargo tonnage demand of 315,000 tons would also be fully accommodated by the year 2010, with air cargo facilities developed on the west side of the Airport. General aviation activity would be constrained due to insufficient airside and landside capacity, with facilities in 2010 limited to the existing developed area on the west side that would accommodate 320 based aircraft. Within existing airport design standards, the Project Case would be expected to accommodate approximately 372,000 annual aircraft operations in 2010.

Itinerant military operations occasionally occur at the Airport. However, the number of military operations at the Airport is considered insignificant for purposes of this document, and no facilities are proposed that would accommodate military operations or activities. This is also the case for Project Case Alternative A and Project Case Alternative B.

1.2.2 SUMMARY OF PROJECT CASE ALTERNATIVE A

Project Case Alternative A would involve three phases of development through the year 2010. For a detailed description of each of the proposed elements by phase, see Section 2.3, Description of the Project Case Alternatives.

Project Case Alternative A would be designed to accommodate 13.1 million annual airline carrier passengers in the year 2010, based on accepted airport design standards. This alternative would accommodate 4.5 million fewer annual airline carrier passengers than the Project Case. Runway 12L/30R would be reconstructed and extended from 4,400 feet to 8,900 feet and Runway 30R/12L would be reconstructed and extended from 10,200 feet to its maximum on-site length of 11,000 feet. The runways would be supported by numerous taxiway system improvements, including strengthening, widening, and lengthening. Six new air carrier gates, for a total of 37 gates, would be provided through construction of a new Terminal B and remodeling of the existing Terminal C.

All associated air carrier and support facilities needed to accommodate the design level of demand would be provided on-site, including construction of multi-story garages for public, employee, and rental car parking, and a new 3.0-million-gallon, 6-tank fuel storage facility. This

alternative would accommodate 283,000 tons of the total forecast annual air cargo operations and tonnage demand by the year 2010, with air cargo facilities developed on the west side of the Airport. General aviation activity would be somewhat constrained due to insufficient airside and landside capacity, with facilities for 430 based aircraft located on the west side in 2010. Within existing airport design standards, Project Case Alternative A would be expected to accommodate approximately 350,000 aircraft operations in 2010.

1.2.3 SUMMARY OF PROJECT CASE ALTERNATIVE B

Project Case Alternative B would involve three phases of development through the year 2010. For a detailed description of each of the proposed elements by phase, see Section 2.3, Description of the Project Case Alternatives.

Project Case Alternative B would be designed to maximize accommodation of forecast air carrier growth with the limitation of only one air carrier runway. This alternative would accommodate 12.4 million annual air carrier passengers in the year 2010, 700,000 fewer annual passengers than Project Case Alternative A and 5.2 million fewer than the Project Case. Runway 12L/30R would remain at 4,400 feet in length, while Runway 12R/30L would be reconstructed and extended from 10,200 feet to its maximum on-site length of 11,000 feet. The runways would be supported by several taxiway system improvements, including strengthening, widening, and lengthening. Four new air carrier gates, for a total of 35 gates, would be provided through construction of a new Terminal B that would replace the existing Terminal C.

All associated air carrier and support facilities needed to accommodate the design level of demand would be provided on-site, including construction of multi-story garages for passenger, employee, and rental car parking, and a new 2.5-million-gallon, 5-tank fuel storage facility. Air cargo activity would be limited to 167,000 annual tons in 2010 in order to reserve as much airfield capacity as possible for air passenger operations, with no new air cargo facilities constructed. General aviation capacity would be somewhat constrained due to insufficient airside capacity, with facilities for 490 based aircraft located on the west side in 2010. A portion of the west side in 2010 would be left undeveloped. Within existing airport design standards, this alternative would be expected to accommodate approximately 354,000 annual aircraft operations in 2010.

1.2.4 SUMMARY OF NO PROJECT ALTERNATIVE

Under the No Project Alternative, no physical changes would be made at the Airport. Specifically, no runway or taxiway system improvements would occur, and no new air carrier gates or new air cargo or general aviation facilities would be provided.

Although existing facilities would not change under the No Project Alternative, activity levels at SJC would increase given the forecast growth in demand. Within existing airport design standards, the No Project Alternative would be expected to accommodate a total of approximately 371,000 annual aircraft operations, an annual passenger service level of approximately 10.8 million passengers, 155,500 tons of air cargo, and 600 based aircraft in 2010.

1.2.5 SUMMARY OF PROJECT COMPONENTS BY PROJECT CASE ALTERNATIVE

Table 1.2.1 presents a comparison of the various components envisioned for each of the Project Case Alternatives.

TABLE 1.2.1
PROJECT ACTIONS ACCOMMODATED IN 2010

Action	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Runway 12L/30R Extension	4,400 feet to 11,050 feet	4,400 feet to 8,900 feet	N/A	N/A
Runway 12R/30L Extension	10,200 feet to 11,000 feet	10,200 feet to 11,000 feet	10,200 feet to 11,000 feet	N/A
Number of New Gates	18	6	4	N/A
Total Number of Gates	49	37	35	29
Total Parking Spaces	28,800	22,500	19,600	10,050
Tons of Air Cargo	315,000	283,000	167,000	155,500
Number of Based General Aviation Aircraft	320	430	490	600
Number of Annual Aircraft Operations	372,000	350,000	354,000	371,000
Number of Annual Passengers	17.6 million	13.1 million	12.4 million	10.8 million

N/A = No Action

1.3 SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

Table 1.3.1 presents a summary of the environmental impacts and mitigation measures for the Project Case. Table 1.3.2 presents a summary of the environmental impacts and mitigation measures for Project Case Alternative A. Table 1.3.3 presents a summary of the environmental impacts and mitigation measures for Project Case Alternative B.

Each of the Project Case Alternatives of the Master Plan Update discussed in this EIR would result in impacts to environmental resources. Table 1.3.4 provides a summary comparison of the environmental impacts that could occur with each of the Project Case Alternatives. The table identifies the significance level of impact after mitigation, if appropriate, for each Project Case Alternative. In addition, Figure 1.3.1 presents a comparison of the CNEL contours for the Project Case Alternatives in the year 2010.

TABLE 1.3.1
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
1. Land Use, Plans, and Policies			
Changes in On-Airport Land Uses Impact (Prime Farmland): The Project Case would result in the conversion of land designated as prime farmland to aviation uses.	Less than Significant	None required.	
Changes in On-Airport Land Uses Impact (Other On-Airport Uses): The Project Case would not result in any land use changes on the Airport that would adversely affect the functioning of SJC as a major transportation facility, nor would the non-renewal of certain leases result in any significant adverse impacts on existing on-Airport land uses.	Less than Significant	None required.	
Adjacent Land Use Compatibility Impact (Intensification; Safety Zones): The development and operation of SJC would not conflict with established land uses in the surrounding area or alter established land use compatibility with adjacent land uses.	Less than Significant	None required.	
Adjacent Land Use Compatibility Impact (Fuel Storage Facility): The installation and operation of the new fuel storage facility would conflict with established land uses by posing a hazard to people employed at or temporarily occupying adjacent land uses.	Significant	See the mitigation measures that are designed to minimize the possibility of an accidental release and the consequent risk of exposure of people on adjacent land and are described in Sections 3.6, Hydrology and Water Quality; 3.7, Geology and Seismicity; 3.8, Biological Resources; and 3.12 Hazardous Materials.	Less than Significant
2. Cultural Resources			
Disturbance of Archaeological Sites Impact: Earthmoving activities in conjunction with the construction of projects in archaeological sensitive areas at the Airport could result in the disturbance of archaeological resources associated with Sites SCL-311H and SCL-430.	Significant	The Airport will continue existing archaeological monitoring program for construction activity for all projects within the archaeological sensitive areas.	Less than Significant

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Discovery of Previously Unknown Archaeological Resources Impact: Earthmoving activities in conjunction with the construction of facilities and improvements under the Project Case would not result in the destruction of previously unknown prehistoric and/or historic archaeological resources.	Less than Significant	None required.	
California Historical Landmark No. 945 Impact: Renovation and expansion of Terminal C would incorporate the relocation of California Historical Landmark No. 945.	Less than Significant	None required.	
Off-Airport Historic Property Impact: The historical or architectural style of the historic properties within the 65 CNEL noise contour in the year 2010 would not be affected by noise from aircraft activity. The employment of sound attenuation activities would not affect the historical or architectural style of these properties.	Less than Significant	None required.	
3. Traffic and Transportation			
Intersection Level of Service Impacts: The number of vehicle trips generated by Project Case would result in significant impacts at five intersections in the year 2000, four intersections in the year 2005, and seven intersections in the year 2010 in the Airport vicinity.	Significant	(1) At Intersection 5 (North First Street and Brokaw Road), add a third westbound through lane on Brokaw Road to reduce the AM and PM peak-hour v/c ratios to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS E or F in 2010, and the PM peak-hour service level would be LOS E in 2005. (2) At Intersection 6 (North First Street and Old Bayshore Highway), add a third eastbound through lane on Old Bayshore Highway to improve the 2010 PM peak-hour service level to an acceptable LOS D (v/c = 0.85).	Significant and Unavoidable

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(3) At Intersection 7 (North First Street and Skyport Drive), restripe an existing southbound lane plus add an exclusive southbound right-turn lane on North First Street to improve the 2010 PM peak-hour service level to an acceptable LOS B (v/c = 0.67). (4) At Intersection 15 (Airport Boulevard and North Terminal Drive), add a third northbound left-turn lane on Airport Boulevard to reduce the AM and PM peak-hour v/c ratios to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS E or F in 2010, and the PM peak-hour service level would be LOS E in 2005. (5) At Intersection 16 (Airport Boulevard and Airport Parkway), add another northbound and southbound through lane on Airport Boulevard to reduce the AM and PM peak-hour v/c ratios to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS F in 2005 and 2010. (6) At Intersection 27 (Coleman Avenue and Southbound I-880 Ramps), the impacts would occur in 2000 during the PM peak hour, and would occur under the No Project Alternative. The SR 87 freeway project will be completed prior to 2005, and there would be no Project Case impacts in 2005 and 2010. Implementation of a mitigation measure for the short-term impact would require reconstruction of the I-880/Coleman interchange, which could not be completed by 2005. Therefore, there is no feasible mitigation measure to reduce the impact to a less than significant level in 2000 or under the No Project Alternative.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(7) At Intersection 28 (Coleman Avenue and Airport Boulevard), add a second southbound left-turn lane on Coleman Avenue to reduce the AM and PM peak-hour v/c ratios in 2005 and 2010 to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS F in 2005 and 2010. See Mitigation Measure #6, above, for an applicable discussion of short-term (2000) impacts that also would occur under the No Project Alternative and that would be eliminated due to the completion of the SR 87 freeway project prior to 2005. (8) At Intersection 29 (Coleman Avenue and Brokaw Road), restripe westbound Brokaw Road to allow for one exclusive left-turn lane and one shared left-turn / through / right-turn lane to reduce the 2000 PM peak-hour v/c ratio to better than under the No Project Alternative. The PM peak-hour service level, however, would be LOS E in 2000. (9) At Intersection 31 (De La Cruz Boulevard and Martin Avenue), prohibit left turns into the public and employee parking lots on Martin Avenue while those parking lots on the west side of the Airport are operational to improve the 2000 AM peak-hour service levels to LOS C (v/c = 0.77). (10) At Intersection 32 (De La Cruz Boulevard and Central Expressway), add a third eastbound left-turn lane on Central Expressway to reduce the AM and PM peak-hour v/c ratios to better than under the No Project Alternative. The AM peak-hour	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		service level, however, would remain at LOS F in 2000, and the PM peak-hour service level would be LOS F in 2010.	
Freeway Impacts: Project-generated vehicle trips on various freeway segments in the Airport vicinity would be more than one percent of peak-hour capacity on four segments in 2005 and five segments in 2010.	Significant	The City will implement a TSM program to reduce traffic congestion on freeways in the Airport vicinity.	Significant and Unavoidable
Public Transit Impacts: The increase in public transit trips from the Airport would be accommodated by the transit system.	Less than Significant	None required.	
Pedestrian Impacts: The Project Case would safely accommodate any increase in pedestrian trips to, from, and within the Airport.	Less than Significant	None required.	
Bicycling Impacts: The Project Case would not alter existing or proposed bicycle routes and would safely accommodate any increase in bicycle trips to and from the Airport.	Less than Significant	None required.	
Parking Impacts: The Project Case would provide adequate parking for the parking demand at the Airport.	Less than Significant	None required.	
Construction Traffic Impacts: The project would not result in the closure of a roadway preventing access to Airport facilities during construction activities or adversely affect pedestrian safety during construction.	Less than Significant	None required.	
General Aviation Displacement Impact: The project would not result in unaccommodated demand for general aviation facilities within the region.	Less than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4. Air Quality			
Criteria Air Pollutant Emissions Impact: Increases in air passenger and air cargo volumes at SJC would result in a net increase of more than 80 pounds per day each of ROG, NO_x, or PM_{10}.	Significant	(1) A construction emissions abatement program will be included in construction contracts under the Project Case to reduce PM_{10} and ROG/NO_x emissions from construction. Such a program typically contains the following components: water active construction areas and other unpaved access roads, and parking and staging areas at construction sites; cover all trucks hauling loose materials or require all trucks to carry less-than-full loads; sweep daily all paved areas at construction sites, and adjacent public streets if visible soil material is carried onto them; hydroseed or apply soil stabilizers to inactive construction areas; enclose, cover, water, or apply soil stabilizers to exposed stockpiles; limit traffic speeds on unpaved roads to 15 mph; install erosion control measures to prevent silt runoff to public roadways; replant vegetation in disturbed areas as quickly as possible; suspend excavation and grading activity when wind gusts exceed 25 miles per hour; provide rideshare and transit incentives for construction personnel; designate a person to oversee implementation of a dust control program; maintain and operate construction equipment so as to minimize particulates from exhaust emissions; and prohibit trucks and equipment to idle without purpose for long periods. (2) The City will encourage operators of the van/shuttle and rental car fleets that regularly serve SJC to convert their on-road vehicles to alternative fuels (i.e., compressed natural gas (CNG) or electricity) to reduce pollutant emissions.	Significant and Unavoidable

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(3) The City will implement a TSM program (see Section 3.3.3.2). (4) The City will comply with all BAAQMD Rules and Regulations with respect to new and modified stationary sources at SJC and will ensure that tenants secure the appropriate BAAQMD permits with respect to new or modified stationary sources that may accompany new or expanded fuel storage and aircraft/ equipment maintenance facilities under the Master Plan.	
NO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in NO_2 concentrations in the Airport vicinity.	Significant	No reasonable or feasible mitigation measures are available to reduce the significance of this impact.	Significant and Unavoidable
CO Concentrations Impact: Changes in activity levels at SJC would result in changes in CO concentrations in the Airport vicinity and along roads serving SJC traffic.	Less than Significant	None required.	
SO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in SO_2 concentrations in the Airport vicinity.	Less than Significant	None required.	
Toxic Air Contaminant Emissions Impact: Additional ROG combustion products generated by aircraft, on-road motor vehicles, and ground support equipment would increase toxic air contaminant emissions associated with SJC operations.	Less than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
5. Noise			
Cumulative Aircraft Noise Impact for 2000: In 2000, the Project Case would not result in any significant increases in the CNEL at any reference grid locations.	Less than Significant	None required.	
Cumulative Aircraft Noise Impact for 2005 and 2010: In 2005, of the 20 reference grid locations, the Project Case would result in significant increases in the CNEL at two reference grid locations inside the 65 CNEL contour and at five reference grid locations between the 60 CNEL and 65 CNEL contours. In 2010, of the 20 reference grid locations, the Project Case would result in significant increases in the CNEL at one reference grid location inside the 65 CNEL contour and at six reference grid locations between the 60 CNEL and 65 CNEL contours.	Significant	The City will implement specific measures, including the continued application of the Noise Control Program (use of quieter aircraft, airport curfew, noise abatement arrival and departure tracks, and jet aircraft training), modification of the Noise Control Program (restrictions on engine run-ups and runway use restrictions), continued implementation of the Noise Compatibility Program (ACT Program and land use planning and control), modification of the Noise Compatibility Program (land acquisition program and aircraft noise monitoring system), and implementation of additional measures at site-specific locations (Rosemary Gardens neighborhood, insulation of Bachrodt Elementary School, and insulation of long-term care units at Agnews State Hospital [Santa Clara Campus]), to reduce interior noise levels at affected residential and other noise-sensitive land uses in the vicinity of SJC.	Less than Significant
		The City will implement the specific measures identified in the previous mitigation measure to reduce exterior noise levels at noise-sensitive land uses in the vicinity of SJC.	Significant and Unavoidable

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Single Event Aircraft Noise Impact: Of the 20 reference grid point locations, the Project Case would result in significant increases in SEL at eight locations.	Significant	The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2005 and 2010 to reduce interior noise levels at noise-sensitive land uses in the vicinity of SJC.	Less than Significant
		The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2005 and 2010 to reduce exterior noise levels at noise-sensitive land uses in the vicinity of SJC.	Significant and Unavoidable
Time Above Aircraft Noise Impacts for 2005 and 2010: In 2005, of the 20 reference grid locations, the Project Case would result in significant increases in the TA 75 at seven reference grid locations. In 2010, of the 20 reference grid locations, the Project Case would result in significant increases in the TA 75 at seven reference grid locations.	Significant	The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2005 and 2010 to reduce interior noise levels at noise-sensitive land uses in the vicinity of SJC.	Less than Significant
		The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2005 and 2010 to reduce exterior noise levels at noise-sensitive land uses in the vicinity of SJC.	Significant and Unavoidable
Surface Traffic Noise Impact: Increases in Airport activity would result in increases in surface traffic noise levels from 0 to +0.1 dB along all study roadways near SJC.	Less than Significant	None required.	
Construction Noise Impact: Construction noise associated with the project components would not exceed 70 dBA at any noise-sensitive land use in the vicinity of SJC.	Less than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
6. Hydrology and Water Quality			
Storm Water Runoff Impact: Development of the Project Case would increase storm water runoff volumes and peak runoff flow rates by 16.9 percent by the year 2010. Increased runoff could result in temporary localized on-site flooding on runways and contribute to off-site flooding on U.S. 101 below the De La Cruz Boulevard overpass.	Significant	(1) Ponding capacity at the north end of the Airport and/or pumping capacity will be increased to meet the additional runoff quantities during major storm events. (2) As part of the Phase 1 runway/taxiway extensions, the Airport will include a retention wall around the north end of SJC to prevent runoff onto U.S. 101.	Less than Significant
Floodplain Risks to Structures and People Impact: Until the Guadalupe River Flood Control Project is fully completed, the proposed Phase 1 development within the 100-year floodplain would contribute to existing risks to persons and structures at SJC during a 100-year storm.	Less than Significant	None required.	
Quality of Storm Water Runoff Impact: Expansion of impervious surfaces at SJC in combination with increased aircraft and ground vehicle operations, would lead to elevated levels of contaminants in storm water discharges and in groundwater. Contaminant spills and leaks at proposed project facilities could also reach storm water discharges and groundwater.	Significant	The Airport's Storm Water Pollution Prevention Plan (SWPPP) will continue to be implemented and updated as necessary to reduce the potential for contamination of storm water and groundwater both on- and off-site.	Less than Significant
New Fuel Storage Facility Adjacent to Guadalupe River Impact: Installation of the new fuel storage facility adjacent to the Guadalupe River would raise the potential for short-term impacts to the quality of surface water or groundwater in the event or a leak or spill.	Significant	The facility will be designed to meet current requirements for storage of fuel in above-ground tanks, and the SJC Storm Water Pollution Prevention Plan (SWPPP) and other applicable plans will be amended to cover the new site.	Less than Significant

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Sediment Discharge Impact (Construction Impact): Construction activity would disrupt and displace site soils, increasing the potential for water and wind erosion of graded soil and any imported fill. This, in turn, would increase the potential for discharge of sediments into storm drains and the Guadalupe River. Best management practices during construction would minimize the potential sediment discharge.	Less than Significant	None required.	
Groundwater Interception Impact (Construction Impact): Construction of proposed facilities requiring subsurface excavations could intercept shallow groundwater, potentially affecting the quality of both surface water and groundwater. Design and construction management practices would be implemented.	Less than Significant	None required.	
7. Geology and Seismicity			
Soils Impact: New or expanded major structures at SJC, including terminals, parking garages, and fuel storage tanks would be susceptible to potential damage resulting from settlement of weak and/or expansive soils or local subsidence, posing a substantial hazard to property and/or human life.	Significant	Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to fuel storage tanks, and be consistent with the most current engineering practice.	Less than Significant
Seismic Hazard Impact: Growth in aviation activity and new development would increase the number of people and facilities that could be exposed to seismically-induced structural and nonstructural damage hazards. The presence of a new above-ground fuel storage facility would pose hazards to the environment in the event of earthquake-induced failure.	Significant	Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to places of public assembly (essential facilities) and potentially hazardous facilities, and be consistent with standard engineering practice to achieve an acceptable level of risk.	Less than Significant

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
8. Biological Resources			
Burrowing Owl Impact: Replacement of 38 acres of ruderal and grassland habitat with paving or structures, together with earthmoving and construction activities, would alter and/or destroy nesting habitat for burrowing owl. If construction activities occurred during the nesting season, there also would be a significant risk of mortality of individual burrowing owls (a California species of special concern and federal sensitive species).	Significant	The Airport will implement the Burrowing Owl Management Plan prepared for SJC (see Appendix 3.8.B).	Less than Significant
Guadalupe River Impact - Bridge Construction and Loss of Habitat: The loss of 0.2 acres of riparian habitat due to construction of the bridge over Guadalupe River would not result in any significant long-term adverse effects on any special status species or habitat. The construction of the bridge would result in temporary significant adverse impacts to the spawning/breeding habitat of certain special status species that inhabit the Guadalupe River corridor.	Significant	The Airport will conduct pre-construction surveys to determine the presence and breeding status of special status species inhabiting the Guadalupe River corridor, and implement mitigation measures, including best construction management practices and compensatory replacement of lost habitat.	Less than Significant
Guadalupe River Impact - Fuel Storage Facility Construction: Construction of a new fuel storage facility on lands adjacent to the Guadalupe River could result in impacts to water quality and therefore to aquatic and wetland biota of the river, in the unlikely event of tank failure.	Significant	The fuel tank storage facility will be designed with measures to prevent fuel or other pollutants migrating off-site and entering surface waters of the Guadalupe River. The fuel storage facility will be located 100 feet away from the top of the bank of the river, in conformance with City policy. Response to an accidental release will involve cooperation with agencies charged with the responsibility for clean-up measures.	Less than Significant

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Foraging Habitat of Special Status Bird Species Impact: Development at SJC would eliminate up to 107 acres of foraging habitat for special status avian species: prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew. These species do not nest on the Airport, nor are they wholly dependent on the Airport for foraging.	Less than Significant	None required.	
Common Wildlife Impact: Construction and/or increases in Airport operations, including increases in surface traffic and noise, would result in disturbance to, or direct mortality of, common wildlife species.	Less than Significant	None required.	
Common Vegetation Impact: Construction activities would result in elimination of common vegetation and associated productive soils.	Less than Significant	None required.	
9. Energy Supply and Natural Resources			
Energy Consumption Impact: Increased operations and/or construction activities would increase consumption of non-renewable energy resources.	Less than Significant	None required.	
10. Aesthetics			
Airport South of U.S. 101 Altered Visual Character Impact: Construction of large-scale projects on the Airport would increase the intensity of development, but with limited effect on visual character. This development would be visually compatible with the existing urban character of the Airport and its vicinity.	Less than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Fuel Storage Facility Site Altered Visual Character Impact: Construction of the new fuel storage facility on the north side of U.S. 101 would alter the visual character of the area and affect views from a scenic highway.	Significant	The new fuel storage facility will be designed so that the above-ground storage tanks are screened to the highest degree practicable from U.S. 101 and adjacent uses. Screening may include the following actions: landscaping, berming, and/or construction of walls or facades.	Less than Significant
Light and Glare Impact: Increases in aviation activity and construction of the proposed projects would result in limited changes to light and glare at SJC. Overall, the levels of light and glare would be comparable to existing conditions.	Less than Significant	None required.	
11. Public Services and Utilities			
Water Service Impact: The increase in passenger activity at SJC would result in increased water consumption at SJC.	Less Than Significant	None required.	
Wastewater Service Impact: The increase in passenger activity at SJC would result in increased wastewater generation at SJC.	Less Than Significant	None required.	
Solid Waste Service Impact: The increase in passenger activity at SJC would result in increased solid waste generation at SJC.	Less Than Significant	None required.	
Energy Transmission and Distribution Impact: Because of the planned capacity improvements by PG&E, the capacity of the local distribution system would accommodate the increase in electricity and natural gas demand at SJC.	Less than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Demand for Telephone Service Impact: The increase in passenger activity at SJC would result in increased demand for telephone service at SJC.	Less than Significant	None required.	
Fire Protection Service Impact: New structures and growth in passenger and air cargo activity would generate additional demand for fire protection and emergency medical services at the Airport and would be met by existing services. This is not, however, considered to be an environmental or physical impact.	No impact	None required.	
Police Protection Service Impact: New structures and growth in passenger and air cargo activity would generate additional demand for police protection services at the Airport and would be met by the Airport. This is not, however, considered to be an environmental or physical impact.	No impact	None required.	
Disruption of Utilities (Construction Impact): Existing water, wastewater, gas and electrical utility lines could be disrupted and/or relocated during construction of proposed project components requiring subsurface work.	Less Than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
12. Hazardous Materials			
Fuel Storage Facility Impact: Placement of a new bulk fuel storage facility on an undeveloped site and transfer piping under a public highway would create the potential for accidental release of a hazardous material and exposure of the public traveling on U.S. 101, biota inhabiting the Guadalupe River, and persons occupying adjacent properties to hazardous materials, in the event of a catastrophic event.	Significant	The new fuel storage facility and pipeline will be designed, constructed, and maintained in compliance with all applicable regulatory standards and policies, including provisions for full on-site containment, leak detection systems, and cathodic protection. In addition, a 100-foot setback from the Guadalupe River will be maintained. The Airport will prepare and implement a program to minimize accident risks at the fuel handling and storage facilities.	Less than Significant
Fuel Spill Impact: Growth in aviation activity would increase the frequency and volume of aircraft refueling operations at the Airport, thereby increasing the opportunity for spills and consequent impacts to public health and safety. Existing spill prevention and response procedures would continue to be implemented and updated as necessary.	Less than Significant	None required.	
Ground and Air Transport of Hazardous Materials Impact: Increase in ground transport of fuels and other hazardous materials and wastes to and from the Airport, and increases in transport by all-cargo aircraft of permitted hazardous materials would be subject to regulations and response procedures by transportation and other agencies and, therefore, would not constitute a significant risk to public health or safety.	Less than Significant	None required.	
Other Hazardous Materials Use Impacts: Growth in aviation activity, along with the proposed facility improvements, would increase the use, storage, and transport of hazardous materials other than aviation fuels at the Airport.	Less than Significant	None required.	

TABLE 1.3.1 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Underground Tank Removal Impact: Removal of existing underground fuel tanks would eliminate a potential source of future contamination and enable remediation of the site.	Beneficial	None required.	
Hazardous Waste Generation Impact: The increase in aviation activity levels at the Airport would indirectly increase the generation of hazardous wastes that would have to be handled and disposed in accordance with regulations.	Less than Significant	None required.	
Exposure of Worker Impact: Construction workers may be exposed to hazardous materials at contaminated locations, both known and unknown, and would follow remediation procedures prescribed by City, County, and/or RWQCB.	Significant	The Airport will investigate potentially contaminated sites prior to beginning construction. If the potential for workers to encounter hazardous materials is identified, the Airport will take necessary precautions to protect the health and safety of site workers.	Less than Significant
13. Air Safety			
Air Safety Impact: Implementation of the Project Case would not lead to an increase in air safety risks.	Less than Significant	None required.	

TABLE 1.3.2
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
1. Land Use, Plans, and Policies			
Changes in On-Airport Land Uses Impact (Prime Farmland): The Project Case Alternative A would result in the conversion of land designated as prime farmland to aviation uses.	Less than Significant	None required.	
Changes in On-Airport Land Uses Impact (Other On-Airport Uses): The Project Case Alternative A would not result in any land use changes on the Airport that would adversely affect the functioning of SJC as a major transportation facility, nor would the non-renewal of certain leases result in any significant adverse impacts on existing on-Airport land uses.	Less than Significant	None required.	
Adjacent Land Use Compatibility Impact (Intensification; Safety Zones): The development and operation of SJC would not conflict with established land uses in the surrounding area or alter established land use compatibility with adjacent land uses.	Less than Significant	None required.	
Adjacent Land Use Compatibility Impact (Fuel Storage Facility): The installation and operation of the new fuel storage facility would conflict with established land uses by posing a hazard to people employed at or temporarily occupying adjacent land uses.	Significant	See the mitigation measures that are designed to minimize the possibility of an accidental release and the consequent risk of exposure of people on adjacent land and are described in Sections 3.6, Hydrology and Water Quality; 3.7, Geology and Seismicity; 3.8, Biological Resources; and 3.12 Hazardous Materials.	Less than Significant

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
2. Cultural Resources			
Disturbance of Archaeological Sites Impact: Earthmoving activities in conjunction with the construction of projects in archaeological sensitive areas at the Airport could result in the disturbance of archaeological resources associated with Sites SCL-311H and SCL-430.	Significant	The Airport will continue existing archaeological monitoring program for construction activity for all projects within the archaeological sensitive areas.	Less than Significant
Discovery of Previously Unknown Archaeological Resources Impact: Earthmoving activities in conjunction with the construction of facilities and improvements under the Project Case Alternative A would not result in the destruction of previously unknown prehistoric and/or historic archaeological resources.	Less than Significant	None required.	
California Historical Landmark No. 945 Impact: Renovation and expansion of Terminal C would incorporate the relocation of California Historical Landmark No. 945.	Less than Significant	None required.	
Off-Airport Historic Property Impact: The historical or architectural style of the historic properties within the 65 CNEL noise contour in the year 2010 would not be affected by noise from aircraft activity. The employment of sound attenuation activities would not affect the historical or architectural style of these properties.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
3. Traffic and Transportation			
Intersection Level of Service Impacts: The number of vehicle trips generated by Project Case Alternative A would result in significant impacts at five intersections in the year 2000, two intersections in the year 2005, and three intersections in the year 2010 in the Airport vicinity.	Significant	(1) At Intersection 15 (Airport Boulevard and North Terminal Drive), add a third northbound left-turn lane on Airport Boulevard to reduce the 2010 AM peak-hour v/c ratio to better than under the No Project Alternative. The AM peak-hour service level, however, would remain at LOS E in 2010. (2) At Intersection 16 (Airport Boulevard and Airport Parkway), add another northbound and southbound through lane on Airport Boulevard to reduce the AM and PM peak-hour v/c ratios to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS F in 2005 and 2010. (3) At Intersection 27 (Coleman Avenue and Southbound I-880 Ramps), the impacts would occur in 2000 during the PM peak hour, and would occur under the No Project Alternative. The SR 87 freeway project will be completed prior to 2005, and there would be no Project Case Alternative A impacts in 2005 and 2010. Implementation of a mitigation measure for the short-term impact would require reconstruction of the I-880/Coleman interchange, which could not be completed by 2005. Therefore, there is no feasible mitigation measure to reduce the impact to a less than significant level in 2000 or under the No project Alternative.	Significant and Unavoidable

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(4) At Intersection 28 (Coleman Avenue and Airport Boulevard), add a second southbound left-turn lane on Coleman Avenue to reduce the AM and PM peak-hour v/c ratios in 2005 and 2010 to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS F in 2005 and 2010. See Mitigation Measure #3, above, for an applicable discussion of short-term (2000) impacts that also would occur under the No Project Alternative and that would be eliminated due to the completion of the SR 87 freeway project prior to 2005. (5) At Intersection 29 (Coleman Avenue and Brokaw Road), restripe westbound Brokaw Road to allow for one exclusive left-turn lane and one shared left-turn / through / right-turn lane to reduce the 2000 PM peak-hour v/c ratio to better than under the No Project Alternative. The PM peak-hour service level, however, would be LOS E in 2000. (6) At Intersection 31 (De La Cruz Boulevard and Martin Avenue), prohibit left turns into the public and employee parking lots on Martin Avenue while those parking lots on the west side of the Airport are operational to improve the 2000 AM peak-hour service levels to LOS C (v/c = 0.77). (10) At Intersection 32 (De La Cruz Boulevard and Central Expressway), add a third eastbound left-turn lane on Central Expressway to reduce the 2000 AM peak-hour v/c ratio to better than under the No Project Alternative. The AM peak-hour service level, however, would remain at LOS F in 2000.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Freeway Impacts: Project-generated vehicle trips on various freeway segments in the Airport vicinity would be more than one percent of peak-hour capacity on one segment in 2005 and four segments in 2010.	Significant	The City will implement a TSM program to reduce traffic congestion on freeways in the Airport vicinity.	Significant and Unavoidable
Public Transit Impacts: The increase in public transit trips from the Airport would be accommodated by the transit system.	Less than Significant	None required.	
Pedestrian Impacts: The Project Case Alternative A would safely accommodate any increase in pedestrian trips to, from, and within the Airport.	Less than Significant	None required.	
Bicycling Impacts: The Project Case Alternative A would not alter existing or proposed bicycle routes and would safely accommodate any increase in bicycle trips to and from the Airport.	Less than Significant	None required.	
Parking Impacts: The Project Case Alternative A would provide adequate parking for the parking demand at the Airport.	Less than Significant	None required.	
Construction Traffic Impacts: The project would not result in the closure of a roadway preventing access to Airport facilities during construction activities or adversely affect pedestrian safety during construction.	Less than Significant	None required.	
General Aviation Displacement Impact: The project would not result in unaccommodated demand for general aviation facilities within the region.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
4. Air Quality			
Criteria Air Pollutant Emissions Impact: Increases in air passenger and air cargo volumes at SJC would result in a net increase of more than 80 pounds per day each of ROG, NO_x, or PM_{10}.	Significant	(1) A construction emissions abatement program will be included in construction contracts under the Project Case Alternative A to reduce PM_{10} and ROG/NO_x emissions from construction. Such a program typically contains the following components: water active construction areas and other unpaved access roads, and parking and staging areas at construction sites; cover all trucks hauling loose materials or require all trucks to carry less-than-full loads; sweep daily all paved areas at construction sites, and adjacent public streets if visible soil material is carried onto them; hydroseed or apply soil stabilizers to inactive construction areas; enclose, cover, water, or apply soil stabilizers to exposed stockpiles; limit traffic speeds on unpaved roads to 15 mph; install erosion control measures to prevent silt runoff to public roadways; replant vegetation in disturbed areas as quickly as possible; suspend excavation and grading activity when wind gusts exceed 25 miles per hour; provide rideshare and transit incentives for construction personnel; designate a person to oversee implementation of a dust control program; maintain and operate construction equipment so as to minimize particulates from exhaust emissions; and prohibit trucks and equipment to idle without purpose for long periods. (2) The City will encourage operators of the van/shuttle and rental car fleets that regularly serve SJC to convert their on-road vehicles to alternative fuels (i.e., compressed natural gas (CNG) or electricity) to reduce pollutant emissions.	Significant and Unavoidable

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(3) The City will implement a TSM program (see Section 3.3.3.2). (4) The City will comply with all BAAQMD Rules and Regulations with respect to new and modified stationary sources at SJC and will ensure that tenants secure the appropriate BAAQMD permits with respect to new or modified stationary sources that may accompany new or expanded fuel storage and aircraft/ equipment maintenance facilities under the Master Plan.	
NO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in NO_2 concentrations in the Airport vicinity. Concentrations of one-hour average NO_2 could exceed the corresponding State standard south and north of SJC.	Significant	No reasonable or feasible mitigation measures are available to reduce the significance of this impact.	Significant and Unavoidable
CO Concentrations Impact: Changes in activity levels at SJC would result in changes in CO concentrations in the Airport vicinity and along roads serving SJC traffic.	Less than Significant	None required.	
SO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in SO_2 concentrations in the Airport vicinity.	Less than Significant	None required.	
Toxic Air Contaminant Emissions Impact: Additional ROG combustion products generated by aircraft, on-road motor vehicles, and ground support equipment would increase toxic air contaminant emissions associated with SJC operations.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
5. Noise			
Cumulative Aircraft Noise Impact for 2000, 2005 and 2010: In 2000, of the 20 reference grid locations, the Project Case Alternative A would result in a significant increase in the CNEL at one reference grid location between the 60 CNEL and 65 CNEL contours. In 2005, of the 20 reference grid locations, the Project Case Alternative A would result in significant increases in the CNEL at one reference grid location between the 60 CNEL and 65 CNEL contours. In 2010, of the 20 reference grid locations, the Project Case Alternative A would result in significant increases in the CNEL at four reference grid locations between the 60 CNEL and 65 CNEL contours.	Significant	The City will implement specific measures, including the continued application of the Noise Control Program (use of quieter aircraft, airport curfew, noise abatement arrival and departure tracks, and jet aircraft training), modification of the Noise Control Program (restrictions on engine run-ups and runway use restrictions), continued implementation of the Noise Compatibility Program (ACT Program and land use planning and control), modification of the Noise Compatibility Program (land acquisition program and aircraft noise monitoring system), and implementation of additional measures at site-specific locations (Rosemary Gardens neighborhood, insulation of Bachrodt Elementary School, and insulation of long-term care units at Agnews State Hospital [Santa Clara Campus]), to reduce interior noise levels at affected residential and other noise-sensitive land uses in the vicinity of SJC.	Less than Significant
		The City will implement the specific measures identified in the previous mitigation measure to reduce exterior noise levels at noise-sensitive land uses in the vicinity of SJC.	Significant and Unavoidable
Single Event Aircraft Noise Impact: Of the 20 reference grid point locations, the Project Case Alternative A would result in significant increases in SEL at two locations.	Significant	The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2000, 2005, and 2010 to reduce interior noise levels at noise-sensitive land uses in the vicinity of SJC.	Less than Significant

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2000, 2005, and 2010 to reduce exterior noise levels at noise-sensitive land uses in the vicinity of SJC.	Significant and Unavoidable
Time Above Aircraft Noise Impacts for 2000, 2005 and 2010: In 2000, of the 20 reference grid locations, the Project Case Alternative A would result in significant increases in the TA 75 at one reference grid locations. In 2005, of the 20 reference grid locations, the Project Case Alternative A would result in significant increases in the TA 75 at one reference grid locations. In 2010, of the 20 reference grid locations, the Project Case Alternative A would result in significant increases in the TA 75 at four reference grid locations.	Significant	The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2000, 2005, and 2010 to reduce interior noise levels at noise-sensitive land uses in the vicinity of SJC.	Less than Significant
		The City will implement the specific measures identified for the Cumulative Aircraft Noise Impact for 2000, 2005, and 2010 to reduce exterior noise levels at noise-sensitive land uses in the vicinity of SJC.	Significant and Unavoidable
Surface Traffic Noise Impact: Increases in Airport activity would result in increases in surface traffic noise levels from 0 to +0.1 dB along all study roadways near SJC.	Less than Significant	None required.	
Construction Noise Impact: Construction noise associated with the project components would not exceed 70 dBA at any noise-sensitive land use in the vicinity of SJC.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
6. Hydrology and Water Quality			
Storm Water Runoff Impact: Development of the Project Case Alternative A would increase storm water runoff volumes and peak runoff flow rates by 16.9 percent by the year 2010. Increased runoff could result in temporary localized on-site flooding on runways and contribute to off-site flooding on U.S. 101 below the De La Cruz Boulevard overpass.	Significant	(1) Ponding capacity at the north end of the Airport and/or pumping capacity will be increased to meet the additional runoff quantities during major storm events. (2) As part of the Phase 1 runway/taxiway extensions, the Airport will include a retention wall around the north end of SJC to prevent runoff onto U.S. 101.	Less than Significant
Floodplain Risks to Structures and People Impact: Until the Guadalupe River Flood Control Project is fully completed, the proposed Phase 1 development within the 100-year floodplain would contribute to existing risks to persons and structures at SJC during a 100-year storm.	Less than Significant	None required.	
Quality of Storm Water Runoff Impact: Expansion of impervious surfaces at SJC in combination with increased aircraft and ground vehicle operations, would lead to elevated levels of contaminants in storm water discharges and in groundwater. Contaminant spills and leaks at proposed project facilities could also reach storm water discharges and groundwater.	Significant	The Airport's Storm Water Pollution Prevention Plan (SWPPP) will continue to be implemented and updated as necessary to reduce the potential for contamination of storm water and groundwater both on- and off-site.	Less than Significant
New Fuel Storage Facility Adjacent to Guadalupe River Impact: Installation of the new fuel storage facility adjacent to the Guadalupe River would raise the potential for short-term impacts to the quality of surface water or groundwater in the event or a leak or spill.	Significant	The facility will be designed to meet current requirements for storage of fuel in above-ground tanks, and the SJC Storm Water Pollution Prevention Plan (SWPPP) and other applicable plans will be amended to cover the new site.	Less than Significant

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Sediment Discharge Impact (Construction Impact): Construction activity would disrupt and displace site soils, increasing the potential for water and wind erosion of graded soil and any imported fill. This, in turn, would increase the potential for discharge of sediments into storm drains and the Guadalupe River. Best management practices during construction would minimize the potential sediment discharge.	Less than Significant	None required.	
Groundwater Interception Impact (Construction Impact): Construction of proposed facilities requiring subsurface excavations could intercept shallow groundwater, potentially affecting the quality of both surface water and groundwater. Design and construction management practices would be implemented.	Less than Significant	None required.	
7. Geology and Seismicity			
Soils Impact: New or expanded major structures at SJC, including terminals, parking garages, and fuel storage tanks would be susceptible to potential damage resulting from settlement of weak and/or expansive soils or local subsidence, posing a substantial hazard to property and/or human life.	Significant	Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to fuel storage tanks, and be consistent with the most current engineering practice.	Less than Significant
Seismic Hazard Impact: Growth in aviation activity and new development would increase the number of people and facilities that could be exposed to seismically-induced structural and nonstructural damage hazards. The presence of a new above-ground fuel storage facility would pose hazards to the environment in the event of earthquake-induced failure.	Significant	Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to places of public assembly (essential facilities) and potentially hazardous facilities, and be consistent with standard engineering practice to achieve an acceptable level of risk.	Less than Significant

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
8. Biological Resources			
Burrowing Owl Impact: Replacement of 38 acres of ruderal and grassland habitat with paving or structures, together with earthmoving and construction activities, would alter and/or destroy nesting habitat for burrowing owl. If construction activities occurred during the nesting season, there also would be a significant risk of mortality of individual burrowing owls (a California species of special concern and federal sensitive species).	Significant	The Airport will implement the Burrowing Owl Management Plan prepared for SJC (see Appendix 3.8.B).	Less than Significant
Guadalupe River Impact - Bridge Construction and Loss of Habitat: The loss of 0.2 acres of riparian habitat due to construction of the bridge over Guadalupe River would not result in any significant long-term adverse effects on any special status species or habitat. The construction of the bridge would result in temporary significant adverse impacts to the spawning/breeding habitat of certain special status species that inhabit the Guadalupe River corridor.	Significant	The Airport will conduct pre-construction surveys to determine the presence and breeding status of special status species inhabiting the Guadalupe River corridor, and implement mitigation measures, including best construction management practices and compensatory replacement of lost habitat.	Less than Significant
Guadalupe River Impact - Fuel Storage Facility Construction: Construction of a new fuel storage facility on lands adjacent to the Guadalupe River could result in impacts to water quality and therefore to aquatic and wetland biota of the river, in the unlikely event of tank failure.	Significant	The fuel tank storage facility will be designed with measures to prevent fuel or other pollutants migrating off-site and entering surface waters of the Guadalupe River. The fuel storage facility will be located 100 feet away from the top of the bank of the river, in conformance with City policy. Response to an accidental release will involve cooperation with agencies charged with the responsibility for clean-up measures.	Less than Significant

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Foraging Habitat of Special Status Bird Species Impact: Development at SJC would eliminate up to 107 acres of foraging habitat for special status avian species: prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew. These species do not nest on the Airport, nor are they wholly dependent on the Airport for foraging.	Less than Significant	None required.	
Common Wildlife Impact: Construction and/or increases in Airport operations, including increases in surface traffic and noise, would result in disturbance to, or direct mortality of, common wildlife species.	Less than Significant	None required.	
Common Vegetation Impact: Construction activities would result in elimination of common vegetation and associated productive soils.	Less than Significant	None required.	
9. Energy Supply and Natural Resources			
Energy Consumption Impact: Increased operations and/or construction activities would increase consumption of non-renewable energy resources.	Less than Significant	None required.	
10. Aesthetics			
Airport South of U.S. 101 Altered Visual Character Impact: Construction of large-scale projects on the Airport would increase the intensity of development, but with limited effect on visual character. This development would be visually compatible with the existing urban character of the Airport and its vicinity.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Fuel Storage Facility Site Altered Visual Character Impact: Construction of the new fuel storage facility on the north side of U.S. 101 would alter the visual character of the area and affect views from a scenic highway.	Significant	The new fuel storage facility will be designed so that the above-ground storage tanks are screened to the highest degree practicable from U.S. 101 and adjacent areas. Screening may include the following actions: landscaping, berming, and/or construction of walls or facades.	Less than Significant
Light and Glare Impact: Increases in aviation activity and construction of the proposed projects would result in limited changes to light and glare at SJC. Overall, the levels of light and glare would be comparable to existing conditions.	Less than Significant	None required.	
11. Public Services & Utilities			
Water Service Impact: The increase in passenger activity at SJC would result in increased water consumption at SJC.	Less Than Significant	None required.	
Wastewater Service Impact: The increase in passenger activity at SJC would result in increased wastewater generation at SJC.	Less Than Significant	None required.	
Solid Waste Service Impact: The increase in passenger activity at SJC would result in increased solid waste generation at SJC.	Less Than Significant	None required.	
Energy Transmission and Distribution Impact: Because of the planned capacity improvements by PG&E, the capacity of the local distribution system would accommodate the increase in electricity and natural gas demand at SJC.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Demand for Telephone Service Impact: The increase in passenger activity at SJC would result in increased demand for telephone service at SJC.	Less than Significant	None required.	
Fire Protection Service Impact: New structures and growth in passenger and air cargo activity would generate additional demand for fire protection and emergency medical services at the Airport and would be met by existing services. This is not, however, considered to be an environmental or physical impact.	No impact	None required.	
Police Protection Service Impact: New structures and growth in passenger and air cargo activity would generate additional demand for police protection services at the Airport and would be met by the Airport. This is not, however, considered to be an environmental or physical impact.	No impact	None required.	
Disruption of Utilities (Construction Impact): Existing water, wastewater, gas and electrical utility lines could be disrupted and/or relocated during construction of proposed project components requiring subsurface work.	Less Than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
12. Hazardous Materials			
Fuel Storage Facility Impact: Placement of a new bulk fuel storage facility on an undeveloped site and transfer piping under a public highway would create the potential for accidental release of a hazardous material and exposure of the public traveling on U.S. 101, biota inhabiting the Guadalupe River, and persons occupying adjacent properties to hazardous materials, in the event of a catastrophic event.	Significant	The new fuel storage facility and pipeline will be designed, constructed, and maintained in compliance with all applicable regulatory standards and policies, including provisions for full on-site containment, leak detection systems, and cathodic protection. In addition, a 100-foot setback from the Guadalupe River will be maintained. The Airport will prepare and implement a program to minimize accident risks at the fuel handling and storage facilities.	Less than Significant
Fuel Spill Impact: Growth in aviation activity would increase the frequency and volume of aircraft refueling operations at the Airport, thereby increasing the opportunity for spills and consequent impacts to public health and safety. Existing spill prevention and response procedures would continue to be implemented and updated as necessary.	Less than Significant	None required.	
Ground and Air Transport of Hazardous Materials Impact: Increase in ground transport of fuels and other hazardous materials and wastes to and from the Airport, and increases in transport by all-cargo aircraft of permitted hazardous materials would be subject to regulations and response procedures by transportation and other agencies and, therefore, would not constitute a significant risk to public health or safety.	Less than Significant	None required.	
Other Hazardous Materials Use Impacts: Growth in aviation activity, along with the proposed facility improvements, would increase the use, storage, and transport of hazardous materials other than aviation fuels at the Airport.	Less than Significant	None required.	

TABLE 1.3.2 (Continued)
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE A

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Underground Tank Removal Impact: Removal of existing underground fuel tanks would eliminate a potential source of future contamination and enable remediation of the site.	Beneficial	None required.	
Hazardous Waste Impact: The increase in aviation activity levels at the Airport would indirectly increase the generation of hazardous wastes that would have to be handled and disposed in accordance with regulations.	Less than Significant	None required.	
Exposure of Workers to Hazardous Materials (Construction Impact): Construction workers may be exposed to hazardous materials at contaminated locations, both known and unknown, and would follow remediation procedures prescribed by City, County, and/or RWQCB.	Significant	The Airport will investigate potentially contaminated sites prior to beginning construction. If the potential for workers to encounter hazardous materials is identified, the Airport will take necessary precautions to protect the health and safety of site workers.	Less than Significant
13. Air Safety			
Air Safety Impact: Implementation of the Project Case Alternative A would not lead to an increase in air safety risks.	Less than Significant	None required.	

TABLE 1.3.3
IMPACTS AND MITIGATION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
1. Land Use, Plans, and Policies			
Changes in On-Airport Land Uses Impact (Prime Farmland): The Project Case Alternative B would result in the conversion of land designated as prime farmland to aviation uses.	Less than Significant	None required.	
Changes in On-Airport Land Uses Impact (Other On-Airport Uses): The Project Case Alternative B would not result in any land use changes on the Airport that would adversely affect the functioning of SJC as a major transportation facility, nor would the non-renewal of certain leases result in any significant adverse impacts on existing on-Airport land uses.	Less than Significant	None required.	
Adjacent Land Use Compatibility Impact (Intensification; Safety Zones): The development and operation of SJC would not conflict with established land uses in the surrounding area or alter established land use compatibility with adjacent land uses.	Less than Significant	None required.	
Adjacent Land Use Compatibility Impact (Fuel Storage Facility): The installation and operation of the new fuel storage facility would conflict with established land uses by posing a hazard to people employed at or temporarily occupying adjacent land uses.	Significant	See the mitigation measures that are designed to minimize the possibility of an accidental release and the consequent risk of exposure of people on adjacent land and are described in Sections 3.6, Hydrology and Water Quality; 3.7, Geology and Seismicity; 3.8, Biological Resources; and 3.12 Hazardous Materials.	Less than Significant
2. Cultural Resources			
Disturbance of Archaeological Sites Impact: Earthmoving activities in conjunction with the construction of projects in archaeological sensitive areas at the Airport could result in the disturbance of archaeological resources associated with Sites SCL-311H and SCL-430.	Significant	Continue existing archaeological monitoring program for construction activity for all projects within the archaeological sensitive areas.	Less than Significant

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Discovery of Previously Unknown Archaeological Resources Impact: Earthmoving activities in conjunction with the construction of facilities and improvements under the Project Case Alternative B would not result in the destruction of previously unknown prehistoric and/or historic archaeological resources.	Less than Significant	None required.	
California Historical Landmark No. 945 Impact: Renovation and expansion of Terminal C would incorporate the relocation of California Historical Landmark No. 945.	Less than Significant	None required.	
Off-Airport Historic Property Impact: The historical or architectural style of the historic properties within the 65 CNEL noise contour in the year 2010 would not be affected by noise from aircraft activity. The employment of sound attenuation activities would not affect the historical or architectural style of these properties.	Less than Significant	None required.	
3. Traffic and Transportation			
Intersection Level of Service Impacts: The number of vehicle trips generated by Project Case Alternative B would result in significant impacts at five intersections in the year 2000, two intersections in the year 2005, and two intersections in the year 2010 in the Airport vicinity.	Significant	(1) At Intersection 16 (Airport Boulevard and Airport Parkway), add another northbound and southbound through lane on Airport Boulevard to reduce the AM and PM peak-hour v/c ratios to better than under the No Project Alternative. Peak-hour service levels, however, would be LOS E or F in 2005 and 2010. (2) At Intersection 27 (Coleman Avenue and Southbound I-880 Ramps), the impacts would occur in 2000 during the PM peak hour, and would occur under the No Project Alternative. The SR 87 freeway project will be completed prior to 2005, and there would be no Project Case Alternative B impacts in 2005	Significant and Unavoidable

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		and 2010. Implementation of a mitigation measure for the short-term impact would require reconstruction of the I-880/Coleman interchange, which could not be completed by 2005. Therefore, there is no feasible mitigation measure to reduce the impact to a less than significant level in 2000 or under the No project Alternative. (3) At Intersection 28 (Coleman Avenue and Airport Boulevard), add a second southbound left-turn lane on Coleman Avenue to reduce the AM and PM peak-hour v/c ratios in 2005 and 2010 to better than under the No Project Alternative. Peak-hour service levels, however, would remain at LOS F in 2005 and 2010. See Mitigation Measure #2, above, for an applicable discussion of short-term (2000) impacts that also would occur under the No Project Alternative and that would be eliminated due to the completion of the SR 87 freeway project prior to 2005. (4) At Intersection 29 (Coleman Avenue and Brokaw Road), restripe westbound Brokaw Road to allow for one exclusive left-turn lane and one shared left-turn / through / right-turn lane to reduce the 2000 PM peak-hour v/c ratio to better than under the No Project Alternative. The PM peak-hour service level, however, would be LOS E in 2000. (5) At Intersection 31 (De La Cruz Boulevard and Martin Avenue), prohibit left turns into the public and employee parking lots on Martin Avenue while those parking lots on the west side of the Airport are operational to improve the 2000 AM peak-hour service levels to LOS C (v/c = 0.77).	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		At Intersection 32 (De La Cruz Boulevard and Central Expressway), add a third eastbound left-turn lane on Central Expressway to reduce the 2000 AM peak-hour v/c ratio to better than under the No Project Alternative. The AM peak-hour service level, however, would remain at LOS F in 2000.	
Freeway Impacts: Project-generated vehicle trips on freeway segments in the Airport vicinity would be fewer than one percent of peak-hour capacity.	Less than Significant	None required.	
Public Transit Impacts: The increase in public transit trips from the Airport would be accommodated by the transit system.	Less than Significant	None required.	
Pedestrian Impacts: The Project Case Alternative B would safely accommodate any increase in pedestrian trips to, from, and within the Airport.	Less than Significant	None required.	
Bicycling Impacts: The Project Case Alternative B would not alter existing or proposed bicycle routes and would safely accommodate any increase in bicycle trips to and from the Airport.	Less than Significant	None required.	
Parking Impacts: The Project Case Alternative B would provide adequate parking for the parking demand at the Airport.	Less than Significant	None required.	
Construction Traffic Impacts: The project would not result in the closure of a roadway preventing access to Airport facilities during construction activities or adversely affect pedestrian safety during construction.	Less than Significant	None required.	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
General Aviation Displacement Impact: The project would not result in unaccommodated demand for general aviation facilities within the region.	Less than Significant	None required.	
4. Air Quality			
Criteria Air Pollutant Emissions Impact: Increases in air passenger and air cargo volumes at SJC would result in a net increase of more than 80 pounds per day each of ROG, NO_x, or PM_{10}.	Significant	(1) A construction emissions abatement program will be included in construction contracts under the Project Case Alternative B to reduce PM_{10} and ROG/NO_x emissions from construction. Such a program typically contains the following components: water active construction areas and other unpaved access roads, and parking and staging areas at construction sites; cover all trucks hauling loose materials or require all trucks to carry less-than-full loads; sweep daily all paved areas at construction sites, and adjacent public streets if visible soil material is carried onto them; hydroseed or apply soil stabilizers to inactive construction areas; enclose, cover, water, or apply soil stabilizers to exposed stockpiles; limit traffic speeds on unpaved roads to 15 mph; install erosion control measures to prevent silt runoff to public roadways; replant vegetation in disturbed areas as quickly as possible; suspend excavation and grading activity when wind gusts exceed 25 miles per hour; provide rideshare and transit incentives for construction personnel; designate a person to oversee implementation of a dust control program; maintain and operate construction equipment so as to minimize particulates from exhaust emissions; and prohibit trucks and equipment to idle without purpose for long periods.	Significant and Unavoidable

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
		(2) The City will encourage operators of the van/shuttle and rental car fleets that regularly serve SJC to convert their on-road vehicles to alternative fuels (i.e., compressed natural gas (CNG) or electricity) to reduce pollutant emissions. (3) The City will implement a TSM program (see Section 3.3.3.2). (4) The City will comply with all BAAQMD Rules and Regulations with respect to new and modified stationary sources at SJC and will ensure that tenants secure the appropriate BAAQMD permits with respect to new or modified stationary sources that may accompany new or expanded fuel storage and aircraft/ equipment maintenance facilities under the Master Plan.	
NO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in NO_2 concentrations in the Airport vicinity.	Significant	No reasonable or feasible mitigation measures are available to reduce the significance of this impact.	Significant and Unavoidable
CO Concentrations Impact: Changes in activity levels at SJC would result in changes in CO concentrations in the Airport vicinity and along roads serving SJC traffic.	Less than Significant	None required.	
SO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in SO_2 concentrations in the Airport vicinity.	Less than Significant	None required.	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Toxic Air Contaminant Emissions Impact: Additional ROG combustion products generated by aircraft, on-road motor vehicles, and ground support equipment would increase toxic air contaminant emissions associated with SJC operations.	Less than Significant	None required.	
5. Noise			
Cumulative Aircraft Noise Impact for 2000, 2005 and 2010: In 2000, 2005, and 2010, the Project Case Alternative B would not result in any significant increases in the CNEL at any reference grid location.	Less than Significant	None required.	
Single Event Aircraft Noise Impact: Of the 20 reference grid point locations, the Project Case Alternative B would not result in significant increases in SEL at any reference grid location.	Less than Significant	None required.	
Time Above Aircraft Noise Impacts for 2000, 2005 and 2010: In 2000, 2005, and 2010, the Project Case Alternative B would not result in significant increases in the TA 75 at any reference grid locations.	Less than Significant	None required.	
Surface Traffic Noise Impact: Increases in Airport activity would result in increases in surface traffic noise levels from 0 to +0.1 dB along all study roadways near SJC.	Less than Significant	None required.	
Construction Noise Impact: Construction noise associated with the project components would not exceed 70 dBA at any noise-sensitive land use in the vicinity of SJC.	Less than Significant	None required.	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
6. Hydrology and Water Quality			
Storm Water Runoff Impact: Development of the Project Case Alternative B would increase storm water runoff volumes and peak runoff flow rates by 8.7 percent by the year 2010. Increased runoff could result in temporary localized on-site flooding on runways contribute to and off-site flooding on U.S. 101 below the De La Cruz Boulevard overpass.	Significant	(1) Ponding capacity at the north end of the Airport and/or pumping capacity will be increased to meet the additional runoff quantities during major storm events. (2) As part of the Phase 1 runway/taxiway extensions, the Airport will include a retention wall around the north end of SJC to prevent runoff onto U.S. 101.	Less than Significant
Floodplain Risks to Structures and People Impact: Until the Guadalupe River Flood Control Project is fully completed, the proposed Phase 1 development within the 100-year floodplain would contribute to existing risks to persons and structures at SJC during a 100-year storm.	Less than Significant	None required.	
Quality of Storm Water Runoff Impact: Expansion of impervious surfaces at SJC in combination with increased aircraft and ground vehicle operations, would lead to elevated levels of contaminants in storm water discharges and in groundwater. Contaminant spills and leaks at proposed project facilities could also reach storm water discharges and groundwater.	Significant	The Airport's Storm Water Pollution Prevention Plan (SWPPP) will continue to be implemented and updated as necessary to reduce the potential for contamination of storm water and groundwater both on- and off-site.	Less than Significant
New Fuel Storage Facility Adjacent to Guadalupe River Impact: Installation of the new fuel storage facility adjacent to the Guadalupe River would raise the potential for short-term impacts to the quality of surface water or groundwater in the event or a leak or spill.	Significant	The facility will be designed to meet current requirements for storage of fuel in above-ground tanks, and the SJC Storm Water Pollution Prevention Plan (SWPPP) and other applicable plans will be amended to cover the new site.	Less than Significant

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Sediment Discharge Impact (Construction Impact): Construction activity would disrupt and displace site soils, increasing the potential for water and wind erosion of graded soil and any imported fill. This, in turn, would increase the potential for discharge of sediments into storm drains and the Guadalupe River. Best management practices during construction would minimize the potential sediment discharge.	Less than Significant	None required.	
Groundwater Interception Impact (Construction Impact): Construction of proposed facilities requiring subsurface excavations could intercept shallow groundwater, potentially affecting the quality of both surface water and groundwater. Design and construction management practices would be implemented.	Less than Significant	None required.	
7. Geology and Seismicity			
Soils Impact: New or expanded major structures at SJC, including terminals, parking garages, and fuel storage tanks would be susceptible to potential damage resulting from settlement of weak and/or expansive soils or local subsidence, posing a substantial hazard to property and/or human life.	Significant	Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to fuel storage tanks, and be consistent with the most current engineering practice.	Less than Significant
Seismic Hazard Impact: Growth in aviation activity and new development would increase the number of people and facilities that could be exposed to seismically-induced structural and nonstructural damage hazards. The presence of a new above-ground fuel storage facility would pose hazards to the environment in the event of earthquake-induced failure.	Significant	Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to places of public assembly (essential facilities) and potentially hazardous facilities, and be consistent with standard engineering practice to achieve an acceptable level of risk.	Less than Significant

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
8. Biological Resources			
Burrowing Owl Impact: Replacement of 35 acres of ruderal and grassland habitat with paving or structures, together with earthmoving and construction activities, would alter and/or destroy nesting habitat for burrowing owl. If construction activities occurred during the nesting season, there also would be a significant risk of mortality of individual burrowing owls (a California species of special concern and federal sensitive species).	Significant	The Airport will implement the Burrowing Owl Management Plan prepared for SJC (see Appendix 3.8.B).	Less than Significant
Guadalupe River Impact - Bridge Construction and Loss of Habitat: The loss of 0.2 acres of riparian habitat due to construction of the bridge over Guadalupe River would not result in any significant long-term adverse effects on any special status species or habitat. The construction of the bridge would result in temporary significant adverse impacts to the spawning/breeding habitat of certain special status species that inhabit the Guadalupe River corridor.	Significant	The Airport will conduct pre-construction surveys to determine the presence and breeding status of special status species inhabiting the Guadalupe River corridor, and implement mitigation measures, including best construction management practices and compensatory replacement of lost habitat.	Less than Significant
Guadalupe River Impact - Fuel Storage Facility Construction: Construction of a new fuel storage facility on lands adjacent to the Guadalupe River could result in impacts to water quality and therefore to aquatic and wetland biota of the river, in the unlikely event of tank failure.	Significant	The fuel tank storage facility will be designed with measures to prevent fuel or other pollutants migrating off-site and entering surface waters of the Guadalupe River. The fuel storage facility will be located 100 feet away from the top of the bank of the river, in conformance with City policy. Response to an accidental release will involve cooperation with agencies charged with the responsibility for clean-up measures.	Less than Significant

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Foraging Habitat of Special Status Bird Species Impact: Development at SJC would eliminate up to 56.5 acres of foraging habitat for special status avian species: prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew. These species do not nest on, nor are they wholly dependent on, the Airport for foraging.	Less than Significant	None required.	
Common Wildlife Impact: Construction and/or increases in Airport operations, including increases in surface traffic and noise, would result in disturbance to, or direct mortality of, common wildlife species.	Less than Significant	None required.	
Common Vegetation Impact: Construction activities would result in elimination of common vegetation and associated productive soils.	Less than Significant	None required.	
9. Energy Supply and Natural Resources			
Energy Consumption Impact: Increased operations and/or construction activities would increase consumption of non-renewable energy resources.	Less than Significant	None required.	
10. Aesthetics			
Airport South of U.S. 101 Altered Visual Character Impact: Construction of large-scale projects on the Airport would increase the intensity of development, but with limited effect on visual character. This development would be visually compatible with the existing urban character of the Airport and its vicinity.	Less than Significant	None required.	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Fuel Storage Facility Site Altered Visual Character Impact: Construction of the new fuel storage facility on the north side of U.S. 101 would alter the visual character of the area and affect views from a scenic highway.	Significant	The new fuel storage facility will be designed so that the above-ground storage tanks are screened to the highest degree practicable from U.S. 101 and adjacent uses. Screening may include the following actions: landscaping, berming, and/or construction of walls or facades.	Less than Significant
Light and Glare Impact: Increases in aviation activity and construction of the proposed projects would result in limited changes to light and glare at SJC. Overall, the levels of light and glare would be comparable to existing conditions.	Less than Significant	None required.	
11. Public Services & Utilities			
Water Service Impact: The increase in passenger activity at SJC would result in increased water consumption at SJC.	Less Than Significant	None required.	
Wastewater Service Impact: The increase in passenger activity at SJC would result in increased wastewater generation at SJC.	Less Than Significant	None required.	
Solid Waste Service Impact: The increase in passenger activity at SJC would result in increased solid waste generation at SJC.	Less Than Significant	None required.	
Energy Transmission and Distribution Impact: Because of the planned capacity improvements by PG&E, the capacity of the local distribution system would accommodate the increase in electricity and natural gas demand at SJC.	Less than Significant	None required.	
Demand for Telephone Service Impact: The increase in passenger activity at SJC would result in increased demand for telephone service at SJC.	Less than Significant	None required.	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Fire Protection Service Impact: New structures and growth in passenger and air cargo activity would generate additional demand for fire protection and emergency medical services at the Airport and would be met by existing services. This is not, however, considered to be an environmental or physical impact.	No impact	None required.	
Police Protection Service Impact: New structures and growth in passenger and air cargo activity would generate additional demand for police protection services at the Airport and would be met by the Airport. This is not, however, considered to be an environmental or physical impact.	No impact	None required.	
Disruption of Utilities (Construction Impact): Existing water, wastewater, gas and electrical utility lines could be disrupted and/or relocated during construction of proposed project components requiring subsurface work.	Less Than Significant	None required.	
12. Hazardous Materials			
Fuel Storage Facility Impact: Placement of a new bulk fuel storage facility on an undeveloped site and transfer piping under a public highway would create the potential for accidental release of a hazardous material and exposure of the public traveling on U.S. 101, biota inhabiting the Guadalupe River, and persons occupying adjacent properties to hazardous materials, in the event of a catastrophic event.	Significant	The new fuel storage facility and pipeline will be designed, constructed, and maintained in compliance with all applicable regulatory standards and policies, including provisions for full on-site containment, leak detection systems, and cathodic protection. In addition, a 100-foot setback from the Guadalupe River will be maintained. The Airport will prepare and implement a program to minimize accident risks at the fuel handling and storage facilities.	Less than Significant

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Fuel Spill Impact: Growth in aviation activity would increase the frequency and volume of aircraft refueling operations at the Airport, thereby increasing the opportunity for spills and consequent impacts to public health and safety. Existing spill prevention and response procedures would continue to be implemented and updated as necessary.	Less than Significant	None required.	
Ground and Air Transport of Hazardous Materials Impact: Increase in ground transport of fuels and other hazardous materials and wastes to and from the Airport, and increases in transport by all-cargo aircraft of permitted hazardous materials would be subject to regulations and response procedures by transportation and other agencies and, therefore, would not constitute a significant risk to public health or safety.	Less than Significant	None required.	
Other Hazardous Materials Use Impacts: Growth in aviation activity, along with the proposed facility improvements, would increase the use, storage, and transport of hazardous materials other than aviation fuels at the Airport.	Less than Significant	None required.	
Underground Tank Removal Impact: Removal of existing underground fuel tanks would eliminate a potential source of future contamination and enable remediation of the site.	Beneficial	None required.	
Hazardous Waste Impact: The increase in aviation activity levels at the Airport would indirectly increase the generation of hazardous wastes that would have to be handled and disposed in accordance with regulations.	Less than Significant	None required.	

TABLE 1.3.3 (Continued)
IMPACTS AND MITIAGTION MEASURES FOR THE PROJECT CASE ALTERNATIVE B

Impact	Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
Exposure of Workers to Hazardous Materials (Construction Impact): Construction workers may be exposed to hazardous materials at contaminated locations, both known and unknown, and would follow remediation procedures prescribed by City, County, and/or RWQCB.	Significant	The Airport will investigate potentially contaminated sites prior to beginning construction. If the potential for workers to encounter hazardous materials is identified, the Airport will take necessary precautions to protect the health and safety of site workers.	Less than Significant
13. Air Safety			
Air Safety Impact: Implementation of the Project Case Alternative B would not lead to an increase in air safety risks.	Less than Significant	None required.	

TABLE 1.3.4
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.1 Land Use, Plans, and Policies

	Project Case	Project Case Alternative A	Project Case Alternative B
Changes in On-Airport Land Uses (Prime Farmland)			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Changes in On-Airport Land Uses (Other On-Airport Uses)			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Adjacent Land Use Compatibility (Intensification; Safety Zones)			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Adjacent Land Use Compatibility (Fuel Storage Facility)			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.2 Cultural Resources

	Project Case	Project Case Alternative A	Project Case Alternative B
Disturbance of Archaeological Sites			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	□
Discovery of Previously Unknown Archaeological Resources			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
California Historical Landmark No. 945			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Off-Airport Historic Property			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.3 Traffic and Transportation

	Project Case	Project Case Alternative A	Project Case Alternative B
Intersection Level of Service			
Year 2000	●	●	●
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.3 Traffic and Transportation (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
Freeway			
Year 2000	○	○	○
Year 2005	◎	◎	○
Year 2010	◎	◎	○
Public Transit			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Pedestrian			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Bicycling			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Parking			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Construction Traffic			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.3 Traffic and Transportation (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
General Aviation Displacement			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.4 Air Quality

	Project Case	Project Case Alternative A	Project Case Alternative B
Criteria Air Pollutant Emissions			
Year 2000	◎	◎	◎
Year 2005	◎	◎	◎
Year 2010	◎	◎	◎
NO_2 Concentrations			
Year 2000	●	●	●
Year 2005	●	●	●
Year 2010	●	●	●
CO Concentrations			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
SO_2 Concentrations			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.4 Air Quality (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
Toxic Air Contaminant Emissions			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.5 Noise

	Project Case	Project Case Alternative A	Project Case Alternative B
Cumulative Aircraft Noise			
Year 2000	○	◎	○
Year 2005	◎	◎	○
Year 2010	◎	◎	○
Single-Event Aircraft Noise			
Year 2000	◎	◎	○
Year 2005	◎	◎	○
Year 2010	◎	◎	○
Time Above Aircraft Noise			
Year 2000	○	◎	○
Year 2005	◎	◎	○
Year 2010	◎	◎	○
Surface Traffic Noise			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.5 Noise (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
Construction Noise			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.6 Hydrology and Water Quality

	Project Case	Project Case Alternative A	Project Case Alternative B
Storm Water Runoff			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
Floodplain Risks to Structures and People			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Quality of Storm Water Runoff			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
New Fuel Storage Facility Adjacent to Guadalupe River			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.6 Hydrology and Water Quality (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
Sediment Discharge (Construction Impact)			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Groundwater Interception (Construction Impact)			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.7 Geology and Seismicity

	Project Case	Project Case Alternative A	Project Case Alternative B
Soils			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
Seismic Hazard			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.8 Biological Resources

	Project Case	Project Case Alternative A	Project Case Alternative B
Burrowing Owl			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
Guadalupe River (Bridge Construction and Loss of Habitat)			
Year 2000	⊙	⊙	⊙
Year 2005	○	○	○
Year 2010	○	○	○
Guadalupe River (Fuel Storage Facility Construction)			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
Foraging Habitat of Special Status Bird Species			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Common Wildlife			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	□
Common Vegetation			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	□

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.11 Public Services and Utilities (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
Police Protection Services			
Year 2000	□	□	□
Year 2005	□	□	□
Year 2010	□	□	□
Disruption of Utilities (Construction Impact)			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.12 Hazardous Materials

	Project Case	Project Case Alternative A	Project Case Alternative B
Fuel Storage Facility			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
Fuel Spills			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Ground and Air Transport of Hazardous Materials			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.12 Hazardous Materials (continued)

	Project Case	Project Case Alternative A	Project Case Alternative B
Other Hazardous Materials Uses			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Underground Tank Removal			
Year 2000	✦	✦	✦
Year 2005	□	□	□
Year 2010	□	□	□
Hazardous Waste Generation			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Exposure of Workers to Hazardous Materials (Construction Impact)			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙

3.13 Air Safety

	Project Case	Project Case Alternative A	Project Case Alternative B
Air Safety			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.9 Energy Supply and Natural Resources

	Project Case	Project Case Alternative A	Project Case Alternative B
Energy Consumption			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

3.10 Aesthetics

	Project Case	Project Case Alternative A	Project Case Alternative B
Airport South of U.S. 101 Altered Visual Character			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Fuel Storage Facility Site Altered Visual Character			
Year 2000	⊙	⊙	⊙
Year 2005	⊙	⊙	⊙
Year 2010	⊙	⊙	⊙
Light and Glare			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○

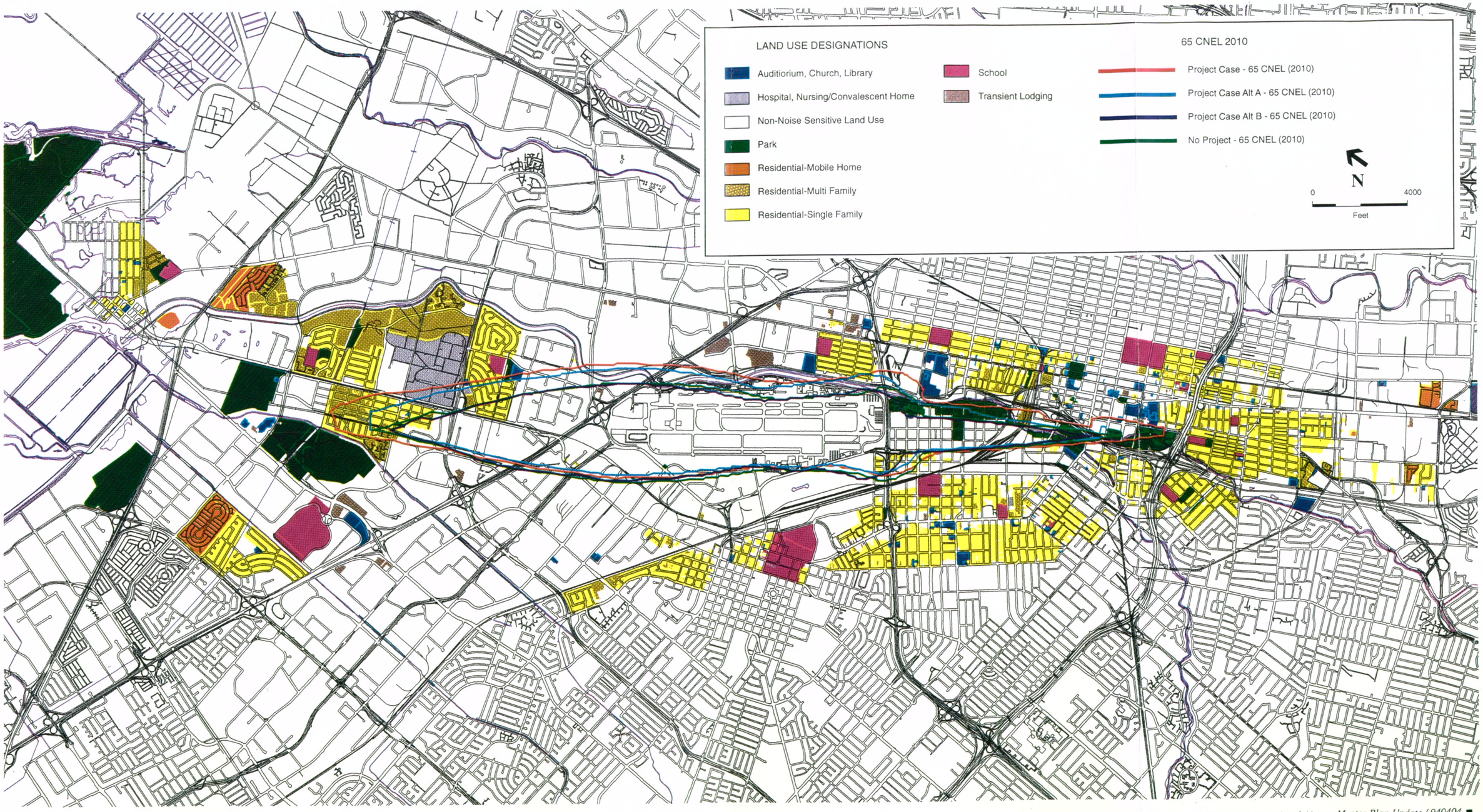
□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact

TABLE 1.3.4 (continued)
PROJECT CASE ALTERNATIVES IMPACTS SUMMARY

3.11 Public Services and Utilities

	Project Case	Project Case Alternative A	Project Case Alternative B
Water Service			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Wastewater Service			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Solid Waste Service			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Energy Transmission and Distribution			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Demand for Telephone Service			
Year 2000	○	○	○
Year 2005	○	○	○
Year 2010	○	○	○
Fire Protection Service			
Year 2000	□	□	□
Year 2005	□	□	□
Year 2010	□	□	□

□ No Impact, No Mitigation Required
○ Less Than Significant Impact, No Mitigation Required
⊙ Significant Impact, Feasible Mitigation Identified, Reduced To Less Than Significant
◎ Significant Impact, Feasible Mitigation Identified, Not Reduced To Less Than Significant
● Significant Impact, No Feasible Mitigation Identified, Unavoidable
✦ Beneficial Impact



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 1.3.1

Comparison of CNEL Contours for the Project Case Alternatives in the Year 2010

1.4 AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

This section identifies the controversial issues associated with the Master Plan Update and provides a list of issues to be resolved that are related to the Master Plan Update process. As with any master planning effort, numerous policy-related decisions will be made by the San Jose City Council. These decisions can affect the master planning process in a variety of ways and reflect the trade-offs that the City Council must consider as part of the decision-making process.

ACCOMMODATION OF VARIOUS DEMANDS AT THE AIRPORT

In accordance with the demand forecast analysis prepared by TRA and given that no room for expansion of Airport property exists, it is not possible to accommodate air passenger demand, air cargo demand, and general aviation demand at the Airport. As part of the master planning process, the City Council is being presented with three alternatives in an equal level of detail. None of these alternatives meet all three service demands at the Airport. Therefore, the City Council must decide the degree to which the Master Plan Update meets these various service demands at the Airport. This decision can be characterized as determining which of the service demands are the most important to meet. Therefore, the City Council will be addressing the following questions in their deliberation on this issue.

- Should air passenger demand and the level of service of commercial air transportation be the most important demand to be met during the Master Plan Update process?
- Should meeting air cargo demand take precedence over air passenger demand and general aviation demand?
- Should the general aviation demand be met before accommodating air passenger demand or air cargo demand?

These questions form the basic policy decisions that will be made by the City Council. This has been, and is expected to continue to be, a controversial issue associated with the Master Plan Update. Each segment of the Airport community has expressed a preference for the level to which the demand of air passenger, air cargo, and general aviation is met at the Airport. Regardless of the outcome of any decision made by the City Council on the overall direction of the Master Plan Update, this issue will continue to be controversial with the various players in the Airport community.

DISPLACEMENT OF GENERAL AVIATION AT THE AIRPORT

An issue that is related to the accommodation of service demand at the Airport is the potential for general aviation aircraft to be displaced as part of the Master Plan Update process. None of the Project Case Alternatives nor the No Project Alternative meets the projected demand for based aircraft at the Airport. As a result, the displacement of general aviation to other facilities in the

greater San Jose area would occur to varying degrees (for a complete discussion of the impacts associated with the displacement of general aviation at SJC, see Section 3.3 of this EIR). This could result in the reduction of recreational flying opportunities at SJC. As part of the Master Plan Update process and the environmental review process, the general aviation community has expressed their views regarding the displacement of general aviation aircraft at SJC (see Appendix 1.A for specific comments on the NOP). The proposed reduction of the number of tie-down spaces at SJC remains a controversial issue among some members of the Airport community.

SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE MASTER PLAN UPDATE

This EIR identifies several significant, unavoidable adverse impacts associated with development that could occur under the Master Plan Update. The City Council will be required to review the information associated with these environmental impacts and decide whether the benefits of the Master Plan Update outweigh the effects that could occur with Airport development. These impacts include traffic, air quality, and noise. Since these impacts are considered to be significant and unavoidable, these issues are considered to be controversial.

ISSUES RAISED BY RELATED PROJECTS

Several other projects are currently being considered by other agencies that could be related to the operation of SJC. These include:

- Use of Moffett Federal Airfield
- Closure of Reid-Hillview Airport

1.5 INCORPORATION OF STUDIES AND OTHER DOCUMENTS

This EIR contains references to a number of studies, reports, and other documents that provide a basis or source of information for the analyses in the EIR. These documents are incorporated by reference into this EIR in accordance with Section 15150 of the CEQA *Guidelines* (California Administrative Code, Title 15, Section 15150, July 16, 1983).

All referenced documents are maintained on file, and are available for review during normal business hours, at the following location:

City of San Jose Department of Planning
Attn: Julie Caporgno
801 North First Street, Room 400
San Jose, CA 95110
Phone: (408) 277-4576
Fax: (408) 277-3250

Copies may be obtained by arrangements through the City of San Jose Planning Department.

When a document, study, or report is cited or referred to for convenience by a short-hand form in the body of the EIR, the reader should consult Chapter 8, References, for the full citation.

1.6 THE SCOPING PROCESS

On July 7, 1995, the City of San Jose issued a Notice of Preparation (NOP) of an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the San Jose International Airport Master Plan Update. The NOP was sent to a variety of agencies and organizations. Table 1.6.1 provides a summary of the distribution list of the NOP. Similarly, the Federal Aviation Administration (FAA) issued a Notice of Intent (NOI) on July 19, 1995 to prepare a joint EIR/EIS at SJC. Subsequent to the issuance of the NOP and NOI, the City and FAA held two joint scoping meetings on August 21, 1995. The scoping meeting held in the afternoon was to seek input from the federal, State and local agencies. The scoping meeting held in the evening was to seek input from the general public. The purpose of these meetings was to provide an early and open process for determining the scope of issues to be addressed in the EIR/EIS and for identifying potentially significant issues related to the proposed action, the Master Plan Update. Comments made at these meetings and written comments received by both the City and FAA on the NOP and NOI, respectively, are included in Appendix 1.A.

Although the City of San Jose and the FAA made the decision to prepare separate State and federal environmental impact documents after the public scoping process was held, no additional scoping requirements resulted from this action. All comments received during the EIR/EIS scoping process have been considered in the respective documents.

TABLE 1.6.1
DISTRIBUTION LIST FOR THE NOTICE OF PREPARATION

San Jose Planning Department Distribution			
Federal/State/Regional Public Agencies (7/6/95)[1]	=	19	
County Agencies/Cities/School Districts (7/6/95)[1]	=	17	
Local Utility/Transportation Companies (7/6/95)[1]	=	5	
Local Environmental Organizations (7/6/95)[1]	=	3	
SUBTOTAL	=		44
San Jose Airport Department Distribution			
C.A.A.P./CRAMP/Chamber of Commerce (7/6/95)[1]	=	3	
Airport Master Plan Advisory Committee (7/6/95)	=	24	
Airline Affairs Committee (7/6/95)	=	16	
Chamber of Commerce Aviation Committee (7/6/95)	=	35	
Airport Tenants (7/7/95)	=	40	
Supplemental Master Plan Interest List (7/7/95)[2]	=	45	
Misc. Additional by Request	=	3	
SUBTOTAL	=		166
TOTAL DISTRIBUTION	=		210

1 sent certified mail (except Fedex to State Clearinghouse)
2 including Airport Noise Advisory Committee and individuals

SOURCE: City of San Jose

PROJECT CASE ALTERNATIVES

CHAPTER 2

PROJECT CASE ALTERNATIVES

2.1 PROJECT OBJECTIVES

It is desirable for the proposed project actions, which are analyzed in detail in this EIR, to attain the Airport-related goals and objectives identified by the City of San Jose. Each of the Project Case Alternatives evaluated in this EIR accomplishes the goals, policies, and objectives of the City to varying extents, depending on the particular goal, policy, or objective.

The principal goal of the City of San Jose for the Airport Master Plan Update project is to determine a development plan for the future of the Airport that best reflects community needs. The City of San Jose General Plan sets forth goals and policies that address the future growth and development of the community. It includes adopted aviation goals and policies that pertain to the Project Case Alternatives, as follows:

- The City should continue to provide aviation services at San Jose International Airport and promote airline service which meets the present and future air transportation needs of local residents and the business community, and which minimize impacts on the surrounding community.
- Capital improvements to San Jose International Airport as identified in the Airport Master Plan should be implemented in a timely manner.

In addition, Airport staff, in developing the draft Airport Master Plan Update, have utilized the following project objectives:

1. To identify a phased program of specific airfield and landside facility improvements to accommodate, to the extent reasonable and feasible, current and future demand for commercial air carrier services.
2. To develop a land use and facility plan that designates the most efficient and productive aviation-related use of all Airport property in conformance with all applicable FAA standards.
3. To balance future development with the mitigation of adverse aircraft noise and other environmental impacts.

In order to adopt a Master Plan for the Airport, the Council of the City of San Jose will evaluate and balance these goals and objectives to determine which, if any, of the proposed development alternatives will be selected. The purpose of this EIR is to describe the environmental

consequences of the identified Project Case Alternatives in order to allow the City Council to fully evaluate the proposed actions in order to select an Airport development plan.

2.2 PROJECT LOCATION AND CHARACTERISTICS

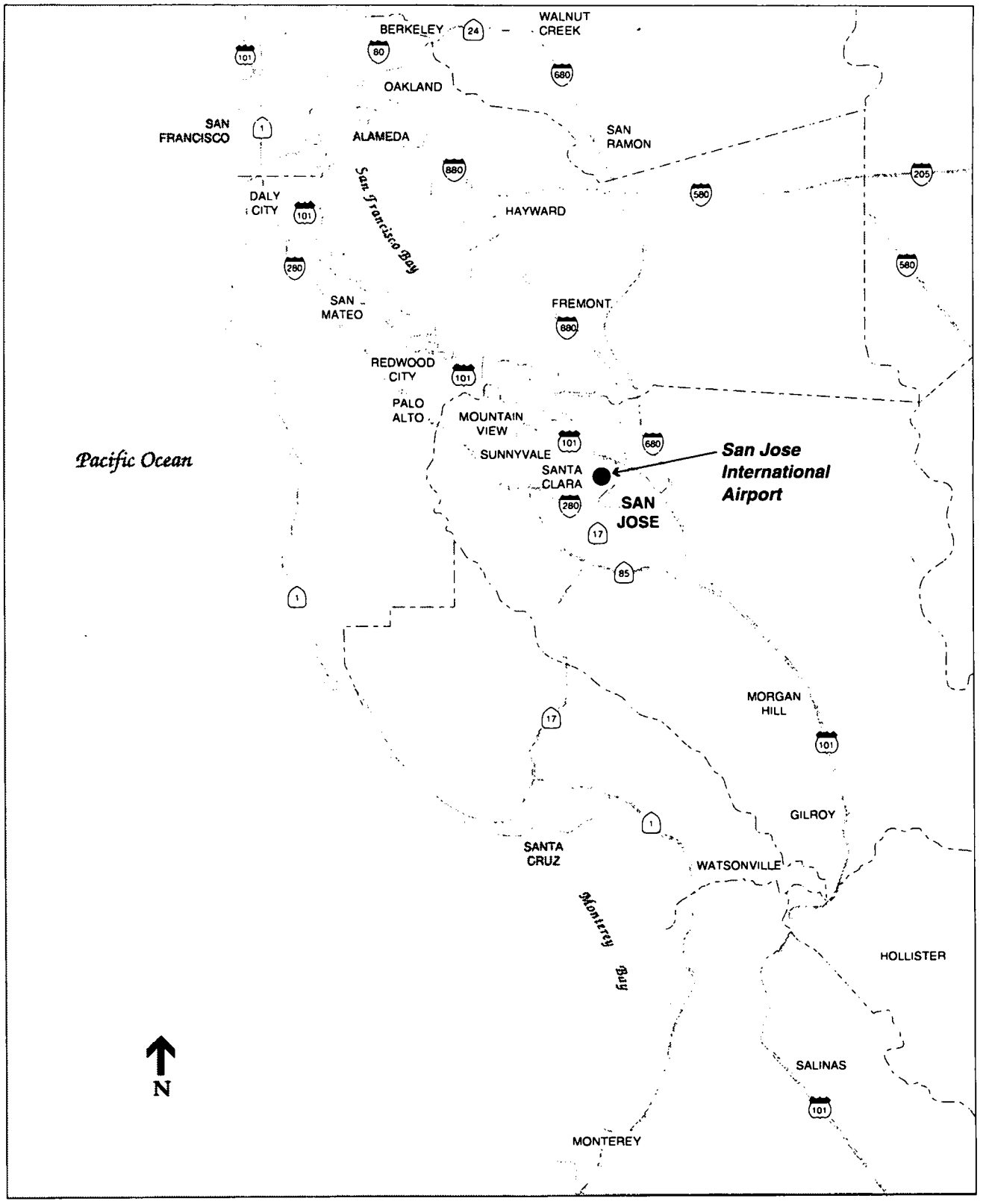
San Jose International Airport (SJC) is one of three primary airports that serve the San Francisco Bay Area of Northern California. SJC is located on an approximately 1,000-acre site in Santa Clara County at the southerly end of San Francisco Bay, approximately two miles north of downtown San Jose. The Airport is generally bounded by U.S. 101 to the north, the Guadalupe River and State Route 87 to the east, Interstate 880 to the south, and Coleman Avenue and De la Cruz Boulevard to the west. The Airport primarily serves Santa Clara, Alameda, Santa Cruz, Monterey, and San Benito counties, and is the primary airport serving the Silicon Valley. SJC accommodated approximately 8,350,000 million passengers in 1994, or 16 percent of the Bay Area passenger volume.

The airport has two terminals: Terminal A with 15 passenger gates and Terminal C with 16 gates. SJC operates three runways: 12R/30L, the primary instrument runway for commercial aircraft; 12L/30R, a non-precision instrument runway for commercial commuter, general aviation, and corporate aircraft; and 11/29, used for general aviation, business, and corporate aircraft. SJC serves most major commercial airlines with statewide, national, and international destinations, as well as air cargo airlines. SJC also serves 491 based general aviation aircraft. The Airport is used approximately 46 percent for business and 54 percent for personal travel.

The vicinity of the Airport and the general San Jose area is predominantly urban in character. A highway and local street system surrounds the Airport site. The SJC vicinity includes industrial, commercial, and residential land uses, as well as certain special purpose noise sensitive uses, such as churches and schools. The SJC vicinity also includes the San Francisco Bay National Wildlife Refuge. A regional map showing the Airport is provided on Figure 2.2.1. A vicinity map showing the location of the Airport is provided on Figure 2.2.2.

2.3 DESCRIPTION OF THE PROJECT CASE ALTERNATIVES

This section describes the Project Case, Project Case Alternative A, Project Case Alternative B, and the No Project Alternative, which have been identified by the City of San Jose for evaluation in the *San Jose International Airport Master Plan Update EIR*. The background and history of the selection of these alternatives is described in detail in Section 1.1 of this document. The proposed actions consist of three phases of facility improvements that would occur at SJC during the periods of 1996 to 2000, 2001 to 2005, and 2006 to 2010. The specific projects associated with each of the three phases of development are presented below by type and project number. Projects are divided into six categories: Airfield, Passenger Terminal, Air Cargo, General Aviation, Aviation Support, and Non-Aviation. Project actions that would be required to



SOURCE: Environmental Science Associates

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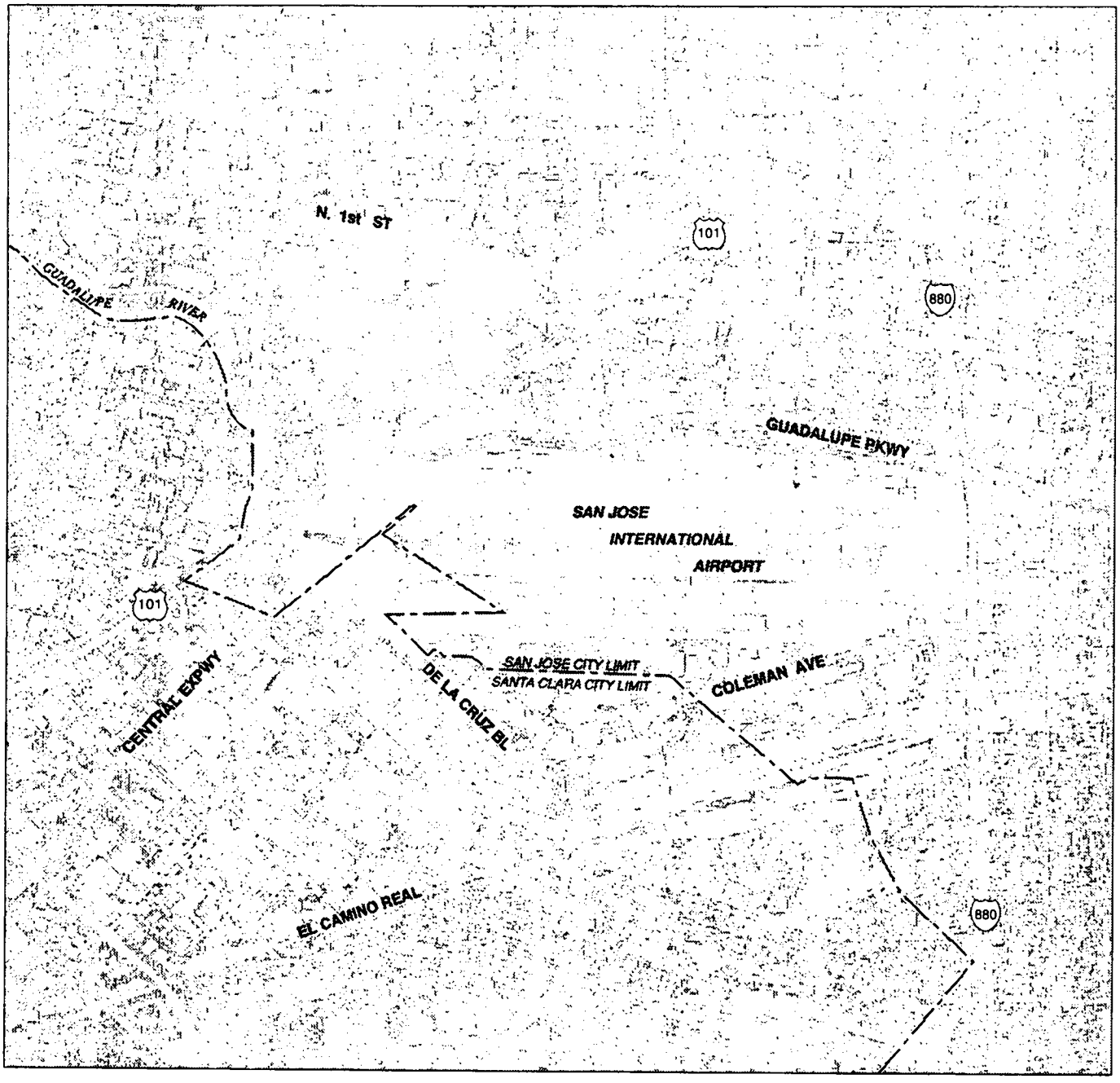
Figure 2.2.1
Regional Location Map



0 4000
Feet

SOURCE: Environmental Science Associates

San Jose Airport Master Plan Update / 940404 ■

Figure 2.2.2
SJC Vicinity

proceed sequentially are described in order of their occurrence. (Project components that have the same designator for more than one project case alternative are the same under each alternative; components that have designators with an "a" or "b" are similar in type but have different characteristics under each alternative.)

Table 2.3.1 identifies forecast operational activity levels accommodated by the project alternatives. Table 2.3.2 identifies facility improvements proposed to accommodate operation demand under the project alternatives.

A summary matrix identifying the project components for each of the project case alternatives is presented in Table 2.3.3 in Section 2.3.5.

TABLE 2.3.1
SUMMARY OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES
PART I - YEAR 2010 ACTIVITY LEVELS

			Demand Accommodated			
Activity Element	1993 Actual	Forecast Demand	Project Case	Project Case Alternative A	Project Case Alternative B	No Project
Passengers						
Origin & Destination	6,364,852	14,980,100	*14,980,100*	*11,790,000*	*11,160,000*	*9,688,500*
Connecting	646,646	2,643,600	*2,643,600*	*1,310,000*	*1,240,000*	*1,076,500*
Total	7,011,498	17,623,700	*17,623,700*	*13,100,000*	*12,400,000*	*10,765,000*
Operations						
Major Airline	85,760	183,200	*183,200*	*136,200*	*128,900*	*111,900*
Commuter	30,072	59,900	*59,900*	*44,500*	*42,200*	*36,600*
All-Cargo	5,044	13,300	*13,300*	*13,300*	*5,500*	*5,500*
General Aviation	176,581	226,800	*115,300*	*154,800*	*176,400*	*216,000*
Military	888	800	*800*	*800*	*800*	*800*
Total	298,345	484,000	*372,500*	*349,600*	*353,800*	*370,800*
Cargo Tonnage						
All Cargo	59,286	189,200	*189,200*	*189,200*	*78,300*	*78,300*
Airline Belly	21,951	126,100	*126,100*	*94,000*	*88,900*	*77,200*
Total	81,237	315,300	*315,300*	*283,200*	*167,200*	*155,500*
Based Aircraft	491	630	*320*	*430*	*490*	*600*

SOURCE: City of San Jose

2.3.1 PROJECT CASE

The Project Case would fully accommodate the forecast annual air carrier demand in the year 2010 of 17.6 million passengers, based on accepted airport design standards. Runways 12L/30R and 12R/30L would be reconstructed and extended to their maximum on-site lengths, from

TABLE 2.3.2
SUMMARY OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES
PART II - YEAR 2010 FACILITIES

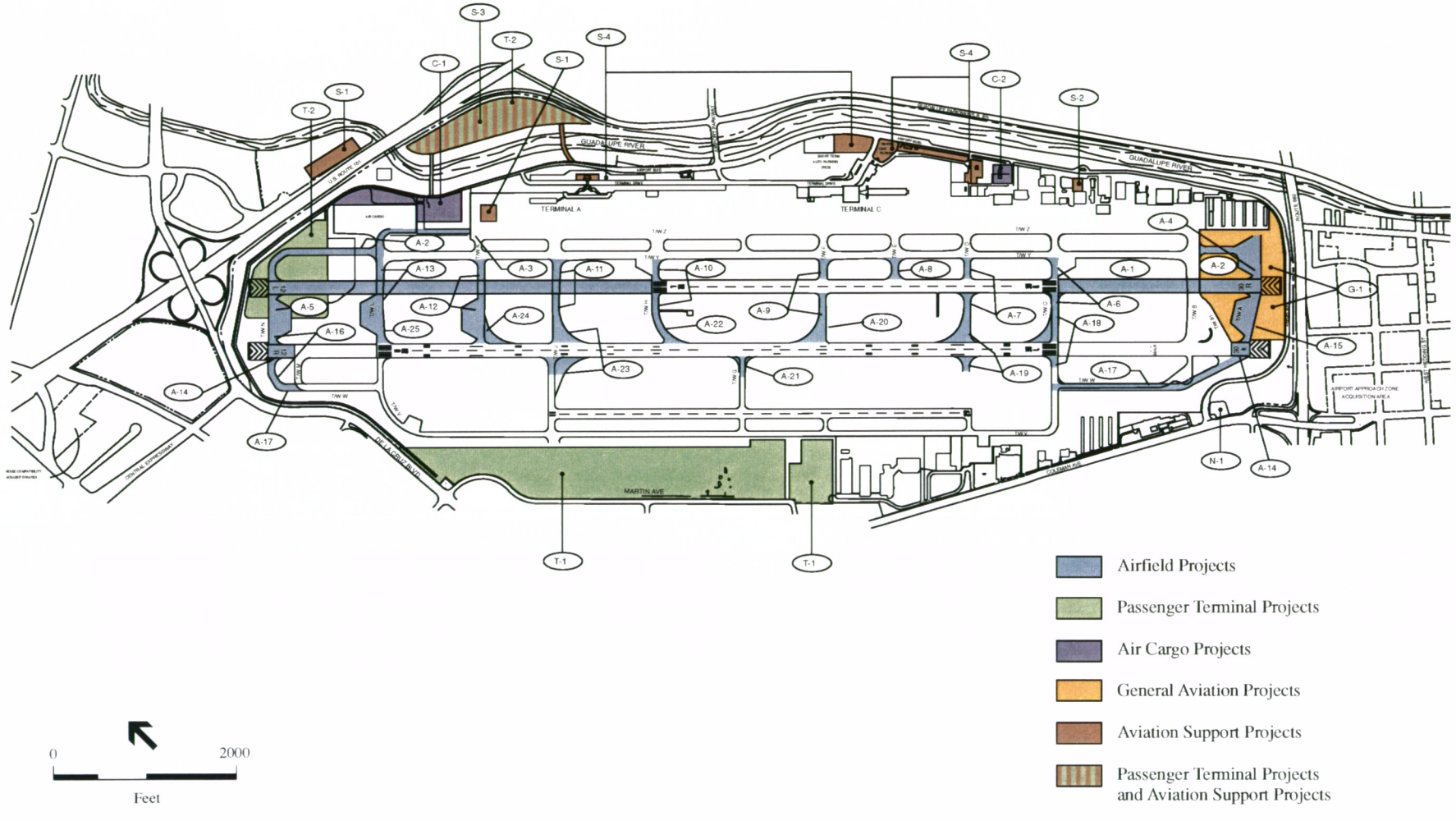
Facility Element	1993 Actual	Forecast Demand	Demand Accommodated			
			Project Case	Project Case Alternative A	Project Case Alternative B	No Project
Runway Length (ft.)						
12R/30L	10,200	11,000[a]	*11,000*	*11,000*	*11,000*	*10,200*
12L/30R	4,400	11,050[a]	*11,050*	*8,900*	*4,400*	*4,400*
11/29	4,600	4,600	*4,600*	*4,600*	*4,600*	*4,600*
Air Carrier Gates	31	49	*49*	*37*	*35*	*31*
Terminal Building (sq.ft.)	407,674	1,056,800	*1,075,000*	*775,000*	*750,000*	*407,674*
Public Parking Spaces	7,290	16,200	*16,200*	*12,700*	*12,100*	*7,290*
Employee Parking Spaces	1,230	2,600	*2,600*	*1,800*	*1,700*	*1,230*
All-Cargo Airline Area (sq.ft.)	300,000	1,897,900	*1,897,900*	*1,897,900*	*300,000*	*300,000*
Belly-Freight Area (sq.ft.)	85,000	460,500	*460,500*	*343,100*	*326,700*	*85,000*
G.A. Aircraft Storage Spaces[b]	660	695	*360*	*475*	*540*	*660*
Rental Car Ready/Return Spaces	700	2,000	*2,000*	*1,600*	*1,500*	*700*
Jet Fuel Bulk Storage (gal.)	208,000	3,843,400	*4,000,000*	*3,000,000*	*2,500,000*	*208,000*

[a] Maximum length given Airport site constraints.
[b] Includes based aircraft and transient aircraft spaces.

SOURCE: City of San Jose

4,400 feet to 11,050 feet and 10,200 feet to 11,000 feet, respectively. The runways would be supported by numerous taxiway system improvements, including strengthening, widening, and lengthening. Eighteen new air carrier gates, for a total of 49 gates, would be provided through construction of a new Terminal B and reconstruction and expansion of the existing Terminal C.

All air carrier and support facilities needed to accommodate forecast passenger air carrier demand would be provided on-site, including construction of multi-story garages for public, employee, and rental car parking, and a new fuel storage area. The forecast annual air cargo operational and cargo tonnage demand of 315,300 tons also would be fully accommodated by the year 2010, with air cargo facilities developed on the west side of the Airport. General aviation activity would be constrained due to insufficient airside and landside capacity, with facilities in 2010 limited to the existing developed area on the west side that would accommodate 320 based aircraft. Within existing airport design standards, the Project Case would be expected to accommodate approximately 372,500 annual aircraft operations in 2010. Figures 2.3.1 through 2.3.4 indicate the location of Project Case activities by phase.



SOURCE: City of San Jose

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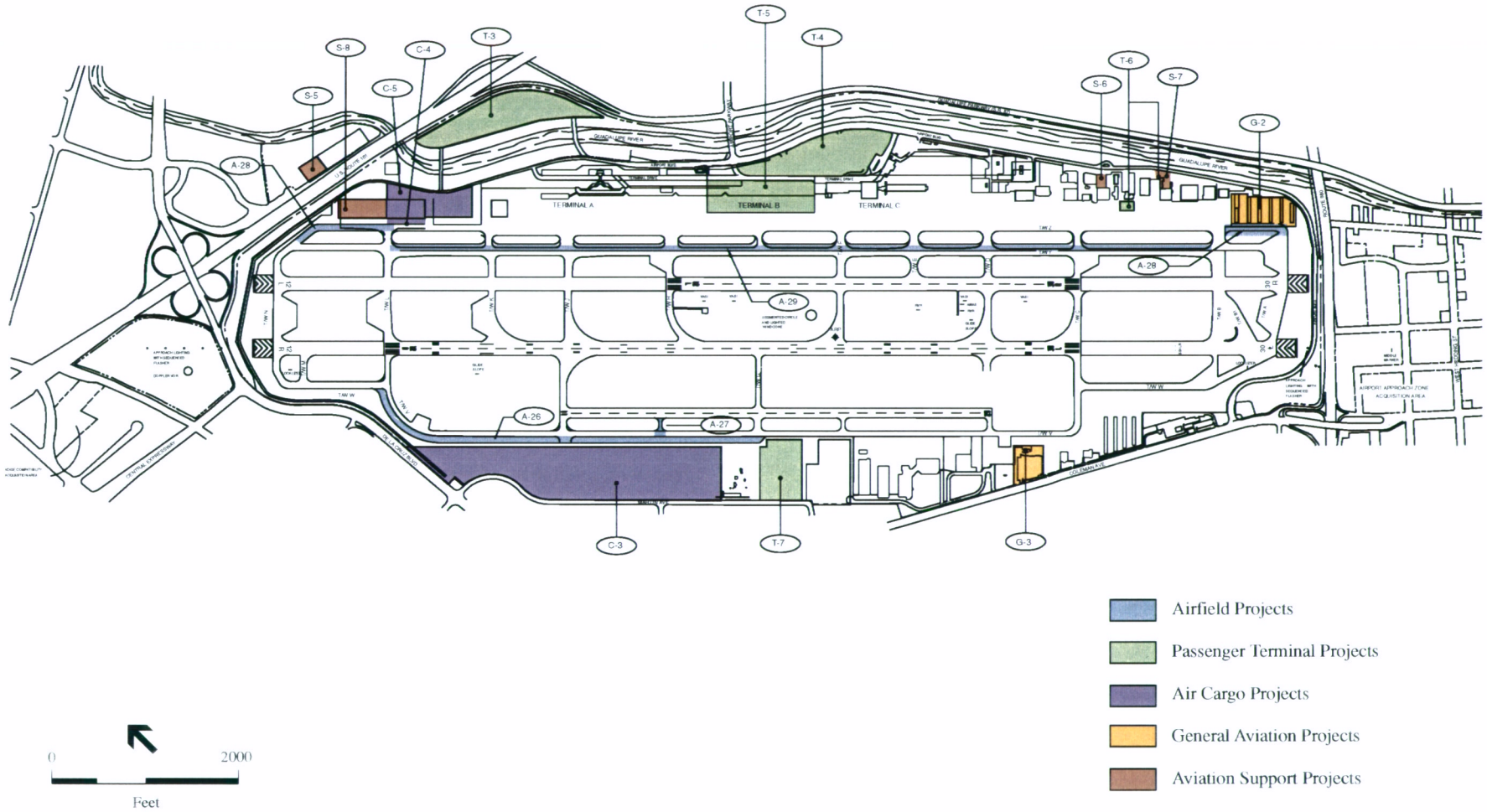
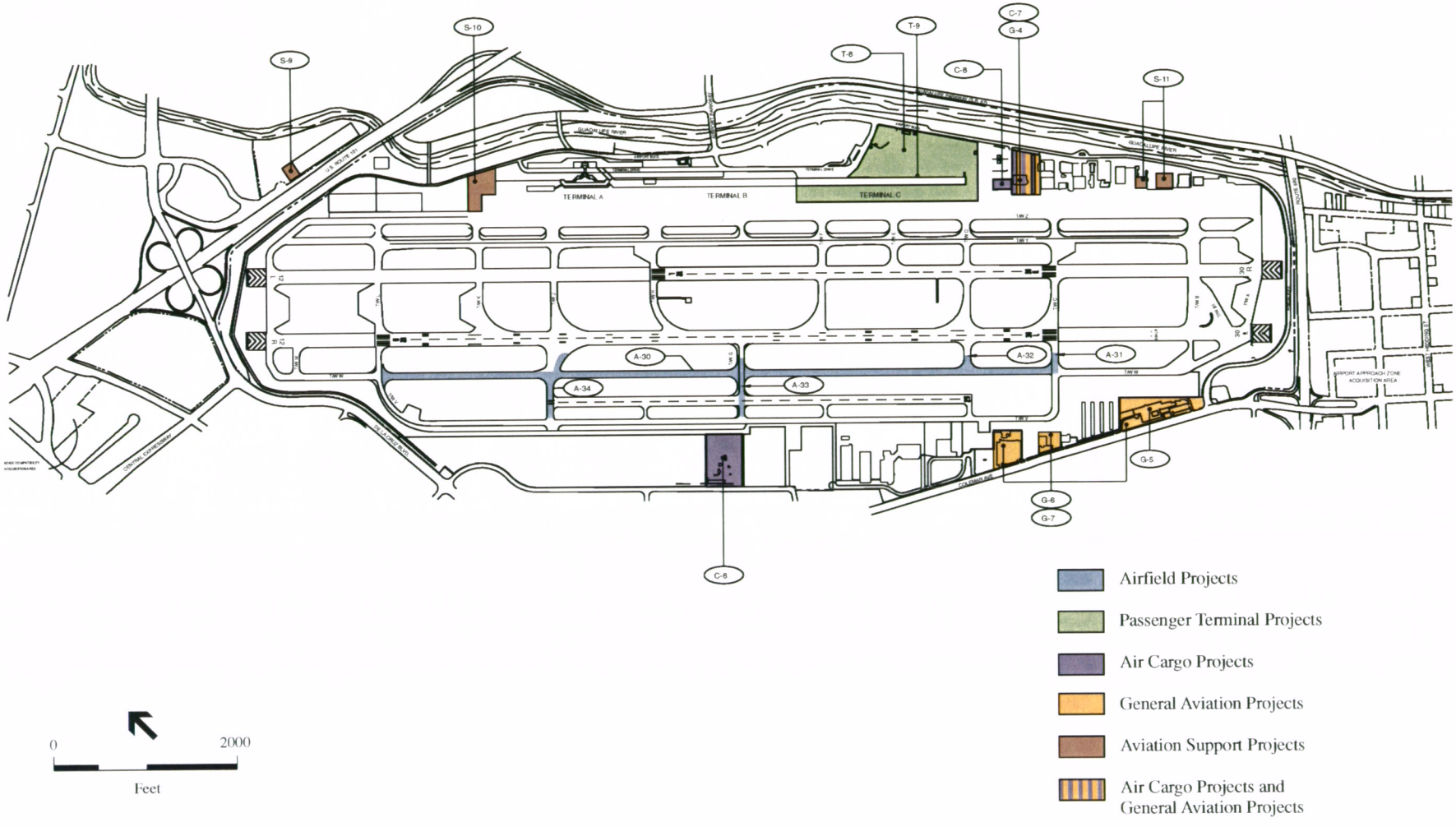
Figure 2.3.1
Project Case
Phase 1 - Development



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

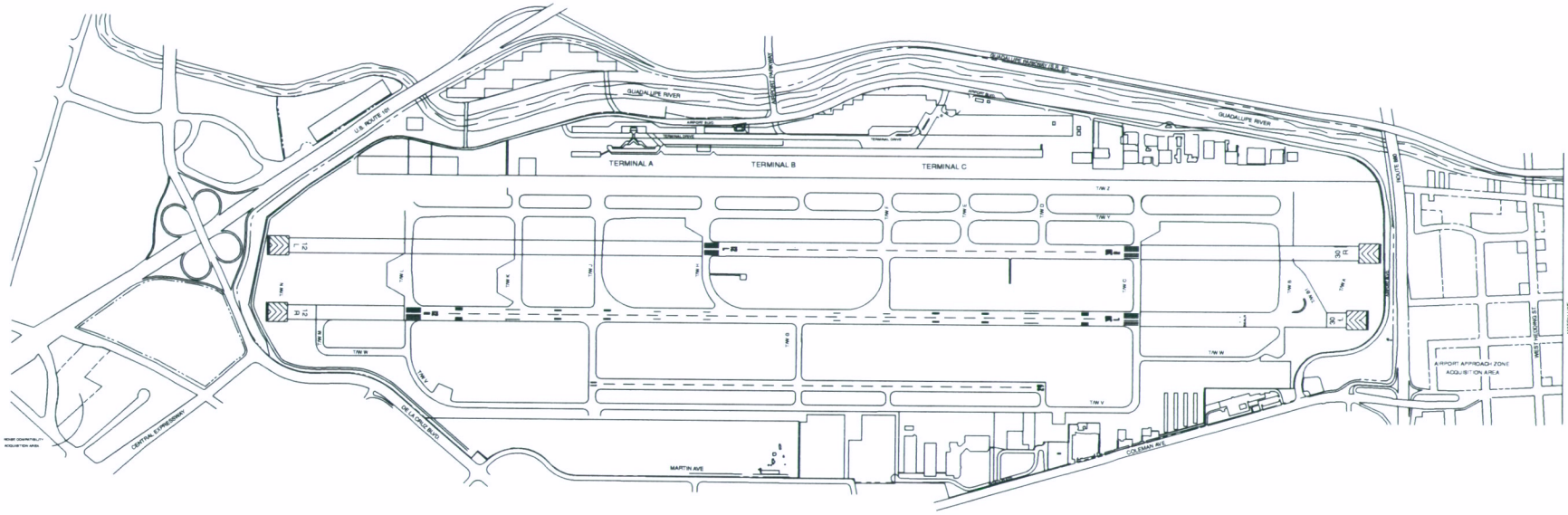
Figure 2.3.2
Project Case
Phase 2 - Development



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.3
Project Case
Phase 3 - Development



0 2000
Feet

SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.4
Project Case
Ultimate Development 2010

2.3.1.1 Phase 1 (1996-2000)

Airfield Projects

Project A-1 would reconstruct and extend Runway 12L/30R from the existing length of 4,400 feet to 11,050 feet, including a 4,300 x 150-foot extension north from Taxiway H to new Taxiway N, and a 2,300 x 150-foot extension south from Taxiway C to new Taxiway A. This action includes a waiver from FAA Advisory Circular criteria to maintain a 350-foot lateral separation from Taxiway Y for Design Group IV (D-IV) aircraft. The project may be implemented in one or two phases during Phase 1 and the runway would be closed during construction. Implementation of Project A-1 would require removal of the Yellow Long Term Public Parking lot (Project T-2) and removal of the south-end general aviation facilities (Project G-1). Completion of Project A-1 would allow for the temporary closure of Runway 12R/30L for reconstruction and extension (Project A-14).

Project A-2 would construct a 1,200 x 75-foot extension of parallel Taxiway Y north from Taxiway L to the proposed new Taxiway N, and a 750 x 75-foot extension south from Taxiway B to the proposed new Taxiway A. Implementation of Project A-2 would require removal of the Yellow Long Term Public Parking lot (Project T-2), and removal of the south-end general aviation facilities (Project G-1).

Project A-3 would construct a 950 x 75-foot extension/widening of parallel Taxiway Z north from Taxiway K to Taxiway L. Implementation of Project A-3 would displace approximately 10,000 square feet of the existing cargo airline ramp.

Project A-4 would construct a 650 x 75-foot new cross Taxiway A at the south end of the airfield from 215 feet east of the extended Taxiway Y to 250 feet west of the extended Runway 12L/30R centerline, including a 50,000-square-foot D-IV aircraft hold apron on the north side of Taxiway A between Taxiway Y and Runway 12L/30R. Implementation of Project A-4 would require removal of the south-end general aviation facilities (Project G-1).

Project A-5 would construct a 500 x 75-foot new cross Taxiway N at the north end of the airfield from the extended Taxiway Y to 250 feet west of the extended Runway 12L/30R centerline. Implementation of Project A-5 would require removal of the Yellow Long Term Public Parking lot (Project T-2).

Project A-6 would strengthen 30,000 square feet of cross Taxiway C from 250 feet east of the Runway 12L/30R centerline to 250 feet west of Runway 12L/30R.

Project A-7 would construct a 275 x 75-foot extension of cross Taxiway D from Runway 12L/30R to 350 feet west of the Runway 12L/30R centerline, and strengthen 13,000 square feet of the taxiway from 250 feet east of the Runway 12L/30R centerline to Runway 12L/30R.

Project A-8 would strengthen 13,000 square feet of cross Taxiway E from 250 feet east of the Runway 12L/30R centerline to Runway 12L/30R.

Project A-9 would strengthen 30,000 square feet of cross Taxiway F from 250 feet east of the Runway 12L/30R centerline to 250 feet west of Runway 12L/30R.

Project A-10 would strengthen 40,000 square feet of cross Taxiway H from 250 feet east of the Runway 12L/30R centerline to 250 feet west of Runway 12L/30R.

Project A-11 would strengthen 30,000 square feet of cross Taxiway J from 250 feet east of the extended Runway 12L/30R centerline to 250 feet west of the extended Runway 12L/30R.

Project A-12 would strengthen 40,000 square feet of cross Taxiway K from 250 feet east of the extended Runway 12L/30R centerline to 250 feet west of the extended Runway 12L/30R.

Project A-13 would strengthen 45,000 square feet of cross Taxiway L from the extended Taxiway Z to 250 feet west of the extended Runway 12L/30R centerline.

Given the interrelatedness of Projects A-1 through A-13, these project components may be implemented concurrently as one cohesive set of projects.

Project A-14 would reconstruct and extend Runway 12R/30L from the existing length of 10,200 feet to 11,000 feet, including a 500 x 150-foot extension north from Taxiway M to new Taxiway N, and a 300 x 150-foot extension south from Taxiway B to new Taxiway A. Implementation of Project A-14 would require completion of the reconstruction/extension of Runway 12L/30R (Project A-1) in order to allow airline operations to continue while Runway 12R/30L is closed during construction.

Project A-15 would construct a 375 x 75-foot extension of the new cross Taxiway A from 250 feet west of the extended Runway 12L/30R to Runway 12R/30L, including a 60,000-square-foot D-IV aircraft hold apron on the north side of Taxiway A between Runways 12L/30R and 12R/30L.

Project A-16 would construct a 550 x 75-foot extension of the new cross Taxiway N from 250 feet west of the extended Runway 12L/30R to the extended Taxiway W, including a 60,000-square-foot D-IV aircraft hold apron on the south side of Taxiway N between Runways 12L/30R and 12R/30L.

Project A-17 would construct a 500 x 75-foot extension of parallel Taxiway W north from Taxiway M to the new Taxiway N, and a 2,000 x 75-foot extension/widening of the taxiway south from Taxiway C to the extended end of Runway 12R/30L to accommodate D-IV aircraft.

Project A-18 would strengthen 30,000 square feet of cross Taxiway C from 250 feet west of Runway 12L/30R to 250 feet west of the Runway 12R/30L centerline, and widen Taxiway C by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 12R arrivals.

Project A-19 would construct a 450 x 75-foot extension of cross Taxiway D from 350 feet west of Runway 12L/30R to 250 feet west of the Runway 12R/30L centerline, and widen Taxiway D by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 12R arrivals.

Project A-20 would strengthen 20,000 square feet of cross Taxiway F from 250 feet west of Runway 12L/30R to Runway 12R/30L.

Project A-21 would strengthen 9,000 square feet of cross Taxiway G and would widen the taxiway by 25 feet from Runway 12R/30L to 250 feet west of the Runway 12R/30L centerline to accommodate D-IV aircraft.

Project A-22 would strengthen 20,000 square feet of cross Taxiway H from 250 feet west of Runway 12L/30R to Runway 12R/30L.

Project A-23 would strengthen 30,000 square feet of cross Taxiway J from 250 feet west of extended Runway 12L/30R to 250 feet west of the Runway 12R/30L centerline, and widen Taxiway J by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the west to accommodate Runway 30L arrivals.

Project A-24 would strengthen 65,000 square feet of cross Taxiway K from 250 feet west of the extended Runway 12L/30R to Runway 12R/30L, and widen Taxiway K by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 30L arrivals.

Project A-25 would strengthen 65,000 square feet of cross Taxiway L from 250 feet west of the extended Runway 12L/30R to Runway 12R/30L.

Given the interrelatedness of Projects A-14 through A-25, these project components may be implemented concurrently as one cohesive set of projects.

Passenger Terminal Projects

Project T-1 would construct an interim long-term public and employee parking lot with 7,400 spaces on a vacant 55-acre site on the west side of the Airport, north and south of the Air Traffic Control Tower, including the 10-acre interim employee parking lot under construction during 1996 to replace the temporary employee parking located on the east side ramp. This

project allows the two existing long-term public parking lots on the east side of the Airport to be closed (Project T-2) to accommodate new development.

Project T-2 would remove the 3,000-space Yellow Long Term Public Parking lot and the 1,600-space Green Long Term Public Parking lot upon completion of Project T-1, resulting in a temporary consolidation of long-term public and employee parking on the west side of the Airport. Completion of Project T-2 would allow for the extension of Runway 12L/30R (Project A-1) and parallel Taxiway Y (Project A-2), construction of new cross Taxiway N (Project A-5), and construction of rental car facilities on the Green Long Term Public Parking lot site (Project S-3).

Air Cargo Projects

Project C-1 would construct an interim expansion of the east side cargo airline area to the east and south, including 162,000 square feet of new ramp space and 108,000 square feet of building and vehicle parking/movement area along the east edge of the ramp. This project would result in a total cargo airline area of 13 acres including displacement of approximately 10,000 square feet of the existing ramp by the extension of Taxiway Z (Project A-3).

Project C-2 would convert a 1-acre portion of the existing rental car storage/service area for interim expansion of belly-freight facilities adjacent to the existing Air Freight Building. Implementation of Project C-2 would follow removal of existing rental car facilities (Project S-4).

General Aviation Projects

Project G-1 would remove the south end tie-downs, shelters, and General Aviation Terminal building, parking lot, and driveway. This project would eliminate approximately 200 general aviation aircraft storage spaces. Completion of Project G-1 would allow for the extension of Runway 12L/30R (Project A-1) and parallel Taxiway Y (Project A-2), and construction of cross Taxiway A and aircraft hold apron (Project A-4).

Aviation Support Projects

Project S-1 would construct a 2.5-acre fuel storage facility, consisting of four tanks with a capacity of 2.0 million gallons, on a vacant parcel north of Hwy. 101, a 1.0-acre fuel dispensing facility on the airfield between Terminal A and the existing cargo airline ramp, and a pipeline under Hwy. 101 connecting the storage and dispensing facilities. Completion of Project S-1 would allow for the closure of the existing aircraft fuel storage and dispensing facilities (Project S-2).

Project S-2 would remove the existing fuel storage and dispensing facilities and clean up the site. Implementation of Project S-2 would follow completion of the new fuel storage facilities (Project S-1).

Project S-3 would construct an 8-level rental car garage with 10,000 spaces on the former Green Long Term Public Parking lot site for consolidated rental car ready/return and storage, including an open area for fueling, washing and maintenance, and a two-lane bridge across Guadalupe River accessing the site from northbound Airport Boulevard. The proposed new bridge across the Guadalupe River to the rental car garage would be located approximately 1,500 feet downstream of the existing Airport Parkway bridge. The approximate width of the bridge would be 34 feet (i.e., two 13-foot vehicle lanes plus two 4-foot sidewalks). The bridge would be a two-lane, concrete structure with a center wall pier to be located adjacent to the low flow channel of the river. Implementation of Project S-3 would follow completion of the interim public and employee parking lot on the west side (Project T-1) and the removal of the existing Green Long Term Public Parking lot (Project T-2). Completion of Project S-3 would allow for the removal of existing rental car facilities (Project S-4).

Project S-4 would remove the existing 1,500-space rental car facilities from the Terminal A garage, Red Hourly Public Parking lot, and area south of Terminal C. Implementation of Project S-4 would follow completion of the new rental car garage and service area (Project S-3) and would allow the former rental car parking spaces in the Terminal A garage and Red Hourly Parking lot to be used for additional hourly public parking.

Non-Aviation Projects

Project N-1 would lease the 1-acre vacant site at the southeast corner of Coleman Avenue and Airport Boulevard for development of a non-aviation commercial use (e.g., gas station or restaurant). This site was previously used as a gas station.

2.3.1.2 Phase 2 (2001-2005)

Airfield Projects

Project A-26 would strengthen 200,000 square feet of parallel Taxiway V and widen the taxiway by 25 feet from Taxiway G north to Taxiway W to accommodate D-IV aircraft, and patch and restripe 170,000 square feet of Taxiway V south of Taxiway G to accommodate Design Group II (B-II) aircraft. (Note: the separation of Taxiway V and Runway 11/29 would not meet FAA criteria for simultaneous use by D-IV aircraft on Taxiway V and B-II aircraft of 12,500 pounds or greater on Runway 11/29.) Completion of Project A-26 would facilitate commercial aircraft movement to and from the new west side air cargo facilities (Project C-3).

Project A-27 would construct a 150 x 50-foot cross Taxiway H between Runway 11-29 and Taxiway V to accommodate B-II aircraft.

Project A-28 would construct a 1,000 x 75-foot extension of parallel Taxiway Z north from Taxiway L to intersect with parallel Taxiway Y between Taxiways Y and N, and a 750 x 75-foot extension of Taxiway Z south from Taxiway B to Taxiway A. Implementation of the northern portion of Project A-28 would require removal of 2.5 acres of the east side cargo airline ramp (Project C-4), and implementation of the southern portion of Project A-28 would require removal of the southeast general aviation T-hangar facilities (Project-G-2).

Project A-29 would rehabilitate 650,000 square feet of parallel Taxiway Y between Taxiways B and L and would strengthen the intersections at the cross taxiways.

Passenger Terminal Projects

Project T-3 would relocate the 1,000-space Red Hourly Public Parking lot and the existing parking shuttle/management facilities to an interim site at the new rental car garage and lot (Project S-3). Implementation of Project T-3 would allow for construction of a new public parking garage (Project T-4).

Project T-4 would construct a new 8-level public parking garage with 9,400 spaces between the Terminal A garage and the southern portion of the Red Hourly Parking lot. Upon completion of Project T-4, all long-term public parking spaces would be eliminated from the interim lot on the west side, allowing for construction of new west side air cargo facilities (Project C-3). Implementation of Project T-4 would return all public parking facilities to the terminal area on the east side of the Airport.

Project T-5 would construct a new 300,000-square-foot Terminal B between Terminals A and C, including 12 new air carrier gates (43 total) with ground power and pre-conditioned air, a new FIS facility for international passengers, and a roof-top helipad. Completion of Project T-5 would allow for removal of the temporary FIS facility and the City offices at 1311 Airport Boulevard (Project T-6) which would be relocated to the new terminal.

Project T-6 would remove the temporary FIS facility from the ramp south of Terminal C, and the City office structures at 1311 Airport Boulevard, upon completion of the new Terminal B (Project T-5). Completion of Project T-6 would allow for expansion of the flight kitchen facilities (Project S-7).

Project T-7 would construct a new 4-level employee parking garage with 2,600 spaces on a 6-acre site on the west side of the Airport adjacent to the Air Traffic Control Tower. Upon completion of Project T-7, all employee parking spaces would be eliminated from the interim lot on the west side, allowing for development of new air cargo facilities (Projects C-3 and C-6).

Air Cargo Projects

Project C-3 would construct new cargo airline facilities on the west side of the Airport (36 acres), including 946,000 square feet of ramp space and 631,000 square feet of building and vehicle movement/parking area. Implementation of Project C-3 would require completion of the new public parking garage on the east side of the Airport (Project T-4) in order to remove the interim surface parking from the project site, and the strengthening/widening of Taxiway V (Project A-26) for D-IV aircraft. Completion of Project C-3 would allow for relocation/ expansion of airline belly-freight, maintenance, and ground service equipment storage facilities to the former east side cargo airline area (Projects C-5 and S-8).

Project C-4 would remove a 2.5-acre portion of former east side cargo airline ramp to accommodate the north extension of Taxiway Z (Project A-28).

Project C-5 would relocate air carrier belly-freight facilities to a 7.5-acre site at the former east side cargo airline ramp area, including remodel and expansion of the interim cargo building from approximately 50,000 square feet to 154,000 square feet. Implementation of Project C-5 would require completion of the new cargo airline facilities on the west side (Project C-3).

General Aviation Projects

Project G-2 would remove the southeast general aviation T-hangar facilities to accommodate the south extension of Taxiway Z (Project A-28). This project would eliminate approximately 50 general aviation aircraft storage spaces.

Project G-3 would remove the "94th Aero Squadron" restaurant facilities on the west side of the Airport upon lease expiration in 2004 and would convert the 3-acre site to general aviation use. The project site would be leased to a fixed-base operator (FBO) for construction of aircraft storage facilities.

Aviation Support Projects

Project S-5 would expand the new fuel storage facilities site by 0.5 acres, for a total of 3.0 acres, and six tanks with a total capacity of 3.0 million gallons.

Project S-6 would expand the Airport maintenance facilities site to the north by 1.0 acre onto the former fuel storage site (removed by Project S-2), for a total of 3.0 acres.

Project S-7 would expand the flight kitchen facilities site to the south by 1.0 acre, for a total of 3.5 acres. Implementation of Project S-7 would require removal of the City offices at 1311 Airport Boulevard (Project T-6).

Project S-8 would relocate and expand the airline maintenance and ground service equipment (GSE) storage facilities from various east side ramp and building locations to 4.0 acres of former cargo airline ramp including compressed natural gas fueling and battery recharge stations. Implementation of Project S-8 would require completion of the new cargo airline facilities on the west side (Project C-3).

2.3.1.3 Phase 3 (2006-2010)

Airfield Projects

Project A-30 would construct a 7,200 x 75-foot parallel Taxiway W between Taxiways C and L to accommodate D-IV aircraft. Completion of Project A-30 would provide a full-length parallel taxiway west of Runway 12R/30L.

Project A-31 would strengthen 15,000 square feet of cross Taxiway C from 250 feet west of Runway 12R/30L to Taxiway W.

Project A-32 would construct a 150 x 75-foot extension of cross Taxiway D from 250 feet west of Runway 12R/30L to the extended Taxiway W to accommodate D-IV aircraft.

Project A-33 would strengthen 35,000 square feet of cross Taxiway G and widen the taxiway by 25 feet from 250 feet west of Runway 12R/30L to Taxiway V to accommodate D-IV aircraft.

Project A-34 would strengthen 35,000 square feet of cross Taxiway J and widen the taxiway by 25 feet from 250 feet west of Runway 12R/30L to Taxiway V to accommodate D-IV aircraft.

Passenger Terminal Projects

Project T-8 would construct a new 8-level public parking garage with 4,600 spaces between the Phase 2 garage (Project T-4) and the existing Air Freight Building. Upon completion, interim public parking would be eliminated from the rental car garage and lot, consolidating all public parking, long term and hourly, in the three garages adjacent to the terminal buildings.

Project T-9 would remodel and expand Terminal C by almost 400,000 square feet to 550,000 square feet total, including 22 air carrier gates (49 total) with ground power and pre-conditioned air, and connect the three terminal concourses. Implementation of Project T-9 would require the removal of the Air Freight Building and parking area (Project C-8).

Air Cargo Projects

Project C-6 would expand the cargo airline facilities on the west side of the Airport by 7 acres, for a total of 43 acres, including construction of an additional 193,000 square feet of ramp and 129,000 square feet of building and vehicle movement/parking area.

Project C-7 would construct new belly-freight facilities on 3 acres of the former ACM general aviation leasehold, for a total of 10.5 acres of airline belly-freight facilities at two sites. Implementation of Project C-7 would require removal of the ACM facilities (Project G-4).

Project C-8 would remove the existing Air Freight Building and vehicle parking/movement area. Completion of Project C-8 would accommodate the expansion of Terminal C (Project T-9).

General Aviation Projects

Project G-4 would remove the ACM facilities on the east side of the Airport upon lease expiration in 2006. Project G-4 would complete the elimination of general aviation facilities from the east side of the Airport, and allow for construction of new belly-freight facilities at the former ACM site (Project C-7).

Project G-5 would remove the San Jose State University facilities on the southwest side of the Airport upon lease expiration in 2010, and would convert the 5-acre site to general aviation use. The project site would be leased to a fixed-base operator (FBO) for construction of aircraft storage facilities.

Project G-6 would establish new FBO lease sites on the west side of the Airport in order to reconfigure the layout and operation of the general aviation area given the expiration of the Aris Helicopters and Air One general aviation leases prior to 2010, the additional general aviation facilities provided by Projects G-3 and G-5, and construction of a west side helipad (Project G-7).

Project G-7 would construct a 40,000-square-foot helipad on the west side general aviation area.

Aviation Support Projects

Project S-9 would expand the fuel storage facilities site by 0.5 acres, for a total of 3.5 acres, and 8 tanks with a total capacity of 4.0 million gallons.

Project S-10 would expand the airline maintenance and GSE storage facilities at the former cargo airline ramp by 2.0 acres, for a total of 6 acres. Completion of Project S-10 would allow removal of the old hangar building at 1277 and 1311 Airport Boulevard and subsequent expansion of the flight kitchen facilities (Project S-11).

Project S-11 would remove the hangar buildings at 1277 and 1311 Airport Boulevard and expand the adjacent flight kitchen facilities by 3.5 acres onto the site, for a total of 7.0 acres. Implementation of Project S-11 would follow the expansion of the airline maintenance and GSE storage facilities at the former cargo airline ramp (Project S-10).

2.3.2 PROJECT CASE ALTERNATIVE A

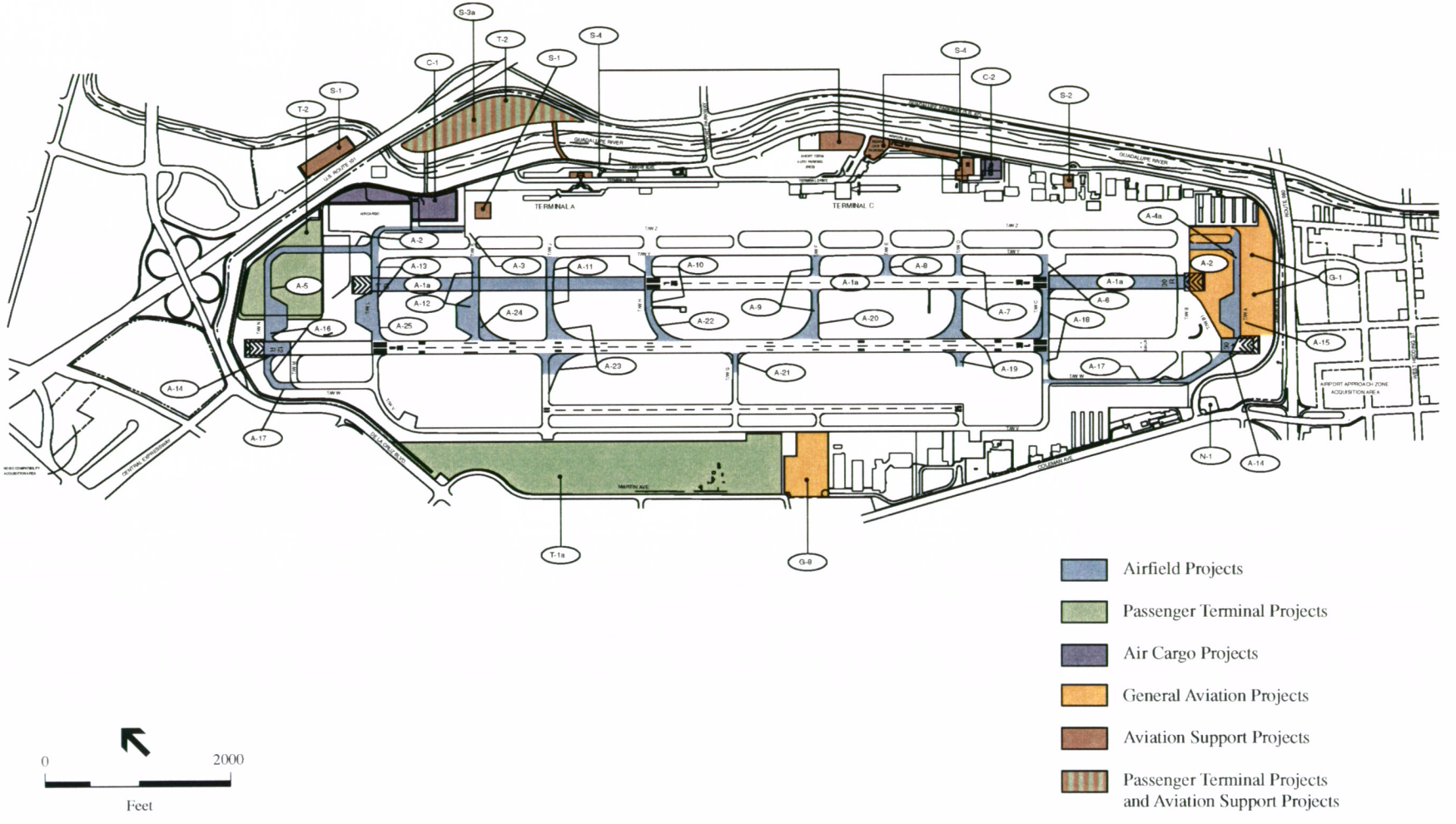
Project Case Alternative A would be designed to accommodate 13.1 million annual airline carrier passengers in the year 2010, based on accepted airport design standards. This alternative would accommodate 4.5 million fewer annual airline carrier passengers than the Project Case. Runway 12L/30R would be reconstructed and extended from 4,400 feet to 8,900 feet and Runway 30R-12L would be reconstructed and extended from 10,200 feet to its maximum on-site length of 11,000 feet. The runways would be supported by numerous taxiway system improvements, including strengthening, widening, and lengthening. Six new air carrier gates, for a total of 37 gates, would be provided through construction of a new Terminal B and remodeling of the existing Terminal C.

All associated air carrier and support facilities needed to accommodate the design level of demand would be provided on-site, including construction of multi-story garages for public, employee, and rental car parking, and a new fuel storage area. This alternative would accommodate 283,200 tons of the total forecast annual air cargo operations and tonnage demand by the year 2010, with air cargo facilities developed on the west side of the Airport. General aviation activity would be somewhat constrained due to insufficient airside and landside capacity, with facilities for 430 based aircraft located on the west side in 2010. Within existing airport design standards, Project Case Alternative A would be expected to accommodate approximately 349,600 aircraft operations in 2010. Figures 2.3.5 through 2.3.8 indicate the location of Project Case Alternative A activities by phase.

2.3.2.1 Phase 1 (1996-2000)

Airfield Projects

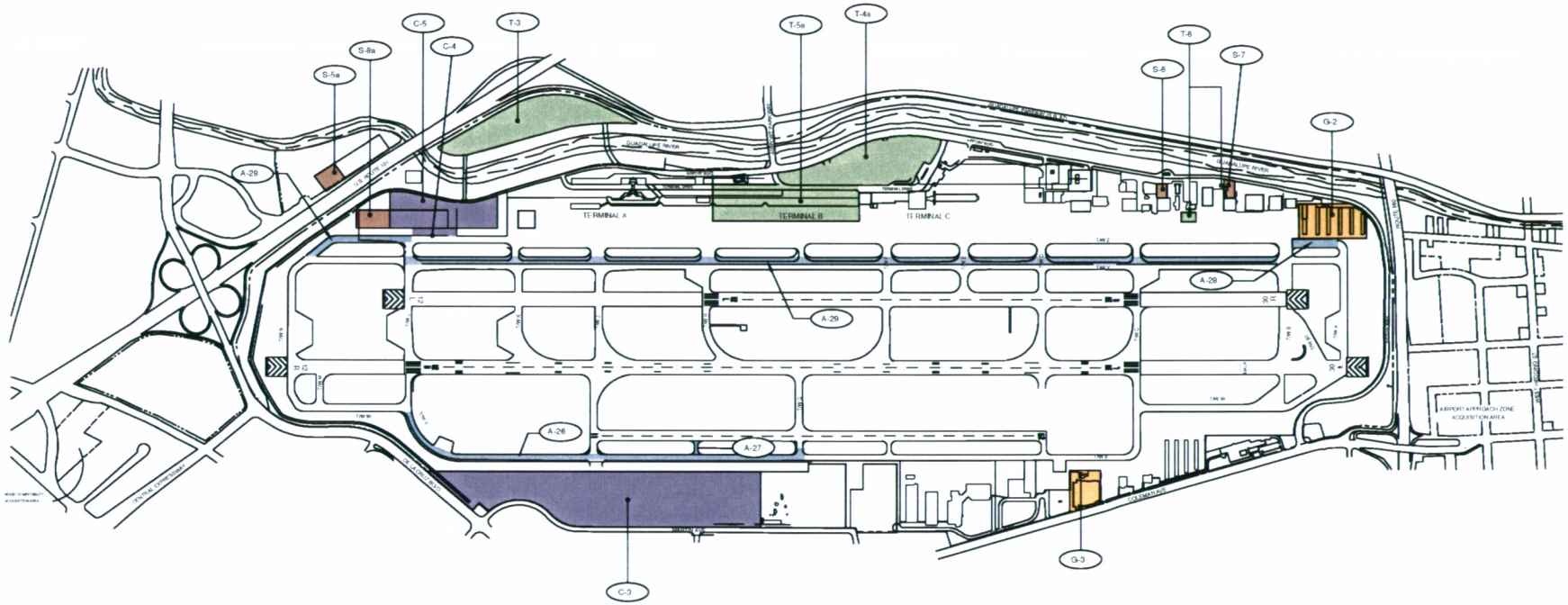
Project A-1a would reconstruct and extend Runway 12L/30R from the existing length of 4,400 feet to 8,900 feet, including a 3,000 x 150-foot extension north from Taxiway H to Taxiway L, and a 1,500 x 150-foot extension south from Taxiway C to Taxiway B. This action includes a waiver from FAA Advisory Circular criteria to maintain a 350-foot lateral separation from Taxiway Y for D-IV aircraft. Implementation of Project A-1a would require removal of the Yellow Long Term Public Parking lot (Project T-2) and removal of the south-end general aviation facilities (Project G-1). Completion of Project A-1a would allow for the temporary closure of Runway 12R/30L for reconstruction and extension (Project A-14).



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.5
Project Case Alternative A
Phase 1 - Development



Airfield Projects

Passenger Terminal Projects

Air Cargo Projects

General Aviation Projects

Aviation Support Projects

0 2000

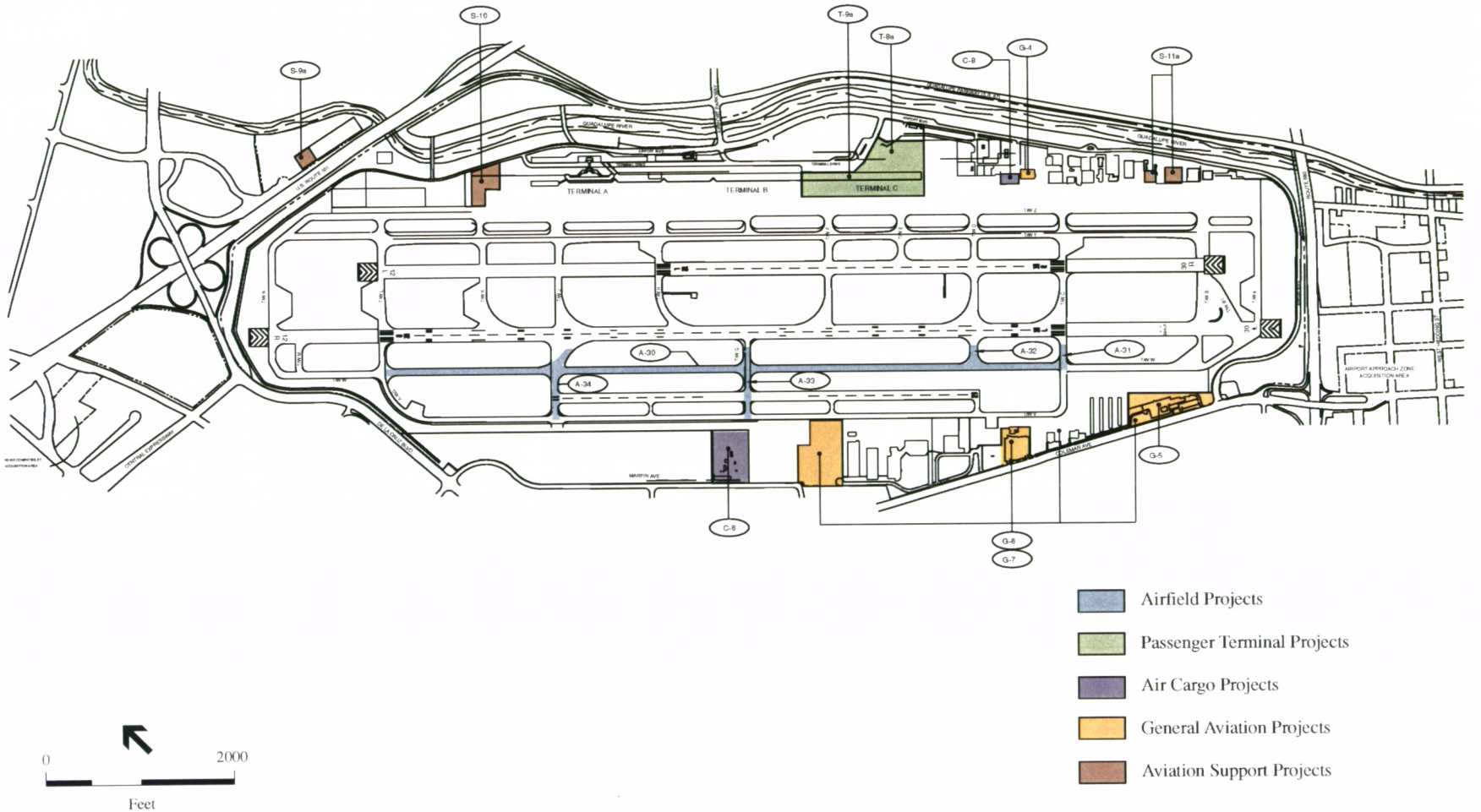
Feet

SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.6

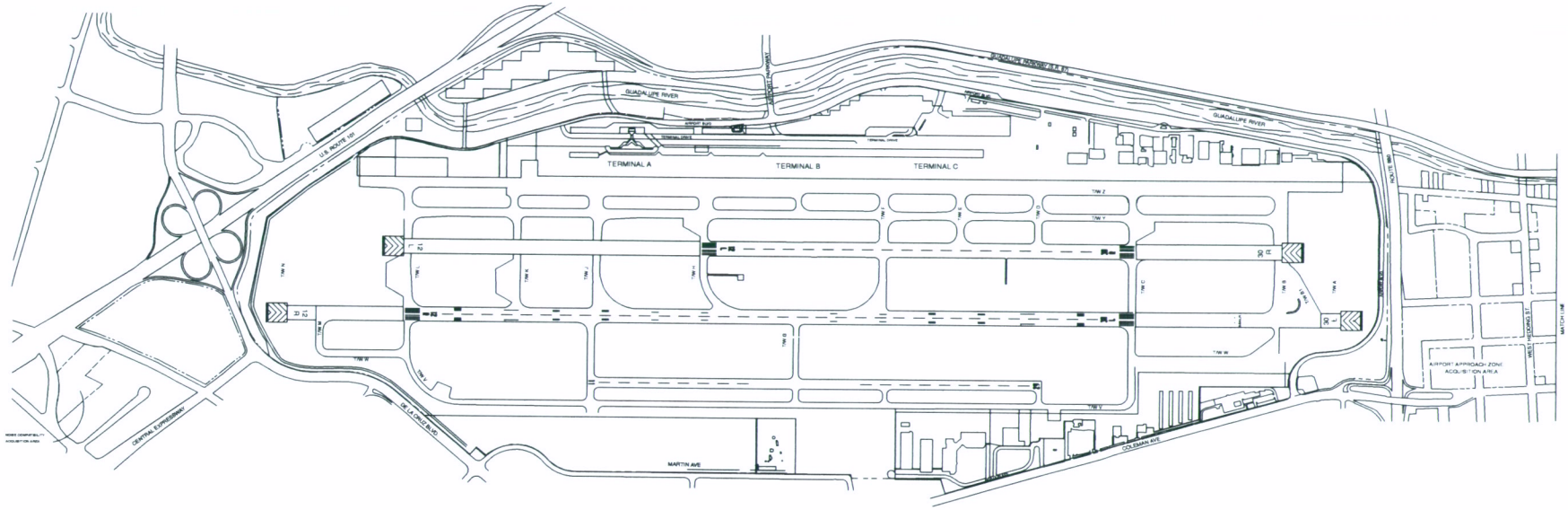
Project Case Alternative A
Phase 2 - Development



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.7
Project Case Alternative A
Phase 3 - Development



0 2000
Feet

SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.8
Project Case Alternative A
Ultimate Development 2010

Project A-2 would construct a 1,200 x 75-foot extension of parallel Taxiway Y north from Taxiway L to the proposed new Taxiway N, and a 750 x 75-foot extension south from Taxiway B to the proposed new Taxiway A. Implementation of Project A-2 would require removal of the Yellow Long Term Public Parking lot (Project T-2), and removal of the south-end general aviation facilities (Project G-1).

Project A-3 would construct a 950 x 75-foot extension/widening of parallel Taxiway Z north from Taxiway K to Taxiway L. Implementation of Project A-3 would displace approximately 10,000 square feet of the existing cargo airline ramp.

Project A-4a would construct a 650 x 75-foot new cross Taxiway A at the south end of the airfield from 215 feet east of the extended Taxiway Y to 250 feet west of the extended Runway 12L/30R centerline. Implementation of Project A-4a would require removal of the south-end general aviation facilities (Project G-1).

Project A-5 would construct a 500 x 75-foot new cross Taxiway N at the north end of the airfield from the extended Taxiway Y to 250 feet west of the extended Runway 12L/30R centerline. Implementation of Project A-5 would require removal of the Yellow Long Term Public Parking lot (Project T-2).

Project A-6 would strengthen 30,000 square feet of cross Taxiway C from 250 feet east of the Runway 12L/30R centerline to 250 feet west of Runway 12L/30R.

Project A-7 would construct a 275 x 75-foot extension of cross Taxiway D from Runway 12L/30R to 350 feet west of the Runway 12L/30R centerline, and strengthen 13,000 square feet of the taxiway from 250 feet east of the Runway 12L/30R centerline to Runway 12L/30R.

Project A-8 would strengthen 13,000 square feet of cross Taxiway E from 250 feet east of the Runway 12L/30R centerline to Runway 12L/30R.

Project A-9 would strengthen 30,000 square feet of cross Taxiway F from 250 feet east of the Runway 12L/30R centerline to 250 feet west of Runway 12L/30R.

Project A-10 would strengthen 40,000 square feet of cross Taxiway H from 250 feet east of the Runway 12L/30R centerline to 250 feet west of Runway 12L/30R.

Project A-11 would strengthen 30,000 square feet of cross Taxiway J from 250 feet east of the extended Runway 12L/30R centerline to 250 feet west of the extended Runway 12L/30R.

Project A-12 would strengthen 40,000 square feet of cross Taxiway K from 250 feet east of the extended Runway 12L/30R centerline to 250 feet west of the extended Runway 12L/30R.

Project A-13 would strengthen 45,000 square feet of cross Taxiway L from the extended Taxiway Z to 250 feet west of the extended Runway 12L/30R centerline.

Given the interrelatedness of Projects A-1 through A-13, these project components may be implemented concurrently as one cohesive set of projects.

Project A-14 would reconstruct and extend Runway 12R/30L from the existing length of 10,200 feet to 11,000 feet, including a 500 x 150-foot extension north from Taxiway M to new Taxiway N, and a 300 x 150-foot extension south from Taxiway B to new Taxiway A. Implementation of Project A-14 would require completion of the reconstruction/extension of Runway 12L/30R (Project A-1a) in order to allow airline operations to continue while Runway 12R/30L is closed during construction.

Project A-15 would construct a 375 x 75-foot extension of the new cross Taxiway A from 250 feet west of the extended Runway 12L/30R to Runway 12R/30L, including a 60,000-square-foot D-IV aircraft hold apron on the north side of Taxiway A between Runways 12L/30R and 12R/30L.

Project A-16 would construct a 550 x 75-foot extension of the new cross Taxiway N from 250 feet west of the extended Runway 12L/30R to the extended Taxiway W, including a 60,000-square-foot D-IV aircraft hold apron on the south side of Taxiway N between Runways 12L/30R and 12R/30L.

Project A-17 would construct a 500 x 75-foot extension of parallel Taxiway W north from Taxiway M to the new Taxiway N, and a 2,000 x 75-foot extension/widening of the taxiway south from Taxiway C to the extended end of Runway 12R/30L to accommodate D-IV aircraft.

Project A-18 would strengthen 30,000 square feet of cross Taxiway C from 250 feet west of Runway 12L/30R to 250 feet west of the Runway 12R/30L centerline, and widen Taxiway C by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 12R arrivals.

Project A-19 would construct a 450 x 75-foot extension of cross Taxiway D from 350 feet west of Runway 12L/30R to 250 feet west of the Runway 12R/30L centerline, and widen Taxiway D by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 12R arrivals.

Project A-20 would strengthen 20,000 square feet of cross Taxiway F from 250 feet west of Runway 12L/30R to Runway 12R/30L.

Project A-21 would strengthen 9,000 square feet of cross Taxiway G and would widen the taxiway by 25 feet from Runway 12R/30L to 250 feet west of the Runway 12R/30L centerline to accommodate D-IV aircraft.

Project A-22 would strengthen 20,000 square feet of cross Taxiway H from 250 feet west of Runway 12L/30R to Runway 12R/30L.

Project A-23 would strengthen 30,000 square feet of cross Taxiway J from 250 feet west of extended Runway 12L/30R to 250 feet west of the Runway 12R/30L centerline, and widen Taxiway J by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the west to accommodate Runway 30L arrivals.

Project A-24 would strengthen 65,000 square feet of cross Taxiway K from 250 feet west of the extended Runway 12L/30R to Runway 12R/30L, and widen Taxiway K by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 30L arrivals.

Project A-25 would strengthen 65,000 square feet of cross Taxiway L from 250 feet west of the extended Runway 12L/30R to Runway 12R/30L.

Given the interrelatedness of Projects A-14 through A-25, these project components may be implemented concurrently as one cohesive set of projects.

Passenger Terminal Projects

Project T-1a would construct an interim long-term public and employee parking lot with 6,500 spaces on a vacant 48-acre site on the west side of the Airport, north of the Air Traffic Control Tower, including the 10-acre interim employee parking lot under construction during 1996 to replace the temporary employee parking located on the east side ramp. This project allows the two existing long-term public parking lots on the east side of the Airport to be closed (Project T-2) to accommodate new development.

Project T-2 would remove the 3,000-space Yellow Long Term Public Parking lot and the 1,600-space Green Long Term Public Parking lot upon completion of Project T-1a, resulting in a temporary consolidation of long-term public and employee parking on the west side of the Airport. Completion of Project T-2 would allow for the extension of Runway 12L/30R (Project A-1a) and parallel Taxiway Y (Project A-2), construction of new cross Taxiway N (Project A-5), and construction of rental car facilities on the Green Long Term Public Parking lot site (Project S-3a).

Air Cargo Projects

Project C-1 would construct an interim expansion of the east side cargo airline area to the east and south, including 162,000 square feet of new ramp space and 108,000 square feet of building and vehicle parking/movement area along the east edge of the ramp. This project would result in a total cargo airline area of 13 acres including displacement of approximately 10,000 square feet of the existing ramp by the extension of Taxiway Z (Project A-3).

Project C-2 would convert a 1-acre portion of the existing rental car storage/service area for interim expansion of belly-freight facilities adjacent to the existing Air Freight Building. Implementation of Project C-2 would follow removal of existing rental car facilities (Project S-4).

General Aviation Projects

Project G-1 would remove the south end tie-downs, shelters, and General Aviation Terminal building, parking lot, and driveway. The project would eliminate approximately 200 general aviation aircraft storage spaces. Completion of Project G-1 would allow for the extension of Runway 12L/30R (Project A-1a) and parallel Taxiway Y (Project A-2), and construction of cross Taxiway A (Project A-4a).

Project G-8 would construct general aviation facilities for up to 60 based aircraft on a 6-acre parcel on the west side of the Airport between the San Jose Jet Center and the Air Traffic Control Tower. The project site would be leased to a fixed-based operator (FBO) for this development. This action would partially offset the elimination of general aviation facilities at the south end of the Airport due to runway and taxiway projects.

Aviation Support Projects

Project S-1 would construct a 2.5-acre fuel storage facility, consisting of four tanks with a capacity of 2.0 million gallons, on a vacant parcel north of Hwy. 101, a 1.0-acre fuel dispensing facility on the airfield between Terminal A and the existing cargo airline ramp, and a pipeline under Hwy. 101 connecting the storage and dispensing facilities. Completion of Project S-1 would allow for the closure of the existing aircraft fuel storage and dispensing facilities (Project S-2).

Project S-2 would remove the existing fuel storage and dispensing facilities and clean up the site. Implementation of Project S-2 would follow completion of the new fuel storage facilities (Project S-1).

Project S-3a would construct an 8-level rental car garage with 8,000 spaces on the former Green Long Term Public Parking lot site for consolidated rental car ready/return and storage, including an open area for fueling, washing and maintenance, and a two-lane bridge across Guadalupe

River accessing the site from northbound Airport Boulevard. Implementation of Project S-3a would follow completion of the interim public and employee parking lot on the west side (Project T-1a) and the removal of the existing Green Long Term Public Parking lot (Project T-2). Completion of Project S-3a would allow for the removal of existing rental car facilities (Project S-4).

Project S-4 would remove the existing 1,500-space rental car facilities from the Terminal A garage, Red Hourly Public Parking lot, and area south of Terminal C. Implementation of Project S-4 would follow completion of the new rental car garage and service area (Project S-3a) and would allow the former rental car parking spaces in the Terminal A garage and Red Hourly Parking lot to be used for additional hourly public parking.

Non-Aviation Projects

Project N-1 would lease the 1-acre vacant site at the southeast corner of Coleman Avenue and Airport Boulevard for development of a non-aviation commercial use (e.g., gas station or restaurant). This site was previously used as a gas station.

2.3.2.2 Phase 2 (2001-2005)

Airfield Projects

Project A-26 would strengthen 200,000 square feet of parallel Taxiway V and widen the taxiway by 25 feet from Taxiway G north to Taxiway W to accommodate D-IV aircraft, and patch and restripe 170,000 square feet of Taxiway V south of Taxiway G to accommodate B-II aircraft. (Note: the separation of Taxiway V and Runway 11-29 would not meet FAA criteria for simultaneous use by D-IV aircraft on Taxiway V and B-II aircraft of 12,500 lbs or greater on Runway 11/29.) Completion of Project A-26 would facilitate commercial aircraft movement to and from the new west side air cargo facilities (Project C-3).

Project A-27 would construct a 150 x 50-foot cross Taxiway H between Runway 11/29 and Taxiway V to accommodate B-II aircraft.

Project A-28 would construct a 1,000 x 75-foot extension of parallel Taxiway Z north from Taxiway L to intersect with parallel Taxiway Y between Taxiways Y and N, and a 750 x 75-foot extension of Taxiway Z south from Taxiway B to Taxiway A. Implementation of the northern portion of Project A-28 would require removal of 2.5 acres of the east side cargo airline ramp (Project C-4), and implementation of the southern portion of Project A-28 would require removal of the southeast general aviation T-hangar facilities (Project G-2).

Project A-29 would rehabilitate 650,000 square feet of parallel Taxiway Y between Taxiways B and L and would strengthen the intersections at the cross taxiways.

Passenger Terminal Projects

Project T-3 would relocate the 1,000-space Red Hourly Public Parking lot and the existing parking shuttle/management facilities to an interim site at the new rental car garage and lot (Project S-3a). Implementation of Project T-3 would allow for construction of a new public parking garage (Project T-4a).

Project T-4a would construct a new 8-level public parking garage with 8,800 spaces between the Terminal A garage and the southern portion of the Red Hourly Parking lot. Upon completion of Project T-4a, all long-term public parking spaces would be eliminated from the interim lot on the west side, allowing for construction of new west side air cargo facilities (Project C-3), and the interim hourly public parking would be eliminated from the rental car garage and lot. Implementation of Project T-4a would consolidate all public parking, long term and hourly, in the two garages adjacent to the terminal buildings.

Project T-5a would construct a new 250,000-square-foot Terminal B between Terminals A and C, including 10 new air carrier gates (37 total with removal of the 4 northernmost Terminal C gates) with ground power and pre-conditioned air, a new FIS facility for international passengers, and a roof-top helipad. Completion of Project T-5a would allow for removal of the temporary FIS facility and the City offices at 1311 Airport Boulevard (Project T-6), which would be relocated to the new terminal.

Project T-6 would remove the temporary FIS facility from the ramp south of Terminal C, and the City office structures at 1311 Airport Boulevard, upon completion of the new Terminal B (Project T-5a). Completion of Project T-6 would allow for expansion of the flight kitchen facilities (Project S-7).

Air Cargo Projects

Project C-3 would construct new cargo airline facilities on the west side of the Airport (36 acres), including 946,000 square feet of ramp space and 631,000 square feet of building and vehicle movement/parking area. Implementation of Project C-3 would require completion of the new public parking garage on the east side of the Airport (Project T-4a) in order to remove the interim surface parking from the project site, and the strengthening/widening of Taxiway V (Project A-26) for D-IV aircraft. Completion of Project C-3 would allow for relocation/expansion of airline belly-freight, maintenance, and ground service equipment storage facilities to the former east side cargo airline area (Projects C-5 and S-8a).

Project C-4 would remove a 2.5-acre portion of former east side cargo airline ramp to accommodate the north extension of Taxiway Z (Project A-28).

Project C-5 would relocate air carrier belly-freight facilities to a 7.5-acre site at the former east side cargo airline ramp area, including remodel and expansion of the interim cargo building from

approximately 50,000 square feet to 154,000 square feet. Implementation of Project C-5 would require completion of the new cargo airline facilities on the west side (Project C-3).

General Aviation Projects

Project G-2 would remove the southeast general aviation T-hangar facilities to accommodate the south extension of Taxiway Z (Project A-28). This project would eliminate approximately 50 general aviation aircraft storage spaces.

Project G-3 would remove the "94th Aero Squadron" restaurant facilities on the west side of the Airport upon lease expiration in 2004 and would convert the 3-acre site to general aviation use. The project site would be leased to a fixed-base operator (FBO) for construction of aircraft storage facilities.

Aviation Support Projects

Project S-5a would expand the new fuel storage facilities site by 0.5 acres, for a total of 3.0 acres, and five tanks with a total capacity of 2.5 million gallons.

Project S-6 would expand the Airport maintenance facilities site to the north by 1.0 acre onto the former fuel storage site (removed by Project S-2), for a total of 3.0 acres.

Project S-7 would expand the flight kitchen facilities site to the south by 1.0 acre, for a total of 3.5 acres. Implementation of Project S-7 would require removal of the City offices at 1311 Airport Boulevard (Project T-6).

Project S-8a would relocate and expand the airline maintenance and ground service equipment (GSE) storage facilities from various east side ramp and building locations to 2.5 acres of former cargo airline ramp including compressed natural gas fueling and battery recharge stations. Implementation of Project S-8a would require completion of the new cargo airline facilities on the west side (Project C-3).

2.3.2.3 Phase 3 (2006-2010)

Airfield Projects

Project A-30 would construct a 7,200 x 75-foot parallel Taxiway W between Taxiways C and L to accommodate D-IV aircraft. Completion of Project A-30 would provide a full-length parallel taxiway west of Runway 12R/30L.

Project A-31 would strengthen 15,000 square feet of cross Taxiway C from 250 feet west of Runway 12R/30L to Taxiway W.

Project A-32 would construct a 150 x 75-foot extension of cross Taxiway D from 250 feet west of Runway 12R/30L to the extended Taxiway W to accommodate D-IV aircraft.

Project A-33 would strengthen 35,000 square feet of cross Taxiway G and widen the taxiway by 25 feet from 250 feet west of Runway 12R/30L to Taxiway V to accommodate D-IV aircraft.

Project A-34 would strengthen 35,000 square feet of cross Taxiway J and widen the taxiway by 25 feet from 250 feet west of Runway 12R/30L to Taxiway V to accommodate D-IV aircraft.

Passenger Terminal Projects

Project T-8a would construct a new 8-level public parking garage with 3,500 spaces between the Phase 2 garage (Project T-4a) and the existing Air Freight Building. Upon completion, employee parking would be relocated from the interim lot on the west side of the Airport to the public parking garages.

Project T-9a would remodel and expand Terminal C by almost 150,000 square feet to 300,000 square feet total, including 12 air carrier gates (37 total) with ground power and pre-conditioned air, and connect the three terminal concourses.

Air Cargo Projects

Project C-6 would expand cargo airline facilities on the west side of the Airport by 7 acres, for a total of 43 acres, including construction of an additional 193,000 square feet of ramp and 129,000 square feet of building and vehicle movement/parking area.

Project C-8 would remove the existing Air Freight Building and vehicle parking/movement area.

General Aviation Projects

Project G-4 would remove the ACM facilities on the east side of the Airport upon lease expiration in 2006. Project G-4 would complete the elimination of general aviation facilities from the east side of the Airport.

Project G-5 would remove the San Jose State University facilities on the southwest side of the Airport upon lease expiration in 2010, and would convert the 5-acre site to general aviation use. The project site would be leased to a fixed-base operator (FBO) for construction of aircraft storage facilities.

Project G-6 would establish new FBO lease sites on the west side of the Airport in order to reconfigure the layout and operation of the general aviation area given the expiration of the Aris Helicopters and Air One general aviation leases prior to 2010, the additional general aviation facilities provided by Projects G-3 and G-5, and construction of a west side helipad (Project G-7).

Project G-7 would construct a 40,000-square-foot helipad on the west side general aviation area.

Aviation Support Projects

Project S-9a would expand the fuel storage facilities to a total of six tanks with a total capacity of 3.0 million gallons.

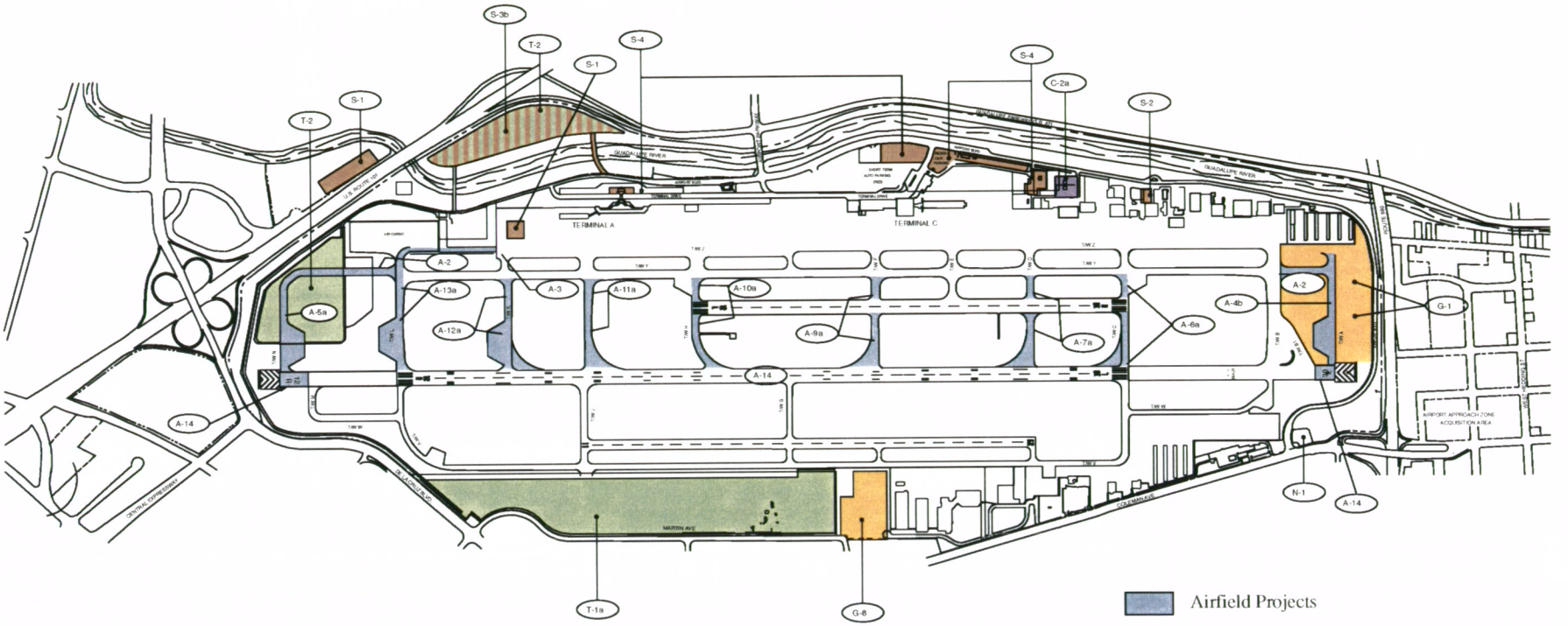
Project S-10 would expand the airline maintenance and GSE storage facilities at the former cargo airline ramp by 2.0 acres, for a total of 4.5 acres. Completion of Project S-10 would allow removal of the old hangar buildings at 1277 and 1311 Airport Boulevard and subsequent expansion of the flight kitchen facilities (Project S-11a).

Project S-11a would remove the hangar buildings at 1277 and 1311 Airport Boulevard and expand the adjacent flight kitchen facilities by 1.5 acres onto the site, for a total of 5.0 acres. Implementation of Project S-11a would follow the expansion of airline maintenance and GSE storage facilities at the former cargo airline ramp (Project S-10).

2.3.3 PROJECT CASE ALTERNATIVE B

Project Case Alternative B would be designed to maximize accommodation of forecast air carrier growth with the limitation of only one air carrier runway. This alternative would accommodate 12.4 million annual air carrier passengers in the year 2010, 700,000 fewer annual passengers than Project Case Alternative A and 5.2 million fewer than the Project Case. Runway 12L/30R would remain at 4,400 feet in length, while Runway 12R/30L would be reconstructed and extended from 10,200 feet to its maximum on-site length of 11,000 feet. The runways would be supported by several taxiway system improvements, including strengthening, widening, and lengthening. Four new air carrier gates, for a total of 35 gates, would be provided through construction of a new Terminal B that would replace the existing Terminal C.

All associated air carrier and support facilities needed to accommodate the design level of demand would be provided on-site, including construction of multi-story garages for passenger, employee, and rental car parking, and a new fuel storage area. Air cargo activity would be limited to 167,200 annual tons in 2010 in order to reserve as much airfield capacity as possible for air passenger operations, with no new air cargo facilities constructed. General aviation capacity would be somewhat constrained due to insufficient airside capacity, with facilities for 490 based aircraft located on the west side in 2010. A portion of the west side in 2010 would be left undeveloped. Within existing airport design standards, this alternative would be expected to accommodate approximately 353,800 annual aircraft operations in 2010. Figures 2.3.9 through 2.3.12 indicate the location of Project Case Alternative B activities by phase.



Airfield Projects

Passenger Terminal Projects

Air Cargo Projects

General Aviation Projects

Aviation Support Projects

Passenger Terminal Projects and Aviation Support Projects

0 2000

Feet

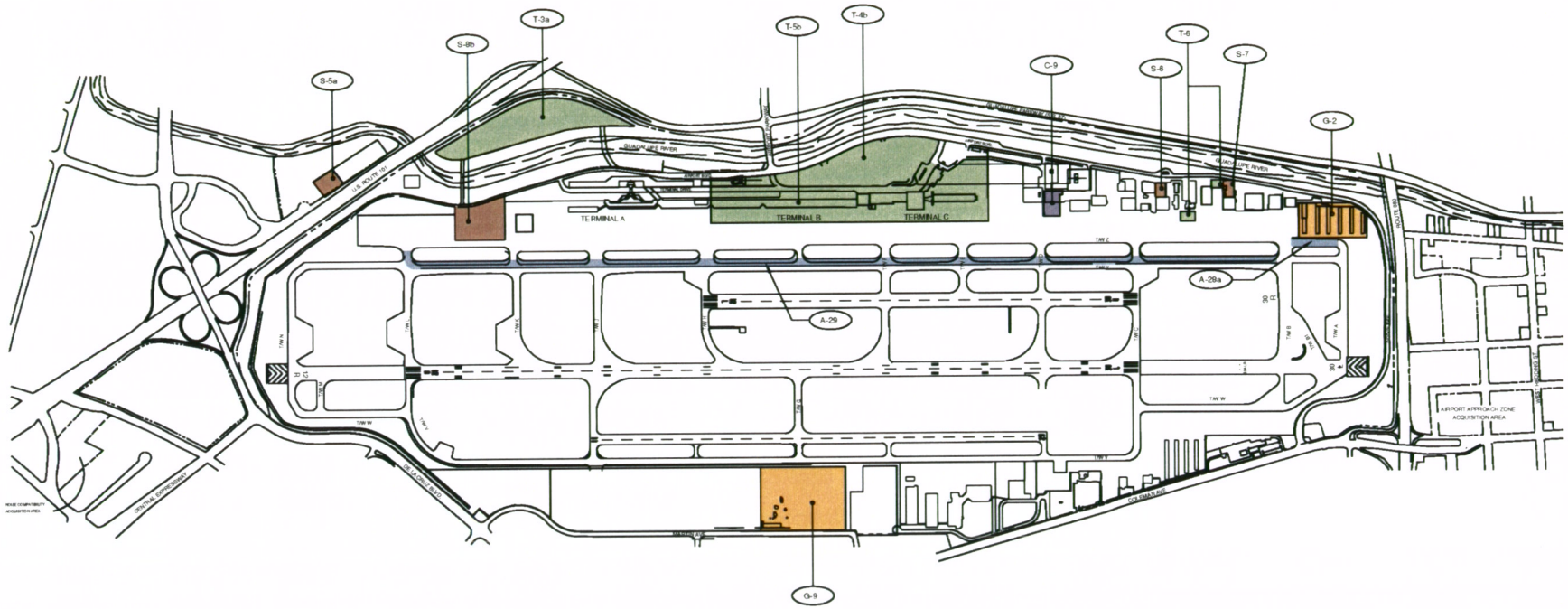
SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.9

Project Case Alternative B

Phase 1 - Development



Airfield Projects

Passenger Terminal Projects

Air Cargo Projects

General Aviation Projects

Aviation Support Projects

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Feet

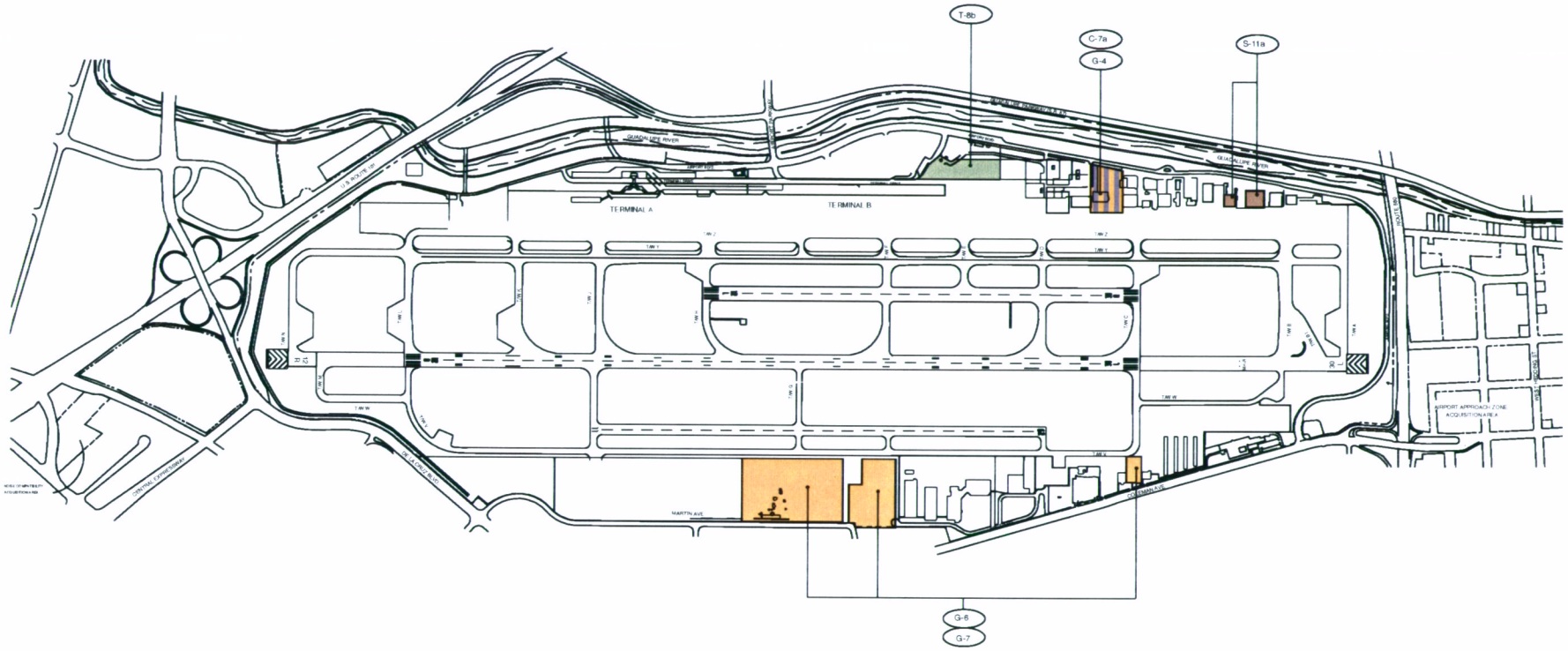
SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.10

Project Case Alternative B

Phase 2 - Development



Passenger Terminal Projects

General Aviation Projects

Aviation Support Projects

Air Cargo Projects and General Aviation Projects

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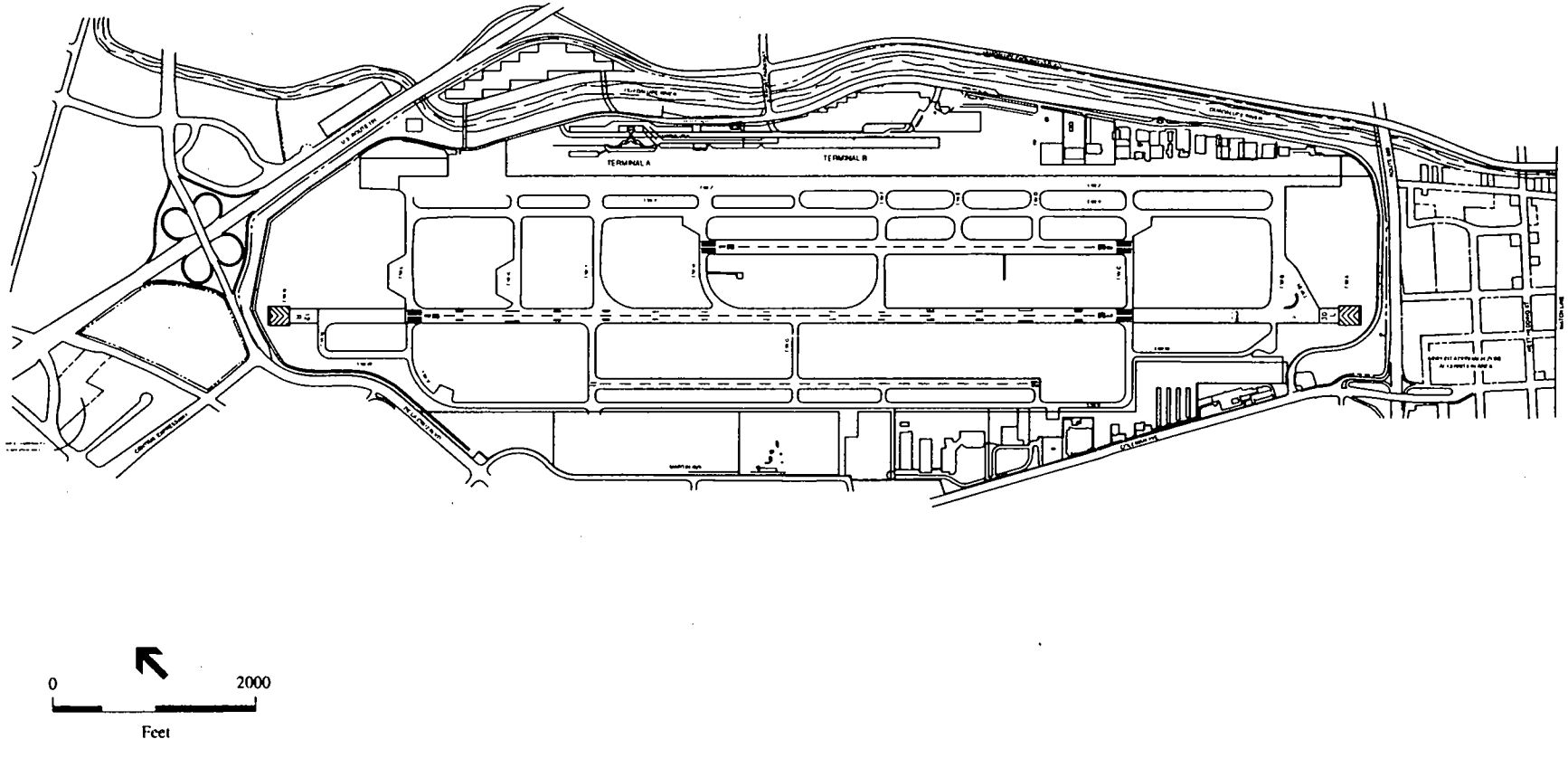
SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.11

Project Case Alternative B

Phase 3 - Development



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.12
Project Case Alternative B
Ultimate Development 2010

2.3.3.1 Phase 1 (1996-2000)

Airfield Projects

Project A-2 would construct a 1,200 x 75-foot extension of parallel Taxiway Y north from Taxiway L to the proposed new Taxiway N, and a 750 x 75-foot extension south from Taxiway B to the proposed new Taxiway A. Implementation of Project A-2 would require removal of the Yellow Long Term Public Parking lot (Project T-2), and removal of the south-end general aviation facilities (Project G-1).

Project A-3 would construct a 950 x 75-foot extension/widening of parallel Taxiway Z north from Taxiway K to Taxiway L. Implementation of Project A-3 would displace approximately 10,000 square feet of the existing cargo airline ramp.

Project A-4b would construct a 1,000 x 75-foot new cross Taxiway A at the south end of the airfield from 215 feet east of the extended Taxiway Y to the extended Runway 12R/30L, including a 60,000-square-foot D-IV aircraft hold apron on the north side of Taxiway A east of Runway 12R/30L. Implementation of Project A-4b would require removal of the south-end general aviation facilities (Project G-1).

Project A-5a would construct an 850 x 75-foot new cross Taxiway N at the north end of the airfield from the extended Taxiway Y to the extended Runway 12R/30L, including a 60,000-square-foot D-IV aircraft hold apron on the south side of Taxiway N east of Runway 12R/30L. Implementation of Project A-5a would require removal of the Yellow Long Term Public Parking lot (Project T-2).

Project A-6a would strengthen 50,000 square feet of cross Taxiway C from 250 feet east of the Runway 12L/30R centerline to Runway 12R/30L, and widen Taxiway C by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 12R arrivals.

Project A-7a would construct a 550 x 75-foot extension of cross Taxiway D from Runway 12L/30R to Runway 12R/30L, widen Taxiway D by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 12R arrivals, and strengthen 13,000 square feet of the taxiway from 250 feet east of the Runway 12L/30R centerline to Runway 12L/30R.

Project A-9a would strengthen 50,000 square feet of cross Taxiway F from 250 feet east of the Runway 12L/30R centerline to Runway 12R/30L.

Project A-10a would strengthen 60,000 square feet of cross Taxiway H from 250 feet east of the Runway 12L/30R centerline to Runway 12R/30L.

Project A-11a would strengthen 65,000 square feet of cross Taxiway J from 950 feet east of the Runway 12R/30L centerline to 12R/30L.

Project A-12a would strengthen 125,000 square feet of cross Taxiway K from 950 feet east of the Runway 12R/30L centerline to 12R/30L, and widen Taxiway K by 250 feet at the intersection with Runway 12R/30L for higher-speed exits to the east to accommodate Runway 30L arrivals.

Project A-13a would strengthen 130,000 square feet of cross Taxiway L from the extended Taxiway Z to Runway 12R/30L.

Project A-14 would reconstruct and extend Runway 12R/30L from the existing length of 10,200 feet to 11,000 feet, including a 500 x 150-foot extension north from Taxiway M to new Taxiway N, and a 300 x 150-foot extension south from Taxiway B to new Taxiway A. This action is assumed to require closure of the Airport to most transport category aircraft during construction.

Passenger Terminal Projects

Project T-1a would construct an interim long-term public and employee parking lot with 6,500 spaces on a vacant 48-acre site on the west side of the Airport, north of the Air Traffic Control Tower, including the 10-acre interim employee parking lot under construction during 1996 to replace the temporary employee parking located on the east side ramp. This project allows the two existing long-term public parking lots on the east side of the Airport to be closed (Project T-2) to accommodate new development.

Project T-2 would remove the 3,000-space Yellow Long Term Public Parking lot and the 1,600-space Green Long Term Public Parking lot upon completion of Project T-1a, resulting in a temporary consolidation of long-term public and employee parking on the west side of the Airport. Completion of Project T-2 would allow for the extension of parallel Taxiway Y (Project A-2), construction of new cross Taxiway N (Project A-5a), and construction of rental car facilities on the Green Long Term Public Parking lot site (Project S-3b).

Air Cargo Projects

Project C-2a would convert a 1-acre portion of the existing rental car storage/service area for expansion of belly-freight facilities adjacent to the existing Air Freight Building. Implementation of Project C-2a would follow removal of existing rental car facilities (Project S-4).

General Aviation Projects

Project G-1 would remove the south end tie-downs, shelters, and General Aviation Terminal building, parking lot, and driveway. This project would eliminate approximately 200 general

aviation aircraft storage spaces. Completion of Project G-1 would allow for the extension of parallel Taxiway Y (Project A-2), and construction of cross Taxiway A and aircraft hold apron (Project A-4b).

Project G-8 would construct general aviation facilities for up to 60 based aircraft on a 6-acre parcel on the west side of the Airport between the San Jose Jet Center and the Air Traffic Control Tower. The project site would be leased to a fixed-based operator (FBO) for this development. This action would partially offset the elimination of general aviation facilities at the south end of the Airport due to runway and taxiway projects.

Aviation Support Projects

Project S-1 would construct a 2.5-acre fuel storage facility, consisting of four tanks with a capacity of 2.0 million gallons, on a vacant parcel north of Hwy. 101, a 1.0-acre fuel dispensing facility on the airfield between Terminal A and the existing cargo airline ramp, and a pipeline under Hwy. 101 connecting the storage and dispensing facilities. Completion of Project S-1 would allow for the closure of the existing aircraft fuel storage and dispensing facilities (Project S-2).

Project S-2 would remove the existing fuel storage and dispensing facilities and clean up the site. Implementation of Project S-2 would follow completion of the new fuel storage facilities (Project S-1).

Project S-3b would construct a 5-level rental car garage with 7,500 spaces on the former Green Long Term Public Parking lot site for consolidated rental car ready/return and storage, including on open area for fueling, washing, and maintenance, and a two-lane bridge across Guadalupe River accessing the site from northbound Airport Boulevard. Implementation of Project S-3b would follow completion of the interim public and employee parking lot on the west side (Project T-1a) and the removal of the existing Green Long Term Public Parking lot (Project T-2). Completion of Project S-3b would allow for the removal of existing rental car facilities (Project S-4).

Project S-4 would remove the existing 1,500-space rental car facilities from the Terminal A garage, Red Hourly Public Parking lot, and area south of Terminal C. Implementation of Project S-4 would follow completion of the new rental car garage and service area (Project S-3b) and would allow the former rental car parking spaces in the Terminal A garage and Red Hourly Parking lot to be used for additional hourly public parking.

Non-Aviation Projects

Project N-1 would lease the 1-acre vacant site at the southeast corner of Coleman Avenue and Airport Boulevard for development of a non-aviation commercial use (e.g., gas station or restaurant). This site was previously used as a gas station.

2.3.3.2 Phase 2 (2001-2005)

Airfield Projects

Project A-28a would construct a 750 x 75-foot extension of parallel Taxiway Z from Taxiway B to Taxiway A. Implementation of Project A-28a would require removal of the southeast general aviation T-hangar facilities (Project G-2).

Project A-29 would rehabilitate 650,000 square feet of parallel Taxiway Y between Taxiways B and L and would strengthen the intersections at the cross taxiways.

Passenger Terminal Projects

Project T-3a would relocate the 1,000-space Red Hourly Public Parking lot to an interim site at the new rental car garage and lot (Project S-3b). Implementation of Project T-3a would allow for construction of a new public parking garage (Project T-4b).

Project T-4b would construct a new 8-level public parking garage with 8,500 spaces on the Red Hourly Parking lot site. Upon completion of Project T-4b, all long-term public parking spaces would be eliminated from the interim lot on the west side, allowing for construction of new general aviation facilities on the west side (Project G-9), and the interim hourly public parking would be eliminated from the rental car garage and lot. Implementation of Project T-4b would consolidate all public parking, long term and hourly, in the two garages adjacent to the terminal buildings.

Project T-5b would construct a new 525,000-square-foot Terminal B to replace Terminal C, including 20 air carrier gates (35 total) with ground power and pre-conditioned air, a new FIS facility for international passengers, and a roof-top helipad. Completion of Project T-5b would allow for removal of the temporary FIS facility and the City offices at 1311 Airport Boulevard (Project T-6), which would be relocated to the new terminal.

Project T-6 would remove the temporary FIS facility from the ramp south of Terminal C, and the City office structures at 1311 Airport Boulevard, upon completion of the new Terminal B (Project T-5b). Completion of Project T-6 would allow for expansion of the flight kitchen facilities (Project S-7).

Air Cargo Projects

Project C-9 would expand the belly-freight facilities onto one acre of ramp area adjacent to the north side of the Air Freight Building, for a total of 4 acres.

General Aviation Projects

Project G-2 would remove the southeast general aviation T-hangar facilities to accommodate the south extension of Taxiway Z (Project A-28a). This project would eliminate approximately 50 general aviation aircraft storage spaces.

Project G-9 would construct general aviation facilities for up to 145 based aircraft on 15 acres on the west side of the Airport north of the Air Traffic Control Tower. The project site would be leased to a fixed-base operator (FBO) for this development. Implementation of Project G-9 would require completion of the new public parking garage on the east side of the Airport (Project T-4b) in order to remove the interim surface parking from the project site.

Aviation Support Projects

Project S-5a would expand the new fuel storage facilities site by 0.5 acres, for a total of 3.0 acres, and five tanks with a total capacity of 2.5 million gallons.

Project S-6 would expand the Airport maintenance facilities site to the north by 1.0 acre onto the former fuel storage site (removed by Project S-2), for a total of 3.0 acres.

Project S-7 would expand the flight kitchen facilities site to the south by 1.0 acre, for a total of 3.5 acres. Implementation of Project S-7 would require removal of the City offices at 1311 Airport Boulevard (Project T-6).

Project S-8b would relocate and expand the airline maintenance and ground service equipment (GSE) storage facilities from various east side ramp and building locations to a 4.0-acre site between the cargo airline ramp and Terminal A including compressed natural gas fueling and battery recharge stations.

2.3.3.3 Phase 3 (2006-2010)

Airfield Projects

No airfield projects would occur during Phase 3 under Project Case Alternative B.

Passenger Terminal Projects

Project T-8b would construct a new 4-level public parking garage with 1,400 spaces between the Phase 2 garage (Project T-4b) and the existing Air Freight Building.

Air Cargo Projects

Project C-7a would expand the belly-freight facilities onto 3.5 acres on the former ACM general aviation leasehold, for a total of 7.5 acres, including remodel and expansion of the Air Freight

Building by 135,000 square feet to 157,000 square feet. Implementation of Project C-7a would require removal of the ACM facilities (Project G-4).

General Aviation Projects

Project G-4 would remove the ACM facilities on the east side of the Airport upon lease expiration in 2006. Project G-4 would complete the elimination of general aviation facilities from the east side of the Airport, and allow for expansion of belly-freight facilities at the former ACM site (Project C-7a).

Project G-6 would establish new FBO lease sites on the west side of the Airport in order to reconfigure the layout and operation of the general aviation area given the expiration of the Aris Helicopters and Air One general aviation leases prior to 2010 and construction of a west side helipad (Project G-7).

Project G-7 would construct a 40,000-square-foot helipad on the west side general aviation area.

Aviation Support Projects

Project S-11a would remove the hangar buildings at 1277 and 1311 Airport Boulevard and expand the adjacent flight kitchen facilities by 1.5 acres onto the site, for a total of 5.0 acres.

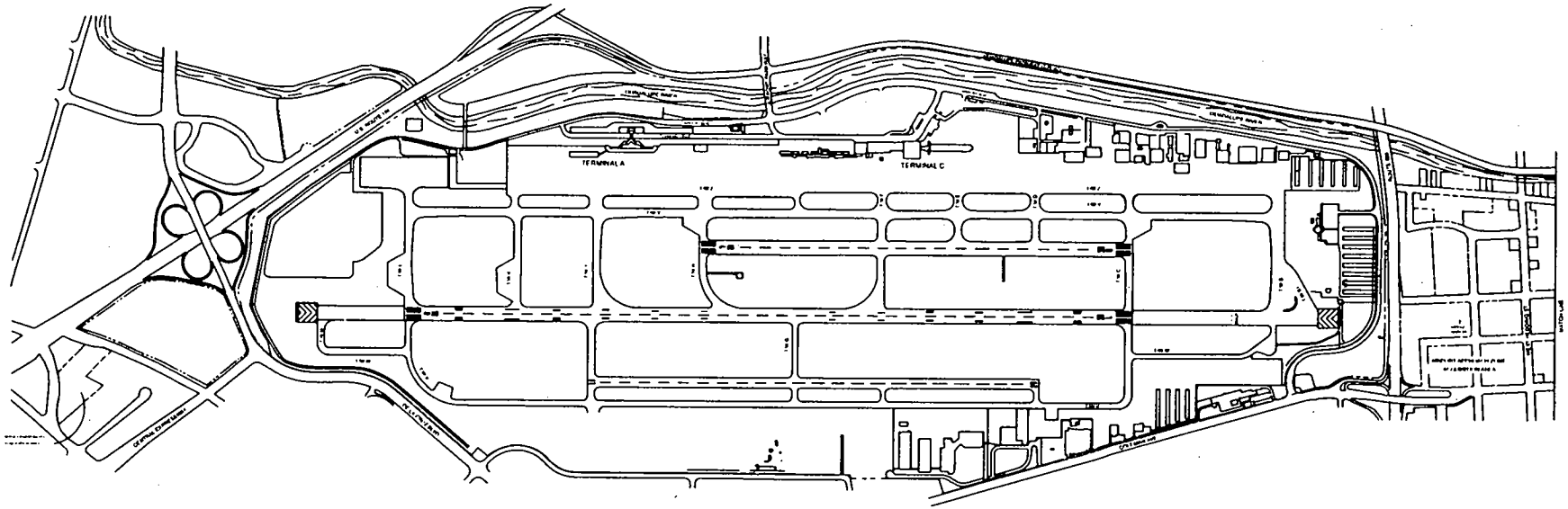
2.3.4 NO PROJECT ALTERNATIVE

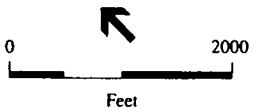
Under the No Project Alternative, no physical changes would be made at the Airport. Specifically, no runway or taxiway system improvements would occur, and no new air carrier gates, new air cargo facilities, or general aviation facilities would be constructed.

Although existing facilities would not change under the No Project Alternative, activity levels at SJC would increase given the forecast growth in demand. Within existing airport design standards, the No Project Alternative would be expected to accommodate a total of approximately 370,800 annual aircraft operations and an annual passenger service level of approximately 10.8 million passengers in 2010. Figure 2.3.13 identifies the layout of the Airport under the No Project Alternative.

2.3.5. COMPARISON MATRIX OF PROJECT CASE ALTERNATIVES

Table 2.3.3 identifies the project components of each of the project case alternatives. Components are presented by category and then by phase. The designators following each component correspond to those listed earlier in this section and shown on Figures 2.3.1 through 2.3.3, 2.3.5 through 2.3.7, and 2.3.9 through 2.3.11.





SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 2.3.13
No Project Alternative

TABLE 2.3.3
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
■ ***Airfield Facilities -- Phase 1 (1996-2000)***			
Reconstruct/extend **Runway 12L/30R** to:			
11,050 feet (from Twy H to new Twy N and from Twy C to new Twy A) ---------- *(A-1)*	X		
8,900 feet (from Twy H to Twy L and from Twy C to Twy B) ---------- *(A-1a)*		X	
Extend parallel **Taxiway Y** from Twy L to new Twy N and from Twy B to new Twy A ---------- *(A-2)*	X	X	X
Extend/widen parallel **Taxiway Z** from Twy K to Twy L ---------- *(A-3)*	X	X	X
Construct new cross **Taxiway A** at south end from:			
215' east of extended Twy Y to 250' west of extended Rwy 12L/30R with hold apron ---------- *(A-4)*	X		
215' east of extended Twy Y to 250' west of extended Rwy 12L/30R ---------- *(A-4a)*		X	
215' east of extended Twy Y to extended Rwy 12R/30L with hold apron east of 12R/30L ---------- *(A-4b)*			X
Construct new cross **Taxiway N** at north end from:			
extended Twy Y to 250' west of extended Rwy 12L/30R ---------- *(A-5)*	X	X	
extended Twy Y to extended Rwy 12R/30L with hold apron east of 12R/30L ---------- *(A-5a)*			X
Strengthen cross **Taxiway C** from:			
250' east of Rwy 12L/30R to 250' west of 12L/30R ---------- *(A-6)*	X	X	
250' east of Rwy 12L/30R to Rwy 12R/30L and widen at 12R/30L for higher-speed exit to east (for 12R arrivals) ---------- *(A-6a)*			X
Extend cross **Taxiway D** from:			
Rwy 12L/30R to 350' west of 12L/30R and strengthen from 250' east of 12L/30R to 12L/30R ---------- *(A-7)*	X	X	
Rwy 12L/30R to Rwy 12R/30L, widen at 12R/30L for higher-speed exit to east (for 12R arrivals), and strengthen from 250' east of 12L/30R to 12L/30R ---------- *(A-7a)*			X

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
Strengthen cross **Taxiway E** from 250' east of Rwy 12L/30R to 12L/30R ---------- *(A-8)*	X	X	
Strengthen cross **Taxiway F** from:			
250' east of Rwy 12L/30R to 250' west of 12L/30R ---------- *(A-9)*	X	X	
250' east of Rwy 12L/30R to Rwy 12R/30L ---------- *(A-9a)*			X
Strengthen cross **Taxiway H** from:			
250' east of Rwy 12L/30R to 250' west of 12L/30R ---------- *(A-10)*	X	X	
250' east of Rwy 12L/30R to Rwy 12R/30L ---------- *(A-10a)*			X
Strengthen cross **Taxiway J** from:			
250' east of extended Rwy 12L/30R to 250' west of extended 12L/30R ---------- *(A-11)*	X	X	
950' east of Rwy 12R/30L to 12R/30L ---------- *(A-11a)*			X
Strengthen cross **Taxiway K** from:			
250' east of extended Rwy 12L/30R to 250' west of extended 12L/30R ---------- *(A-12)*	X	X	
950' east of Rwy 12R/30L to 12R/30L and widen at 12R/30L for higher-speed exit to east (for 30L arrivals) ---------- *(A-12a)*			X
Strengthen cross **Taxiway L** from:			
extended Twy Z to 250' west of extended Rwy 12L/30R ---------- *(A-13)*	X	X	
extended Twy Z to Rwy 12R/30L ---------- *(A-13a)*			X
Reconstruct/extend **Runway 12R/30L** to:			
11,000 feet (from Twy M to new Twy N and from Twy B to new Twy A) ---------- *(A-14)*	X	X	X
Extend new cross **Taxiway A** from 250' west of extended Rwy 12L/30R to Rwy 12R/30L with hold apron ---------- *(A-15)*	X	X	*see A-4b*

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
Extend new cross **Taxiway N** from 250' west of extended Rwy 12L/30R to extended Twy W with hold apron east of 12R/30L ---------- *(A-16)*	X	X	*see A-5a*
Extend parallel **Taxiway W** from Twy M to new Twy N and extend/widen from Twy C to extended end of Rwy 12R/30L ---------- *(A-17)*	X	X	
Strengthen cross **Taxiway C** from 250' west of Rwy 12L/30R to 250' west of Rwy 12R/30L and widen at 12R/30L for higher-speed exit to east (for 12R arrivals) ---------- *(A-18)*	X	X	*see A-6a*
Extend cross **Taxiway D** from 350' west of Rwy 12L/30R to 250' west of Rwy 12R/30L and widen at 12R/30L for higher-speed exit to east (for 12R arrivals) ---------- *(A-19)*	X	X	*see A-7a*
Strengthen cross **Taxiway F** from 250' west of Rwy 12L/30R to Rwy 12R/30L ---------- *(A-20)*	X	X	*see A-9a*
Widen/strengthen cross **Taxiway G** from Rwy 12R/30L to 250' west of 12R/30L ---------- *(A-21)*	X	X	
Strengthen cross **Taxiway H** from 250' west of Rwy 12L/30R to Rwy 12R/30L ---------- *(A-22)*	X	X	*see A-10a*
Strengthen cross **Taxiway J** from 250' west of extended Rwy 12L/30R to 250' west of Rwy 12R/30L and widen at 12R/30L for higher-speed exit to west (for 30L arrivals) ---------- *(A-23)*	X	X	*see A-11a*
Strengthen cross **Taxiway K** from 250' west of extended Rwy 12L/30R to Rwy 12R/30L and widen at 12R/30L for higher-speed exit to east (for 30L arrivals) ---------- *(A-24)*	X	X	*see A-12a*
Strengthen cross **Taxiway L** from 250' west of extended Rwy 12L/30R to Rwy 12R/30L ---------- *(A-25)*	X	X	*see A-13a*

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
■ ***Airfield Facilities -- Phase 2 (2001-2005)***			
Widen/strengthen parallel **Taxiway V** from Twy G to Twy W and patch/restripe south of Twy G ------ *(A-26)*	X	X	
Construct cross **Taxiway H** between Rwy 11-29 and Twy V ---------- *(A-27)*	X	X	
Extend parallel **Taxiway Z**:			
from Twy L to intersect Twy Y between L and N, and from Twy B to Twy A ---------- *(A-28)*	X	X	
from Twy B to Twy A ---------- *(A-28a)*			X
Rehabilitate parallel **Taxiway Y** between Twy B and L and strengthen cross taxiway intersections -- *(A-29)*	X	X	X
■ ***Airfield Facilities -- Phase 3 (2006-2010)***			
Construct parallel **Taxiway W** between Twy C and Twy L ---------- *(A-30)*	X	X	
Strengthen cross **Taxiway C** from 250' west of Rwy 12R/30L to Twy W ---------- *(A-31)*	X	X	
Extend cross **Taxiway D** from 250' west of Rwy 12R/30L to extended Twy W ---------- *(A-32)*	X	X	
Widen/strengthen cross **Taxiway G** from 250' west of Rwy 12R/30L to Twy V ---------- *(A-33)*	X	X	
Widen/strengthen cross **Taxiway J** from 250' west of Rwy 12R/30L to Twy V ---------- *(A-34)*	X	X	
■ ***Passenger Terminal Facilities -- Phase 1 (1996-2000)***			
Construct **interim long-term public and employee parking lot** on west side:			
7,400 spaces on vacant 55-acre site (north and south of Air Traffic Control Tower) ---------- *(T-1)*	X		
6,500 spaces on vacant 48-acre site (north of Air Traffic Control Tower) ---------- *(T-1a)*		X	X

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
Remove 3,000-space Yellow Long-Term Parking lot and 1,600-space Green Long-Term Parking lot, temporarily consolidating long-term public and employee parking on west side ---------- (*T-2*)	X	X	X
■ ***Passenger Terminal Facilities -- Phase 2 (2001-2005)***			
Relocate 1,000-space Red Hourly Parking lot and existing parking shuttle/management facilities to interim site at new rental car garage (*S-3/S-3a*) ---------- (*T-3*)	X	X	
Relocate 1,000-space Red Hourly Parking lot to interim site at new rental car garage (*S-3b*) ---------- (*T-3a*)			X
Construct new 8-level **public parking garage** on and north of Red Hourly Parking lot site:			
9,400 spaces (eliminating public parking from interim west side lot) ---------- (*T-4*)	X		
8,800 spaces (eliminating public parking from interim west side lot and rental car garage) ---------- (*T-4a*)		X	
8,500 spaces (eliminating public parking from interim west side lot and rental car garage) ---------- (*T-4b*)			X
Construct new **Terminal B**:			
300,000 sq.ft. between Terminals A and C with 12 gates (43 total), FIS facility, and helipad ---------- (*T-5*)	X		
250,000 sq.ft. between Terminals A and C with 10 gates (37 total with removal of 4 northernmost Terminal C gates), FIS facility, and helipad ---------- (*T-5a*)		X	
525,000 sq.ft. to replace Terminal C with 20 gates (35 total), FIS facility, and helipad ---------- (*T-5b*)			X
Remove temporary FIS facility from ramp south of Terminal C, and City office structures at 1311 Airport Blvd. (after *T-5/T-5a/T-5b*) ---------- (*T-6*)	X	X	X
Construct new 4-level **employee parking garage** (2,600 spaces) on 6-acre site on west side adjacent to Air Traffic Control Tower ---------- (*T-7*)	X		

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
■ ***Passenger Terminal Facilities -- Phase 3 (2006-2010)***			
Construct new **public parking garage** south of Phase 2 garage (*T-4/T-4a/T-4b*):			
8-level, 4,600 spaces (eliminating public parking from rental car garage) ---------- (*T-8*)	X		
8-level, 3,500 spaces ---------- (*T-8a*)		X	
4-level, 1,400 spaces ---------- (*T-8b*)			X
Expand/remodel **Terminal C** to:			
550,000 sq.ft. with 22 gates (49 total), and connect terminal concourses ---------- (*T-9*)	X		*see*
300,000 sq.ft. with 12 gates (37 total), and connect terminal concourses ---------- (*T-9a*)		X	*T-5b*
■ ***Air Cargo Facilities -- Phase 1 (1996-2000)***			
Construct interim expansion of east side **cargo airline area**, including 162,000 sq.ft. of new ramp and 108,000 sq.ft. of building/vehicle parking/movement area ---------- (*C-1*)	X	X	
Convert one-acre portion of existing rental car storage/service area for interim expansion of **belly-freight facilities** adjacent to Air Freight Building (after *S-4*) ---------- (*C-2*)	X	X	
Convert one-acre portion of existing rental car storage/service area for expansion of **belly-freight facilities** adjacent to Air Freight Building (after *S-4*) ---------- (*C-2a*)			X
■ ***Air Cargo Facilities -- Phase 2 (2001-2005)***			
Construct new **cargo airline facilities** on west side (36 acres), including 946,000 sq.ft. of ramp and 631,000 sq.ft. of multi-building/vehicle parking/movement area (after *T-4/T-4a* and *A-26*) ---------- (*C-3*)	X	X	
Remove 2.5 acres of former east side cargo airline ramp (displaced by *A-28*) ---------- (*C-4*)	X	X	

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
Relocate **belly-freight facilities** to 7.5-acre site at former east side cargo airline ramp area, including remodel/expansion of cargo building to 154,000 sq.ft. (after *C-3*) ---------- (*C-5*)	X	X	
Expand **belly-freight facilities** onto one acre of ramp area on north side of Air Freight Building ------ (*C-9*)			X
■ ***Air Cargo Facilities -- Phase 3 (2006-2010)*** Expand **cargo airline facilities** on west side by 7 acres (43 acres total), including additional 193,000 sq.ft. of ramp and 129,000 sq.ft. of building/vehicle parking/movement area ---------- (*C-6*)	X	X	
Construct new **belly-freight facilities** on 3 acres on former ACM site (10.5 acres total at 2 sites, after *G-4*) (*C-7*)	X		
Expand **belly-freight facilities** onto 3.5 acres on former ACM site (7.5 acres total) including remodel/expansion of Air Freight Building to 157,000 sq.ft. (after *G-4*) ---------- (*C-7a*)			X
Remove existing Air Freight Building and vehicle parking/movement area ---------- (*C-8*)	X	X	
■ ***General Aviation Facilities -- Phase 1 (1996-2000)*** Remove south end tiedowns, shelters, and General Aviation Terminal building/parking lot/driveway (displaced by *A-1/A-1a, A-2, A-4/A-4a/A-4b*) ---------- (*G-1*)	X	X	X
Construct **general aviation facilities** for up to 60 based aircraft on 6-acre parcel on west side between San Jose Jet Center and Air Traffic Control Tower ---------- (*G-8*)		X	X
■ ***General Aviation Facilities -- Phase 2 (2001-2005)*** Remove southeast T-hangar facilities (displaced by *A-28/A-28a*) ---------- (*G-2*)	X	X	X

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
Remove "94th Aero Squadron" restaurant facilities on west side upon lease expiration (2004) and convert site to general aviation use ---------- *(G-3)*	X	X	
Construct **general aviation facilities** for up to 145 based aircraft on 15 acres on west side north of Air Traffic Control Tower (after *T-4b*) ---------- *(G-9)*			X
■ ***General Aviation Facilities -- Phase 3 (2006-2010)***			
Remove ACM facilities on east side upon lease expiration (2006) ---------- *(G-4)*	X	X	X
Remove San Jose State University facilities at southwest side upon lease expiration (2010) and convert site to general aviation use ---------- *(G-5)*	X	X	
Establish new FBO lease sites on west side for reconfiguration of general aviation facilities ---------- *(G-6)*	X	X	X
Construct helipad on west side general aviation area ---------- *(G-7)*	X	X	X
■ ***Aviation Support Facilities -- Phase 1 (1996-2000)***			
Construct 2.5-acre **fuel storage facility (4 tanks, 2.0 million gallon capacity)** on vacant parcel north of Hwy. 101, fuel dispensing facility on airfield between Terminal A and cargo airline ramp, and pipeline connecting storage and dispensing ---------- *(S-1)*	X	X	X
Remove existing fuel storage and dispensing facilities and clean up site (after *S-1*) ---------- *(S-2)*	X	X	X

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
Construct **rental car garage** on former Green Long Term Parking lot for consolidated rental car ready/return and storage, with open area for fueling/washing/maintenance, and second 2-lane bridge from Airport Blvd. (after *T-1/T-1a* and *T-2*):			
8-level, 10,000 spaces ---------- (*S-3*)	X		
8-level, 8,000 spaces ---------- (*S-3a*)		X	
5-level, 7,500 spaces ---------- (*S-3b*)			X
Remove existing 1,500-space rental car facilities from Terminal A garage, Red Hourly Parking lot, and south of Terminal C (after *S-3/S-3a/S-3b*) ---------- (*S-4*)	X	X	X
■ ***Aviation Support Facilities -- Phase 2 (2001-2005)***			
Expand new **fuel storage facilities** by 0.5 acres:			
total of 3.0 acres, 6 tanks/3.0 million gallon capacity ---------- (*S-5*)	X		
total of 3.0 acres, 5 tanks/2.5 million gallon capacity ---------- (*S-5a*)		X	X
Expand **airport maintenance facilities** site to north by 1.0 acre onto former fuel storage site -------- (*S-6*)	X	X	X
Expand **flight kitchen facilities** site to south by 1.0 acre onto former airport office site at 1311 Airport Blvd. (after *T-6*) ---------- (*S-7*)	X	X	X
Relocate/expand **airline maintenance/GSE storage facilities** from various east side sites to:			
4.0 acres of former cargo airline ramp (after *C-3*) ---------- (*S-8*)	X		
2.5 acres of former cargo airline ramp (after *C-3*) ---------- (*S-8a*)		X	
4.0 acre site between cargo airline ramp and Terminal A ---------- (*S-8b*)			X

TABLE 2.3.3 (Continued)
PROJECT COMPONENTS OF AIRPORT MASTER PLAN UPDATE ALTERNATIVES

Project Component	Project Case	Project Case Alt. A	Project Case Alt. B
■ ***Aviation Support Facilities -- Phase 3 (2006-2010)***			
Expand **fuel storage facilities** by 0.5 acres to total of 3.5 acres, 8 tanks/4.0 million gallon capacity --- (*S-9*)	X		
Expand **fuel storage facilities** to total of 6 tanks/3.0 million gallon capacity ---------- (*S-9a*)		X	
Expand **airline maintenance/GSE storage facilities** at former cargo airline ramp by 2.0 acres ---- (*S-10*)	X	X	
Remove hangar buildings at 1277 and 1311 Airport Blvd. and expand **flight kitchen facilities** by:			
3.5 acres (after *S-10*) ---------- (*S-11*)	X		
1.5 acres (after *S-10*) ---------- (*S-11a*)		X	X
■ ***Non-Aviation Projects -- Phase 1 (1996-2000)***			
Develop one acre site at southeast corner of Coleman Ave. and Airport Blvd. for a **non-aviation commercial use** (e.g., gas station or restaurant) ---------- (*N-1*)	X	X	X

2.4 SUMMARY OF VARIANTS TO THE PROJECT CASE ALTERNATIVES CONSIDERED AND REJECTED

As part of the process of formulating the three Project Case Alternatives and in the public responses to the EIR Notice of Preparation, a number of variants or revisions to the Project Case Alternatives were proposed, as outlined below. Section 4.2 of this EIR analyzes a reasonable range of alternatives to the Project Case Alternatives.

2.4.1 C.A.A.P. "ALTERNATIVE 8" PROPOSAL

This was a proposed alternative prepared by the community Citizens Against Airport Pollution (C.A.A.P.) and submitted to the City in 1991. It consisted of a number of regulatory and operational constraints on Airport development in the form of "environmental benchmarks" and "service directives". After considerable analysis by the City and its Master Plan Update consultant (TRA), the City rejected this proposed alternative on the basis that it did not constitute a physical development project but rather a series of environmental objectives, many of which may not be achievable. While rejected as a Project Case Alternative, the various "environmental benchmarks" and "service directives" of this proposal are analyzed in this EIR as potential mitigation measures (see Sections 3.3.3, Traffic and Transportation Mitigation Measures, 3.4.3, Air Quality Mitigation Measures, and 3.5.3, Noise Mitigation Measures).

2.4.2 ON-SITE VARIANT: ALTERNATE FUEL STORAGE FACILITY LOCATION

Some public comments on the EIR Notice of Preparation suggested consideration of an alternate location for the bulk fuel storage facility proposed in all three Project Case Alternatives on vacant Airport property on the north side of U.S. 101. The selection of this site was based on an analysis conducted by the Master Plan Update consultant that identified and analyzed three potential sites that would not interfere with other existing facilities or aircraft movement areas. The vacant Airport parcel across U.S. 101 from the airfield was determined to be the best site based on proximity to the air carrier apron and distribution facilities and limited suitability for other facility requirements. Therefore, no changes were made to the description of the Project Case Alternatives. The general environmental effects of locating the fuel storage facility at the two other variant locations are discussed in Section 4.2.

2.4.3 ON-SITE VARIANT: ACCOMMODATE MORE GENERAL AVIATION

Some public comments on the EIR Notice of Preparation suggested consideration of locating more general aviation development on the west side of the Airport rather than air carrier support facilities. The three Project Case Alternatives already present distinct levels of general aviation demand accommodation. Accommodating additional general aviation activity in any one of the alternatives would significantly constrain the City's ability to provide the identified air carrier

facilities (and, in turn, to accommodate the identified air carrier activity levels). Therefore, no changes were made to the description of the Project Case Alternatives. The general environmental effects of accommodating more general aviation activities on Airport property are discussed in Section 4.2.

2.4.4 ON-SITE VARIANT: ACCOMMODATE MID-POINT AIR CARGO DEMAND WITH ONE COMMERCIAL RUNWAY

The City of Santa Clara requested development of an additional alternative that would be designed to serve half of the projected air cargo demand while restricting the Airport to one air carrier runway. Project Case Alternative B already demonstrates that limiting the Airport to one commercial runway significantly constrains air cargo activity in order to provide for a moderate level of air carrier activity growth. A one-commercial-runway alternative that would be designed to serve more air cargo would further constrain air carrier activity to a level not significantly different than the No Project Alternative. Therefore, no changes were made to the description of the Project Case Alternatives. This EIR does identify the project description and environmental impact implications if Moffett Field becomes available for limited cargo airline use and reduces SJC cargo demand by 25 percent (see Appendix 4.2.A). The general environmental effects of accommodating mid-point air cargo demand are discussed in Section 4.2.

2.4.5 OFF-SITE VARIANT: USE OF MOFFETT FIELD

Some public comments on the EIR Notice of Preparation suggested consideration of Moffett Federal Airfield, currently operated by NASA, as a variant of the Project Case Alternatives. As Moffett is currently (and has always been) closed to civil aviation, and as the City has no jurisdiction over the use of Moffett Field, such an alternative would be too speculative. Therefore, no changes were made to the description of the Project Case Alternatives. However, given NASA's pending consideration of allowing limited cargo airline use of Moffett Field, this EIR does identify the project description and environmental impact implications if 25 percent of SJC cargo demand was diverted to Moffett Field (see Appendix 4.2.A). The general environmental effects of using Moffett Field are discussed in Section 4.2.

2.4.6 OFF-SITE VARIANT: PLACEMENT OF AVIATION FACILITIES OFF-AIRPORT

Some public comments on the EIR Notice of Preparation suggested locating some aviation-related facilities off-Airport in order to accommodate additional aviation activity, particularly general aviation. Although there are certain facilities that need not be located on existing Airport property, there are currently no available City-owned sites in proximity to the Airport and potential City acquisition of property would be too speculative upon which to base an alternative.

Also, as the Project Case Alternatives are designed to balance airfield capacity with landside capacity, creating additional landside space does not provide for additional airfield use. Therefore, no changes were made to the description of the Project Case Alternatives. The general environmental effects of placing aviation facilities off-Airport are discussed in Section 4.2.

2.4.7 OFF-SITE VARIANT: RELOCATE SJC OR CONSTRUCT NEW AIRPORT

There has been no public agency consideration regarding relocating or replacing SJC. Such an alternative would require years to study, approve, and implement, and would likely create a set of environmental impacts well beyond those associated with any of the three Project Case Alternatives. Therefore, this is not a Project Case Alternative. The general environmental effects of relocating SJC or constructing a new airport are discussed in Section 4.2.

2.4.8 OFF-SITE VARIANT: EXPAND METROPOLITAN OAKLAND INTERNATIONAL AIRPORT OR SAN FRANCISCO INTERNATIONAL AIRPORT IN LIEU OF SJC

Two of the three Project Case Alternatives, as well as the No Project Alternative, are not designed to accommodate projected air carrier and air cargo demand. Thus, any demand that is not accommodated at SJC would likely be diverted to Metropolitan Oakland International Airport or San Francisco International Airport. Such diverted demand, if accommodated at one or both of those other airports, would create significant environmental impacts that are generally identified in this EIR (see Section 4.2.3.3).

2.5 REVIEWS OR APPROVALS FOR WHICH THE EIR WILL BE USED AND REQUESTED FEDERAL, STATE, AND LOCAL ACTIONS

The proposed project involves actions that will require review, and in some cases specific approvals, agreements, or permits from a number of federal, state, and local agencies. These are generally listed and discussed in Table 2.5.1.

The Federal Aviation Administration (FAA) is the primary federal agency with oversight associated with the Master Plan Update. The statutory or regulatory authority under which the FAA operates includes the National Environmental Policy Act, the Airport and Airway Improvement Act of 1982, and the Clean Air Act. Other federal agencies with permit requirements include the U.S. Army Corps of Engineers and the U.S. Coast Guard, which have permit authority over specific project components of the Master Plan Update under the Clean Water Act and the Rivers and Harbors Act, respectively.

TABLE 2.5.1
POTENTIAL REVIEWS, APPROVALS, AND/OR PERMITS REQUIRED FOR IMPLEMENTING THE AIRPORT MASTER PLAN UPDATE

Statutory/Regulatory Authority	Agency	General Role and Specific Actions Required	Project Component(s) of Master Plan Update Subject to Review, Approval and/or Permit	Documentation and Prior Approvals Required
		FEDERAL AGENCIES		
National Environmental Policy Act (NEPA)	Federal Aviation Administration (FAA)	Federal environmental approval; Record of Decision (ROD).	Entire Master Plan Update	Final Environmental Impact Statement (EIS), Approval Declaration for Final EIS, ROD.
Airport and Airway Improvement Act of 1982, as amended and Federal Aviation Regulations (FAR)	FAA	Approval of revised Airport Layout Plan (ALP).	Entire Master Plan Update	Revised ALP, Final EIS, ROD.
Airport and Airway Improvement Act of 1982, as amended and Federal Aviation Regulations (FAR)	FAA	Approval of funding for Airport development.	Entire Master Plan Update	Approval for Airport Improvement Program (AIP) funds, Approval of Passenger Facility Charge (PFC).
Clean Air Act	FAA	Conformity Determination for consistency of project with State Implementation Plan (SIP).	Entire Master Plan Update	Conformity analysis, Final EIS.
Clean Water Act Section 404	U.S. Army Corps of Engineers (ACOE)	Permit to place fill in waters of U.S.	Bridge to rental car garage (S-3)	Permit application; Final EIS.
Rivers & Harbors Act Section 9	U.S. Coast Guard	Permit to construct bridge over navigable waters.	Bridge to rental car garage (S-3)	Permit application; Final EIS.

TABLE 2.5.1 (Continued)
POTENTIAL REVIEWS, APPROVALS, AND/OR PERMITS REQUIRED FOR IMPLEMENTING THE AIRPORT MASTER PLAN UPDATE

Statutory/Regulatory Authority	Agency	General Role and Specific Actions Required	Project Component(s) of Master Plan Update Subject to Review, Approval and/or Permit	Documentation and Prior Approvals Required
		STATE AGENCIES		
Clean Air Act	Bay Area Air Quality Management District (BAAQMD)	Authority to Construct Permit to construct or modify facilities or equipment that may emit pollutants into the atmosphere from a stationary source.	Fuel storage facility (S-1, S-5, and S-9)	Authority to Construct Permit Application Form, Final EIS.
National Historic Preservation Act (Federal)	State Historic Preservation Officer (SHPO)	Statement indicating whether or not it has any concerns about projects which will disrupt soil or alter buildings.	Project components within archeologically sensitive areas (see Section 3.2).	Project description and map, Final EIR.
Clean Water Act, Section 402 (Federal)	San Francisco Bay Regional Water Quality Control Board (RWQCB)	National Pollutant Discharge Elimination System (NPDES), Permit for discharge of industrial stormwater runoff.	Entire Master Plan Update	Update SJC Airport Storm Water Pollution Prevention Plan (SWPPP).
Clean Water Act, Section 401 (Federal)	RWQCB	Certification that placement of fill in waters of U.S. meets water quality objectives of the State.	Bridge to rental car garage (S-3)	See Section 404, above. Application for waiver or certification.
California Fish & Game Code, Section 1600 et. seq.	Department of Fish and Game	Agreement to alter natural flow, bed, or bank of river.	Bridge to rental car garage (S-3)	Stream Alteration Agreement.
Airport and Airway Improvement Act of 1982, as amended and FAR	Governor's Office	Certificate that project will be in compliance with applicable air and water quality standards.	Entire Master Plan Update	Proposed project plans, Final EIS.
California Public Resources Code, Section 21664.5	Department of Transportation, Division of Aeronautics	Amended Airport Permit	Airfield projects associated with expansion of Runway 12L/30R (A-1 through A-13, A-28, and A-29)	Master Plan Update, Final EIR.

TABLE 2.5.1 (Continued)
POTENTIAL REVIEWS, APPROVALS, AND/OR PERMITS REQUIRED FOR IMPLEMENTING THE AIRPORT MASTER PLAN UPDATE

Statutory/Regulatory Authority	Agency	General Role and Specific Actions Required	Project Component(s) of Master Plan Update Subject to Review, Approval and/or Permit	Documentation and Prior Approvals Required
		REGIONAL AGENCIES		
Public Utilities Code 21670	County of Santa Clara Airport Land Use Commission (ALUC)	Reviews and comments on Airport Master Plans.	Entire Master Plan Update	Master Plan Update.
	Santa Clara Valley Water District	Assess water improvements and connection to storm lines.	Entire Master Plan Update	Three sets of project plans with hydraulic calculations.
		LOCAL AGENCIES		
California Environmental Quality Act (CEQA)	City of San Jose	State environmental approval; certification of EIR. Adoption of the Airport Master Plan.	Entire Master Plan Update	Compliance with State CEQA process through environmental documentation.

State agencies and their corresponding statutory or regulatory authority over specific project components associated with the Master Plan Update include the Governor's Office under the Airport and Airway Improvement Act of 1982, the Bay Area Air Quality Management District under the Clean Air Act, the State Historic Preservation Officer under the National Historic Preservation Act, the Regional Water Quality Control Board under the Clean Water Act, the Department of Fish and Game under the California Fish & Game Code, and the Division of Aeronautics of the Department of Transportation under the California Public Resources Code.

The regional and local agencies involved in the review, approval, and/or permitting associated with the proposed project include the Airport Land Use Commission and the Santa Clara Valley Water District, both of which use the Master Plan Update in their review processes.

The City of San Jose is the lead agency for the Master Plan Update and assumes the responsibility of complying with the California Environmental Quality Act and has the authority to approve one of the proposed Project Case Alternatives. In addition, the City of San Jose would comply with any other applicable review, approval, and/or permit that may be required as the implementation of the Airport Master Plan proceeds.

The proposed project would be implemented in a timeframe that includes three phases. Phase 1 would occur from 1996 to 2000, Phase 2 from 2001 to 2005, and Phase 3 from 2006 to 2010. Project buildout would be considered to occur by the year 2010.

2.6 PLANS AND POLICIES

The purpose of this section is to discuss any inconsistencies between the Project Case Alternatives and applicable general plans and regional plans.

2.6.1 SAN JOSE GENERAL PLAN

The City of San Jose *General Plan* has identified goals and policies to guide future development and protect environmental resources. *General Plan* goals and policies relevant to the San Jose International Airport Master Plan Update are provided in Table 2.6.1.

Discussion: Transportation Aviation policies provide the basis for the proposed Master Plan Update. The proposed Master Plan Update would encourage economic development in the City of San Jose and comply with the City's urban design policies, as discussed under the City Concept Section of the *General Plan*. The Services and Facilities Section provides minimum service levels for specific City services that the Project Case Alternatives would meet. Policies related to aesthetic, cultural and recreational resources, natural resources, and hazards also would

TABLE 2.6.1
APPLICABLE CITY OF SAN JOSE *GENERAL PLAN* GOALS AND POLICIES

Issue Area	Applicable *General Plan* Goals and Policies
A. CITY CONCEPT	
2. Economic Development	1. Create more job opportunities for existing residents, particularly those who suffer from chronic unemployment, to improve the balance between jobs and resident workers.
	2. Create a stronger municipal tax base by obtaining a greater share of the total industrial and commercial development in the County, and by nurturing and encouraging expansion of the existing industrial and commercial development in the City.
4. Urban Design	1. The City should continue to apply strong architectural and site design controls on all types of development of neighborhood character and for the proper transition between areas with different types of land uses.
	8. Design solutions should be considered in the development review process which address security, aesthetics and public safety. Public safety issues include, but are not limited to, minimum clearances around buildings, fire protection measures such as peak load water requirements, construction techniques, and minimum road widths and other standards set forth in relevant City Codes. All development projects should comply with the safety standards established in these referenced codes.
	16. When development is proposed adjacent to existing or planned parks or park chains, that development should include public park-frontage roads, wherever feasible, in order to maximize access to park lands, to provide a reasonable separation between urban land uses and park lands without the use of "back-up" design, and to maximize exposure of park lands for scenic and security purposes.
	17. Development adjacent to creekside areas should incorporate compatible design and landscaping including all species which are native to the area or are compatible with native species.
	22. Design guidelines adopted by the City Council should be followed in the design of development projects.
D. SERVICES AND FACILITIES	
1. Level of Service Traffic	5. The minimum overall performance of City streets during peak travel periods should be level of service "D".
	• Development proposals should be reviewed for their measurable impacts on the level of service and should be required to provide appropriate mitigation measures if they have the potential to reduce the level of service to "E" or worse.
Sanitary Sewer System	6. The minimum performance standard for sanitary sewer lines should be level of service "D", defined as restricted sewage flow during peak flow conditions. Development which will have the potential to reduce the downstream level of service to worse than "D", or development which would be served by downstream lines already operating at a level of service worse than "D", should be required to provide mitigation measures to improve the level of service to "D" or better. In recognition of the substantial non-sewer benefits of infill development, small infill projects may be exempted from sewer mitigation requirements.
Sewage Treatment	9. The City should continue to encourage water conservation programs which result in reduced demand for sewage treatment capacity.

TABLE 2.6.1 (Continued)
APPLICABLE CITY OF SAN JOSE *GENERAL PLAN* GOALS AND POLICIES

Issue Area	Applicable *General Plan* Goals and Policies
Storm Drainage and Flood Control	13. In designing improvements to creeks and rivers, adjacent properties should be protected from flooding.
Other Services	16. Utilize the following Citywide level of service measures as benchmarks to be used to evaluate major General Plan land use and policy changes, such as expansions of the Urban Service Area or land use changes from non-residential to residential: • For police protection, achieve a response time of six minutes or less for 60 percent of all Priority 1 calls, achieve a response time of eleven minutes or less for 60 percent of all Priority 2 calls. • For fire protection, a 4-minute average response time to all calls. • For parks and recreation: 3.5 acres of neighborhood and community serving recreational lands per 1,000 population, of which a minimum is 1.5 acres of neighborhood, community or locally serving regional/City-wide park lands and up to 2 acres of school playgrounds, and all of which is located within a reasonable walking distance of the project; 7.5 acres of regional/City-wide park lands per 1,000 population; and 500 square feet of community center floor area per 1,000 population. • For libraries, 10,000 square feet of library space per 36,000 population, 18.3 weekly service hours per 10,000 population, and an annual acquisition rate of 1 volume per 6 people for the first 500,000 population and 1 volume per 8 people over 500,000 population. The City recognizes that these performance measures are limited reflections of all City services and may change over time to reflect delivery or to reflect increasing diversity, new methods of service delivery or to reflect changing needs and priorities that are determined in the budgetary process. The details of these performance measures may also be addressed in the new or existing service planning documents of the relevant City departments that provide these services.
3. Transportation Aviation	35. The City should continue to provide aviation services at San Jose International Airport and promote airline service which meets the present and future air transportation needs of local residents and the business community, and which minimize impacts on the surrounding community. 36. Capital improvements to San Jose International Airport as identified in the Airport Master Plan should be implemented in a timely manner. 37. The City should foster compatible land uses in the vicinity of the San Jose International Airport. 38. Development in the vicinity of airports should be regulated in accordance with Federal Aviation Administration guidelines to: • Maintain the airspace required for the safe operation of these facilities. • Avoid reflective surfaces, flashing lights, and other potential hazards to air navigation.

TABLE 2.6.1 (Continued)
APPLICABLE CITY OF SAN JOSE *GENERAL PLAN* GOALS AND POLICIES

Issue Area	Applicable *General Plan* Goals and Policies
	39. Development in the vicinity of airports should take into consideration the safety areas identified in the Airport Land Use Commission (ALUC) policies (also reflected in commercial and industrial goals and policies).
	40. As a condition of approval of development in the vicinity of airports, the City should require aviation easement dedications.
E. AESTHETIC, CULTURAL, AND RECREATIONAL RESOURCES	
1. Historic, Archaeological and Cultural Resources	Preservation of historically and archaeologically significant structures, sites, districts and artifacts in order to promote a greater sense of historic awareness and community identity and to enhance the quality of urban living.
	1. Because historically or archaeologically significant sites, structures and districts are irreplaceable resources, their preservation should be a key consideration in the development review process.
	5. New development in proximity to designated historic landmark structures and sites should be designed to be compatible with the character of the designated historic resource. In particular, development proposals located within the Areas of Historic Sensitivity designation should be reviewed for such design sensitivity.
	8. For proposed development sites which have been identified as archaeologically sensitive, the City should require investigation during the planning process in order to determine whether valuable archaeological remains may be affected by the project and should also require that appropriate mitigation measures be incorporated into the project design.
	9. Recognizing that Native American burials may be encountered at unexpected locations, the City should impose a requirement on all development permits and tentative subdivision maps that upon discovery of such burials during construction, development activity will cease until professional archaeological examination and reburial in an appropriate manner is accomplished.
3. Scenic Routes	Preserve and enhance the visual access to scenic resources of San Jose and its environs through a system of scenic routes.
F. NATURAL RESOURCES	
1. Natural Communities and Wildlife Habitat b. Riparian Corridors	2. Creeks and natural riparian corridors and upland wetlands should be preserved whenever possible. When disturbances cannot be avoided, appropriate measures should be required to restore, or compensate for damage to, the creeks or riparian corridors.
	3. New development adjacent to riparian corridors should be designed to minimize encroachment of lighting and exotic landscaping into the riparian zone.

TABLE 2.6.1 (Continued)
APPLICABLE CITY OF SAN JOSE *GENERAL PLAN* GOALS AND POLICIES

Issue Area	Applicable *General Plan* Goals and Policies
2. Water Resources	7. The City shall require the proper construction and monitoring of facilities storing hazardous materials in order to prevent contamination of the surface water, groundwater and underlying aquifers. In furtherance of this policy, design standards for such facilities should consider high groundwater tables and/or the potential for freshwater or saltwater flooding.
	10. The City should encourage a more efficient use of water by promoting water conservation techniques and the use of water-saving devices.
	11. The City should promote the use of reclaimed water when feasible, particularly for industrial users, for irrigation and in groundwater recharge areas.
4. Air Quality	1. The City should take into consideration the cumulative air quality impacts from proposed developments and should establish and enforce appropriate land uses and regulations to reduce air pollution consistent with the region's Clean Air Plan and State law.
	3. The City should urge effective regulation of those sources of air pollution, both inside and outside of San Jose, which affect air quality. In particular, the City should support Federal and State regulations to improve automobile emission controls.
5. Energy	4. The energy-efficiency of proposed new development should be considered when land use and development review decisions are made. The City's design techniques include provisions for solar access, for siting structures to maximize natural heating and cooling, and for landscaping to aid passive cooling protection from prevailing winds and maximum year-round solar access.
	6. All street lights in areas outside of the Downtown Core Area should use the low-pressure sodium vapor. Within the Downtown Core Area, high pressure sodium vapor street lights should be used.
	7. The City should require low-pressure sodium vapor lighting for outdoor, unroofed areas in all new developments and encourage existing development to retrofit using low-pressure vapor lighting.
G. HAZARDS 1. Soil and Geologic Conditions	1. The City should require soils and geologic review of development proposals to assess such hazards as potential seismic hazards, surface ruptures, liquefaction, landsliding, mudsliding, erosion and sedimentation in order to determine if these hazards can be adequately mitigated.
2. Earthquakes	1. The City should require that all new buildings be designed and constructed to resist stresses produced by earthquakes.
	3. The City should only approve new development in areas of identified seismic hazard if such hazard can be appropriately mitigated.
	4. The location of public utilities and facilities, in areas where seismic activity could produce liquefaction should only be allowed if adequate mitigation measures can be incorporated into the project.

TABLE 2.6.1 (Continued)
APPLICABLE CITY OF SAN JOSE *GENERAL PLAN* GOALS AND POLICIES

Issue Area	Applicable *General Plan* Goals and Policies
	5. The City should continue to require geotechnical studies for development proposals; such studies should determine the actual extent of seismic hazards, optimum location for structures, the advisability of special structural requirements, and the feasibility and desirability of a proposed facility in a specified location.
	6. Vital public utilities as well as communication and transportation facilities should be located and constructed in a way which maximizes their potential to remain functional during and after an earthquake.
3. Flooding	1. New development should be designed to provide protection from potential impacts of flooding during the "1 percent" or "100-year" flood.
	2. Development in watershed areas should only be allowed when adequate mitigation measures are incorporated into the project design to prevent unnecessary or excessive siltation of flood control ponds and reservoirs.
4. Fire Hazards	2. All new development should be constructed, at a minimum, to the fire safety standards contained in the San Jose Building Code.
	4. Alternative water resources for fire fighting purposes should be identified for use during a disaster.
	5. Anticipated fire response times and fire flows should be taken into consideration as a part of the Development Review process.
	6. New development should provide adequate access for emergency vehicles, particularly fire fighting equipment, as well as provide secure evacuation routes for the inhabitants of the area.
	7. The City should regulate the storage of flammable and explosive materials and strongly encourage the proper transportation of such materials.
5. Noise	1. The City's acceptable noise level objectives are 55 Ldn as the long-range exterior noise quality level, 60 Ldn as the short-range exterior noise quality level, 45 Ldn as the interior noise quality level, and 76 Ldn as the maximum exterior noise level necessary to avoid significant adverse health effects. These objectives are established for the City, recognizing that the attainment of exterior noise quality levels in the environs of the San Jose International Airport and in the Downtown Core Area will probably not be achieved in the time frame of this Plan. To achieve this noise objectives, the City should require appropriate site and building design, building construction and noise attenuation techniques in new residential development.
	4. The City should monitor Federal legislative and administrative activity pertaining to aircraft noise for new possibilities for noise-reducing modifications to aircraft engines beyond existing Stage 3 requirements. In addition, the City should monitor the ongoing FAA study group discussions pertaining to land use around airports and oppose Federal policies pre-empting local land use authority. The City should monitor any efforts at the Federal level to revise or modify the Federal schedule for phase-out of Stage 2 aircraft. The City should continue to encourage the use of quieter aircraft at the San Jose International Airport.

TABLE 2.6.1 (Continued)
APPLICABLE CITY OF SAN JOSE *GENERAL PLAN* GOALS AND POLICIES

Issue Area	Applicable *General Plan* Goals and Policies
	5. The City should continue to require safe and compatible land uses within the International Airport noise zone (defined by the 65 CNEL contour as set forth in State law) and should also encourage operating procedures which minimize noise.
	6. The should continue to encourage the Federal Aviation Administration to enforce current cruise altitudes which minimize the impact of aircraft noise on land uses.
	9. Construction operations should use available noise suppression devices and techniques.
6. Hazardous Materials	1. The City should require proper storage and disposal of hazardous materials to prevent leakage, potential explosions, fires, or the escape of harmful gases, and to prevent individually innocuous materials from combining to form hazardous substances, especially at the time of disposal.
	3. The City should incorporate soil and groundwater contamination analysis within the environmental review process for development proposals. When contamination is present on a site, the City should report this information to the appropriate agencies that regulate the cleanup of toxic contamination.
7. Hazardous Waste Management	1. To protect public health, safety, and the environment, whenever feasible, by reducing or eliminating the generation of hazardous waste as expeditiously as possible through the adoption and implementation of a hierarchy of hazardous waste management priorities by hazardous waste generators. The hazardous waste management hierarchy emphasizes the importance of preventing pollution by giving primacy to reducing hazardous waste at the source of generation. The hierarchy requires source reduction and recycling particularly as alternatives to land disposal whenever feasible.
	9. Proper storage and disposal of hazardous wastes shall be required to prevent leaks, explosions, fires, or the escape of harmful gases, and to prevent materials from combining to form hazardous substances and wastes.

be addressed in the proposed Master Plan Update (see specific technical sections of this EIR). The Project Case Alternatives are not inconsistent with the existing City of San Jose *General Plan*.

2.6.2 SANTA CLARA GENERAL PLAN

The City of Santa Clara *General Plan* contains discussion about the noise impacts from aircraft activity to residents and businesses in the City of Santa Clara. The portion of the northwest corner of the Airport located in the City of Santa Clara is designated as "Airport" in the *General Plan*.

Discussion: The Project Case Alternatives are not inconsistent with the existing City of Santa Clara *General Plan*.

2.6.3 APPLICABLE FEDERAL PLANS

2.6.3.1 National Plan of Integrated Airport Systems

The FAA prepares and regularly updates a plan for the development of public-use airports called the National Plan of Integrated Airport Systems (NPIAS). SJC is designated as a "primary commercial service" airport in the FAA Plan. Inclusion in the FAA Plan enables SJC to be eligible for federal grant and passenger facility charge (PFC) funds.

Discussion: The Project Case Alternatives are not inconsistent with the existing FAA Plan.

2.6.4 APPLICABLE STATE PLANS

2.6.4.1 California Aviation System Plan

The State Department of Transportation prepares and regularly updates the California Aviation System Plan (CASP) for the purpose of developing and preserving a state-wide airport system that meets aviation demand. For SJC, the CASP generally incorporates the findings and recommendation of the Regional Airport System Plan (RASP) prepared by the Metropolitan Transportation Commission (see below) and the capital improvement program element of the CASP, which specifically includes many of the project components of the Project Case.

Discussion: The Project Case Alternatives would not be inconsistent with the California Aviation System Plan.

2.6.4.2 Santa Clara Valley Non-Point Source Program

The Non-Point Source Program was developed in accordance with the requirements for the 1986 San Francisco Bay Basin Water Quality Control Plan, for the purpose of reducing water

pollution associated with urban stormwater runoff. This program was also designed to fulfill the requirements of the Section 304(1) of the Federal Clean Water Act, which mandated that the EPA develop National Pollution Discharge Elimination System (NPDES) Permit application requirements for various stormwater discharges, including those from municipal storm drain systems and construction sites.

The State Water Resources Control Board implemented a NPDES general construction permit for the Santa Clara Valley. For properties of five acres or greater, a Notice of Intent (NOI) and Storm Water Pollution Prevention Plan (SWPPP) must be prepared prior to commencement of construction.

Discussion: The Project Case Alternatives would not be inconsistent with the Santa Clara Valley Non-Point Source Program.

2.6.4.3 Santa Clara County Congestion Management Program

The Santa Clara Valley Transportation Authority (SCVTA) has prepared the Santa Clara County *Congestion Management Program* (CMP), last updated in October 1995. The relevant State legislation requires that all urbanized counties in California prepare CMPs in order to obtain each county's share of the increased gas tax revenues. The CMP legislation requires that each CMP contain five mandatory elements: (1) a system definition and traffic level of service (LOS) standard element; (2) a transit service and standards element; (3) a transportation demand management and trip reduction element; (4) a land use impact analysis element; and (5) a capital improvement element. Santa Clara County's CMP includes the five mandated elements and three additional elements, including: a county-wide transportation model and database element, an annual monitoring and conformance element, and a deficiency plan element.

The Santa Clara County CMP includes subregional roadways within north San Jose that are identified as CMP road facilities. The existing primary CMP facilities in the immediate vicinity of the project site that would be affected by future traffic generated by the Master Plan Update include: Coleman Avenue, De La Cruz Boulevard, Trimble and Brokaw Roads, and the regional facilities U.S. 101, I-880, and SR 87.

The project site is located just south of the boundaries of the North San Jose Deficiency Plan Area, which extends from SR 237 to the north, the Guadalupe River to the west, Coyote Creek to the east, and U.S. 101 to the south. Roadways that serve the Airport are within the deficiency plan area. The deficiency plan area encompasses all local CMP facilities within San Jose that are anticipated to exceed the CMP's LOS standard by the year 2000 as a result of projected industrial development within this area.

A CMP traffic impact analysis (TIA) was conducted for the proposed Master Plan Update at 13 project area intersections that are part of the CMP roadway network (see sections I and II of Appendix 3.3.A).

Discussion: All development projects within the deficiency plan area are assumed to affect deficient CMP facilities. As a result, all future development meeting certain thresholds must implement measures contained in the North San Jose Deficiency Plan. The Project Case Alternatives would not be inconsistent with the Santa Clara County Congestion Management Program.

2.6.4.4 Santa Clara County Airport Land Use Commission

Under California law, every county with a public-use airport must have an Airport Land Use Commission (ALUC) to provide for the orderly development of each public-use airport and the area surrounding it to promote the objectives of the California Airport Noise Standards and to prevent the creation of new noise and safety problems. ALUCs are separate governing agencies from the counties and cities, although commission membership includes representation from elected county and city governing bodies.

ALUCs have two specific duties: (1) to prepare and adopt a land use plan around each public-use airport in the county; and (2) to review proposed local agency land use actions and airport plans within the adopted ALUC plan area for consistency with the ALUC Plan. Such local agency actions include city general plans and amendments, specific plans, zoning ordinances and rezonings, and airport master plans. ALUCs have no authority over the operation of airports or existing land uses in an airport vicinity.

The *Land Use Plan for Areas Surrounding Santa Clara County Airports* was prepared and adopted by the Santa Clara County ALUC in 1973, and updated in 1992. The adopted referral boundary for SJC is based on the 1981 65 dB CNEL noise impact area, which is larger than the current noise impact area.

The major land use policies of the ALUC Plan relevant to SJC are as follows:

> General Policies. Local jurisdictions should encourage the conversion of currently incompatible land uses to land uses compatible with the ALUC plan, where economically feasible. Projects proposed within an adopted referral area must be approved by ALUC and require an aviation easement.
>
> Noise Policies. ALUC establishes CNEL as a method for measuring noise impacts. Within the 65 CNEL of SJC, single event noise exposures are also considered when determining the compatibility of new land uses. New land uses will only be considered if adequate interior noise insulation can be performed, exterior noise levels will not be intrusive, single-event noise levels will be compatible with type of use proposed, and/or if an aviation easement will be granted.

Airport Safety Policies. Each ALUC safety zone shall be comprised of an inner and outer safety area. The inner portion, the off-airport area adjacent to the runway, should remain undeveloped. The outer portion, a second rectangular area separated from the runway by the first area, restricts land use and population densities to non-residential land uses (e.g., agriculture, recreational parks, storage of seasonal equipment, parking, single-story warehouse). The outer portion is further limited to the presence of no more than ten persons on an annual average and no more than 25 persons at any one time on each net acre. Above-ground storage of more than 100 gallons of flammable liquids or toxic materials on any one net acre of the safety zone is prohibited. No object shall be erected or permitted to grow above the primary surface of the runway within the designated inner safety areas, directly adjacent to the ends of the runways. Other activities prohibited in the safety zone include the erection of growth of objects which rise above an approach surface, cause the weather minimums to be raised, or could reflect sunlight toward an aircraft engaging in a straight approach toward landing. Exemptions to these safety policies are granted on a case-by-case basis by ALUC.

Discussion: The Master Plan Update does not include any changes in the ALUC safety zones as part of the Project Case Alternatives. If the ALUC were to modify their safety zones as a result of the Master Plan Update, incompatible land uses may be incorporated into the modified safety zones. Thus, some of the existing land uses would not be allowed in the ALUC Plan except for the fact that these land uses currently exist. Therefore, the Project Case Alternatives would not be inconsistent with the ALUC Plan.

2.6.5 APPLICABLE REGIONAL PLANS

2.6.5.1 Bay Area Clean Air Plan

In 1991, an air quality plan, *Bay Area '91 Clean Air Plan ('91 CAP)*, was developed to meet the requirements of the California Clean Air Act (CCAA). The goal of the *'91 CAP* is to improve air quality through the 1990s through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives. The *'91 CAP* included transportation control measures (TCMs), such as the employer-based commute rules, that were intended to meet the transportation-related performance standards set forth in the CCAA. The *'91 CAP* has been updated with the *Bay Area '94 Clean Air Plan ('94 CAP),* that contains additional control strategies, including development of new rules that would require operators of airport ground support equipment (GSE), such as baggage tractors, belt loaders, etc., to convert to (or replace with) alternatively-fueled vehicles.

Discussion: The Project Case Alternatives would not be inconsistent with the Bay Area Clean Air Plan.

2.6.5.2 Regional Airport System Plan

The Metropolitan Transportation Commission (MTC), the regional transportation planning agency for the nine-county San Francisco Bay Area, formulates and maintains a Regional

Airport System Plan (RASP) to guide the development of the Bay Area's airport system. MTC approved an updated RASP in 1994 that calls for the expansion of SJC to meet its share of regional air passenger demand in 2010 (estimated by MTC as 16.1 million annual passengers, or 19 percent of regional demand) and specifically includes many of the project components of the Project Case. The RASP explicitly acknowledges that MTC's aviation forecasts were developed for regional-level planning and may be superseded at the local level by more specific forecasts developed for individual airport master planning.

Discussion: The Project Case is designed to serve a demand of 17.6 million annual passengers in 2010. Project Case Alternatives A and B do not meet the demand identified in the RASP for SJC, nor do they include some of the specific project components included in the RASP.

2.6.6 APPLICABLE COUNTY PLANS

2.6.6.1 County of Santa Clara General Plan

The County's *General Plan* discusses countywide issues related to the existing airports within the County. Currently, there are five airports in Santa Clara County. The County operates three general aviation airports: Palo Alto, Reid-Hillview, and South County. The City of San Jose owns and operates SJC, which is the only airport that provides air carrier and air cargo services. The last airport, Moffett Federal Airfield operated by NASA, is not available for non-federal air traffic.

The County's *General Plan* cites the Regional Airport System Plan's projections of air traffic growth at SJC and the corresponding need to increase facilities at the Airport to accommodate such growth.

It recommends that SJC divert a "significant portion of general aviation air traffic" to the County's general aviation airports (Policy C-TR(i)49). It also recommends that in order for activity at all of Santa Clara County's airports to be supported and enhanced, that a countywide airport master plan be developed (Policy C-TR(i)48 and 50). In addition, Policy C-TR(i)52 states that the County should "support and legally enforce ALUC actions to prevent incompatible land use around airports."

Discussion: The Project Case Alternatives would not be inconsistent with the County of Santa Clara *General Plan*.

EXISTING CONDITIONS, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

CHAPTER 3

CHAPTER 3

EXISTING CONDITIONS, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 LAND USE

Project-related land use impacts in the Airport vicinity are primarily associated with an increase in development that would result from implementation of the Project Case and Project Case Alternatives. The primary issues are the compatibility of the Project Case Alternatives with adjacent land uses, some of which are considered to be sensitive (such as residential development and schools), and the compatibility of project development with the function of the Airport as a major transportation facility. In this section, discussion of the land uses and the analysis of impacts is based on reconnaissance of the Airport and adjacent areas, aerial photographs, and land use maps.

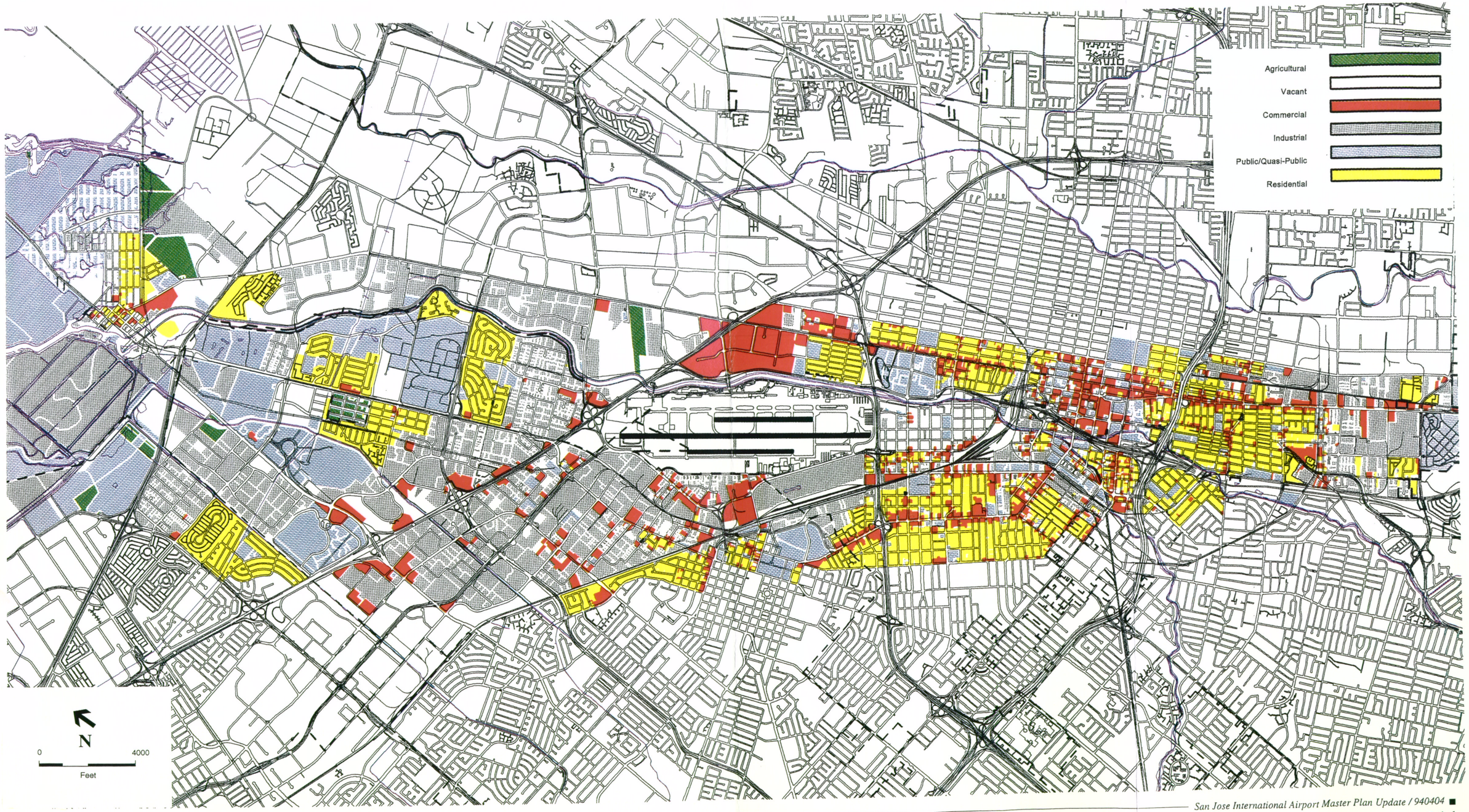
3.1.1 OVERVIEW OF LAND USE REGULATIONS

A number of policies and plans govern land uses on and adjacent to SJC. The most important of these are the *General Plans* of the Cities of San Jose and Santa Clara, each of which designates land use for all properties within its respective jurisdiction. The existing land use designations for SJC and the surrounding area are shown on Figure 3.1.1. The *General Plans* also contain many policies pertaining to land use development and land use compatibility, as described previously in Section 2.6 of this EIR.

Both the FAA and the Santa Clara County Airport Land Use Commission (ALUC) have established various safety zones at and around SJC that limit various land uses. These safety zones are described as follows:

3.1.1.1 FAA Runway Object Free Area (OFA)

The OFA is a rectangular safety area located at the physical end of each runway to ensure that stationary objects are not placed within proximity to the runway. No stationary objects are allowed within an OFA except those required for aviation (e.g., navigation aids, runway lighting, etc.). The FAA encourages extension "of the OFA beyond the standard length to the maximum extent feasible." The FAA has also taken the position that property acquired with federal grant funds for Airport purposes, and which is located in the vicinity of an extended runway centerline, is and should be treated as an "extended OFA." This means that such property would be subject to OFA restrictions on future development.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.1.1
Existing Land Uses

3.1.1.2 FAA Runway Protection Zone (RPZ)

An RPZ is a trapezoidal-shaped area at ground level whose function to protect people and property is achieved by preventing the placement of obstacles or hazards in the path of aircraft.[1] Land uses that create glare, have lights that interfere with aviation, or create smoke are not allowed within a RPZ. Other prohibited uses include residences, churches, schools, offices, fuel storage/handling facilities, shopping centers, and stadiums, as well as any other land uses where public assembly occurs. Agricultural operations and golf courses are allowed within a RPZ, provided that they do not attract birds. Automobile parking within the RPZ is allowed, as long as vehicle height is below the approach surface. The existing RPZs, shown in Figure 3.1.2, are almost entirely on Airport property.

3.1.1.3 ALUC Safety Zones

The Santa Clara County ALUC has established safety zones around each of the airports in the County, including SJC, for the purpose of minimizing the number of people exposed to aircraft crash hazards. Similar to the FAA's OFA described above, the ALUC safety zones are located at the ends of the runways and are rectangular. However, the ALUC zones are generally much larger than the OFA. The jurisdiction of the ALUC is limited to a review of new land uses that might fall within an ALUC zone. Some existing land uses within a given ALUC safety zone otherwise might not have been constructed had the safety zones been in place at the time the development was approved.

The ALUC breaks its safety zones down into the "inner safety area" and the "outer safety area". The inner safety area consists of the first 1,500 feet extending from the ends of each runway. The inner safety area "should preferably remain undeveloped," but automobile parking is allowed (ALUC, 1992). The outer safety area is the portion of the safety zone that extends beyond the inner safety area. Development within the outer safety area is restricted to non-residential uses with low population densities (e.g., agriculture, parks, one-story warehousing, automobile parking, etc.). In addition, land uses in the outer safety area are limited to those that meet population density restrictions of no more than 10 persons on an annual average and no more than 25 persons at any one time on each net acre.

The ALUC safety zones for SJC are illustrated in Figure 3.1.2. Safety at the southern ends of SJC's main runways is enhanced by the use of a displaced landing threshold, meaning that the portion of the runway south of Taxiway C is unused during landings. Additional safety protection is afforded by the fact that lands south of the ALUC safety zones and directly under the flight path are, for the most part, owned by the City of San Jose and have been cleared of all structures.

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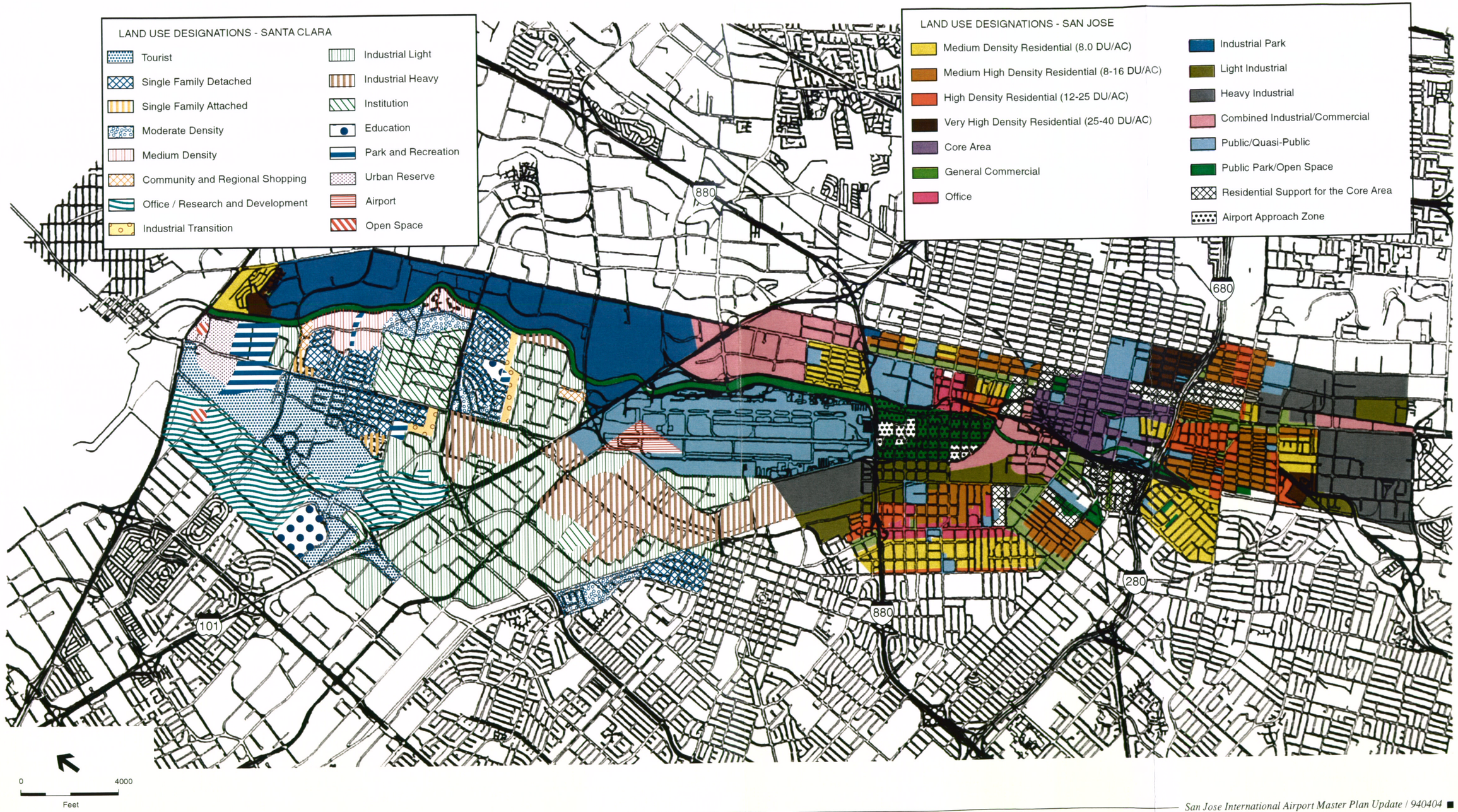
[1] The size of an RPZ depends on the category of aircraft which utilize the runway. FAA guidelines recommend that the airport operator control as much as the RPZ as possible to ensure protection against placement of objects or uses that are incompatible with safe aircraft approach.



SOURCE: City of San Jose; City of Santa Clara

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.1.2
General Plan Land Use
Designations in Airport Vicinity

3.1.2 SETTING AND EXISTING CONDITIONS

3.1.2.1 Existing Airport Land Uses

Most of the approximately 1,000 acres of the Airport are composed of airfield uses (i.e., Runways 11/29, 12L/30R and 12R/30L; taxiways; and clear areas). Air passenger and air cargo activity occur primarily on the east side of the Airport where Terminals A and C are located. General aviation activity occurs on the southeast, south, and southwest side of the Airport where the general aviation operators, T-hangars and access to Runway 11/29 are located. Undeveloped portions of the Airport include land previously in agricultural use on the west side of SJC and vacant land north of U.S. 101.

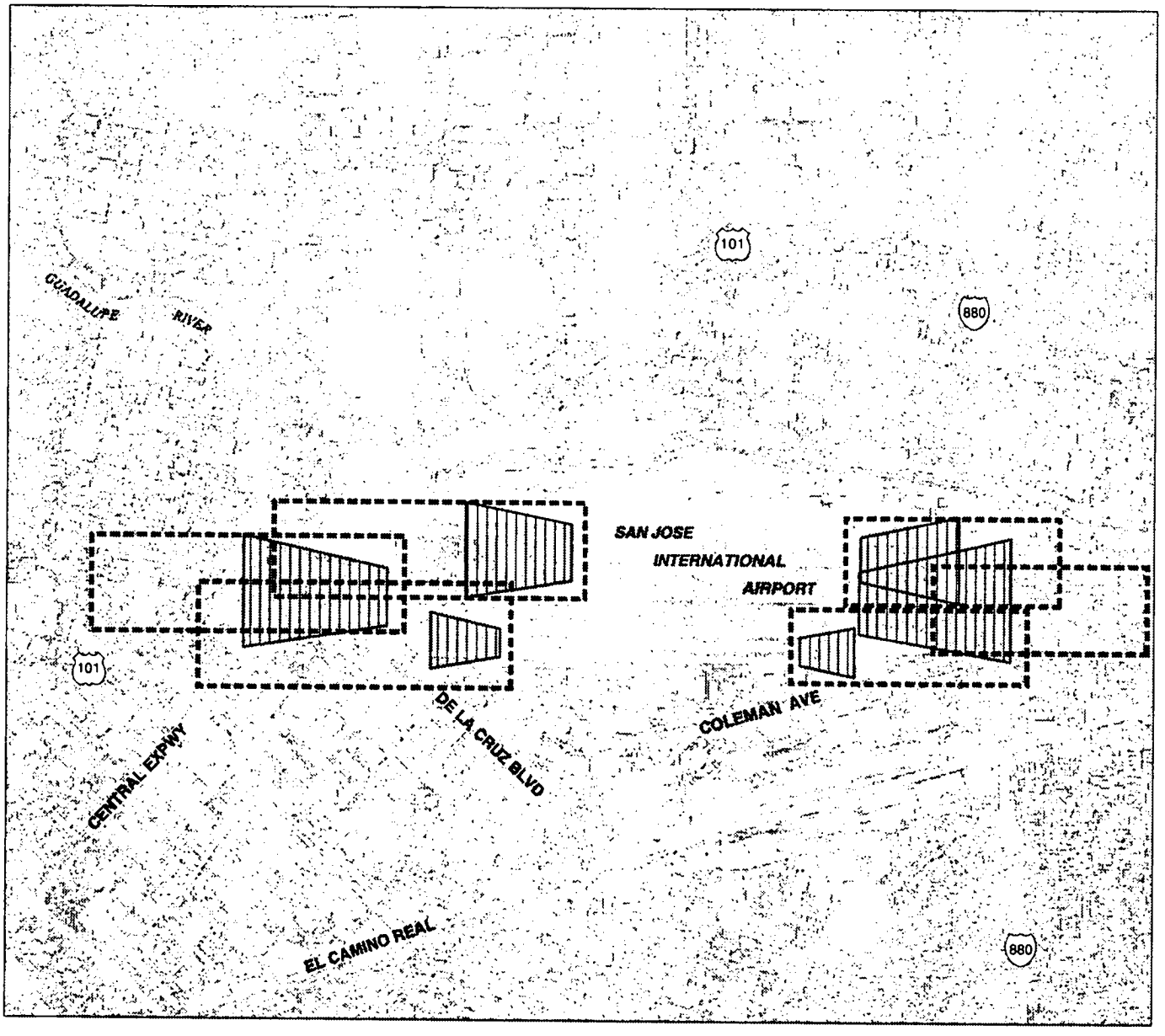
3.1.2.2 Existing Surrounding Land Uses

Airport Vicinity

Figure 3.1.3 illustrates the existing land uses within an approximately four-mile by two-mile area around the Airport (i.e., the area within the existing 65 CNEL noise contour). Land uses north of the Airport are primarily industrial with some commercial, residential, public and vacant land uses. Land uses south of the Airport are primarily a mixture of residential and commercial uses with some public and vacant land uses.

Adjacent Land Uses

Immediately adjacent to the Airport are industrial, commercial, residential, public open space, and vacant land uses (see Figure 3.1.3). These land uses are generally consistent with the *General Plan* designations at the Airport and in the Airport vicinity (see Figure 3.1.1). Bordering the easterly edge of the Airport is the Guadalupe River, which serves as public open space and floodway. Immediately east and parallel to the river is the Guadalupe Parkway (SR 87). Together, the river and the Guadalupe Parkway act as physical barriers, separating the Airport from a commercial area comprising office buildings and overnight lodging (e.g., the Red Lion Inn and Hyatt Hotel), and the Rosemary Gardens residential neighborhood to the east. Immediately south of the Airport is I-880, which separates the Airport from the Coleman Loop area of San Jose to the south. This area is located in the Airport Approach Zone and is described in greater detail below. Southwest of the Airport along Coleman Avenue and De La Cruz Boulevard are industrial (e.g., FMC complex), warehousing, office and retail commercial uses. These land uses are physically separated from the Airport by buildings on the west side of the Airport that house general aviation and other Airport-related activities. The land uses north of the Airport, physically separated from the Airport by U.S. 101, consist of industrial, commercial, institutional, and residential land uses.



ALUC Safety Zones

FAA Runway Protection Zone (RPZ)

0 4000
Feet

SOURCE: Santa Clara County Department of Planning and Development, August 1992

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.1.3
Existing FAA Runway Protection Zones and ALUC Safety Zones

Land uses in the general vicinity of the Airport that are categorized as "noise sensitive" include schools, parks, libraries, and various residential uses. These specific land uses, and their compatibility with Airport operations, are identified and discussed in detail in Section 3.5, Noise.

Airport Approach Zone

The San Jose *General Plan*, whose policies are discussed in Section 2.6, contains an Airport Approach Zone overlay land use designation that sets guidelines for the allowed land uses within the generalized aircraft approach area. The Airport Approach Zone is a 230-acre area immediately south of the Airport and bounded by I-880, the Guadalupe River, and Coleman Avenue. This area (commonly known as the "Coleman Loop") is partially owned by the Airport and is under the primary approach path for aircraft arrivals at SJC. It was once a largely residential neighborhood entirely within the 75, 70, or 65 db CNEL noise impact area of the Airport.

In the late 1960s the City of San Jose began acquiring residential and certain other incompatible land in the Coleman Loop area. An Airport Approach Zone Land Acquisition Program was formally authorized by the San Jose City Council in 1974. The program consisted of the purchase of approximately 625 parcels totaling 120 acres in the Coleman Loop area and relocation of residents and clearance of the acquired property. The purpose of the program, according to the 1974 EIR/EIS prepared for the project, was to comply with State and federal guidelines by ensuring a clear and safe approach area to the south of the Airport and land uses (specifically agriculture or open space) that would remain compatible with noise from aircraft operations. Funding to implement the program was provided primarily from the FAA in the form of grants for partial reimbursement of eligible program costs. The Airport Approach Zone Land Acquisition Program was completed in the early 1990s at a total cost of approximately $80 million.

In 1987, in keeping with the objectives of the program, the City Council changed the *General Plan* land use designation for the land acquisition program area to Public Park/Open Space. In compliance with the federal grants used to fund the acquisition program, any reuse of the property would require approval from the FAA. Other land uses in the Coleman Loop include a long-established public park (Columbus Park) and a variety of industrial, commercial, and institutional land uses that have historically been considered compatible with the Airport.

The eastern edge of the acquisition area is currently within the joint Santa Clara Valley Water District/City of San Jose Guadalupe River Flood Control and Guadalupe River Park project, which is under construction. With FAA approval, the Water District was granted a flood control easement by the City to construct the flood control project on the portion of the river between I-880 and Hedding Street; and a similar easement for the portion of the river between Hedding Street and Coleman Avenue is anticipated during 1996. These Airport-acquired properties are

being maintained as Airport-compatible open space, either as part of the widened channel of the Guadalupe River or as passive elements of the Guadalupe River Park.

In 1988, the City commenced preparation of an interim land use plan and long-term site utilization report for the Coleman Loop area. The objective of this study effort was to improve the aesthetic appearance of the vacant land and provide productive open space uses. In 1990, the City completed the interim land use and long-term site utilization report. The report recommended a combination of public gardens, commercial garden plot leaseholds, and public open spaces that would be compatible with the FAA restrictions, the City *General Plan*, and the adjacent Guadalupe River Park. The City initiated preparation of a "Guadalupe Gardens master plan" in 1992 to formulate a more specific development and implementation plan for the uses recommended in the earlier interim land use and site utilization report. The FAA reviewed a draft of this master plan and found a number of provisions in the plan that are inconsistent with federal grant conditions and related legal obligations of the City. *Interim* reuses approved by the FAA and implemented by the City in this area include two garden plots and an orchard south of Taylor Street. The plan is now being further reviewed and revised by the City.

3.1.3 LAND USE IMPACTS

This section identifies the impacts of the Project Case Alternatives on existing and future development of surrounding land uses. The section also evaluates the significance of impacts, and identifies mitigation measures to reduce significant impacts to less-than-significant levels. These impacts relate to changes in on-Airport land uses, and the compatibility of these land use changes with land uses adjacent to the Airport as well as with the operation of the Airport as a major transportation facility.

The section first identifies and analyzes impacts of the Master Plan Update Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by the impacts of the No Project Alternative.

3.1.3.1 Land Use Impacts of the Project Case

Changes in On-Airport Land Uses Impact

The Project Case accommodates all physical changes associated with the Master Plan Update on existing Airport property. Thus, no land will need to be acquired by the City for the purpose of implementing any of the projects proposed as a part of the Project Case.

The Project Case would result in the conversion of approximately 40 acres of vacant land on the west side of the Airport for air cargo operations. This property is identified as Prime Farmland on the U.S. Soil Conservation Service's Prime Farmlands Map for Santa Clara County. The land was leased for agricultural use on a temporary basis for the purpose of reducing airfield

maintenance costs. However, the lease for this property expired, and farming operations ceased as of December 31, 1995. The 1980 Airport Master Plan designated this area for future aviation uses. The limited size of the area, coupled with the typical constraints on agricultural operations that are surrounded by urban land uses (e.g., restricted crops, use of pesticides, dust control, equipment access), render use of this area for agricultural production uneconomic in the long-term.

The Project Case would result in a number of other changes to existing land uses on the Airport. These changes include a substantial downsizing of general aviation facilities (see Section 3.3.2.1 for details), the removal of a restaurant on the west side of the Airport upon expiration of its lease, and the removal of facilities used by the San Jose State University Department of Aeronautics upon expiration of its lease. None of these proposed on-site land use changes would adversely affect the functioning of SJC as a major transportation facility. Rather, these changes are proposed in order to accommodate the previously-described demand for air transportation services (see Section 2.1).

No development is proposed within the OFAs and RPZs of any SJC runway that would conflict with the functions of these areas. Rather, the removal of the south-end general aviation facilities under the Project Case during Phase 1 would enhance the safety function of the Runway 30R RPZ and the Runway 30L RPZ.

Under different circumstances, the conversion to non-agricultural use or impairment of the productivity of prime agricultural land can constitute a significant environmental effect. However, in view of the small size of the land to be converted and the constraints on long-term economic viability of agricultural use imposed by surrounding urban development, the impact would be less than significant.

In addition to the above criterion, a project would have a significant impact if it would conflict with adopted environmental plans and goals of the community in which it is located or conflict with established uses of the area. Although the Project Case would cause some changes to existing land uses on the Airport, none of these would conflict with adopted environmental plans and goals of the relevant communities, i.e., Cities of San Jose and Santa Clara (see also Section 2.6, Plans and Policies). New uses proposed within the Airport would be consistent with the predominant use of and plans for the Airport, namely, its safe and effective function as a major air transportation facility.

Changes in On-Airport Land Uses Impact (Prime Farmland): The Project Case would result in the conversion of land designated as prime farmland to aviation uses. (LESS THAN SIGNIFICANT)

Changes in On-Airport Land Uses Impact (Other On-Airport Uses): The Project Case would not result in any land use changes on the Airport that would adversely affect the

functioning of SJC as a major transportation facility, nor would the non-renewal of certain leases result in any significant adverse impacts on existing on-Airport land uses. (LESS THAN SIGNIFICANT)

Adjacent Land Use Compatibility Impact

The Project Case would not require the acquisition of any off-Airport property, nor would it require a change in existing land uses in areas surrounding SJC. Generally, the land use impacts of the Project Case upon surrounding land uses would fall into one of three categories:

- Compatibility of Proposed On-Airport Facilities with Adjacent Land Uses
- Compatibility with Surrounding Land Uses due to Increases in Airport Operations
- Compatibility of Existing and Future Land Uses due to Changes in Safety Zones

Compatibility of Proposed On-Airport Facilities with Adjacent Land Uses

Although the Project Case would result in an increase in the intensity of land uses at the Airport, this would not change the existing relationship of compatible land uses between the Airport and adjacent areas. Most of the increase in land use intensities would occur on the east side of the Airport in the areas where new terminals and parking structures would be built. The Guadalupe River corridor and Guadalupe Parkway (SR 87) would continue to act as a buffer between new Airport facilities and land uses east of the Guadalupe Parkway. The pending upgrade of Guadalupe Parkway to freeway status includes the development of sound walls, which would further buffer adjacent land uses from the proposed increase in land use intensities at the Airport.

The land uses adjacent to the proposed fuel storage facility on the north side of U.S. 101 are generally industrial and commercial (business park) land uses. Although these land uses typically are not considered to be sensitive (compared to residential units, schools, etc.), the area also includes a motel. The proposed fuel storage facility would introduce a land use that carries certain hazards. The impacts of this facility are discussed in detail in the following sections of this EIR: 3.6, Hydrology and Water Quality; 3.7, Geology and Seismicity; 3.8, Biological Resources; 3.10, Aesthetics; and 3.12, Hazardous Materials.

Compatibility with Surrounding Land Uses due to Increases in Airport Operations

The Project Case would result in an increase in the level of operations at SJC, as compared to the level of operations that would occur under no project conditions. This increase in operations would, in turn, have some environmental impacts on the land uses surrounding the Airport. These impacts are discussed in Sections 3.3, Traffic and Transportation; 3.4, Air Quality; and 3.5, Noise.

Compatibility of Existing and Future Land Uses due to Changes in Safety Zones

The Project Case includes the extension of both Runway 12R/30L and Runway 12L/30R. These runway extensions will change some of the existing OFAs, RPZs, and ALUC safety zones, as described below.[2]

The OFAs and RPZs for Runway 12R/30L would remain unchanged even though the runway would be physically lengthened, because the OFA and RPZ are based upon the existing displaced thresholds for that runway, and those thresholds would not change.

The OFA and RPZ at the south end of Runway 12L/30R would remain unchanged even though the runway would be physically lengthened because the landing threshold for Runway 30R would be displaced to Taxiway C. However, the OFA and RPZ at the north end of Runway 12L/30R would change as a result of the runway lengthening. Specifically, those areas would be shifted approximately 3,000 feet to the north. The new RPZ at the north end of Runway 12L/30R would extend off Airport property to include part of the U.S. 101/Trimble/DeLaCruz interchange and part of one industrial building along Channing Avenue in San Jose. These existing uses would not be incompatible with the RPZ, nor do these uses encroach into the runway approach surfaces (Welch, 1996).

The extension of Runways 12R/30L and 12L/30R would not change the existing ALUC safety zones at the south ends of both runways. The extension of Runway 12R/30L would not change the existing ALUC safety zone at the north end of the runway. These statements are based on the fact that the existing landing thresholds on Runway 12R/30L and 30R would remain unchanged; the longer runways would enhance safety for takeoffs on Runway 30L and 30R.[3]

The extension of Runway 12L/30R would change the existing ALUC safety zone at the north end of the runway. The dimensions of the zone would not change, but the zone would be shifted approximately 3,000 feet to the north. The zone would extend for a distance of 5,000 feet, beginning at Taxiway L, and ending at a location just south of Berto Avenue. The effect of this shift in the ALUC safety zone at the north end of Runway 12L/30R would be that additional existing industrial areas of Santa Clara would be within an ALUC safety zone. The term "additional" in the previous sentence refers to the fact that adjacent industrial areas in Santa Clara are already located within the ALUC safety zone at the north end of Runway 12R/30L. All existing land uses would be unaffected by this change because ALUC policies do not apply to existing uses. Future development would be unaffected by this change because there is no vacant developable land in this area. Finally, safety would not be adversely affected because aircraft

2 It is recognized that only the ALUC itself can change its safety zones. This discussion assumes that the ALUC would choose to amend its safety zones if the runways at SJC are extended.

3 In 1992, when Runway 12R/30L was extended to its current length, the ALUC chose not to extend the safety zones for these same reasons.

landing on Runway 12L would use a displaced threshold and because aircraft departing on Runway 30R would be able to use a longer runway.

For purposes of this EIR, a project would have a significant land use impact if it would substantially alter compatible land uses between the Airport and surrounding areas, displace a large number of people, conflict with established uses of the area, or disrupt or divide the physical arrangement of an established community. The intensification of Airport land uses proposed by the Project Case does not require any acquisition of land; all projects are self-contained within Airport lands. Therefore, the Project Case would not result in displacement of numbers of people nor divide or disrupt the physical arrangement of the established community. Neither the intensification of Airport land use nor necessary shifts in OFA, RPZ, and ALUC safety zones would alter the land use relationships between Airport operations and existing off-Airport land uses or conflict with established uses in the surrounding area. According to these criteria, land use impacts of the Project Case, with one exception discussed below, would be less than significant.

> ***Adjacent Land Use Compatibility Impact (Intensification; Safety Zones): The development and operation of SJC would not conflict with established land uses in the surrounding area or alter established land use compatibility with adjacent land uses. (LESS THAN SIGNIFICANT)***

The proposed new fuel storage facility presents a different significance conclusion for land use impacts. Fuel storage is generally compatible with industrial and commercial land uses. However, the adjacent business park also includes a motel. Because of the size of the proposed installation, and because the facility would involve the storage and handling of materials which pose a potential hazard to people in the area affected (a significance criterion discussed particularly in Section 3.12, Hazardous Materials), this EIR concludes that the risk posed by the facility would have a significant impact on adjacent land uses.

> ***Adjacent Land Use Compatibility Impact (Fuel Storage Facility): The installation and operation of the new fuel storage facility would conflict with established land uses by posing a hazard to people employed at or temporarily occupying adjacent land uses. (SIGNIFICANT)***

3.1.3.2 Land Use Impacts of Project Case Alternative A

Changes in On-Airport Land Uses Impact

The on-Airport land use impacts under Project Case Alternative A would be similar to those described above for the Project Case. However, on-Airport development under Project Case Alternative A would be somewhat smaller than that proposed by the Project Case. As a result, Project Case Alternative A would not fully accommodate the air passenger or air cargo demand at the Airport and some development of aviation support facilities could be expected off-Airport.

It is assumed that any off-Airport development of aviation-related businesses would occur in the surrounding community.

Adjacent Land Use Compatibility Impact

The adjacent land use compatibility impacts under Project Case Alternative A would be similar to those described above for the Project Case. However, because there would be less development and activity on the Airport under Project Case Alternative A, as compared to the Project Case, the degree of these impacts would be somewhat reduced. The fuel storage facility would be somewhat reduced in size from the Project Case, but would pose a similar significant impact.

3.1.3.3 Land Use Impacts of Project Case Alternative B

Changes in On-Airport Land Uses Impact

The on-Airport land use impacts under Project Case Alternative B would be similar to those described above for the Project Case. However, on-Airport development under Project Case Alternative B would be smaller than that proposed by the Project Case. As a result, Project Case Alternative B would not accommodate the air passenger or air cargo demand at the Airport and some development of aviation support facilities could be expected off-Airport. It is assumed that any off-Airport development of aviation-related businesses would occur in the surrounding community.

Adjacent Land Use Compatibility Impact

The adjacent land use compatibility impacts under Project Case Alternative B would be similar to those described above for the Project Case. However, because there would be less development and activity on the Airport under Project Case Alternative B, as compared to the Project Case, the degree of these impacts would be reduced. Further, because Project Case Alternative B would not lengthen existing Runway 12L/30R, the safety zones at the two ends of that runway would not be relocated. The fuel storage facility would be somewhat reduced in size from the Project Case, but would pose a similar significant impact.

3.1.3.4 Land Use Impacts of the No Project Alternative

The No Project Alternative would not result in any land use changes on the Airport and no fuel storage facility would be developed on the vacant land north of U.S. 101. No changes in the land use relationships between on-Airport property and adjacent land uses would occur. However, it is possible that some land use conflicts could result from off-Airport development of aviation support facilities, a consequence of not accommodating future air passenger and air cargo demand at the Airport. The nature and extent of this impact would be dependent on the location

of this development and the existing adjacent land uses. Runways would not be extended under the No Project Alternative. Therefore, the OFAs, RPZs, or ALUC safety zones would not be shifted.

3.1.4 MITIGATION MEASURES FOR SIGNIFICANT LAND USE IMPACTS

The previous section concluded that there would be one significant land use impact due to the Project Case or Project Case Alternatives: the installation of the new fuel storage facility on a currently undeveloped Airport property. Mitigation measures designed to minimize the possibility of an accidental release and the subsequent risk of exposure of people occupying adjacent land, as well as exposure of biological resources in the Guadalupe River, are discussed in detail in Sections 3.6, Hydrology and Water Quality; 3.7, Geology and Seismicity; 3.8, Biological Resources; and 3.12 Hazardous Materials. The installation of the fuel storage tanks would be subject to stringent design criteria, as dictated by the Uniform Building Code, San Jose City Building Code, National Fire Protection Association Standards, among others. The new fuel storage facility also would require amending the existing SWPPP and reviewing and updating, as necessary, the Airport's Emergency Response Plan to include measures for the prevention and control of spills. The Emergency Response Plan is discussed in Section 3.12.3, Hazardous Materials: Mitigation Measures.

Impact Significance Conclusion: By adhering to stringent measures in design and operation of the fuel storage facility, the risk to adjacent land uses would be minimized and the land use compatibility impact would be less than significant. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.2 CULTURAL RESOURCES

Cultural resources consist of prehistoric and historic archaeological resources and historic buildings and structures. For a discussion of how cultural resources are identified and how impacts to those resources are identified, please see Appendix 3.2.A. Sources used to identify cultural resources at the Airport and in the Airport vicinity include previous archaeological studies and published documents and reports. This section discusses the presence of cultural resources and the impacts that could occur as a result of the implementation of specific new facilities that are part of the Master Plan Update.

3.2.1 SETTING AND EXISTING CONDITIONS

3.2.1.1 Airport History

The history of the Airport and the Airport vicinity begins with the first historic settlement in the Santa Clara Valley, which is the founding of the Mission Santa Clara on the banks of the Guadalupe River in 1777. After the secularization of the Mission, a portion of the subject lands were incorporated into Rancho El Potrero de Santa Clara and the rest of the land into Pueblo Lands of San Jose. Most of the area south of Brokaw Road remained as part of the large Stockton Ranch. The area north of Brokaw Road was divided into smaller parcels that ranged in size from six to one hundred acres.

Between 1940 and 1943, the City of San Jose purchased 483 acres of the Stockton Ranch as a site for a Municipal Airport. In 1946, the first Airport-related buildings were constructed for a flight school, California Aviation Activities. The Airport and terminal were opened in February of 1949. Between 1946 and 1961, the Airport facilities were limited to the area located between Newhall and Brokaw Roads. In 1957 the Guadalupe River was straightened and channelized, providing more usable land for the Airport along its eastern boundaries. In 1961, the runways were extended across Brokaw Road and a new terminal building was opened in the early 1960s.

The Airport consists of numerous buildings constructed since 1946. Most of these buildings were constructed after 1960 and are considered to be modern examples of airport-related architecture. Terminal C was first occupied in 1965 (and expanded four times since it was first occupied) and Terminal A was first occupied in 1990.

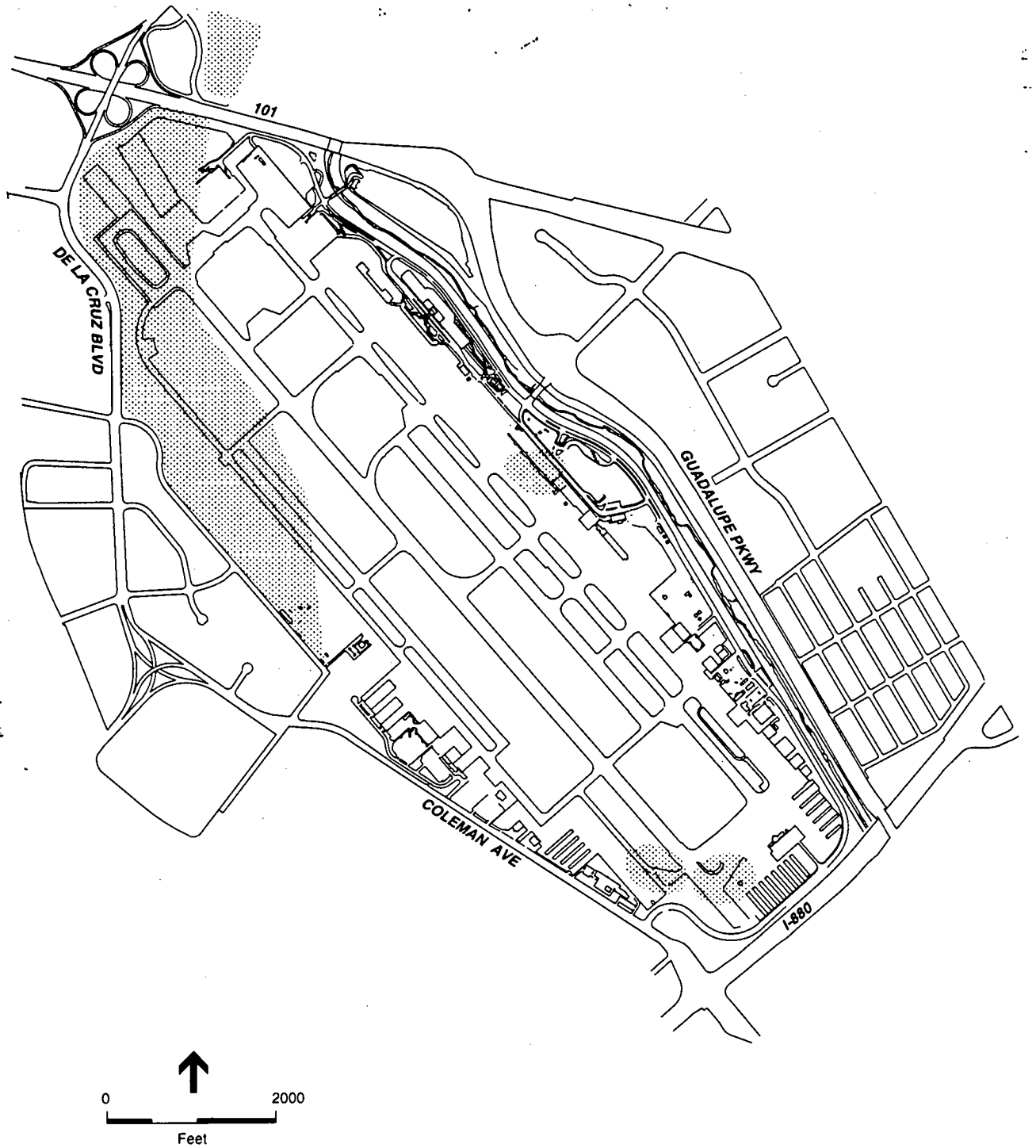
3.2.1.2 Archaeological Resources

Archaeological investigations conducted for the Airport included research on the cultural resources in the Airport vicinity and an archival search of State records. This research was performed to determine the presence or absence of cultural resources at the Airport and in the Airport vicinity, and to determine the significance of any archaeological resources.

Archival research, which was conducted at the Northwest Information Center of the California Archeological Site Inventory, revealed a number of previous archeological surveys conducted in the Airport vicinity. The existing research has identified two recorded archaeological sites that are known to exist at the Airport: SCL-311H and SCL-430. Site SCL-311H is within the northwest portion of the Airport, and stretches along what was once Mission Road (now called Trimble Road) from the Guadalupe River to North First Street. Research indicates that the site of the route was established in the 1770s as the original access to Mission Santa Clara, which was reported to lie on the east side of the Guadalupe River. In addition, the area may have contained the original adobe structures that housed inhabitants adjacent to the Mission (Whitlow and Detlefs, 1978). Site SCL-430 is a site that has been recorded in the center of the southwest edge of the Airport. Survey of the site surface revealed both historic and pre-historic artifacts (Cartier and Detlefs, 1980). Historic artifacts found dating from the mid-1800s included bottle fragments, ceramics, and metal objects, assumed to be related to turn-of-the-century residences that were removed for Airport expansion (Cartier and Detlefs, 1980). In addition, the site was noted to be on the edge of the old location of the early Santa Clara Mission site. Pre-historic elements encountered included projectile points, three chipped lithics, six fire cracked rocks, and two pieces of possible groundstone within a 300-acre area. The projectile points appeared to be early Middle Horizon or Early Horizon in age (more than 2,000 years old). The area appeared to be associated with hunting/butchering activities.

The most useful previous survey was the detailed cultural resources assessment that was prepared as part of the preparation of the EIR for the 1980 Airport Master Plan. This assessment included extensive subsurface testing over the entire Airport site. A total of 237 test trenches were excavated to a maximum depth of 300 cm (approximately three feet). Only three trenches yielded findings of historic nature (cut bone, glass, and metal). None of the trenches yielded pre-historic resources. The 1980 assessment also identified archaeological sensitive areas at the Airport where the likelihood of encountering buried archaeological materials during the construction of future Airport-related projects is the greatest (see Figure 3.2.1).

Since 1980, pursuant to the 1980 Master Plan EIR, established Airport policy has required that a qualified archaeologist be present during all earthmoving activities for projects located in the designated archaeological sensitive areas. Major construction projects that have been undertaken at the Airport within these archaeological sensitive areas include the Runway 12R/30L extension, Runway 11/29 extension/widening, Taxiways W and L extensions, Taxiways M and V, Yellow Long-Term Parking Lot, Southwest Tiedown Ramp, storm and sanitary sewer lines, and Employee Parking Lot and perimeter road (currently under construction). During earthmoving activities associated with these projects, no archaeological resources were encountered.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.2.1
Archaeological Sensitive Areas
at San Jose International Airport

3.2.1.3 Historic Buildings

No buildings at the Airport are currently listed on the National Register (National Park Service, 1995) or on the City of San Jose Inventory of Historical Resources (City of San Jose, 1994). The oldest building at SJC is the original terminal building on the southern portion of the Airport. This building was constructed in 1946 and has been extensively modified over time. The building is not associated with any historically significant individuals and does not represent any unique architectural style or construction technique. The structure is currently used to support general aviation activities and is no longer used for its original purpose. For these reasons, and because the structure has not maintained its historic integrity, the building is not considered to be eligible for listing on the National Register or on the State or the City's historic resource inventory.

3.2.1.4 Other Cultural Resources at the Airport

The Airport is the site of a California Historical Landmark that commemorates California's modern beekeeping industry. In the 1850s, the Airport property was part of the larger 1,939-acre Rancho Potrero de Santa Clara. In March 1853, Christopher Shelton introduced the honeybee to California at the Rancho Potrero de Santa Clara and laid the foundation for California's modern beekeeping industry. This event is included as California Historical Landmark No. 945 (Department of Parks and Recreation, 1990). A brick monument with a plaque that commemorates this event is located outside of Terminal C along the landscape strip between the building and Terminal Drive.

Immediately northwest of the Airport at the southeast corner of Central Expressway and De La Cruz Boulevard is a monument commemorating the original site of the Mission Santa Clara de Thamien. This monument is California Historical Landmark No. 250 (Department of Parks and Recreation, 1990). No other structures or features at the Airport or in the immediate vicinity of the Airport are listed as a California Point of Historical Interest (Department of Parks and Recreation, 1992).

3.2.1.5 Cultural Resources in the Airport Vicinity

In order to evaluate the impacts to cultural resources in the vicinity of SJC, a list of potentially historic properties was compiled which includes: (1) all structures designated as City Historic Landmarks by the City of San Jose; (2) properties listed on the City of San Jose's Historic Resource Inventory; and (3) properties listed on the City of Santa Clara's list of Architecturally or Historically Significant Properties.

City of San Jose Historic Landmarks are structures that have been determined to have a special historical, architectural, cultural, aesthetic, or engineering interest or value of an historical nature. The City of San Jose's Historic Resources Inventory is an inventory of potentially historical and/or architecturally significant structures. The Historic Resources Inventory serves

as a resource document for future historic landmark designations and for reviewing and evaluating proposed alterations or removal of structures. None of the properties on the Historic Resources Inventory has been evaluated to determine their historic value. None of the City of San Jose's designated historic districts or conservation areas are within the existing 65 CNEL noise contour. In addition, no properties listed on the National Register of Historic Places in San Jose are within the existing 65 CNEL noise contour.

The City of Santa Clara's Architecturally or Historically Significant Properties list is a list of properties that have potential historical or architectural interest. No City of Santa Clara designated historic districts are within the existing 65 CNEL noise contour. In addition, no properties listed on the National Register of Historic Places in Santa Clara are within the existing 65 CNEL noise contour.

Table 3.2.1 lists these potentially historic properties by address and jurisdiction, as well as any special historic designation that has been determined for the property. All of the properties identified in the table are listed on the basis of their architectural style and/or age.

3.2.2 CULTURAL RESOURCES IMPACTS

This section identifies the four types of impacts associated with the proposed Project Case Alternatives, evaluates their significance, and identifies mitigation measures to reduce significant impacts to less-than-significant levels. This section first identifies and analyzes impacts of the Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by the impacts of the No Project Alternative.

3.2.2.1 Cultural Resource Impacts of the Project Case

Disturbance of Archaeological Sites Impact

For purposes of this project, a significant impact would occur if it would disturb an existing archaeological resource. Numerous projects would result in some earthmoving activities in the archaeological sensitive areas associated with SCL-311H and SCL-430. Table 3.2.2 presents the projects that would be developed in the archaeological sensitive areas. Although previous Airport projects in the vicinity of these subsurface resources have not resulted in the discovery or destruction of any archaeological resources, because of the immediate proximity of the identified archaeological sensitive areas to planned earthmoving activities, it is possible that these earthmoving activities in the archaeological sensitive areas could result in the destruction of archaeological resources.

Disturbance of Archaeological Sites Impact: Earthmoving activities in conjunction with the construction of projects in archaeological sensitive areas at the Airport could result in the disturbance of archaeological resources associated with Sites SCL-311H and SCL-430. (SIGNIFICANT)

TABLE 3.2.1
HISTORIC PROPERTIES WITHIN THE EXISTING 65 CNEL NOISE CONTOUR

	Type of Property	Special Designation[a]
San Jose		
Address		
139 North Autumn	Residential Unit	
143 North Autumn	Residential Unit	
195 North Autumn	Residential Unit	
199 North Autumn	Residential Unit	
203 North Autumn	Residential Unit	
211 North Autumn	Residential Unit	
237 North Autumn	Residential Unit	
255 North Autumn	Holeman's Auto Repair	
263 North Autumn	Residential Unit	
299 Basset Street	John Stock & Sons Warehouse	CL
267 West Julian Street	Residential Unit	
269 West Julian Street	Residential Unit	
333 West Julian Street	FMC	
541 West Julian Street	Residential Unit	
575 Lenzen Street	Southern Pacific Round House	CL
160 North Montgomery Street	Residential Unit	
210 North Montgomery Street	Residential Unit	
270 North Montgomery Street	Residential Unit	
374 West Santa Clara Street	San Jose Water Works	CL
404 West Santa Clara Street	Florist	
515 Vine Street	Residential Unit	
527 Vine Street	Residential Unit	
533 Vine Street	Residential Unit	
541 Vine Street	Residential Unit	
Santa Clara		
Address		
2086 Agnew Road	Agnew School	
4100 Basset	Residential Unit	
4120 Basset	Residential Unit	
4150 Basset	Residential Unit	
4160 Basset	Residential Unit	
4170 Basset	Residential Unit	
4185 Basset	Residential Unit	BP
4190 Basset	Residential Unit	
4334 Cheeney	Residential Unit	
4433 Cheeney	Residential Unit	
4262 Davis	Residential Unit	
4321 Davis	Residential Unit	
4306 Fillmore	Residential Unit	SP
4406 Fillmore	Residential Unit	
4000 Lafayette Street	Agnews State Hospital	BP

[a] Special Designations: CL = City Landmark; BP = Bronze Plaque; SP = Small Plaque

TABLE 3.2.2
MASTER PLAN PROJECTS LOCATED IN ARCHAEOLOGICAL SENSITIVE AREAS

Project	Project Case	Project Case Alternative A	Project Case Alternative B
Phase 1			
Extend Runway 12L/30R (A-1)	X		
Extend Taxiway Y (A-2)	X	X	X
Construct Taxiway A (A-4/4a/4b)	X	X	X
Construct Taxiway N (A-5/5a)	X	X	X
Reconstruct and extend Runway 12R/30L (A-14)	X	X	X
Extend Taxiway A (A-15)	X	X	
Extend Taxiway N (A-16)	X	X	
Extend Taxiway W (A-17)	X	X	
Strengthen Taxiway L (A-25, A-13a)	X	X	
Construct interim long-term public and parking lot (T-1/1a)	X	X	X
Remove Yellow Long-Term Parking lot (T-2)	X	X	X
Remove south end general aviation tie-downs and shelters (G-1)	X	X	X
Construct fuel storage facility (S-1)	X	X	X
Phase 2			
Widen/strengthen Taxiway V (A-26)	X	X	
Construct Taxiway H (A-27)	X	X	
Extend Taxiway Z (A-28)	X	X	
Construct public parking garage (T-4/4a/4b)	X	X	X
Construct Terminal B (T-5/5a/5b)	X	X	X
Construct air cargo facilities (C-3)	X	X	
Construct general aviation facilities (G-9)			X
Expand fuel storage facility (S-5/5a)	X	X	X
Phase 3			
Construct Taxiway W (A-30)	X	X	
Widen/strengthen Taxiway J (A-34)	X	X	
Remodel/expand Terminal C (T-9/9a)	X	X	
Expand air cargo facilities (C-6)	X	X	
Expand fuel storage facility (S-9)	X	X	

SOURCE: Environmental Science Associates

Discovery of Previously Unknown Archaeological Resources Impact

Earthmoving activities associated with construction of the various projects for the Project Case outside of the known archaeological sensitive areas could result in the discovery of previously unknown archaeological resources. Given the proximity of known archaeological resources in the Airport vicinity and the potential for prehistoric and historic archaeological resources to exist along watercourses (i.e., the Guadalupe River) and near the Santa Clara Mission, the potential for other unknown buried resources does exist. Specific projects envisioned during all three phases of the Project Case involve construction and earthmoving activities that could conceivably uncover and destroy such resources.

Consistent with existing Airport practice, an archaeologist will be authorized to relocate construction and/or earthmoving equipment if resources are encountered. If the resource is determined to be significant, the archaeologist will be responsible for salvage of the material and formal recordation or data collection. This program insures that this impact would not result in the destruction of previously unknown archaeological resources.

> ***Discovery of Previously Unknown Archaeological Resources Impact: Earthmoving activities in conjunction with the construction of facilities and improvements under the Project Case would not result in the destruction of previously unknown prehistoric and/or historic archaeological resources. (LESS THAN SIGNIFICANT)***

California Historical Landmark No. 945 Impact

The renovation and expansion of Terminal C (Project T-9) would incorporate the plaque that commemorates California Historical Landmark No. 945 into the final design of Terminal C.

> ***California Historical Landmark No. 945 Impact: Renovation and expansion of Terminal C would incorporate the relocation of California Historical Landmark No. 945. (LESS THAN SIGNIFICANT)***

Off-Airport Historic Property Impact

None of the project components of the Project Case includes any construction activities at off-Airport locations. Therefore, the only potential impact of the Project Case on off-Airport historic properties would be related to increases in noise.

For the purposes of this EIR, a significant impact to an historic property would occur if implementation of the project compromises the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effect on historic properties include, but are not limited to, introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting. A significant impact also would occur if sound attenuation activities compromise the historic integrity of the property.

Table 3.2.3 lists 32 properties within the 2010 Project Case 65 CNEL noise contour (see Section 3.5, Noise) compared to four historic properties that would be within the 65 CNEL noise contour under the No Project Alternative in 2010. Each of the 28 properties identified as potentially historic are listed because of their architectural style and/or age and each of these properties has uses that are common to the urbanized portions of San Jose and Santa Clara. The presence of noise levels associated with aircraft activity would not affect the architectural style and/or age of these properties.

As discussed in Section 3.5, Noise, residential properties within the 65 CNEL noise contour are not considered to be compatible unless the interior sound level is brought down to below 45 CNEL. This is accomplished through retrofitting of existing structures to increase the sound attenuation features of the structure. This generally consists of replacing doors and/or windows and the installation of insulation in ceilings and/or walls. In some instances, the installation of central heating and air conditioning systems is included as part of the retrofitting. Because 25 of the 28 potentially historic properties are residential properties, sound attenuation activities would be implemented for these properties. These sound attenuation measures can compromise the historic or architectural integrity of the property.

However, there are sound attenuation measures that can be implemented in a manner that do not compromise the historic or architectural integrity of the structure. For example, these include the use of special window treatments (e.g., addition of a second pane to the inside of the window), the use of replicated solid-core doors, the use of expanding insulation foam, and the use of methods to screen air conditioning and/or ventilation systems from view. The requirement that these special measures be employed when retrofitting is included as part of the modified ACT Program mitigation measure discussed in Section 3.5.3. Therefore, impacts to historic properties would be less than significant.

Off-Airport Historic Property Impact: The historical or architectural style of the 28 historic properties within the 65 CNEL noise contour in the year 2010 would not be affected by noise from aircraft activity. The employment of sound attenuation activities would not affect the historical or architectural style of these properties. (LESS THAN SIGNIFICANT)

3.2.2.2 Cultural Resource Impacts of Project Case Alternative A

Disturbance of Archaeological Sites Impact

The potential for disturbing existing archaeological resources at the Airport would be similar under Project Alternative A to that described for the Project Case. A list of Project Case Alternative A projects within archaeological sensitive areas is presented in Table 3.2.1. Please see the discussion of Disturbance of Archaeological Sites Impact under the Project Case, Section 3.2.2.1, above.

TABLE 3.2.3
HISTORIC PROPERTIES WITHIN THE 65 CNEL NOISE CONTOUR - YEAR 2010

	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
San Jose				
139 North Autumn	X			
143 North Autumn	X			
195 North Autumn	X			
199 North Autumn	X			
203 North Autumn	X			
211 North Autumn	X			
237 North Autumn	X			
255 North Autumn	X		X	
263 North Autumn	X		X	
299 Basset Street	X			
333 West Julian Street	X	X	X	X
541 West Julian Street	X	X	X	
575 Lenzen Street	X	X	X	X
160 North Montgomery Street	X			
210 North Montgomery Street	X		X	
270 North Montgomery Street	X		X	
404 West Santa Clara Street	X	X	X	
Santa Clara				
2086 Agnew Road	X	X		
4100 Basset	X	X	X	X
4120 Basset	X	X	X	
4150 Basset	X	X	X	
4160 Basset	X	X	X	
4170 Basset	X	X	X	
4185 Basset	X	X	X	
4190 Basset	X	X	X	
4334 Cheeney	X	X		
4433 Cheeney	X	X		
4262 Davis	X	X		
4321 Davis	X			
4306 Fillmore	X	X		
4406 Fillmore	X			
4000 Lafayette Street	X	X	X	X
Total Number of Properties	**32**	**17**	**16**	**4**

SOURCE: Environmental Science Associates

3.1.1.2 FAA Runway Protection Zone (RPZ)

An RPZ is a trapezoidal-shaped area at ground level whose function to protect people and property is achieved by preventing the placement of obstacles or hazards in the path of aircraft.[1] Land uses that create glare, have lights that interfere with aviation, or create smoke are not allowed within a RPZ. Other prohibited uses include residences, churches, schools, offices, fuel storage/handling facilities, shopping centers, and stadiums, as well as any other land uses where public assembly occurs. Agricultural operations and golf courses are allowed within a RPZ, provided that they do not attract birds. Automobile parking within the RPZ is allowed, as long as vehicle height is below the approach surface. The existing RPZs, shown in Figure 3.1.2, are almost entirely on Airport property.

3.1.1.3 ALUC Safety Zones

The Santa Clara County ALUC has established safety zones around each of the airports in the County, including SJC, for the purpose of minimizing the number of people exposed to aircraft crash hazards. Similar to the FAA's OFA described above, the ALUC safety zones are located at the ends of the runways and are rectangular. However, the ALUC zones are generally much larger than the OFA. The jurisdiction of the ALUC is limited to a review of new land uses that might fall within an ALUC zone. Some existing land uses within a given ALUC safety zone otherwise might not have been constructed had the safety zones been in place at the time the development was approved.

The ALUC breaks its safety zones down into the "inner safety area" and the "outer safety area". The inner safety area consists of the first 1,500 feet extending from the ends of each runway. The inner safety area "should preferably remain undeveloped," but automobile parking is allowed (ALUC, 1992). The outer safety area is the portion of the safety zone that extends beyond the inner safety area. Development within the outer safety area is restricted to non-residential uses with low population densities (e.g., agriculture, parks, one-story warehousing, automobile parking, etc.). In addition, land uses in the outer safety area are limited to those that meet population density restrictions of no more than 10 persons on an annual average and no more than 25 persons at any one time on each net acre.

The ALUC safety zones for SJC are illustrated in Figure 3.1.2. Safety at the southern ends of SJC's main runways is enhanced by the use of a displaced landing threshold, meaning that the portion of the runway south of Taxiway C is unused during landings. Additional safety protection is afforded by the fact that lands south of the ALUC safety zones and directly under the flight path are, for the most part, owned by the City of San Jose and have been cleared of all structures.

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[1] The size of an RPZ depends on the category of aircraft which utilize the runway. FAA guidelines recommend that the airport operator control as much as the RPZ as possible to ensure protection against placement of objects or uses that are incompatible with safe aircraft approach.

Discovery of Previously Unknown Archaeological Resources Impact

The potential to discover previously unknown archaeological resources would be similar under Project Case Alternative A to that described for the Project Case. Please see the discussion of Discovery of Previously Unknown Archaeological Resources Impact under the Project Case, Section 3.2.2.1, above.

California Historical Landmark No. 945 Impact

The potential impact on California Historical Landmark No. 945 would be similar under Project Case Alternative A to that described for the Project Case. Please see the discussion of California Historical Landmark No. 945 Impact under the Project Case, Section 3.2.2.1, above.

Off-Airport Historic Property Impact

Under Project Case Alternative A, 13 more historic properties would be within the 65 CNEL noise contour as compared to the No Project Alternative (see Table 3.2.3). As under the Project Case, the presence of noise levels from aircraft activity would not affect the architectural style or design of these historic properties. The employment of sound attenuation activities would not affect the historical or architectural style of these properties.

3.2.2.3 Cultural Resource Impacts of Project Case Alternative B

Disturbance of Archaeological Sites Impact

The potential for disturbing existing archaeological resources at the Airport under Project Case Alternative B would be similar to, but not as extensive as, that described for the Project Case. A list of Project Case Alternative B projects within archaeological sensitive areas is presented in Table 3.2.1. Please see the discussion of Disturbance of Archaeological Sites Impact under the Project Case, Section 3.2.2.1, above.

Discovery of Previously Unknown Archaeological Resources Impact

The potential to discover previously unknown archaeological resources would be similar under Project Case Alternative B to that described for the Project Case. Please see the discussion of Discovery of Previously Unknown Archaeological Resources Impact under the Project Case, Section 3.2.2.1, above.

California Historical Landmark No. 945 Impact

The potential impact on California Historical Landmark No. 945 would be similar under Project Case Alternative B to that described for the Project Case. Please see the discussion of California Historical Landmark No. 945 Impact under the Project Case, Section 3.2.2.1, above.

Off-Airport Historic Property Impact

Under Project Case Alternative B, 12 more historic properties would be within the 65 CNEL noise contour as compared to the No Project Alternative (see Table 3.2.3). As under the Project Case, the presence of noise levels from aircraft activity would not affect the architectural style or design of these historic properties. The employment of sound attenuation activities would not affect the historical or architectural style of these properties.

3.2.2.4 Cultural Resource Impacts of No Project Alternative

The No Project Alternative would not result in any physical changes at the Airport and no earthmoving or construction activities would occur. The number of historic properties within the 65 CNEL noise contour would be less than that described for the Project Case or for the existing conditions (see Table 3.2.3). Thus, this alternative would have no impact on cultural resources.

3.2.3 MITIGATION MEASURES FOR SIGNIFICANT CULTURAL RESOURCES IMPACTS

3.2.3.1 Mitigation for Disturbance of Archaeological Sites Impact

The archaeological monitoring program that is currently in effect at the Airport will be continued by the City as part of the Project Case. A qualified archaeologist will monitor all subsurface construction activity for the identified projects located within designated archaeological sensitive areas. If any human remains are encountered, the County Coroner should be contacted immediately. If humans remains are determined to be Native American interments, the Coroner should contact the Native American Heritage Commission for determination as to reburial of remains. A report evaluating the find and identifying mitigation should be submitted by the archaeologist to the Director of Planning, Building, and Code Enforcement. If prehistoric or historic archaeological resources are uncovered during construction activities, the monitoring archaeologist will require that work be discontinued within a 100-foot radius of the find. A report evaluating the find and identifying mitigation for impacts should be prepared by the archaeologist and submitted to the City's Director of Planning, Building, and Code Enforcement and the Director of the Airport.

> ***Mitigation for Disturbance of Archaeological Sites Impact: The Airport will continue existing archaeological monitoring program for construction activity for all projects within the archaeological sensitive areas. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Impact Significance Conclusion: Implementation of the identified mitigation measure will ensure that no significant impact will result. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.3 TRANSPORTATION AND CIRCULATION

Traffic and transportation systems in the Airport vicinity include a roadway network that includes freeways, arterials, and local streets. Traffic congestion in the Airport vicinity currently exists and this congestion is typical of traffic conditions in the Bay Area. The Airport Master Plan accommodates an increased number of air passengers and air cargo tonnage, which would increase the number of vehicle trips to and from the Airport. This section is based on a detailed traffic analysis prepared by DKS Associates and an analysis of general aviation activity prepared by the City of San Jose. The traffic report is Appendix 3.3.A of this EIR.

3.3.1 SETTING AND EXISTING CONDITIONS

This section summarizes the existing traffic conditions in the study area, including existing roadway facilities, traffic volumes, and operating conditions at key intersections during the weekday AM and PM peak periods.

SJC, which is a major hub in Northern California's transportation network, can be accessed from the local, regional and interstate roadways in a variety of ways. SJC is surrounded by U.S. 101 on the north and east, on the south by Interstate 880, on the east by State Route (SR) 87 (Guadalupe Parkway), and by Coleman Avenue and De La Cruz Boulevard on the west. The freeways, local roadways and intersections included in the study area are shown in Figure 3.3.1.

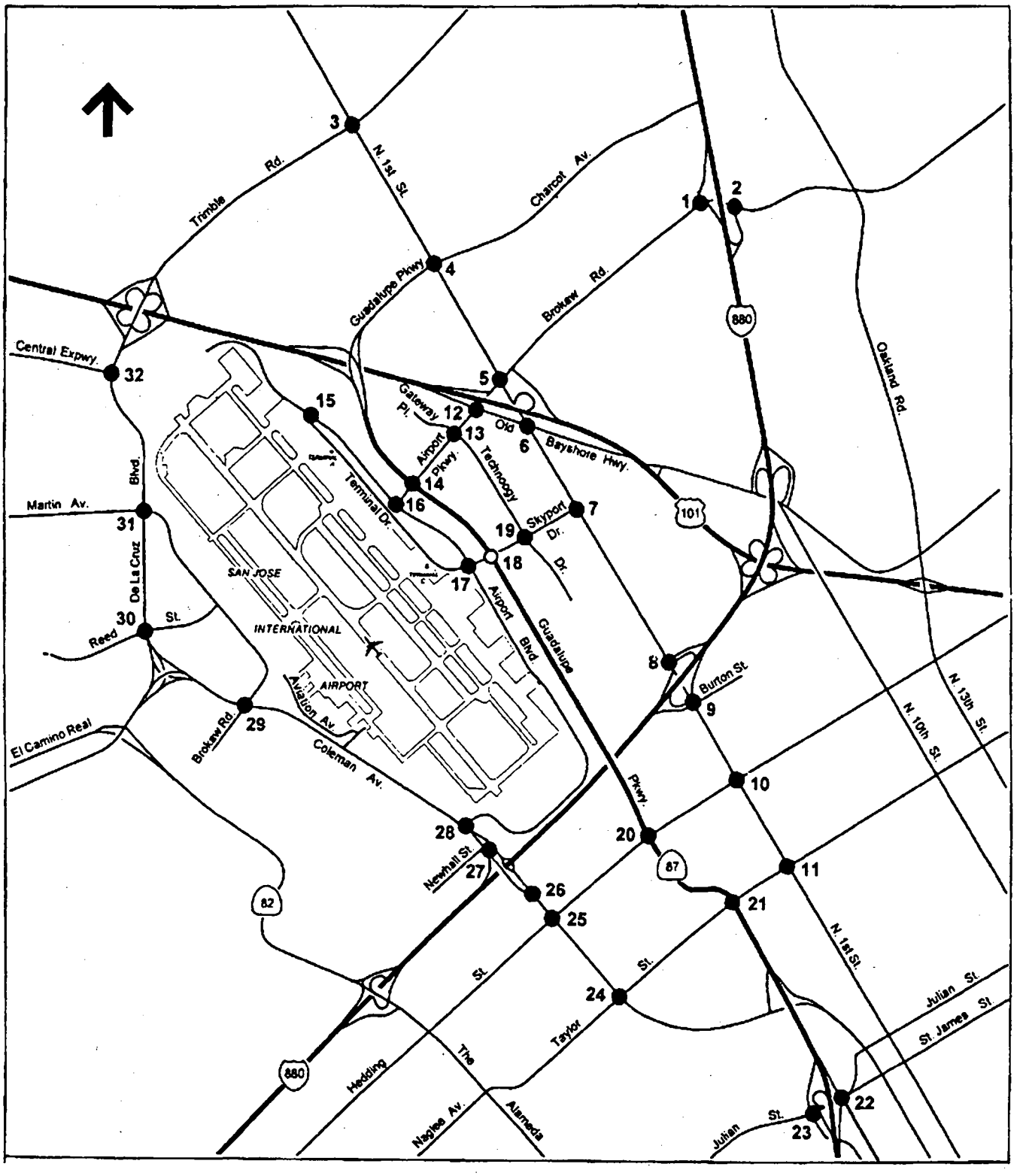
The Airport is served internally by two main roadways, which are Airport Boulevard and Terminal Drive. The main access to the Airport is provided by Airport Parkway and Coleman Avenue. The Guadalupe River, which flows from south to north along the eastern boundary of the site, forms a natural barrier to east-west movement in the Airport vicinity.

3.3.1.1 Roadway Network

Freeways

Interstate 880 (I-880)

Interstate 880 (I-880) extends southeast from I-980 in Oakland in the East Bay to I-280 in San Jose, south of the Airport. It is a freeway with three lanes in each direction in the Airport vicinity, with full interchange access provided by ramps to and from SR 237, Montague Expressway, Brokaw Road, Old Bayshore Highway, U.S. 101, North First Street, Coleman Avenue and The Alameda (SR 82). South of I-280, I-880 continues south and west towards Santa Cruz as SR 17. Existing average daily freeway traffic volumes are shown in Figure 3.3.2 (Caltrans, 1994).



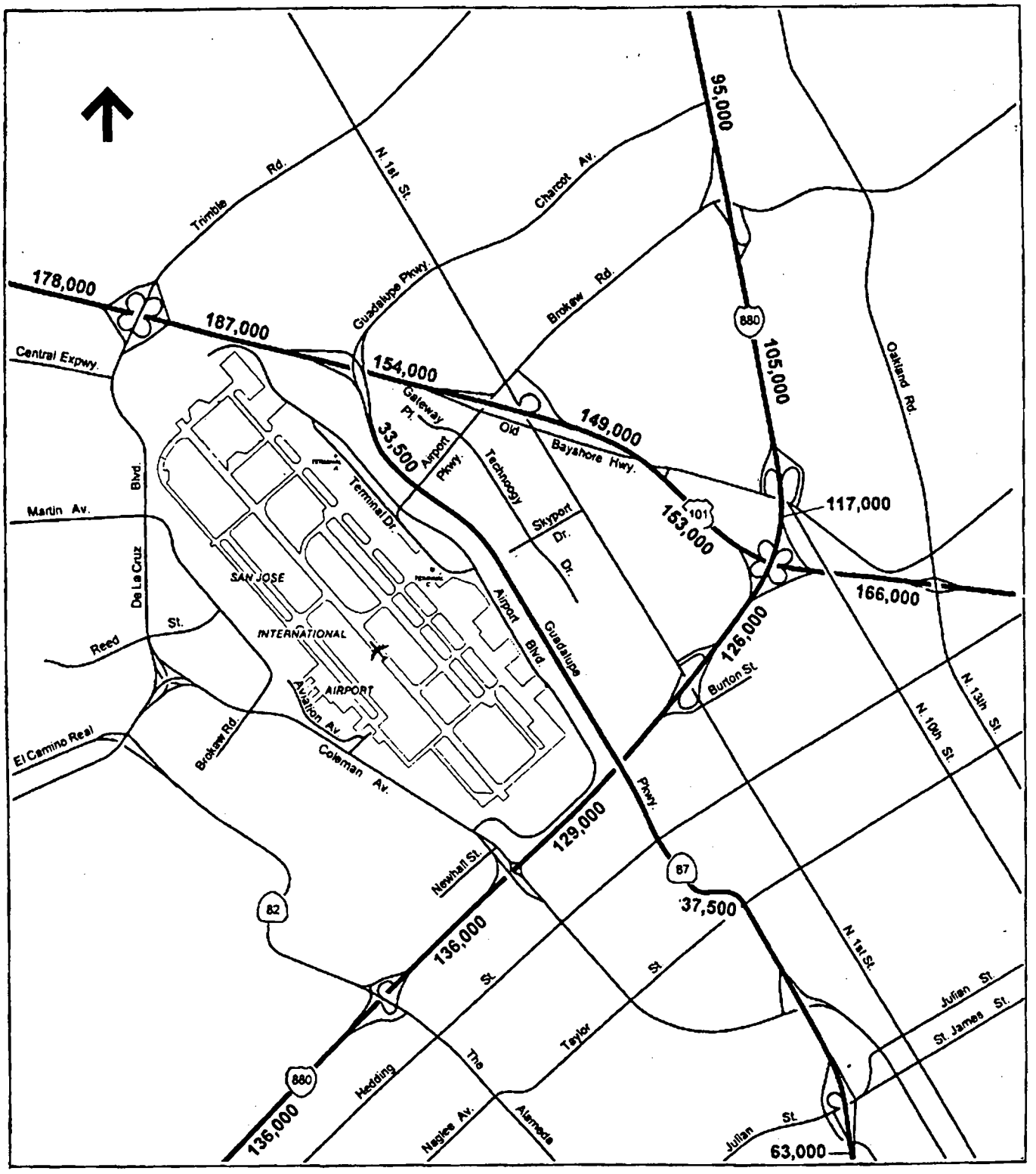
Legend:

- ● Existing Intersection
- O Future Intersection

SOURCE: City of San Jose; DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.1
Study Area and
Project Intersections



117,000 Average Daily Two-way Traffic

SOURCE: CalTrans; DKS Associates

San Jose International Airport Master Plan Update / 940404

Figure 3.3.2
Freeway and State Highway
Traffic Volumes

U.S. Highway 101

In the Airport vicinity, this north-south freeway passes southeast-northwest as it extends from Los Angeles in the south to the Oregon border in the north. In the vicinity of SJC, full cloverleaf interchanges are located at Montague Expressway, Trimble Road/De La Cruz Boulevard, and I-880. Partial interchanges are located at SR 87, North First Street, and North Fourth Street. There are four lanes in each direction in the Airport vicinity, including a High Occupancy Vehicle (HOV) lane in each direction. Existing average daily traffic volumes are shown in Figure 3.3.2 (Caltrans, 1994).

SR 87 (Guadalupe Parkway)

SR 87 extends from U.S. 101 to SR 85 in north-south alignment. South of Taylor Street, SR 87 is a four-lane freeway. From Taylor Street to U.S. 101, SR 87 is a four-lane arterial with signalized intersections at Taylor Street, Mission Street, Hedding Street, and Airport Parkway. The existing arterial section of SR 87 is planned to be converted to a six-lane freeway including 2 HOV lanes, with completion planned for the year 2001. Existing average daily traffic volumes on SR 87 are shown in Figure 3.3.2 (Caltrans, 1994).

Arterials

The following arterials serve the project study area:

- North First Street (4 lanes north of Mission Street; 2 lanes south of Mission Street)
- Trimble Road (6 lanes)
- Brokaw Road (6 lanes)
- Old Bayshore Highway (4 lanes)
- Hedding Street (4 lanes)
- Taylor Street (2 lanes east of North First Street; 4 lanes west of North First Street)
- Julian Street (6 lanes)
- Coleman Avenue (4 lanes south of I-880; 6 lanes north of I-880)
- De La Cruz Boulevard (6 lanes)
- Central Expressway (4 lanes)
- Montague Expressway (6 lanes)
- Tasman Drive (4 lanes)

See section I, Transportation Setting, of Appendix 3.3.A for a detailed description of the above arterials.

Local Roads

The following local roads (all two-lane roads, except as noted) serve the Airport vicinity:

- Charcot Avenue (4 lanes)
- Skyport Drive
- Technology Drive
- Gateway Place

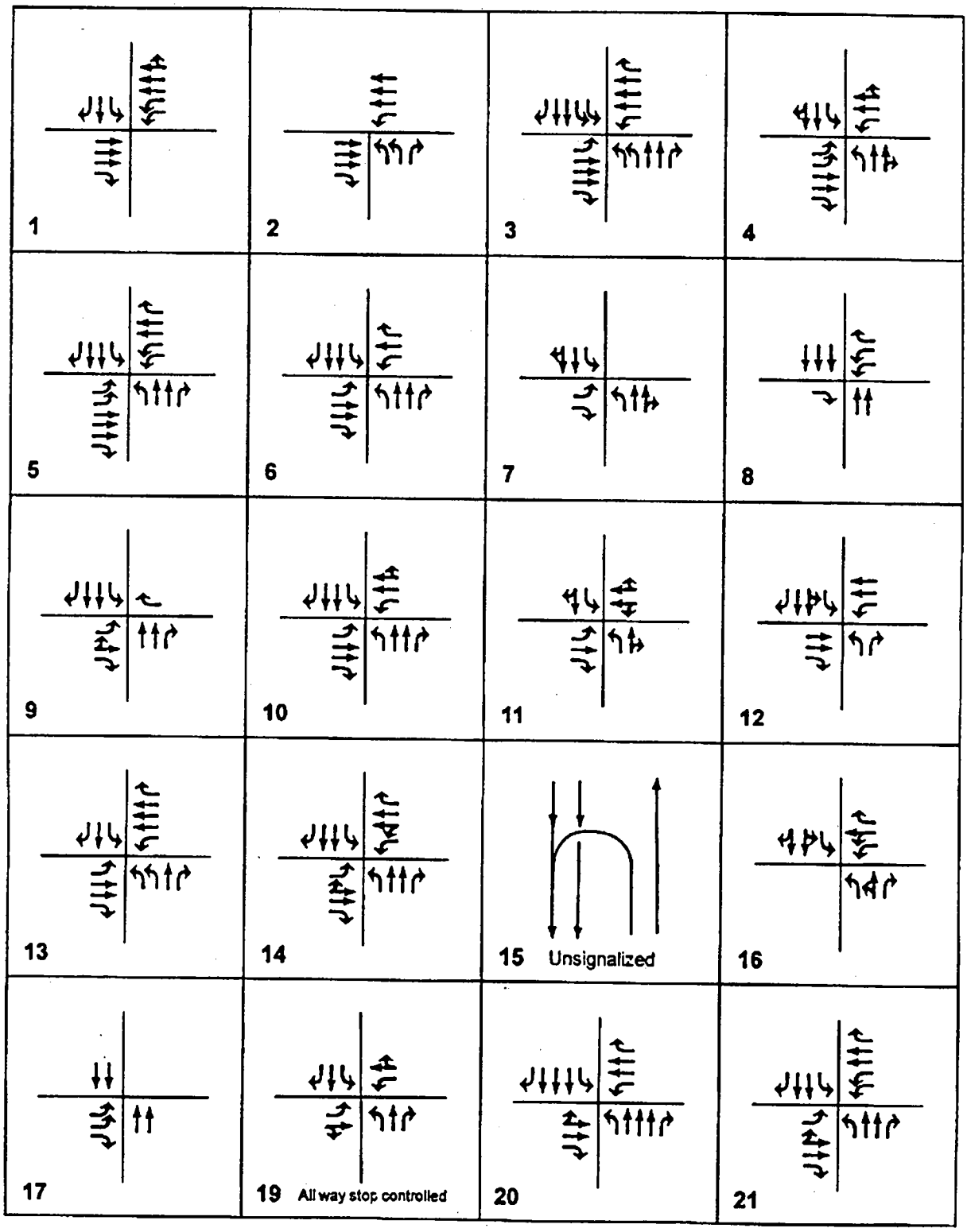
- Burton Road
- Reed Street
- Martin Avenue (4 lanes west of De La Cruz Boulevard)

See Section I, Transportation Setting, of Appendix 3.3.A for a detailed description of the above local roads.

3.3.1.2 Study Intersections

To evaluate potential impacts of the Master Plan Update, 32 study intersections were chosen. Of those 32 intersections, 31 currently exist, and one (Guadalupe Parkway and Skyport Drive) would be constructed by 2005. The study intersections are identified below (and shown in Figure 3.3.1); the existing lane configurations at the existing study intersections are shown in Figure 3.3.3.

1. Brokaw Road and I-880 southbound ramps
2. Brokaw Road and I-880 northbound off-ramp
3. North First Street and Trimble Road
4. North First Street and Charcot Avenue
5. North First Street and Brokaw Road
6. North First Street and Old Bayshore Highway
7. North First Street and Skyport Drive
8. North First Street and I-880 southbound ramps
9. North First Street and I-880 northbound ramps / Burton Street
10. North First Street and Hedding Street
11. North First Street and Taylor Street
12. Airport Parkway and Old Bayshore Highway
13. Airport Parkway and Technology Drive / Gateway Place
14. Airport Parkway and Guadalupe Parkway (SR 87)
15. Airport Boulevard and Terminal Drive (North) (*unsignalized*)
16. Airport Boulevard and Airport Parkway
17. Airport Boulevard and Terminal Drive (South)
18. Guadalupe Parkway (SR 87) and Skyport Drive (*to be constructed*)
19. Skyport Drive and Technology Drive (*unsignalized*)
20. Guadalupe Parkway (SR 87) and Hedding Street
21. Guadalupe Parkway (SR 87) and Taylor Street
22. Julian Street and northbound Guadalupe Parkway (SR 87) ramps
23. Julian Street and southbound Guadalupe Parkway (SR 87) ramps
24. Coleman Avenue and Taylor Street
25. Coleman Avenue and Hedding Street
26. Coleman Avenue and I-880 northbound ramps
27. Coleman Avenue and I-880 southbound ramps
28. Coleman Avenue and Airport Boulevard
29. Coleman Avenue and Brokaw Road (*City of Santa Clara intersection*)
30. De La Cruz Boulevard and Reed Street (*City of Santa Clara intersection*)
31. De La Cruz Boulevard and Martin Avenue (*City of Santa Clara intersection*)
32. De La Cruz Boulevard and Central Expressway (*City of Santa Clara intersection*)

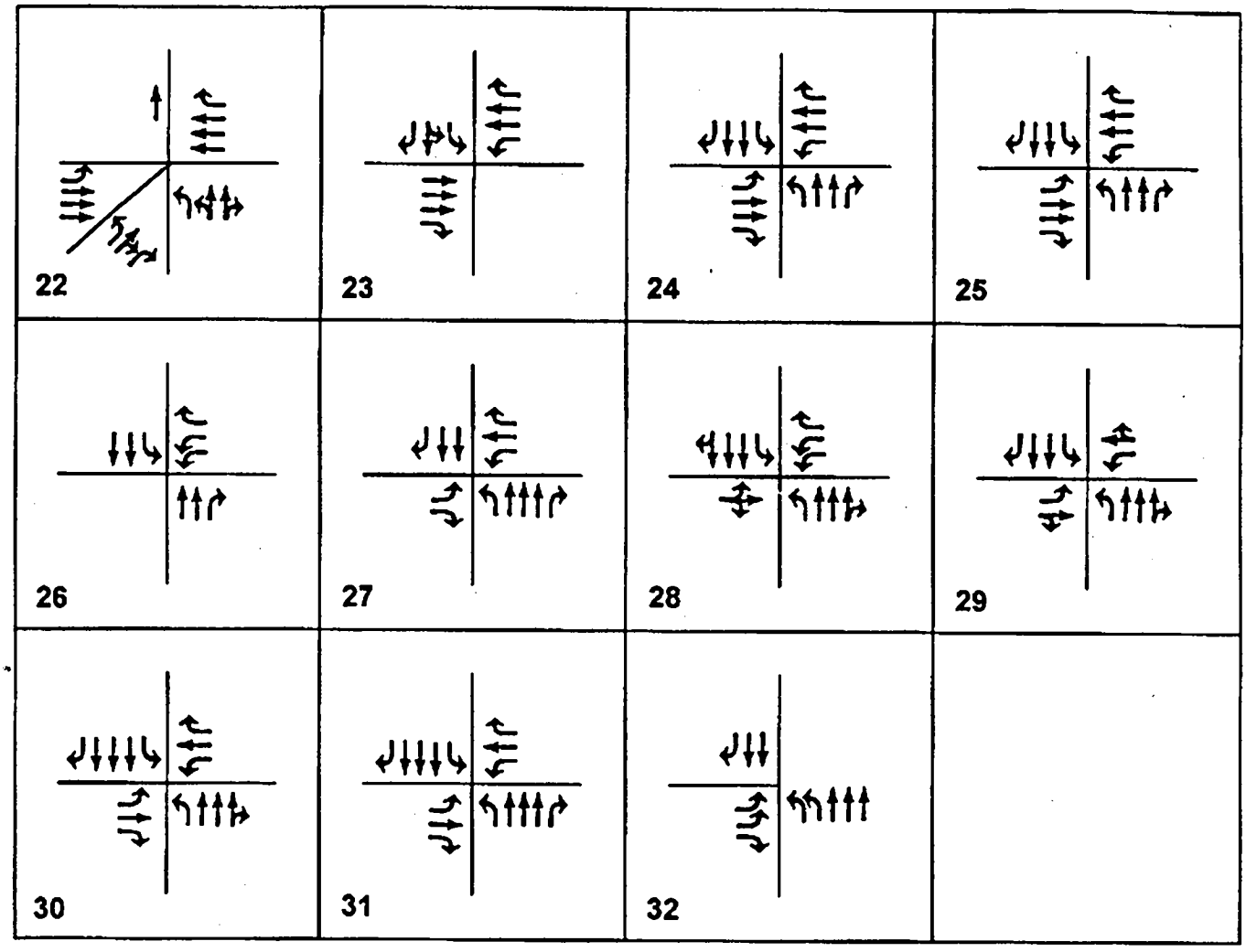


Intersection Numbers correspond to Figure 3.3.1
Intersection 18 is future only, see Figure 3.3.10 for detail

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.3
Existing Intersection Lane Geometrics



Intersection Numbers correspond to Figure 3.3.1
Intersection 18 is future only, see Figure 3.3.10 for detail

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.3 (continued)
Existing Intersection Lane Geometrics

3.3.1.3 Internal Airport Circulation

The internal roadway network of the Airport consists of three main roadways: Airport Parkway, Airport Boulevard, and Terminal Drive. A brief description of each roadway follows below. Figure 3.3.4 shows the internal roadways with lane geometrics. See section I, Transportation Setting, of Appendix 3.3.A for a detailed description of these roadways.

Airport Parkway serves as the main access road into and out of the Airport, connecting the Airport to U.S. 101 and SR 87. **Airport Boulevard** serves as the outer portion of the circular "loop" connecting Airport Parkway to the passenger terminals, and providing circulation around the southern end of the Airport to Coleman Avenue and I-880 on the west side of SJC. **Terminal Drive** is a one-way southbound roadway parallel to the Airport runways that serves as the inner portion of the circular "loop." Terminal Drive provides direct access to Terminals A and C and the adjacent short-term parking lot/garage.

3.3.1.4 Existing Ground Transportation Services

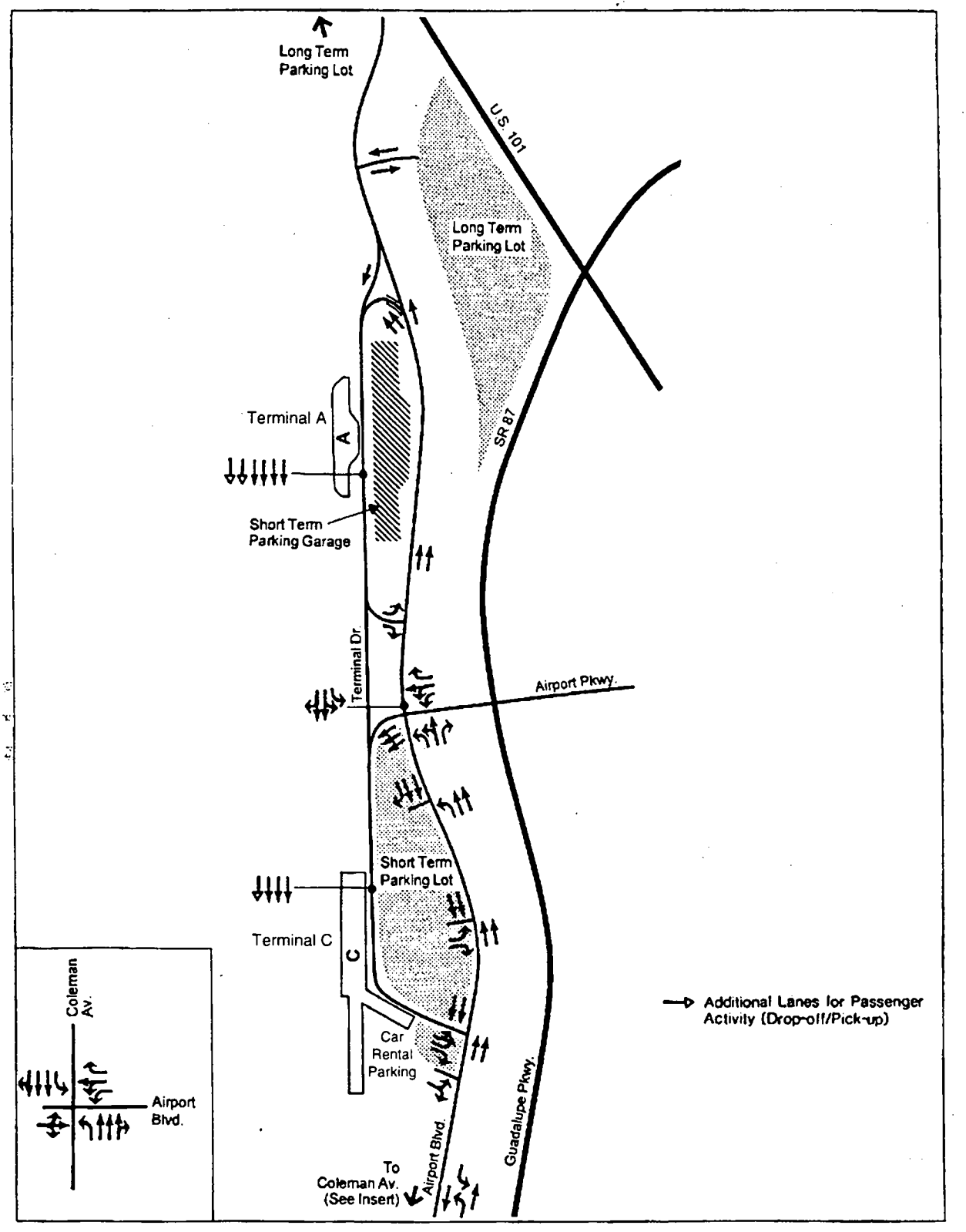
Several internal and external ground transportation services are available at the Airport. Within the Airport, three shuttle bus routes serve both Terminals A and C. Two shuttle bus routes provide service between the terminals and the two long-term parking lots. Service on these routes is provided free of charge, and the buses run at approximately 5-10 minute intervals (San Jose International Airport, 1995c). The third shuttle route provides service between the terminals and the employee parking lot located on the west side of the Airport.

The variety of external ground transportation services include:

- public transportation (see discussion below);
- door-to-door van service (over 12 providers);
- taxis;
- scheduled transportation (inter-airport buses and buses from the North Bay, Santa Cruz, and Monterey Peninsula);
- private limousines; and
- private car rental.

Public Transit

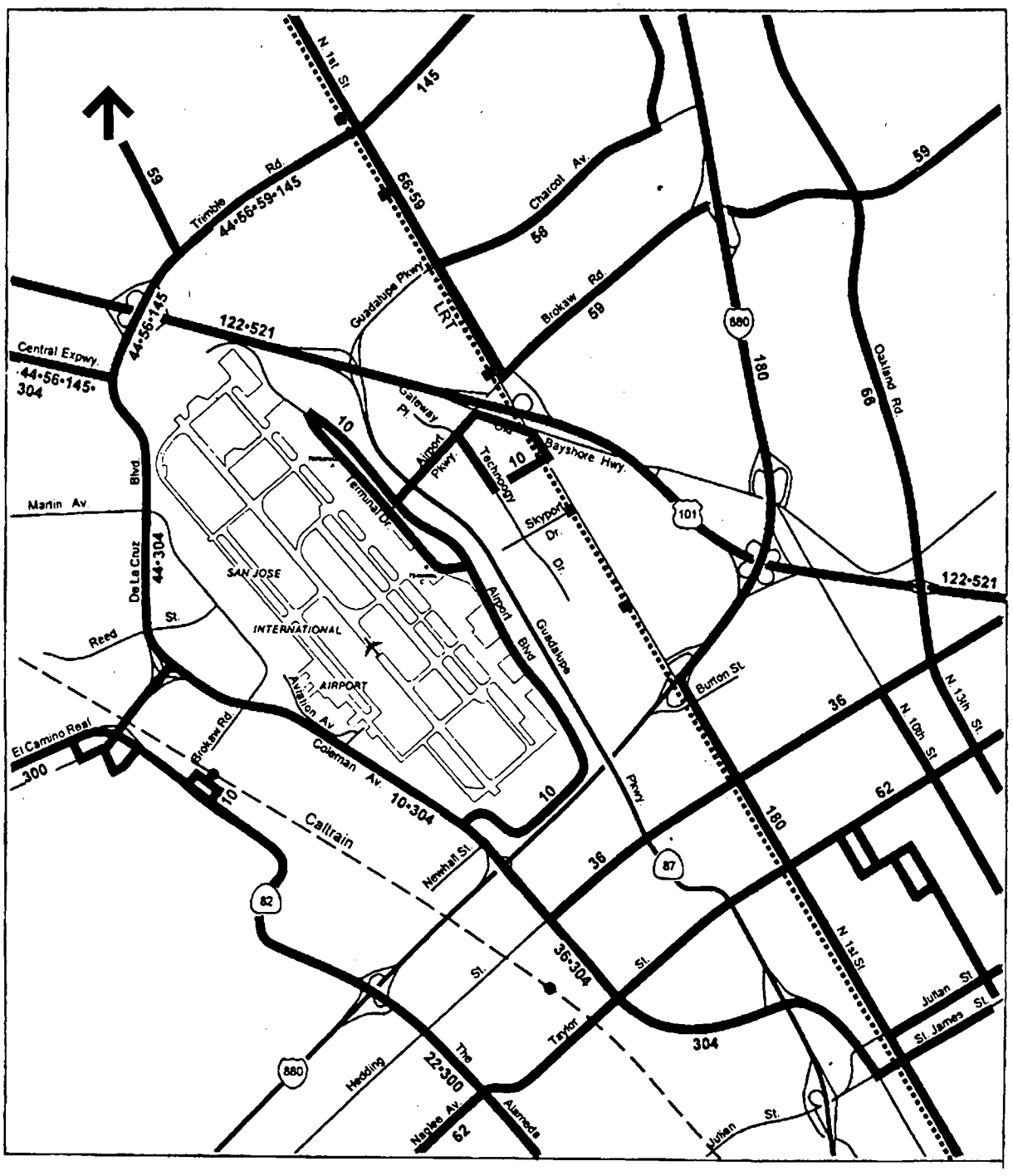
Public transit service in Santa Clara County is provided by the Santa Clara Valley Transportation Authority (SCVTA). Figure 3.3.5 shows the location of transit lines serving the study area today. The only bus route that serves SJC directly is the SCVTA bus route 10 and the Metro Shuttle.



SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.4
Existing Lane Geometrics and Parking Location



Legend:
- 10 SCCTA Bus Route
- SCCTA Light Rail Line and Stations
- Caltrain

SOURCE: SCCTA; DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.5
Existing Transit Service
in Vicinity of SJC

SCVTA Route 10 connects the Santa Clara CalTrain station to the Metro/Airport Light Rail Transit (LRT) Station on North First Street. This route operates on 30-minute headways during weekdays, and includes on-Airport stops in front of Terminals A and C.

Metro Shuttle is a free weekday shuttle service provided by SCVTA that operates on a circular route. It connects SJC with nearby office complexes on Airport Boulevard and Skyport Drive and the Metro/Airport Light Rail Station.

LRT trains run along North First Street with various stops in the study area. LRT service is provided seven days a week along a 20-mile route between Santa Clara, downtown San Jose, and south San Jose.

Combined with the 34 connecting bus routes and the LRT service, the SCVTA public transit system reaches San Jose, Menlo Park, Palo Alto, Mountain View, Los Gatos, Milpitas, and Fremont. Connections can be made to each of the other major transit systems in the Bay Area, including BART, CalTrain, AC Transit, and SamTrans.

3.3.1.5 Pedestrians

Pedestrian traffic generated by Airport activities is generally limited to air passengers and employees moving between their parked vehicles and the terminal buildings or work stations. Sidewalks are provided in front of each air passenger terminal and parking lot as well as the entire west side of Terminal Drive. There is a grade-separated pedestrian skywalk between Terminal A and the adjacent parking garage, which eliminates most of the pedestrian/vehicle conflict. However, some pedestrians continue to cross Terminal Drive at street level. There are crosswalks on Terminal Drive in the immediate area of Terminal C connecting the terminal to the red parking lot. Stationed traffic officers and stop-sign controlled crosswalks help enable pedestrians to safely cross Terminal Drive. Although pedestrian traffic does occasionally inhibit traffic flow on internal roadways, it does not currently impair the ability of the arrival and departure roadways (Airport Parkway and Airport Boulevard) to serve the terminal buildings.

3.3.1.6 Bicycles

The City of San Jose currently has an extensive bicycle route plan. In September of 1996, the City completed construction on a bike lane around the northern end of the Airport property that connects De La Cruz Boulevard at Central Expressway to Airport Boulevard. The City's bike system covers 225 miles of city streets and most residential or employment areas are within a mile of a bikeway (City of San Jose, 1993). Airline passengers generally do not use bicycles as a primary source of ground transportation, due to the general inconveniences of carrying luggage, distance traveled and time constraints. Airport employees are more likely to use bicycles to commute than are air passengers.

The City of Santa Clara also has a well developed bicycle plan. Only one of the roadways in the Airport vicinity within Santa Clara (Central Expressway) is designated as a bicycle route (City of Santa Clara, 1992). Other roadways (Martin Avenue, De La Cruz Boulevard, Coleman Avenue) are not official bicycle routes, but are designated as intermediate to advanced streets for bicycles (City of Santa Clara, 1993).

Existing bicycle routes near the Airport are shown in Figure 3.3.6.

3.3.1.7 San Jose International Airport Transportation Characteristics

For information on the transportation and parking characteristics of air passengers and employees of the Airport, several transportation surveys were used:

- 1988 Air Passenger Survey (San Jose International Airport, 1988);
- 1990 Metropolitan Transportation Commission Air Passenger Survey[1]; and
- 1995 San Jose International Airport Parking Occupancy Survey.

1988 Air Passenger Survey

The 1988 Air Passenger Survey of passenger terminal activity covered long- and short-term parking, employee parking, car rental activity, and different forms of public transportation, such as bus, taxi, shuttle services, to help determine the specific modes of travel used by air passengers and employees on the day of the survey. The survey data was subsequently factored to reflect a typical Friday in August, the base day for circulation analysis in this EIR, using 1988 and 1995 originating enplanement information (Greene, 1995a).[2] The Metropolitan Transportation Commission conducted a survey of air passengers in August 1990 at SJC to gather information on origins of air passengers, types of transportation used to access Bay Area airports, purpose of travel, and other air-travel related characteristics. The survey data were used to determine the existing trip distribution and allocations of the air passengers. SJC Airport Development Division staff conducted a survey in 1995 to determine SJC employee and air passenger parking demand. The peak periods, the in/out ratios of the short and long term parking areas, and employee parking demands were also determined from the data. The results of these surveys, which are summarized in Table 3.3.1, indicate that the overwhelming majority of passengers and employees arrive and depart SJC in private automobiles, including rental cars. Existing public transit usage during the peak commute periods is very low (i.e., one percent of total trips).

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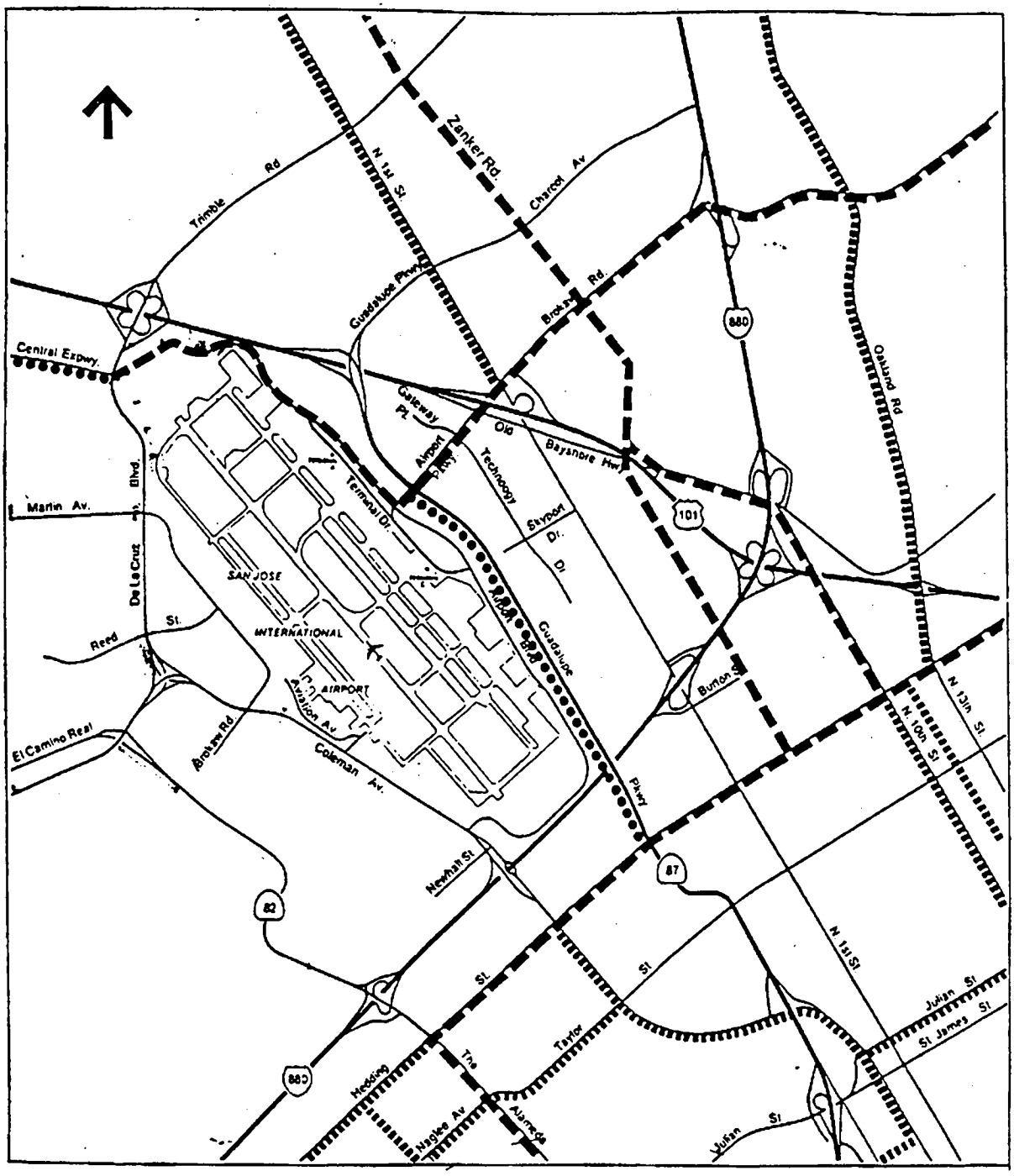
1 In 1996, MTC released the results of an updated survey which was undertaken in 1995. The data for SJC from the 1995 survey were found to be similar to those obtained from the 1990 survey.

2 A Friday in August is used in this EIR because August is typically the busiest month of the year at SJC in terms of passenger volumes, and because Friday is the weekday with the highest traffic volume at SJC.



Legend:

- ●●●●● Expressways allowing bicycles or with bikeways
- ▬ ▬ Bike lane
- ▪▪▪▪▪▪▪ Bike route

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.6
Bicycle Routes

TABLE 3.3.1
MODE SPLIT AT SJC[a]

	AM Peak Hour[d]			PM Peak Hour[d]		
	Total	In	Out	Total	In	Out
Terminal Area						
Short Term Parking	17%	12%	5%	30%	20%	9%
Long Term Parking	7%	4%	3%	4%	3%	1%
Total Passenger Related Parking	23%	16%	8%	33%	23%	10%
Employee Parking	2%	0%	2%	3%	2%	1%
Car Rental Activity	12%	2%	10%	10%	6%	4%
Taxi	6%	3%	3%	5%	3%	3%
Shuttle Service	8%	4%	4%	10%	5%	5%
Limousine Service	0%	0%	0%	1%	0%	0%
Public Transit	1%	0%	0%	1%	1%	1%
Drop Off Passengers	47%	23%	23%	36%	18%	18%
Total Terminal Area	100%	49%	51%	100%	58%	42%
General Aviation[b]	100%	50%	50%	100%	50%	50%
Air Cargo[c]	100%	48%	52%	100%	50%	50%

1995 SJC Enplanements	14,101 per day (Friday in August condition)
1995 Cargo Tonnage	10,084 per month (August)
1995 SJC General Aviation	491 based aircraft
1995 Average Daily Traffic (ADT) at SJC	39,800 vehicles per day (Friday in August condition)

a Mode split based on February, 1988 SJC mode split surveys by Barton Aschman Associates, 1990 Air Passenger Survey by Metropolitan Transportation Commission, and 1995 traffic counts at SJC by DKS Associates.

b General Aviation includes non-terminal area activity on south and west sides of SJC.

c Air Cargo activity includes terminal area and non-terminal area activity: belly freight on commercial airlines and commercial cargo operations.

d The AM peak hour is one hour during the weekday AM peak period of 7:00-9:00 AM. The PM peak hour is one hour during the weekday PM peak period of 4:00-6:00 PM.

SOURCE: DKS Associates

Airport Parking

As shown in Table 3.3.2, the Airport currently has four separate public parking areas, three surface lots (Red, Yellow [with overflow lot], and Green [with overflow lot]) and a garage, providing about 7,900 total public parking spaces. A shuttle service connects each of the long-term parking lots to both passenger terminals at five- to ten-minute intervals. There also is a short-term parking area adjacent to each of the two airport terminals, a six-story (2,230-stall) parking garage adjacent to Terminal A and about 1,000 stalls in the Red parking lot adjacent to Terminal C. There are approximately 4,700 long term parking stalls in the Yellow and Green parking lots. The employees currently park in a new 900-space lot located on the west side of the Airport.

There is one privately owned and operated off-airport parking facility, located near the intersection of De La Cruz Boulevard and Central Expressway in Santa Clara, with approximately 1,000 parking stalls.

3.3.1.8 Existing Traffic Operations

Morning (7:00 - 9:00 AM) and afternoon (4:00 - 6:00 PM) peak period vehicle turning movement counts at the study intersections were obtained from the City of San Jose Public Works Department. New turning movement counts were conducted at intersections where recent count data (within the last two years) were not available.

In order to evaluate the worst case scenarios, existing traffic counts that were more than six months old were updated to existing (August 1995) conditions. As specified in the City's guidelines for traffic studies, a growth rate of 0.3 percent per month was used. In addition, traffic volumes at intersections and roadways that lead directly into and out of SJC were factored to represent Friday peak volumes. The factored existing AM and PM peak hour traffic volumes used for the existing conditions analysis are shown in Figures 3.3.7 and 3.3.8.

Intersection Level of Service

Intersections are evaluated in terms of "level of service" (LOS), which is a measure of driving conditions and vehicle delay, with a six-level range from A (best) to F (poorest). LOS A, B and C indicate satisfactory conditions where traffic can move relatively freely. LOS D describes conditions where delay is more noticeable. LOS E indicates conditions where traffic volumes are at, or close to, capacity, resulting in significant delays and average travel speeds that are one-third the uncongested speeds or lower. LOS F characterizes conditions where traffic demand exceeds available capacity, with very slow speeds (stop-and-go) and long delays (over a minute) and queuing at signalized intersections. Tables 3 and 4 in Appendix 3.3.A outline level of service definitions for signalized intersections, and unsignalized intersections, respectively. The City of San Jose considers LOS D or better as acceptable for the operation of an intersection during peak commute periods.

TABLE 3.3.2
EXISTING PARKING SUPPLY AND DEMAND AT SJC

Facility		Number of Parking Spaces		
		Supply	Demand[a]	Difference
Red Lot	Hourly	1,017	694	323
Garage	Hourly	2,232	1,325	907
Yellow Lot	Long Term	2,345	2,111	235
Yellow Overflow Lot	Long Term	700	415	286
Green Lot	Long Term	1,630	1,767	(137)
Subtotal		7,924	6,312	1,612
Employee (regular)		1,128	1,128	0
Employee (reserved)		75	75	0
Subtotal		1,203	1,203	0
TOTAL		9,127	7,515	1,612

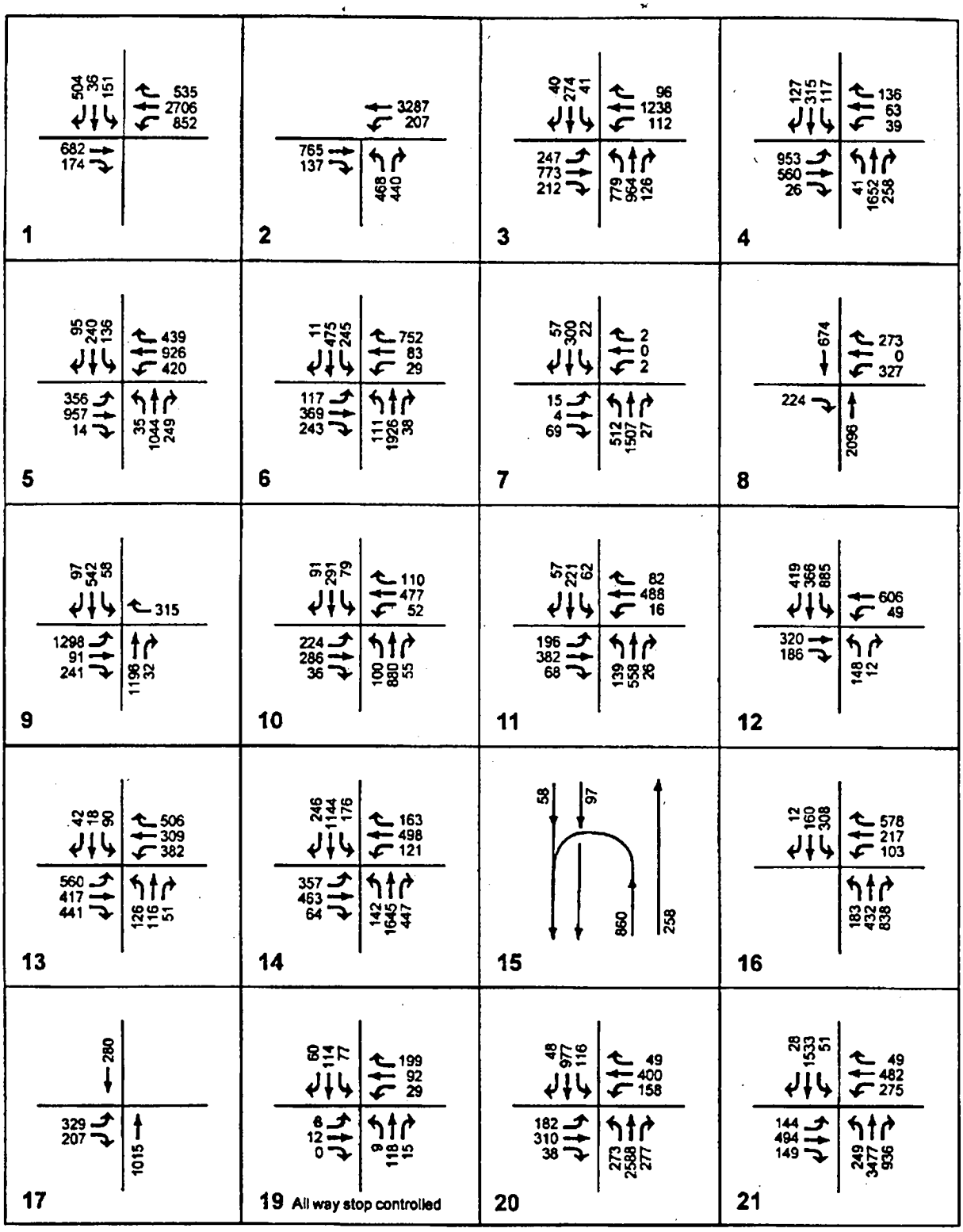
Average Peak Public Parking Demand on a Friday in August	6,132 spaces
Average number of daily enplanements on a Friday in August	14,101
Parking Demand Rate (non-employee)	6,312/14,101 = 0.45 spaces/enplanement

a Demand calculated based on existing parking demand (from SJC Parking Space Count Log Reports, 1995), plus a 10 percent excess circulation factor (i.e., only 90 percent of the parking spaces are occupied at the maximum demand time period, and motorists will continue to circulate to find the remaining 10 percent). Therefore, the parking requirement is 10 percent more than the maximum demand.

SOURCE: DKS Associates; San Jose International Airport

Intersection Analysis Methodology

Signalized intersections were evaluated according to procedures developed by the City of San Jose (City of San Jose, 1994a). The analysis uses procedures from the Transportation Research Board's *Circular 212* for evaluation of signalized intersection operations, with the modification of using a theoretical capacity of 1,780 vehicles per hour of green time for each lane group (Transportation Research Board, 1980). The methodology was used to determine the volume-to-capacity (V/C) ratio and corresponding LOS at the study intersections. For unsignalized intersection analysis the methodology outlined in the 1994 Highway Capacity Manual was used.

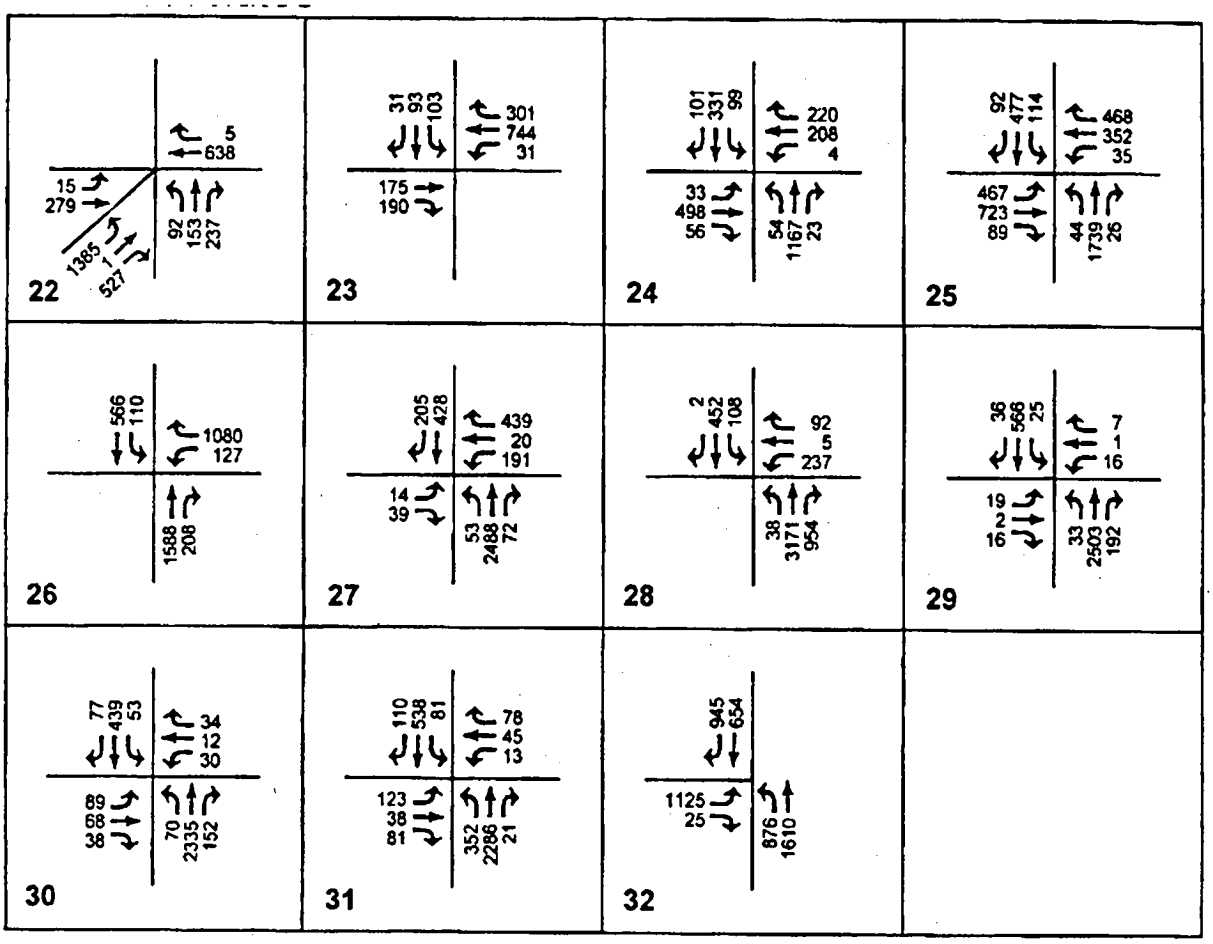


Intersection Numbers correspond to Figure 3.3.1
Intersection 18 is future only, see Figure 3.3.10 for detail

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.7
Existing AM Peak Hour
Traffic Volumes

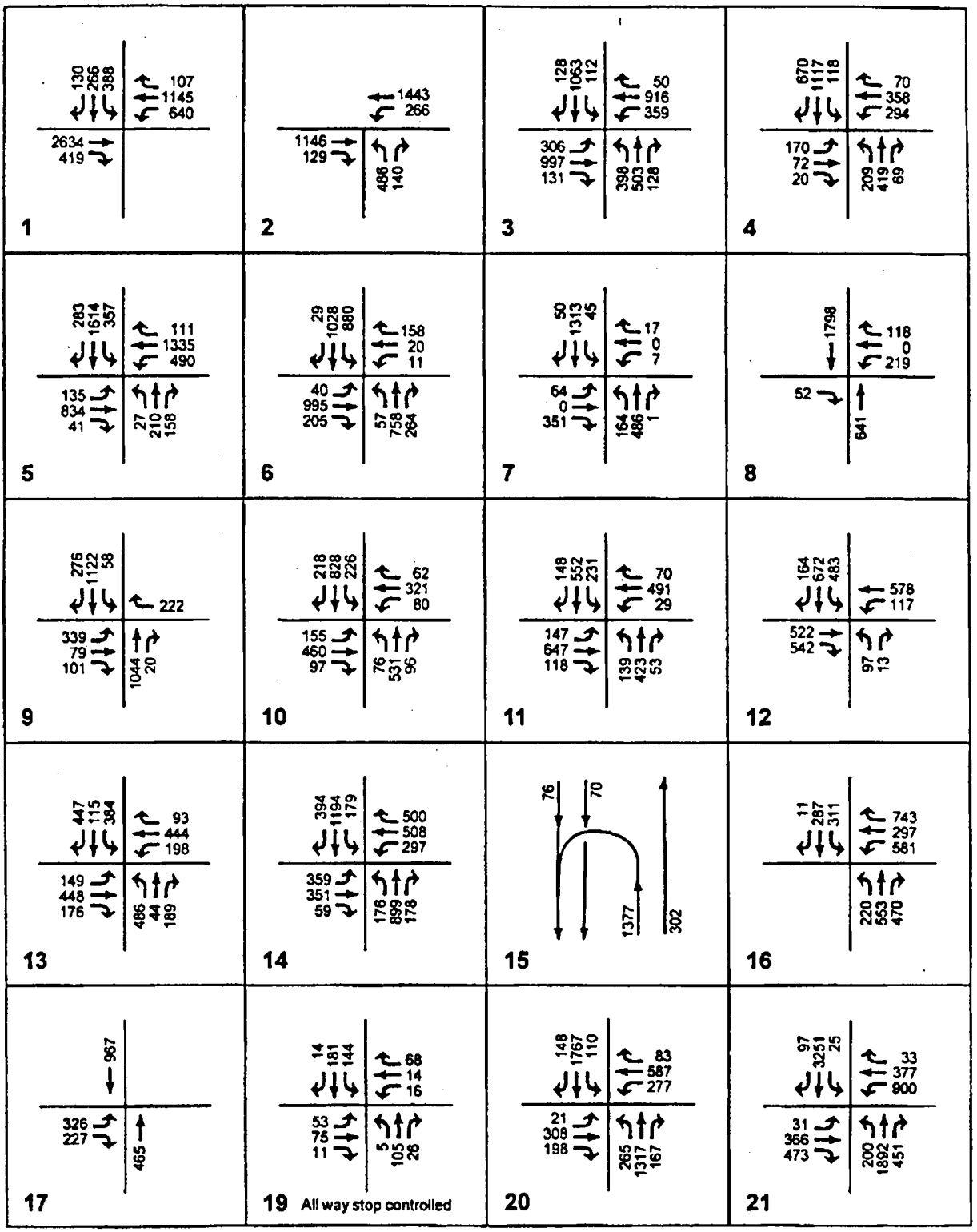


Intersection Numbers correspond to Figure 3.3.1

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.7 (continued)
Existing AM Peak Hour
Traffic Volumes

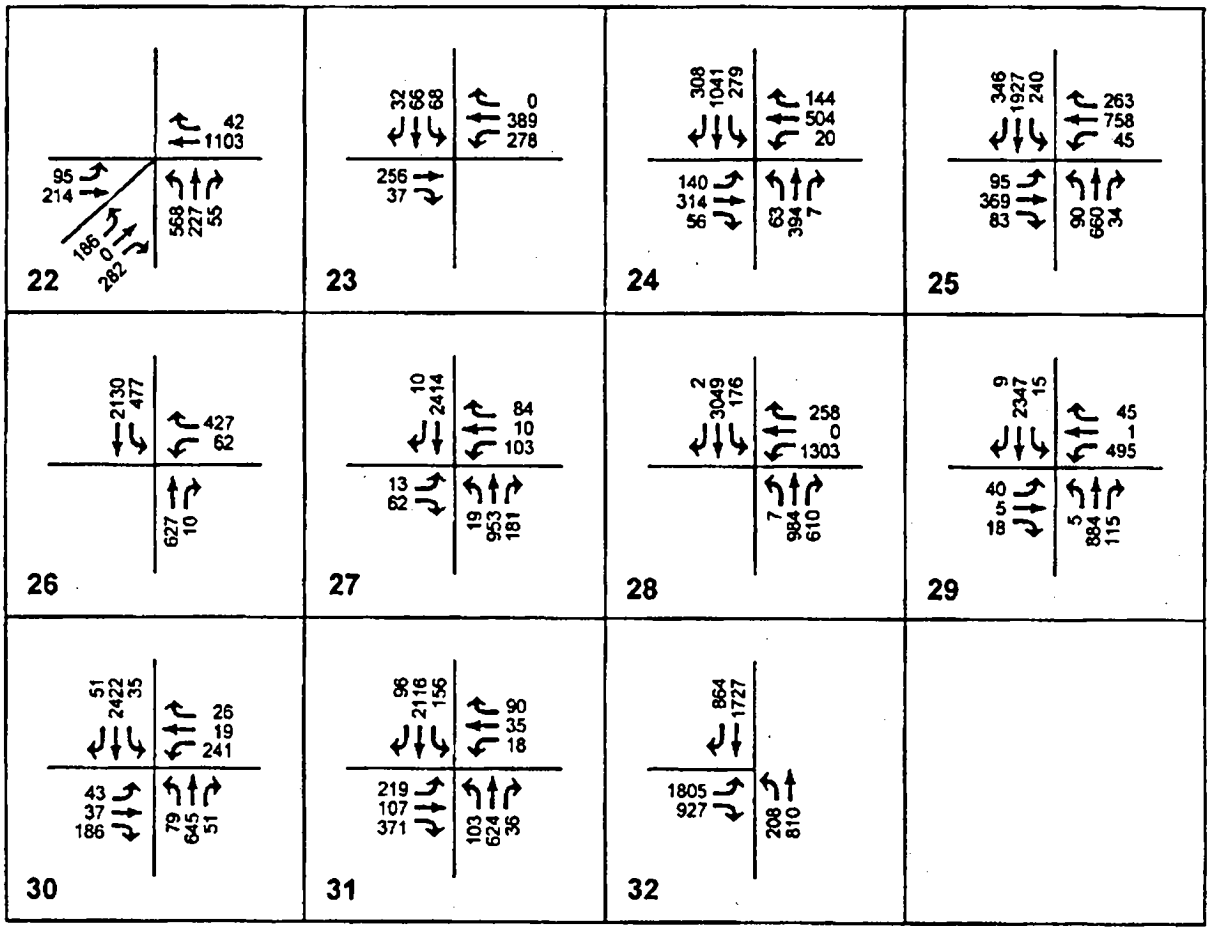


Intersection Numbers correspond to Figure 3.3.1
Intersection 18 is future only, see Figure 3.3.10 for detail

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.8
Existing PM Peak Hour
Traffic Volumes



Intersection Numbers correspond to Figure 3.3.1

SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404

Figure 3.3.8 (continued)
Existing PM Peak Hour
Traffic Volumes

Existing Intersection Operations

Existing intersection operations were evaluated with current signal phasing and lane geometry using the City of San Jose methodology (see Table 3.3.3). As shown in Table 3.3.3, 14 of the 31 existing study intersections currently do not operate at acceptable levels of service (i.e., LOS D or better) during the AM and/or PM commute periods. All of the intersection volumes used in the analysis and the accompanying LOS calculations are on-file and available for review at the City of San Jose Planning Department.

Freeway Level of Service Conditions

Level of service definitions for freeway segments are based on travel speed and capacity flow conditions (rather than delay and volume-to-capacity ratios, as for intersections). Table 6, in Appendix 3.3.A, outlines level of service definitions for freeways. Level of service E or better is the basic level of service standard for freeway segments in the City of San Jose. Figures 3.3.8a and 3.3.8b present the existing AM and PM level of service on freeways in the Airport vicinity.

Within the Airport vicinity, I-880 currently operates at LOS F at the following locations during the specified time periods (Santa Clara County Congestion Management Program (CMP), 1995):

- AM peak hour, northbound, between North First Street and Brokaw Road;
- PM peak hour, southbound, between Montague Expressway and Brokaw Road; and
- PM peak hour, southbound, between U.S. 101 and North First Street.

Within the Airport vicinity, U.S. 101 currently operates at LOS F at the following locations for the specified time periods (Santa Clara County CMP, 1995):

- AM peak hour, northbound, between I-280 and SR 87;
- PM peak hour, southbound, between Fair Oaks Avenue and I-880; and
- PM peak hour, southbound, between Story Road and Tully Road.

The following segments of SR 87 currently operate at LOS F at the following locations during the specified time periods (Santa Clara County CMP, 1995):

- AM peak hour, northbound, between I-280 and U.S. 101;
- PM peak hour, southbound, between U.S. 101 and Hedding Street; and
- PM peak hour, southbound, between I-280 and Alma Avenue.

3.3.1.9 General Aviation

SJC is one of four airports in Santa Clara County that provides facilities for general aviation aircraft. These facilities include aircraft parking spaces (hangars, shelters, and tie-downs), fueling facilities, maintenance facilities, aircraft and pilot supply outlets, and flight schools. The existing capacity at SJC is 600 based aircraft parking spaces, of which 491 spaces were occupied as of 1993. For comparison purposes, the based aircraft capacity of the other three general

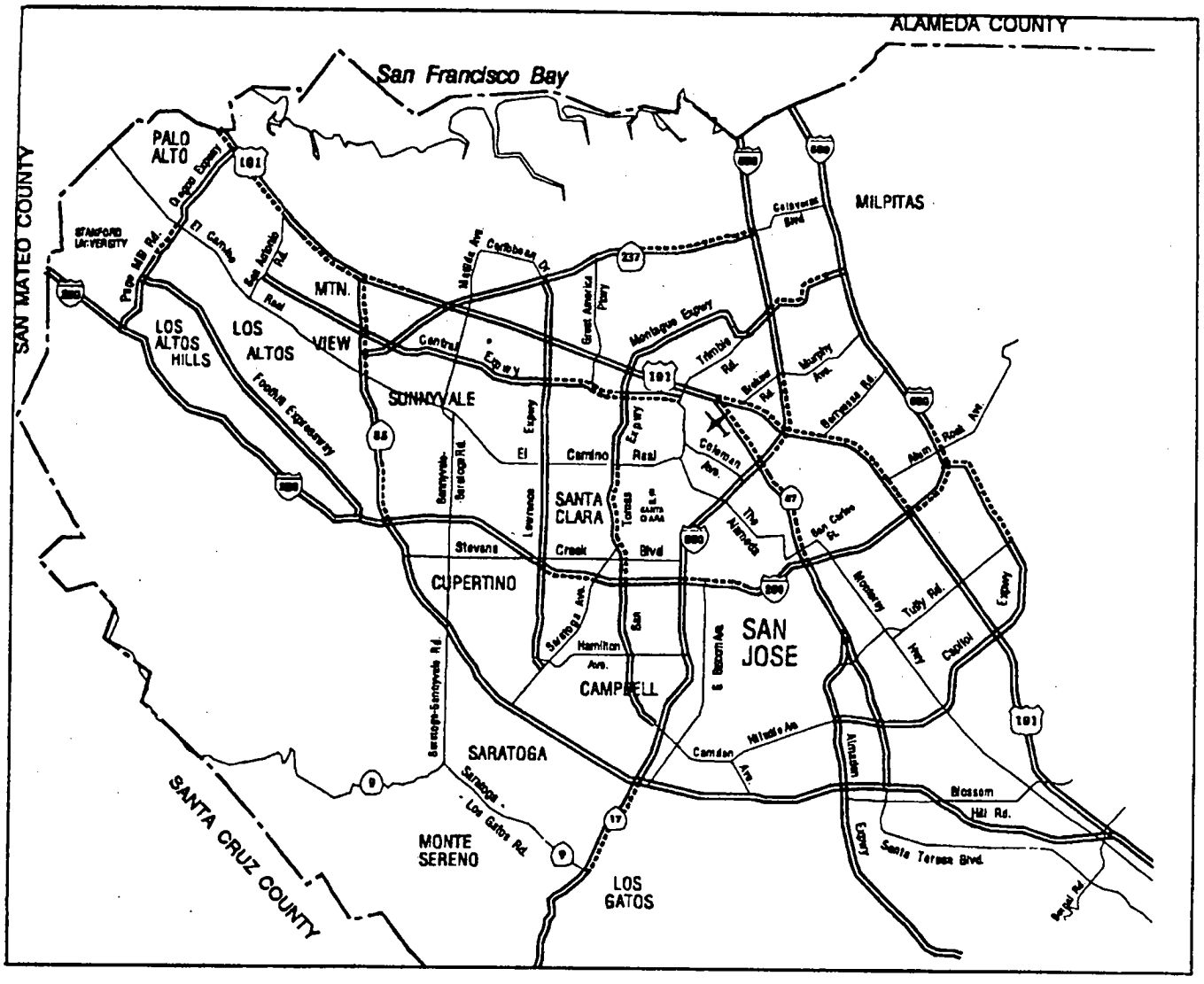
TABLE 3.3.3
EXISTING INTERSECTION LEVEL OF SERVICE

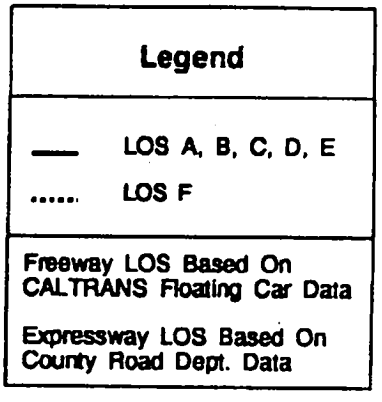
	AM Peak			PM Peak		
Intersection	**Count Date**	**V/C**	**LOS**	**Count Date**	**V/C**	**LOS**
1. Brokaw Road/I-880 southbound ramps[a]	09/12/95	0.79	C	09/01/94	1.04	F
2. Brokaw Road/I-880 northbound ramps[a]	09/12/95	0.86	D	09/01/94	0.52	A
3. North First Street/Trimble Road[a]	01/18/95	0.79	C	09/01/94	0.93	E
4. North First Street/Charcot Avenue	10/07/94	1.12	F	10/07/94	0.95	E
5. North First Street/Brokaw Road[a]	01/18/95	0.87	D	09/01/94	1.02	F
6. North First Street/Old Bayshore Highway	07/19/94	0.88	D	07/19/94	1.11	F
7. North First Street/Skyport Drive	04/14/93	0.57	A	04/14/93	0.77	C
8. North First Street/I-880 southound ramps[a]	09/13/95	0.79	C	09/01/94	0.49	A
9. North First Street/I-880 northbound ramps/Burton Street[a]	04/29/93	0.92	E	09/01/94	0.55	A
10. North First Street/Hedding Street	08/24/95	0.67	B	08/24/95	0.52	A
11. North First Street/Taylor Street	03/15/95	0.79	C	03/15/95	1.11	F
12. Airport Parkway/Old Bayshore Highway	10/05/93	0.58	A	10/05/93	0.58	A
13. Airport Parkway/Technology Drive/Gateway Place	01/10/94	0.46	A	01/10/94	0.54	A
14. Airport Parkway/Guadalupe Parkway (SR 87)	08/29/95	0.99	E	04/01/93	0.85	D
15. Airport Boulevard/Terminal Drive (North)	09/01/95	0.36	A	09/01/95	0.53	A
16. Airport Boulevard/Airport Parkway	12/15/94	0.42	A	08/25/95	0.71	C
17. Airport Boulevard/Terminal Drive (South)	09/05/95	0.45	A	09/05/95	0.43	A

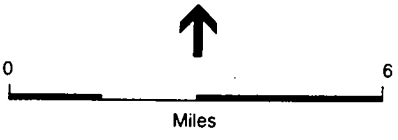
TABLE 3.3.3
EXISTING INTERSECTION LEVEL OF SERVICE (CONT.)

	AM Peak			PM Peak		
Intersection	**Count Date**	**V/C**	**LOS**	**Count Date**	**V/C**	**LOS**
19. Technology Drive/Skyport Drive	08/24/95	[b]	B	08/24/95	[b]	A
20. Guadalupe Parkway (SR 87)/Hedding Street	01/13/94	0.92	E	09/01/94	0.83	D
21. Guadalupe Parkway (SR 87)/Taylor Street	01/11/94	1.42	F	09/01/94	1.40	F
22. Julian Street/Guadalupe Parkway (SR 87) northbound ramps	02/15/94	0.72	C	09/01/94	0.56	A
23. Julian Street/Guadalupe Parkway (SR 87) southbound ramps	02/15/94	0.31	A	09/01/94	0.17	A
24. Coleman Avenue/Taylor Street	08/23/95	0.69	B	08/23/95	0.63	B
25. Coleman Avenue/Hedding Street	10/27/93	1.02	F	10/27/93	0.95	E
26. Coleman Avenue/I-880 northbound ramps	08/31/95	0.64	B	10/27/93	0.71	C
27. Coleman Avenue/I-880 southbound ramps	08/31/95	0.66	B	09/01/94	0.87	D
28. Coleman Avenue/Airport Boulevard	12/15/94	1.06	F	12/15/94	1.14	F
29. Coleman Avenue/Brokaw Road[c]	08/24/95	0.69	B	04/26/94	1.06	F
30. De La Cruz Boulevard/Reed Street[c]	08/29/95	0.69	B	08/31/95	0.77	C
31. De La Cruz Boulevard/Martin Avenue[c]	08/29/95	0.69	B	08/31/95	0.73	C
32. De La Cruz Boulevard/Central Expressway[c]	08/24/95	0.89	D	01/93	1.23	F

Note: Intersection number 18 has been reserved for future conditions.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Technology Drive/Skyport Drive is currently unsignalized. The average intersection delay is 6 seconds in the AM and 3 seconds in the PM peak.
[c] Intersection is in City of Santa Clara.







SOURCE: Santa Clara County Congestion Management Program

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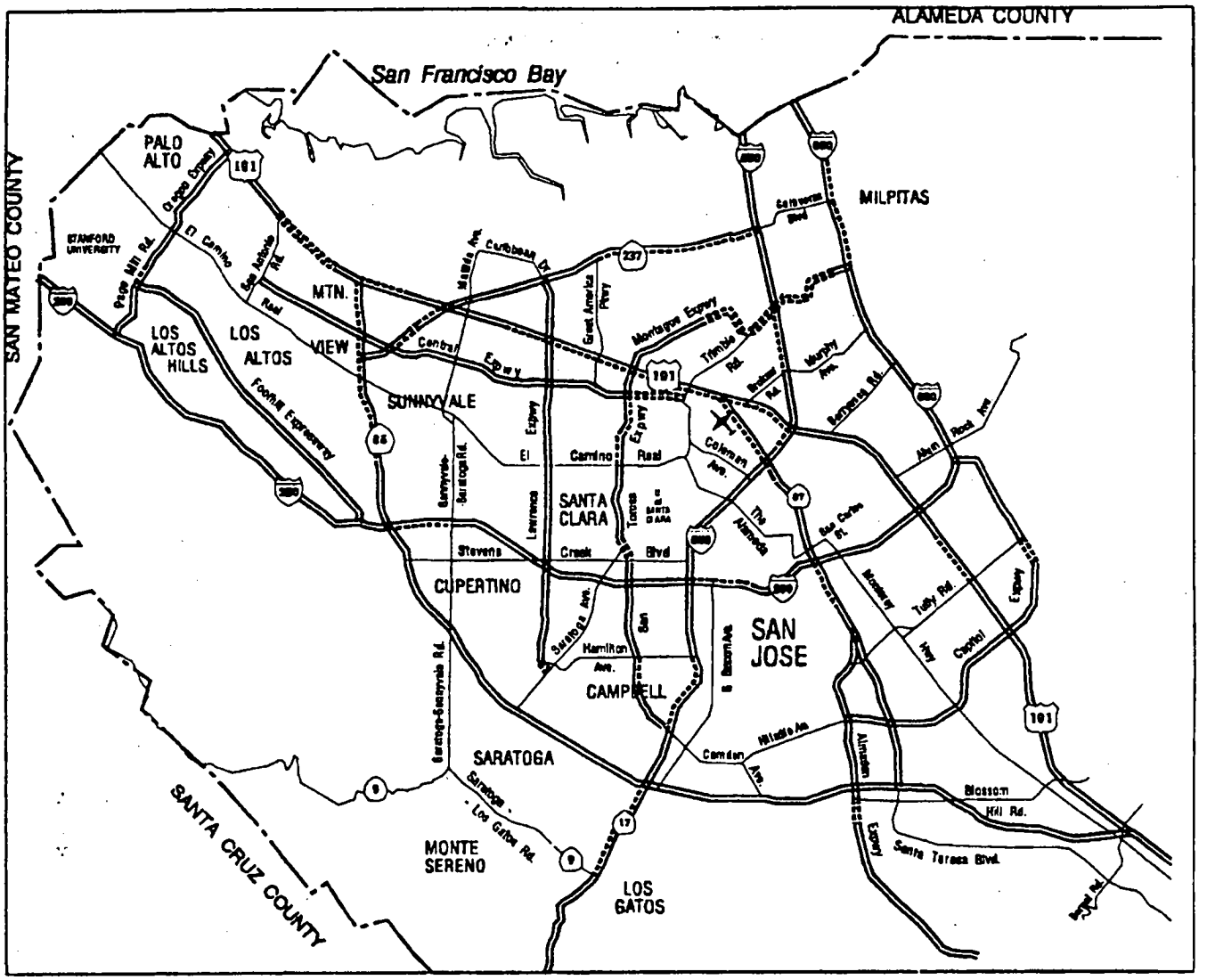
Figure 3.3.8a
1994/95 Freeway and Expressway
Level of Service A.M. Peak



Legend

——	LOS A, B, C, D, E
.....	LOS F

Freeway LOS Based On CALTRANS Floating Car Data

Expressway LOS Based On County Road Dept. Data

0 6
Miles

SOURCE: Santa Clara County Congestion Management Program

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Figure 3.3.8b
1994/95 Freeway and Expressway Level of Service P.M. Peak

aviation airports in Santa Clara County are as follows: Reid-Hillview, 900; Palo Alto, 590; and South County, 300. At each of these airports, some of the general aviation facilities are operated by the airport owner/operator (i.e., the City of San Jose for SJC or the County of Santa Clara for the other three airports), while others are operated by private businesses known as fixed base operators.

Within a 60-90 minute radius of San Jose are 13 airports that provide general aviation facilities. As shown on Figure 3.3.9, these 13 airports include four in Santa Clara County (SJC, Reid-Hillview, Palo Alto, and South County), three in Alameda County (Hayward, Livermore, and Oakland), two in San Mateo County (San Carlos and Half Moon Bay), two in San Benito County (Hollister and Frazier Lake), one in Santa Cruz County (Watsonville), and one in Monterey County (Salinas). These 13 airports have a combined capacity for over 6,600 based aircraft. Under existing conditions, the combined occupancy rate at these 13 airports is approximately 65 percent.

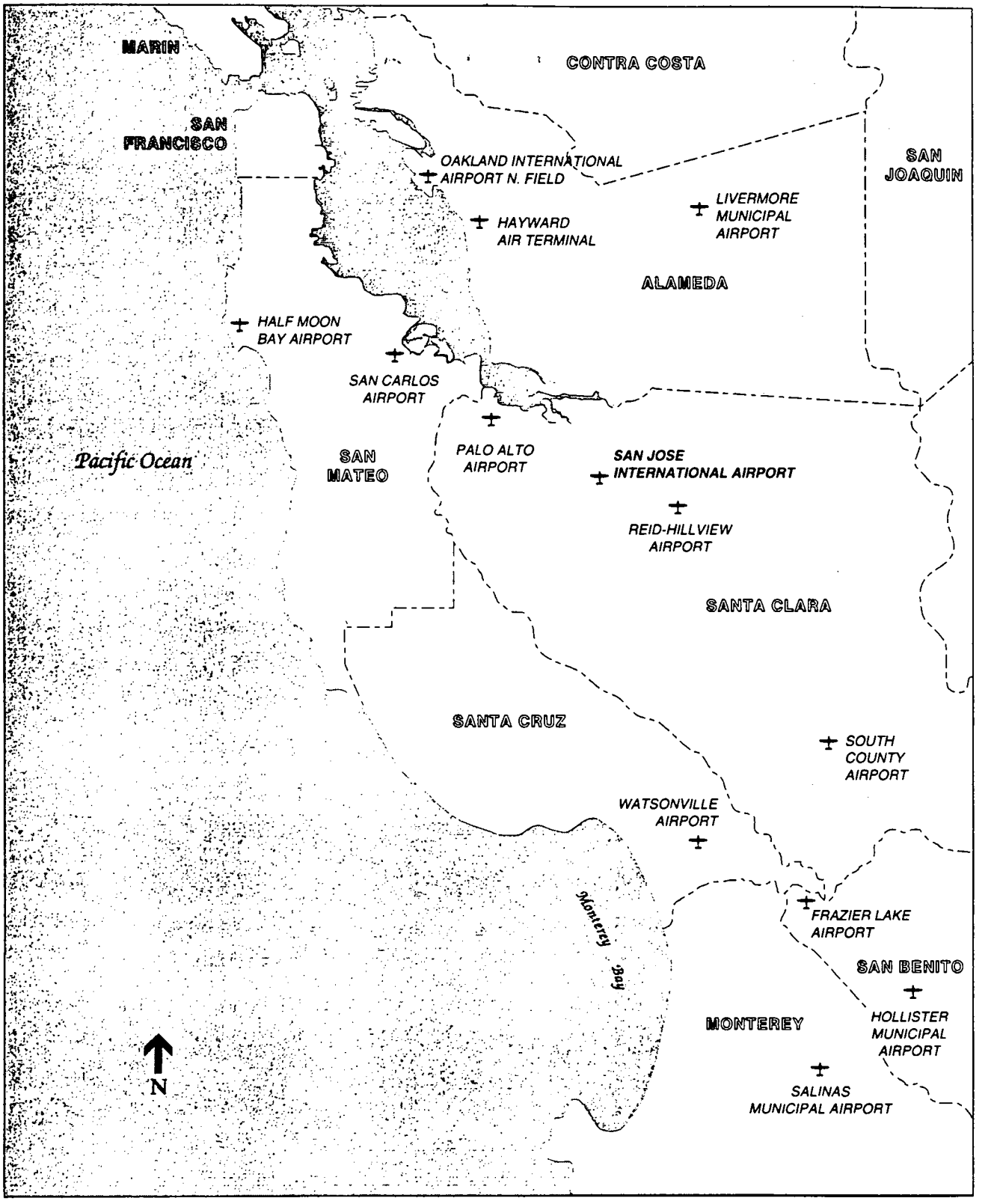
3.3.2 TRANSPORTATION AND CIRCULATION IMPACTS

Introduction and Overview

This section evaluates the transportation and traffic impacts of the Project Case Alternatives upon the transportation system in the vicinity of SJC. Because each alternative contains project component that would be implemented in three phases (as described in Section 2.2), this analysis also discloses impacts by phase for the three horizon years of 2000, 2005, and 2010. For each horizon year, baseline conditions are established, including planned infrastructure improvements and traffic from future development in the Airport vicinity. As explained below, the methodology used to establish baseline conditions for the near-term analysis (i.e., year 2000) was different than that used to establish baseline conditions for the long-term analysis (i.e., years 2005 and 2010). Once baseline conditions were established, this analysis added in the trips to be generated by Project Case Alternatives, in order to quantify project-related impacts. The methodology used to quantify project-generated traffic also is described below.

For this project, the following criteria were used to determine whether or not a transportation impact would be considered significant:

- in the year 2000, the addition of project-related traffic causes an intersection operating at LOS D or better under no project conditions to operate at LOS E or F;
- in the year 2000, the addition of project-related traffic increases the critical movement volume by more than one percent of an intersection operating at LOS E or F under no project conditions (City of San Jose, 1994a);
- in the year 2000, for those intersections located in the Golden Triangle area of North San Jose (bounded by SR 237, I-880, and Coleman Avenue) experiencing an increase of one percent or more in critical traffic volume, a weighted average volume to capacity calculation is used to determine if a proposed project has a significant impact;



SOURCE: Environmental Science Associates

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Figure 3.3.9
General Aviation Airports
in the Greater San Jose Area

- in the years 2005 and 2010, the addition of project-related traffic causes an intersection operating at LOS D or better under no project conditions to operate at LOS E or F and the increase in the volume-to-capacity ratio is 0.05 or greater;[3]

- in the years 2005 and 2010, the addition of project-related traffic causes the volume-to-capacity ratio to increase by 0.05 or more at an intersection operating at LOS E or F under no project conditions;

- project-related traffic causes a freeway segment operating at LOS E or better to operate at LOS F, or it contributes in excess of one percent of a freeway segment's capacity where the segment is already operating at LOS F under no project conditions;

- the project generates an on-Airport parking demand that exceeds the proposed on-Airport parking supply;

- the project generates demand for public transit in excess of existing capacity;

- the project results in adverse pedestrian safety;

- the project adversely affects existing or proposed bicycle routes or adversely affects safe bicycle usage;

- the project results in the closure of a roadway preventing access to Airport facilities during construction activities or adversely affects pedestrian safety during construction; or

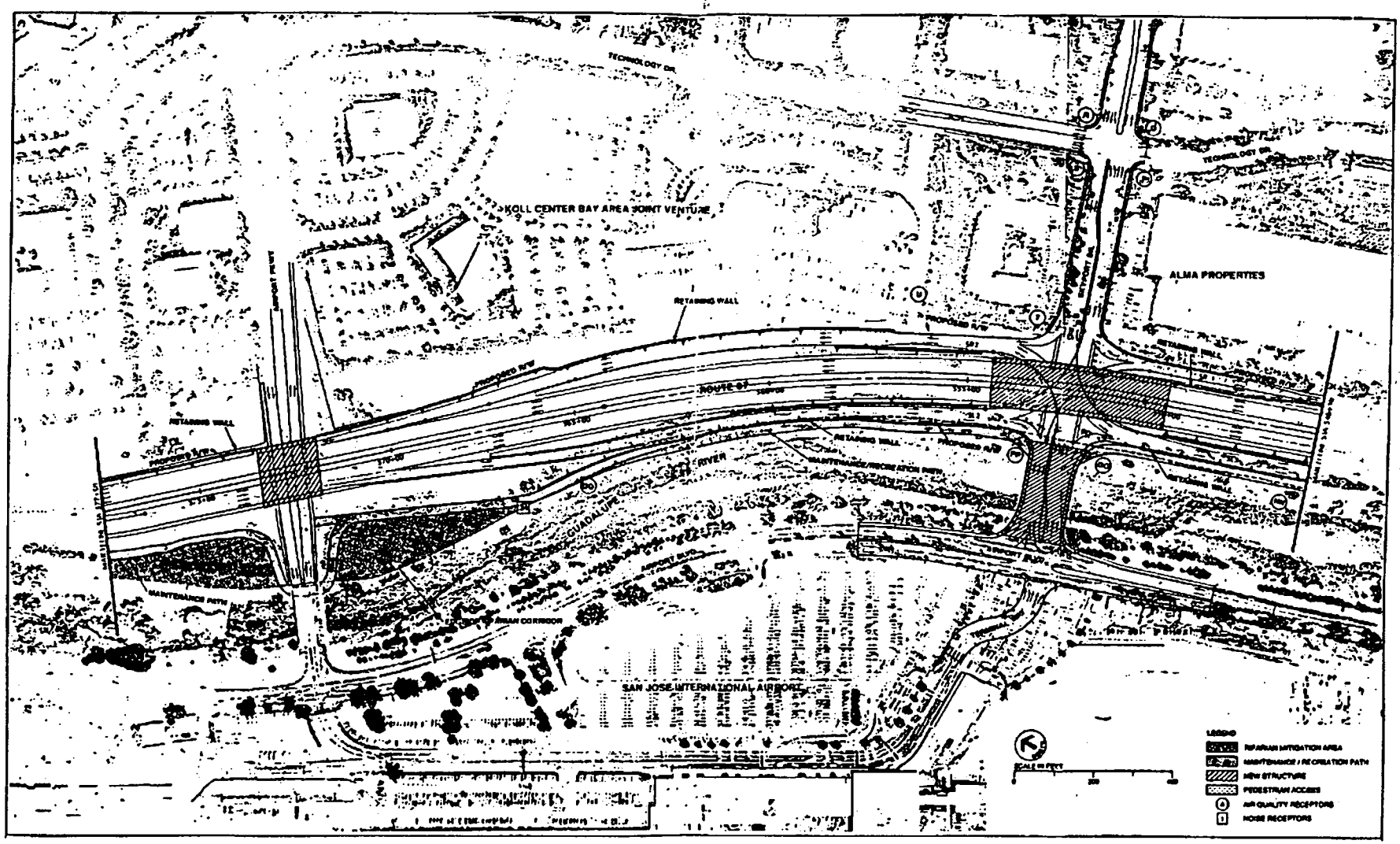
- the project results in unaccommodated demand for general aviation facilities within the region.

Programmed and Planned Transportation Improvements in Airport Vicinity

The most important roadway improvement planned in the Airport vicinity is the upgrade of SR 87 to a 6-lane freeway by the year 2001. Grade separations will be built at Skyport Drive, Taylor Street, Hedding Street, and Airport Parkway, thus eliminating all of the existing at-grade, signalized intersections on SR 87. The SR 87 project includes the extension of Skyport Drive across the Guadalupe River to intersect with Airport Parkway. Figure 3.3.10 illustrates the future interchange configuration on SR 87 at Skyport Drive adjacent to SJC.

In addition, the intersection of Coleman Avenue and Brokaw Road is being currently being improved and soon will be complete. A third through lane is being added to the northbound and southbound approaches at this intersection.

[3] This is based on the fact that the Phase 2 and Phase 3 analysis was conducted using the City's TRANPLAN travel forecast model, from which link (roadway segment) volumes were converted to intersection turning movements prior to calculation of levels of service. Because of the regional distribution of traffic from the proposed project and the number of intersections potentially affected, the one-half level of service threshold, which is used as a standard transportation benchmark in many analyses, was used for this analysis.



SOURCE: CalTrans; City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.10
Proposed Skyport Interchange

The analysis assumes that planned improvements to the intersection of North First Street and Trimble Road will be completed before the year 2000. Those improvements consist of the addition of a second westbound left-turn lane.

Other programmed transportation improvements that were included in the analysis for Year 2005 (Phase 2) and 2010 (Phase 3) are the addition of more travel lanes (primarily turn lanes) at the following intersections:

4. North First Street and Charcot Avenue;
7. North First Street and Skyport Drive;
13. Airport Parkway and Technology Drive/Gateway Place; and
23. Julian Street and southbound Guadalupe Parkway (SR 87) ramps.

For a more detailed description of the transportation network planned to be in place in years 2000, 2005, and 2010, see Appendix 3.3.A.

3.3.2.1 Project Case

Trip Generation

The future vehicle trip generation that would result from implementation of the Project Case was determined by establishing the existing trip characteristics of passenger, cargo and employment activity at SJC. Airports are not typical traffic generators compared to other types of development. The peak hours of air traffic activity do not necessarily correspond to the peak traffic hours on the adjacent roadway network. Airports have a relatively large number of maintenance and cargo-related employees who work eight-hour shifts during typical business hours.

For the purposes of this analysis, the base day for trip generation analysis was a Friday in August, for the following reasons (Greene, 1995a; and City and County of San Francisco, 1991):

- August is the highest month for originating and total enplanements at SJC (9.8 percent of the total annual enplanements at SJC travel in August);
- August is the highest month for all cargo activity at SJC; and
- Friday is the busiest weekday for air passengers at SJC (14.9 percent of all weekly passengers).

While August and Fridays are not typically considered to have the heaviest traffic conditions on the remainder of the transportation network, it is worth noting that SJC is one of the largest traffic generators in the Airport vicinity and, therefore, has a great effect upon the travel characteristics and roadway operations in the vicinity of SJC.

Trip generation related to air passenger activity at SJC represents the overwhelming majority of the total trips generated. The remainder of the trips are cargo, based aircraft, commercial and employment related. All trips entering and leaving the SJC terminal area were accounted for in order to establish a trip rate based on the total number of enplanements. The number of trips per enplanement is typically used as a measure of trip generation for passenger activity at commercial airports.

In order to properly calculate airport-related trips, the total number of vehicle trips entering and exiting SJC were estimated and compared to vehicle trip surveys conducted in 1995 at each driveway, garage and parking lot entrance. This was done so that vehicles using SJC roadways that are not related to airport activities (e.g., vehicles that currently use Airport Boulevard between Coleman Avenue and Airport Parkway as a bypass for congested segments of North First Street or Guadalupe Parkway) would be accounted for separately.

Terminal Area Peak Hour Trips

Employees at SJC were divided into terminal and non-terminal area employees. Of the 3,600 employees at SJC, approximately 2,200 are terminal related (e.g., commercial airline employees at the ticket counters, baggage handlers, some City employees, etc.) and the remaining 1,400 are non-terminal related (e.g., maintenance, air cargo facilities, City offices, Federal Aviation, etc.) (Greene, 1995b).

For the purposes of this analysis, the peak analysis period represents the peak hour on the surrounding roadway network, not the air traffic peak hours. If air traffic peak hours (mid-day and late evening) were used for automobile traffic analysis, volumes on SJC roadways would be significantly higher. However, the higher SJC volumes would combine with considerably less traffic from surrounding roadways, and the analysis would not represent the worst case scenario for off-Airport impacts.

Peak-hour vehicle trip generation rates for the terminal area were based on the number of daily enplanements. The terminal area includes such activities as short- and long-term parking, rental car activities, taxis, shuttle buses and passenger loading and unloading. Existing peak hour traffic counts and the vehicle trips generated by the non-terminal area were used in calculating the terminal area peak hour vehicle trip generation rate. Friday peak-hour terminal-related trip rates were determined to be 0.164 vehicle trips per daily enplanement (AM peak) and 0.235 vehicle trips per daily enplanement (PM peak). The assumptions and calculations involved in developing the terminal area peak hour vehicle trip generation rate are presented in Section II, Environmental Impacts, of Appendix 3.3.A.

Non-Terminal Area Peak Hour Trips

The non-terminal areas of SJC were divided into the following land uses categories:

- cargo - including all belly freight operations (commercial passenger airline) and cargo carrier operations; and
- general aviation/Airport Operations - including engineering, aviation administration, police and security.

Miscellaneous Project Related Peak Hour Trips

Some changes to Airport facilities, such as the removal of buildings used by the San Jose State Department of Aviation, removal of hangar buildings, and relocation and expansion of the fuel storage facility, would change the travel patterns associated with SJC. Because of the relatively small number of peak period trips observed at each of these facilities, however, the traffic impacts related to the proposed changes were assumed to be negligible during the AM and PM peak periods.

One project component included in each of the Project Case Alternatives is the development of a one-acre site for non-aviation commercial use at the southeast corner of Coleman Avenue and Airport Boulevard. By assuming the one-acre site would be a gas station with a convenience market in the future, the maximum number of trips that could be generated by the site were estimated. The one-acre site would generate approximately 86 AM and 113 PM, peak-hour trips, with many of the trips being pass-by trips (i.e., vehicles already on the roadway traveling from one point to another, and stopping off at the service station on their way to their ultimate destination).

Total Airport Peak Hour Trips

The future number of trips generated by the Master Plan Update, in both the weekday AM and PM peak hours, for each Project Case Alternative, are outlined in Table 3.3.4. As shown in Table 3.3.4, the number of vehicle trips generated by the Airport for each Project Case Alternative (including the No Project Alternative) and each buildout year is slightly different. This is due to the varying number of daily enplanements, cargo tonnage and based aircraft proposed under each scenario. In Phase 1 (Year 2000), the Airport would actually generate more trips under Project Case Alternatives A and B than it would under the Project Case. This is because the number of originating enplanements remains constant for each of the Project Case Alternatives, which means the number of trips generated by the terminal area (the largest generator) remains constant, while the number of based aircraft and the trips associated with general aviation increases with Project Case Alternatives A and B.

In the years 2005 and 2010, the projected number of daily enplanements under Project Case Alternatives A and B is less than the Project Case and, therefore, the vehicle trip generation of the entire Airport also is less under Project Case Alternatives A and B.

TABLE 3.3.4
FUTURE TRIP GENERATION AT SJC

Vehicle Trip Generation Rates

Enplanements (per day)		Cargo Tonnage (tons/month)		General Aviation (based aircraft)		Entire Airport (enplanements per day)
AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	Daily
0.164	0.235	0.029	0.029	0.921	0.695	1.370

Future Demand Accommodated (per year)

	Originating Enplanements				Cargo Tonnage				General Aviation			
Year	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
2000	4,586,350	4,586,350	4,586,350	4,586,350	134,900	134,900	113,000	113,000	380	440	440	540
2005	6,294,200	5,327,350	5,227,950	4,702,500	243,700	226,300	142,900	135,900	325	410	490	585
2010	7,490,050	5,895,000	5,580,000	4,844,250	315,300	283,200	167,200	155,500	320	430	490	600

Future Demand Accommodated (per peak period)

	Originating Enplanements (per day)				Cargo Tonnage (per month)				General Aviation (based aircraft)			
Year	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
1995	14,101				10,084				491			
2000	15,169	15,169	15,169	15,169	11,682	11,682	9,786	9,786	380	440	440	540
2005	20,817	17,619	17,291	15,553	21,104	19,598	12,375	11,769	325	410	490	585
2010	24,772	19,497	18,455	16,021	27,305	24,525	14,480	13,466	320	430	490	600

TABLE 3.3.4 (Continued)
FUTURE TRIP GENERATION AT SJC

Daily Vehicle Trip Generation

Year	Originating Enplanements: Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
1995	39,806			
2000	41,964	42,373	41,834	41,407
2005	57,282	50,065	47,799	43,162
2010	68,123	55,928	51,080	44,827

AM Peak Hour Vehicle Trip Generation

Year	Originating Enplanements				Cargo Tonnage				General Aviation				Airport Total[a]			
	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
1995	2,313				292				452				3,143			
2000	2,488	2,488	2,488	2,488	339	339	284	284	350	405	405	497	3,262	3,318	3,263	3,269
2005	3,414	2,890	2,836	2,551	612	568	359	341	299	378	451	539	4,411	3,921	3,732	3,431
2010	4,063	3,197	3,027	2,628	792	711	420	391	295	396	451	553	5,235	4,391	3,984	3,571

PM Peak Hour Vehicle Trip Generation

Year	Originating Enplanements				Cargo Tonnage				General Aviation				Airport Total[a]			
	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
1995	3,314				292				341				4,060			
2000	3,565	3,565	3,565	3,565	339	339	284	284	264	306	306	375	4,280	4,322	4,267	4,223
2005	4,892	4,141	4,063	3,655	612	568	359	341	226	285	340	406	5,843	5,107	4,876	4,403
2010	5,821	4,582	4,337	3,765	792	711	420	391	222	299	340	417	6,949	5,705	5,210	4,572

[a] Note Airport total includes proposed gas station

SOURCE: DKS Associates

Daily Airport Trips

Table 3.3.4 also shows the Airport's existing daily trip generation and future daily trip generation characteristics associated with the different Project Case Alternatives. Although no traffic impact analysis was conducted using the daily trip figures, it provides another context for comparison between Project Case Alternatives.

Trip Distribution

The trip distribution for project-related traffic was based on the 1990 MTC Air Passenger Survey. The survey includes the origin of trips destined for SJC, which was used as a basis for the future trip distribution patterns related to SJC. The overall distribution of the project trips associated with the Airport activity are illustrated in Figure 3.3.11.

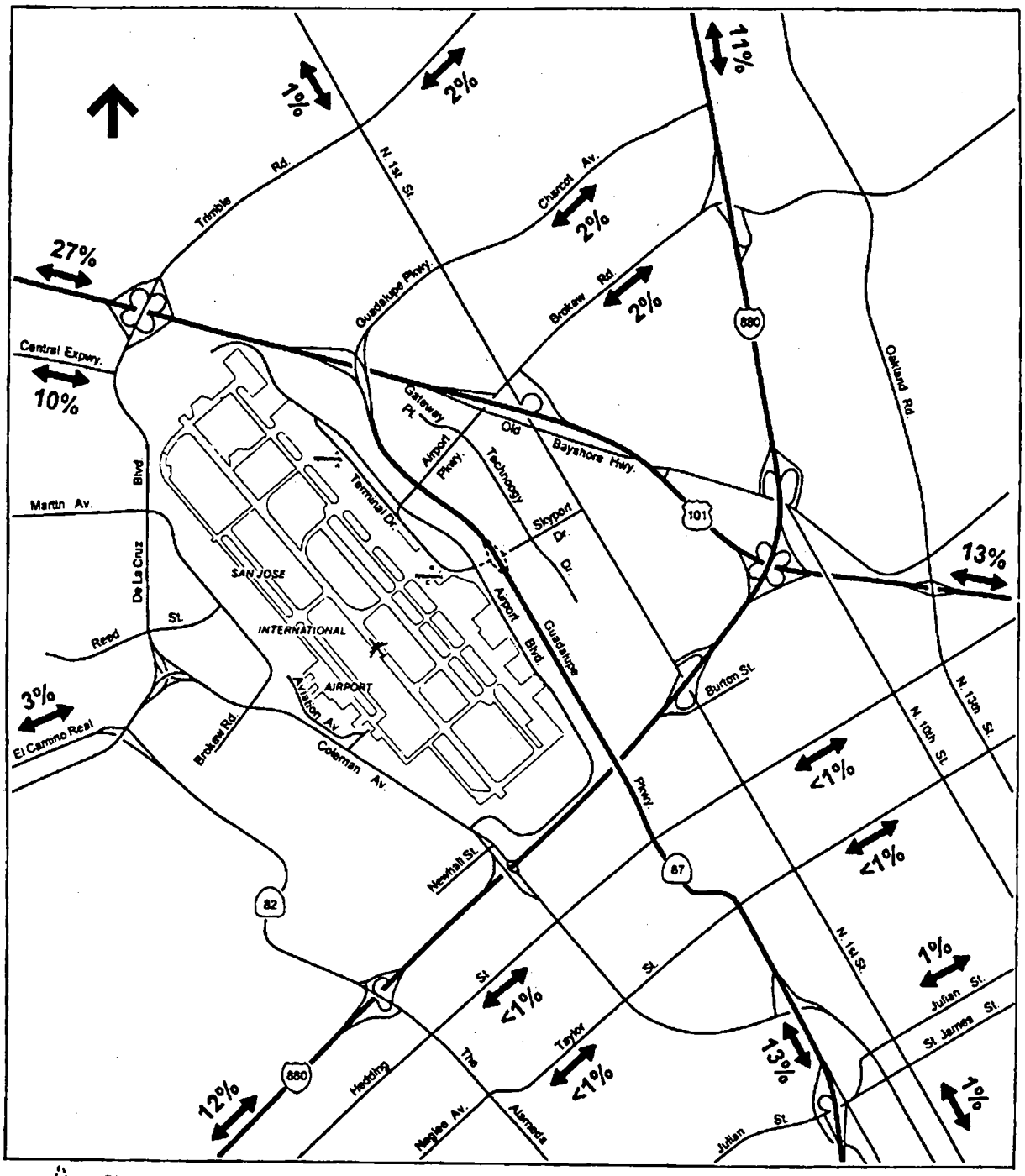
Vehicle trips generated by the one-acre non-aviation commercial site were distributed using a different methodology than that used for the Airport-related activities. A gas station has different types of trips associated with it (usually shorter trips and not primary destination trips) than an Airport does. The majority of the traffic associated with the gas station would use either I-880 or El Camino Real to access Coleman Avenue and the site at Coleman Avenue/Airport Boulevard.

Trip Assignment

Although the trip distribution associated with the Airport was assumed not to change for the future year scenarios, the actual assignment of project-related trips to the roadway network varies slightly with each buildout year as a result of roadway network changes between the buildout years (refer to the Programmed and Planned Transportation Improvements above). Trip assignment defines the actual path motorists would take between the Airport and their origin or destination, and is based on the roadway network, travel distances, travel time characteristics and existing traffic patterns. The actual assignment of trips in each buildout year also varies slightly among the Project Case Alternatives because the percentage of vehicle trips assigned to either the east or west side of the Airport may differ depending on the size and placement of facilities under each Project Case Alternative.

Mode Split

A variety of different travel modes are available to access SJC, including drive alone, carpool, bus transit, shuttle vans, shuttle buses, public transit (SCVTA), rental cars, taxis and limousines. The mode split factors obtained from the 1988 Air Passenger Survey (see Table 3.3.1, above) were assumed to remain constant in the future, and were applied to 1995 traffic volumes and also to the entire Airport's trip generation for future conditions analyses, and are inherent in the vehicle trip generation estimates discussed above, and presented in Table 3.3.4.



SOURCE: DKS Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.3.11
Trip Distribution

Intersection Level of Service Impacts

Phase 1 (Year 2000)

Future Traffic Analysis Scenarios. For Phase 1, impacts were assessed for the weekday AM and PM peak hours by comparing the No Project Alternative with each Project Case Alternative.

Future No Project Conditions. In order to arrive at no project conditions in the year 2000, the following additions to existing traffic volumes were made:

- a growth rate of 3.6 percent per year to account for regional and background growth (City of San Jose, 1994a);
- traffic from approved-but-not-yet-constructed projects in San Jose (City of San Jose, 1995b)[4]; and
- traffic due to projected increases in passenger volumes at SJC that would occur by the year 2000 under no project conditions.

Trip Generation Summary. As shown on Table 3.3.4, the Project Case would generate a total of about 42,000 daily vehicle trips in 2000 (as compared to 41,400 daily vehicle trips under the No Project Alternative), including approximately 3,300 trips during the weekday AM peak hour and approximately 4,300 trips during the weekday PM peak hour. Comparing the Project Case to the No Project Alternative in year 2000, traffic volumes to and from SJC under these scenarios would be approximately the same, as shown in Table 3.3.4.

Intersection Impacts. Project Case impacts on signalized and unsignalized intersection operations were determined by adding traffic generated by the Project Case to the future No Project Alternative traffic volumes and calculating intersection levels of service. Levels of service were calculated in the same manner as for the existing conditions, as described previously. Table 3.3.5 lists the levels of service at each study intersection for each traffic condition in Phase 1 (Year 2000). Several intersections would operate at an unacceptable (i.e., LOS E or F) level of service in the future under the No Project Alternative.

Based upon the criteria described previously, the Project Case would result in a significant impact at the following five intersections in the year 2000:

27. Coleman Avenue and I-880 southbound ramps (PM peak)
28. Coleman Avenue and Airport Boulevard (PM peak)
29. Coleman Avenue and Brokaw Road (PM peak)
31. De La Cruz Boulevard and Martin Avenue (AM peak)
32. De La Cruz Boulevard and Central Expressway (AM peak)

[4] No projects which would generate enough traffic to affect study area intersections were identified in the neighboring Cities of Milpitas and Santa Clara (Schwilk, 1995).

TABLE 3.3.5
FUTURE LEVEL OF SERVICE, YEAR 2000 SCENARIOS - AM PEAK HOUR

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
1. Brokaw Road/I-880 southbound ramps[a]	0.98	E	0.98	E	0.98	E	0.98	E
2. Brokaw Road/I-880 northbound ramps[a]	1.07	F	1.07	F	1.07	F	1.07	F
3. North First Street/Trimble Road[a]	1.20	F	1.21	F	1.21	F	1.21	F
4. North First Street/Charcot Avenue	1.44	F	1.45	F	1.45	F	1.45	F
5. North First Street/Brokaw Road[a]	1.46	F	1.45	F	1.44	F	1.44	F
6. North First Street/Old Bayshore Highway	1.10	F	1.10	F	1.10	F	1.10	F
7. North First Street/Skyport Drive	0.69	B	0.69	B	0.69	B	0.69	B
8. North First Street/I-880 southbound ramps[a]	0.96	E	0.96	E	0.96	E	0.96	E
9. North First Street/I-880 northbound ramps/ Burton Street[a]	1.09	F	1.09	F	1.09	F	1.09	F
10. North First Street/Hedding Street	0.81	D	0.81	D	0.81	D	0.81	D
11. North First Street/Taylor Street	0.97	E	0.97	E	0.97	E	0.97	E
12. Airport Parkway/Old Bayshore Highway	0.83	D	0.80	D	0.81	D	0.80	D
13. Airport Parkway/Technology Drive/ Gateway Place	0.72	C	0.70	C	0.70	C	0.70	C
14. Airport Parkway/Guadalupe Parkway (SR 87)	1.69	F	1.66	F	1.66	F	1.66	F
15. Airport Boulevard/Terminal Drive (North)	0.81	D	0.76	C	0.76	C	0.75	C
16. Airport Boulevard/Airport Parkway	1.03	F	0.98	E	0.98	E	0.97	E
17. Airport Boulevard/Terminal Drive (South)	0.81	D	0.79	C	0.79	C	0.78	C

TABLE 3.3.5 (CONT.)
FUTURE LEVEL OF SERVICE, YEAR 2000 SCENARIOS - AM PEAK HOUR

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
19. Technology Drive/Skyport Drive	b	B	b	B	b	B	b	B
20. Guadalupe Parkway (SR 87)/Hedding Street	1.12	F	1.11	F	1.11	F	1.11	F
21. Guadalupe Parkway/Taylor Street	1.54	F	1.54	F	1.54	F	1.54	F
22. Julian Street/Guadalupe Parkway (SR 87) northbound ramps	0.96	E	0.96	E	0.96	E	0.96	E
23. Julian Street/Guadalupe Parkway (SR 87) southbound ramps	0.37	A	0.38	A	0.38	A	0.38	A
24. Coleman Avenue/Taylor Street	0.84	D	0.85	D	0.85	D	0.85	D
25. Coleman Avenue/Hedding Street	1.23	F	1.24	F	1.24	F	1.24	F
26. Coleman Avenue/I-880 northbound ramps	0.78	C	0.79	C	0.79	C	0.80	C
27. Coleman Avenue/I-880 southbound ramps	0.83	D	0.84	D	0.84	D	0.84	D
28. Coleman Avenue/Airport Boulevard	1.55	F	1.51	F	1.53	F	1.53	F
29. Coleman Avenue/Brokaw Road[c]	0.68	B	0.71	C	0.71	C	0.71	C
30. De La Cruz Boulevard/Reed Street[c]	0.85	D	0.85	D	0.85	D	0.85	D
31. De La Cruz Boulevard/Martin Avenue[c]	0.86	D	**0.93**	**E**	**0.93**	**E**	**0.93**	**E**
32. De La Cruz Boulevard/Central Expressway[c]	1.16	F	**1.19**	**F**	**1.19**	**F**	**1.19**	**F**

Note: Intersection number 18 has been reserved for a future intersection. Significant impacts are signified by bold type and are shaded.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Technology Drive/Skyport Drive is currently unsignalized.
[c] Intersection is in City of Santa Clara.

SOURCE: DKS Associates

TABLE 3.3.5 (CONT.)
FUTURE LEVEL OF SERVICE, YEAR 2000 SCENARIOS - PM PEAK HOUR

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
1. Brokaw Road/I-880 southbound ramps[a]	1.38	F	1.36	F	1.37	F	1.36	F
2. Brokaw Road/I-880 northbound ramps[a]	0.76	C	0.75	C	0.75	C	0.75	C
3. North First Street/Trimble Road[a]	1.46	F	1.47	F	1.47	F	1.47	F
4. North First Street/Charcot Avenue	1.28	F	1.28	F	1.28	F	1.28	F
5. North First Street/Brokaw Road[a]	1.38	F	1.36	F	1.36	F	1.36	F
6. North First Street/Old Bayshore Highway	1.47	F	1.46	F	1.47	F	1.46	F
7. North First Street/Skyport Drive	0.75	C	0.75	C	0.75	C	0.75	C
8. North First Street/I-880 southbound ramps[a]	0.59	A	0.59	A	0.59	A	0.59	A
9. North First Street/I-880 northbound ramps/ Burton Street[a]	0.66	B	0.66	B	0.66	B	0.66	B
10. North First Street/Hedding Street	0.65	B	0.65	B	0.65	B	0.65	B
11. North First Street/Taylor Street	1.43	F	1.43	F	1.43	F	1.43	F
12. Airport Parkway/Old Bayshore Highway	0.80	D	0.78	C	0.78	C	0.78	C
13. Airport Parkway/Technology Drive/ Gateway Place	0.88	D	0.83	D	0.83	D	0.83	D
14. Airport Parkway/Guadalupe Parkway (SR 87)	1.84	F	1.71	F	1.72	F	1.71	F
15. Airport Boulevard/Terminal Drive (North)	1.14	F	0.91	E	0.90	E	0.91	E
16. Airport Boulevard/Airport Parkway	1.60	F	1.47	F	1.46	F	1.47	F
17. Airport Boulevard/Terminal Drive (South)	0.92	E	0.86	D	0.87	D	0.86	D

TABLE 3.3.5 (CONT.)
FUTURE LEVEL OF SERVICE, YEAR 2000 SCENARIOS - PM PEAK HOUR

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
19. Technology Drive/Skyport Drive	b	A	b	A	b	A	b	A
20. Guadalupe Parkway (SR 87)/Hedding Street	1.08	F	1.07	F	1.07	F	1.07	F
21. Guadalupe Parkway/Taylor Street	1.54	F	1.54	F	1.54	F	1.54	F
22. Julian Street/Guadalupe Parkway (SR 87) northbound ramps	0.69	B	0.69	B	0.69	B	0.69	B
23. Julian Street/Guadalupe Parkway (SR 87) southbound ramps	0.28	A	0.28	A	0.28	A	0.28	A
24. Coleman Avenue/Taylor Street	0.76	C	0.76	C	0.76	C	0.76	C
25. Coleman Avenue/Hedding Street	1.11	F	1.12	F	1.12	F	1.12	F
26. Coleman Avenue/I-880 northbound ramps	0.85	D	0.86	D	0.86	D	0.86	D
27. Coleman Avenue/I-880 southbound ramps	1.08	F	**1.10**	**F**	**1.10**	**F**	**1.10**	**F**
28. Coleman Avenue/Airport Boulevard[c]	1.72	F	**1.43**	**F**	**1.68**	**F**	**1.44**	**F**
29. Coleman Avenue/Brokaw Road[d]	1.06	F	**1.16**	**F**	**1.15**	**F**	**1.15**	**F**
30. De La Cruz Boulevard/Reed Street[d]	0.96	E	0.95	E	0.95	E	0.95	E
31. De La Cruz Boulevard/Martin Avenue[d]	0.89	D	0.88	D	0.88	D	0.88	D
32. De La Cruz Boulevard/Central Expressway[d]	1.53	F	1.54	F	1.54	F	1.53	F

Note: Intersection number 18 has been reserved for a future intersection. Significant impacts are signified by bold type and are shaded.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Technology Drive/Skyport Drive is currently unsignalized.
[c] Impact significance determined by use of weighted average v/c ratio; see Appendix 3.3.A.
[d] Intersection is in City of Santa Clara.
SOURCE: DKS Associates

Although the No Project Alternative and the Project Case would generate roughly the same volume of traffic in year 2000, the primary difference between these two scenarios in year 2000 is a redistribution of some Airport-related vehicle trips from the east side to the west side of SJC, due to the proposed relocation of some facilities to the west side. This explains why all four of the impacted intersections are located on the west side of the Airport.

Since several intersections are located in the Golden Triangle of North San Jose, a weighted average level of service calculation is necessary because one intersection (Coleman Avenue and Airport Boulevard) experienced an increase of greater than one percent in critical traffic volume during the PM peak hour due to the Project Case. The weighted average level of service exceeds LOS D; therefore, under the criteria set forth above, this is a significant impact for this intersection in the PM peak hour.

Phase 2 (Year 2005)

Future Traffic Analysis Scenarios. The analysis of future (Year 2005) traffic involved use of the City of San Jose's TRANPLAN travel forecast model to project future background/No Project Alternative traffic volumes for Phase 2. A detailed description of the use of the TRANPLAN model is provided in Section II, Environmental Impacts, of Appendix 3.3.A.

The City's TRANPLAN model forecasts weekday PM peak-hour traffic for a horizon year of 2010 with traffic generated by land uses designed in the General Plan Land Use/Transportation Diagram and as predicted by the Association of Bay Area Governments (ABAG Projections '94). Traffic is assigned to a 2010 transportation system network, reflecting major network improvements programmed for 2010. For travel forecasting, SJC is considered a "special generator". That is, trips come to and from the Airport that are not normally recorded as a result of standard trip generation equations. Specifically, the additional trips to the Airport are the result of motorists who are traveling through the Airport (cut-through traffic between Guadalupe Parkway and Coleman Avenue), as well as people who are providing transportation services to and from the Airport (such as people dropping off passengers, taxicab drivers, and shuttle van drivers). The special generator assumptions that were previously in the model were evaluated and compared to the trip generation for each study scenario. Careful attention was made to ensure no double counting of trips or land uses was incorporated into the model runs for this analysis.

The weekday AM and PM peak hour link volumes for the No Project Alternative was converted to intersection turning movements using 1995 intersection turning movement counts and the 2010 approach and departure volumes at each intersection.

Year 2005 Project Case volumes were interpolated from the Year 2010 volumes produced by the model. The first step in interpolating Year 2005 volumes was to calculate the increment between

the 2010 No Project Alternative and 1995 traffic volumes (by turning movement). This represents the traffic difference for a 15-year period (1995-2010) that would occur regardless of the Master Plan Update. The next step was to calculate the traffic difference over a 10-year period (1995-2005). To do this the traffic volume increment was reduced by one-third.

Phase 2 impacts were assessed for the weekday AM and PM peak hours by comparing the Project Case and the No Project Alternative.

Phase 2 Trip Generation Summary. As shown on Table 3.3.4, the Project Case would generate a total of about 57,280 daily vehicle trips in 2005, including approximately 4,400 trips during the weekday AM peak hour and approximately 5,800 trips during the weekday PM peak hour. The No Project Alternative would generate approximately 43,200 daily vehicle trips in 2005. Of those, approximately 3,400 trips would occur during the AM peak hour and approximately 4,400 trips would occur during the PM peak hour. Comparing the Project Case to the No Project Alternative in year 2005, daily traffic volumes to and from SJC under the Project Case would be approximately 33 percent higher.

Intersection Impacts. The Phase 2 Project Case impacts on signalized and unsignalized intersection operations were determined via the procedure outlined in the modeling discussion above. Levels of service were calculated in the same manner as for the existing traffic volumes, as described previously. Table 3.3.6 lists the levels of service at each study intersection for each traffic scenario in Phase 2 (Year 2005). A number of intersections would operate at an unacceptable (i.e., LOS E or F) level of service in the year 2005 under the No Project Alternative.

Based upon the criteria described previously, the Project Case would result in a significant impact at the following four intersections in the year 2005:

5. North First Street and Brokaw Road (PM peak)
15. Airport Boulevard and Terminal Drive North (AM and PM peak)
16. Airport Boulevard and Airport Parkway (AM and PM peak)
28. Airport Boulevard and Coleman Avenue (AM peak)

Phase 3 (Year 2010)

Future Traffic Analysis Scenarios. The analysis of future traffic involved use of the City of San Jose's TRANPLAN travel forecast model, as described in the Phase 2 discussion and in Section II, Environmental Impacts, of Appendix 3.3.A. Phase 3 impacts were assessed for the weekday AM and PM peak hours by comparing the No Project Alternative and the Project Case.

Phase 3 Trip Generation Summary. As shown on Table 3.3.4, the Project Case would generate a total of about 68,100 daily vehicle trips in 2010, including approximately 5,200 trips during the weekday AM peak hour and approximately 6,900 trips during the weekday PM peak

TABLE 3.3.6
FUTURE LEVEL OF SERVICE, YEAR 2005 SCENARIOS - AM PEAK HOUR

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1. Brokaw Road/I-880 southbound ramps[a]	0.69	B	0.69	B	0.69	B	0.69	B
2. Brokaw Road/I-880 northbound ramps[a]	0.73	C	0.73	C	0.73	C	0.73	C
3. North First Street/Trimble Road[a]	0.81	D	0.81	D	0.81	D	0.81	D
4. North First Street/Charcot Avenue	0.94	E	0.91	E	0.90	E	0.90	E
5. North First Street/Brokaw Road[a]	1.02	F	1.06	F	1.04	F	1.03	F
6. North First Street/Old Bayshore Highway	0.74	C	0.76	C	0.75	C	0.75	C
7. North First Street/Skyport Drive	0.60	B	0.62	B	0.61	B	0.61	B
8. North First Street/I-880 southound ramps[a]	0.63	B	0.63	B	0.63	B	0.63	B
9. North First Street/I-880 northbound ramps/Burton Street[a]	0.75	C	0.75	C	0.75	C	0.75	C
10. North First Street/Hedding Street	0.76	C	0.77	C	0.76	C	0.76	C
11. North First Street/Taylor Street	0.88	D	0.89	D	0.89	D	0.89	D
12. Airport Parkway/Old Bayshore Highway	0.65	B	0.70	C	0.68	B	0.67	B
13. Airport Parkway/Technology Drive/Gateway Place	0.52	A	0.53	A	0.52	A	0.52	A
15. Airport Boulevard/Terminal Drive (North)	0.96	E	**1.04**	**F**	1.00	E	0.98	E
16. Airport Boulevard/Airport Parkway	1.31	F	**1.53**	**F**	**1.41**	**F**	**1.38**	**F**
17. Airport Boulevard/Terminal Drive (South)	0.65	B	0.73	C	0.69	B	0.67	B

TABLE 3.3.6
FUTURE LEVEL OF SERVICE, YEAR 2005 SCENARIOS - AM PEAK HOUR
(Continued)

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
18. Guadalupe Parkway and Skyport Drive[b]	0.40	A	0.47	A	0.43	A	0.42	A
19. Technology Drive/Skyport Drive	0.17	A	0.17	A	0.17	A	0.17	A
21. Guadalupe Parkway (SR 87)/Taylor Street[b]	0.42	A	0.43	A	0.43	A	0.43	A
22. Julian Street/Guadalupe Parkway (SR 87)/ northbound ramps	0.73	C	0.73	C	0.73	C	0.73	C
23. Julian Street/Guadalupe Parkway (SR 87)/ sorthbound ramps	0.40	A	0.40	A	0.40	A	0.40	A
24. Coleman Avenue/Taylor Street	0.79	C	0.80	D	0.80	D	0.79	C
25. Coleman Avenue/Hedding Street	1.15	F	1.16	F	1.16	F	1.16	F
26. Coleman Avenue/I-880 northbound ramps	0.72	C	0.75	C	0.75	C	0.74	C
27. Coleman Avenue/I-880 southbound ramps	0.74	C	0.77	C	0.76	C	0.76	C
28. Coleman Avenue/Airport Boulevard	1.28	F	**1.35**	**F**	**1.33**	**F**	**1.34**	**F**
29. Coleman Avenue/Brokaw Road[c]	0.60	B	0.61	B	0.61	B	0.61	B
30. De La Cruz Boulevard/Reed Street[c]	0.76	C	0.76	C	0.76	C	0.76	C
31. De La Cruz Boulevard/Martin Avenue[c]	0.77	C	0.79	C	0.79	C	0.79	C
32. De La Cruz Boulevard/Central Expressway[c]	1.01	F	1.02	F	1.02	F	1.01	F

Note: Intersections 14 and 20 removed in future, replaced by grade separated roadways. Significant impacts are signified by bold type and are shaded.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Urban interchange analyzed as signalized intersection.
[c] Intersection is in City of Santa Clara.

TABLE 3.3.6
FUTURE LEVEL OF SERVICE, YEAR 2005 SCENARIOS - PM PEAK HOUR
(Continued)

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
1. Brokaw Road/I-880 southbound ramps[a]	1.00	E	1.02	F	1.02	F	1.01	F
2. Brokaw Road/I-880 northbound ramps[a]	0.93	E	0.93	E	0.93	E	0.93	E
3. North First Street/Trimble Road[a]	0.92	E	0.93	E	0.93	E	0.92	E
4. North First Street/Charcot Avenue	1.11	F	1.12	F	1.11	F	1.11	F
5. North First Street/Brokaw Road[a]	1.07	F	**1.12**	**F**	1.10	F	1.09	F
6. North First Street/Old Bayshore Highway	0.97	E	1.00	E	0.99	E	0.98	E
7. North First Street/Skyport Drive	0.76	C	0.79	C	0.77	C	0.77	C
8. North First Street/I-880 southound ramps[a]	0.51	A	0.53	A	0.52	A	0.52	A
9. North First Street/I-880 northbound ramps/Burton Street[a]	0.52	A	0.52	A	0.52	A	0.52	A
10. North First Street/Hedding Street	0.80	D	0.80	D	0.80	D	0.80	D
11. North First Street/Taylor Street	1.25	F	1.25	F	1.25	F	1.25	F
12. Airport Parkway/Old Bayshore Highway	0.72	C	0.74	C	0.72	C	0.72	C
13. Airport Parkway/Technology Drive/Gateway Place	0.58	A	0.59	A	0.59	A	0.58	A
15. Airport Boulevard/Terminal Drive (North)	1.11	F	**1.17**	**F**	1.15	F	1.13	F
16. Airport Boulevard/Airport Parkway	1.80	F	**2.09**	**F**	**1.94**	**F**	**1.89**	**F**
17. Airport Boulevard/Terminal Drive (South)	0.66	B	0.74	C	0.69	B	0.68	B

TABLE 3.3.6
FUTURE LEVEL OF SERVICE, YEAR 2005 SCENARIOS - PM PEAK HOUR
(Continued)

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**	**V/C**	**LOS**
18. Guadalupe Parkway and Skyport Drive[b]	0.54	A	0.65	B	0.59	A	0.57	A
19. Technology Drive/Skyport Drive	0.24	A	0.28	A	0.26	A	0.25	A
21. Guadalupe Parkway (SR 87)/Taylor Street[b]	0.38	A	0.38	A	0.38	A	0.38	A
22. Julian Street/Guadalupe Parkway (SR 87)/ northbound ramps	0.63	B	0.63	B	0.63	B	0.63	B
23. Julian Street/Guadalupe Parkway (SR 87)/ sorthbound ramps	0.53	A	0.53	A	0.53	A	0.53	A
24. Coleman Avenue/Taylor Street	0.72	C	0.72	C	0.72	C	0.72	C
25. Coleman Avenue/Hedding Street	1.06	F	1.06	F	1.06	F	1.06	F
26. Coleman Avenue/I-880 northbound ramps	0.80	D	0.81	D	0.81	D	0.81	D
27. Coleman Avenue/I-880 southbound ramps	1.02	F	1.05	F	1.04	F	1.04	F
28. Coleman Avenue/Airport Boulevard	1.33	F	1.37	F	1.36	F	1.35	F
29. Coleman Avenue/Brokaw Road[c]	1.19	F	1.20	F	1.19	F	1.19	F
30. De La Cruz Boulevard/Reed Street[c]	0.90	E	0.91	E	0.91	E	0.90	E
31. De La Cruz Boulevard/Martin Avenue[c]	0.83	D	0.83	D	0.83	D	0.83	D
32. De La Cruz Boulevard/Central Expressway[c]	1.00	E	1.01	F	1.00	E	1.00	E

Note: Intersections 14 and 20 removed in future, replaced by grade separated roadways. Significant impacts are signified by bold type and are shaded.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Urban interchange analyzed as signalized intersection.
[c] Intersection is in City of Santa Clara.

TABLE 3.3.7
FUTURE LEVEL OF SERVICE, YEAR 2010 SCENARIOS - AM PEAK HOUR

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1. Brokaw Road/I-880 southbound ramps[a]	0.62	B	0.62	B	0.62	B	0.62	B
2. Brokaw Road/I-880 northbound ramps[a]	0.66	B	0.66	B	0.66	B	0.66	B
3. North First Street/Trimble Road[a]	0.75	C	0.75	C	0.75	C	0.75	C
4. North First Street/Charcot Avenue	0.84	D	0.85	D	0.84	D	0.84	D
5. North First Street/Brokaw Road[a]	1.09	F	**1.16**	**F**	1.12	F	1.11	F
6. North First Street/Old Bayshore Highway	0.67	B	0.70	C	0.69	B	0.68	B
7. North First Street/Skyport Drive	0.65	B	0.68	B	0.66	B	0.66	B
8. North First Street/I-880 southound ramps[a]	0.54	A	0.55	A	0.55	A	0.54	A
9. North First Street/I-880 northbound ramps/Burton Street[a]	0.66	B	0.66	B	0.66	B	0.66	B
10. North First Street/Hedding Street	0.81	D	0.81	D	0.81	D	0.81	D
11. North First Street/Taylor Street	1.02	F	1.02	F	1.02	F	1.02	F
12. Airport Parkway/Old Bayshore Highway	0.69	B	0.76	C	0.72	C	0.71	C
13. Airport Parkway/Technology Drive/Gateway Place	0.59	A	0.61	B	0.58	A	0.58	A
15. Airport Boulevard/Terminal Drive (North)	1.07	F	**1.17**	**F**	**1.12**	**F**	1.10	F
16. Airport Boulevard/Airport Parkway	1.50	F	**1.81**	**F**	**1.63**	**F**	**1.57**	**F**
17. Airport Boulevard/Terminal Drive (South)	0.72	C	0.85	D	0.77	C	0.75	C

TABLE 3.3.7
FUTURE LEVEL OF SERVICE, YEAR 2010 SCENARIOS - AM PEAK HOUR
(Continued)

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
18. Guadalupe Parkway and Skyport Drive[b]	0.45	A	0.56	A	0.50	A	0.47	A
19. Technology Drive/Skyport Drive	0.18	A	0.19	A	0.17	A	0.18	A
21. Guadalupe Parkway (SR 87)/Taylor Street[b]	0.44	A	0.44	A	0.44	A	0.44	A
22. Julian Street/Guadalupe Parkway (SR 87)/ northbound ramps	0.73	C	0.73	C	0.73	C	0.73	C
23. Julian Street/Guadalupe Parkway (SR 87)/. sorthbound ramps	0.44	A	0.44	A	0.44	A	0.44	A
24. Coleman Avenue/Taylor Street	0.83	D	0.84	D	0.84	D	0.84	D
25. Coleman Avenue/Hedding Street	1.22	F	1.23	F	1.23	F	1.23	F
26. Coleman Avenue/I-880 northbound ramps	0.76	C	0.79	C	0.79	C	0.78	C
27. Coleman Avenue/I-880 southbound ramps	0.78	C	0.82	D	0.81	D	0.80	D
28. Coleman Avenue/Airport Boulevard	1.40	F	**1.50**	**F**	**1.47**	**F**	**1.45**	**F**
29. Coleman Avenue/Brokaw Road[c]	0.63	B	0.65	B	0.64	B	0.63	B
30. De La Cruz Boulevard/Reed Street[c]	0.79	C	0.80	D	0.80	D	0.79	C
31. De La Cruz Boulevard/Martin Avenue[c]	0.80	D	0.85	D	0.84	D	0.81	D
32. De La Cruz Boulevard/Central Expressway[c]	1.07	F	1.10	F	1.08	F	1.07	F

Note: Intersections 14 and 20 removed in future, replaced by grade separated roadways. Significant impacts are signified by bold type and are shaded.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Urban interchange analyzed as signalized intersection.
[c] Intersection is in City of Santa Clara.

TABLE 3.3.7
FUTURE LEVEL OF SERVICE, YEAR 2010 SCENARIOS - PM PEAK HOUR
(Continued)

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1. Brokaw Road/I-880 southbound ramps[a]	0.99	E	1.02	F	1.00	E	1.00	E
2. Brokaw Road/I-880 northbound ramps[a]	1.09	F	1.09	F	1.09	F	1.09	F
3. North First Street/Trimble Road[a]	0.97	E	0.98	E	0.98	E	0.97	E
4. North First Street/Charcot Avenue	1.32	F	1.34	F	1.33	F	1.33	F
5. North First Street/Brokaw Road[a]	1.12	F	**1.19**	**F**	1.15	F	1.12	F
6. North First Street/Old Bayshore Highway	0.89	D	**0.95**	**E**	0.93	E	0.90	E
7. North First Street/Skyport Drive	0.85	D	0.90	E	0.88	D	0.85	D
8. North First Street/I-880 southound ramps[a]	0.53	A	0.54	A	0.54	A	0.53	A
9. North First Street/I-880 northbound ramps/Burton Street[a]	0.53	A	0.53	A	0.53	A	0.53	A
10. North First Street/Hedding Street	0.94	E	0.94	E	0.94	E	0.94	E
11. North First Street/Taylor Street	1.29	F	1.30	F	1.30	F	1.30	F
12. Airport Parkway/Old Bayshore Highway	0.78	C	0.86	D	0.82	D	0.79	C
13. Airport Parkway/Technology Drive/Gateway Place	0.66	B	0.70	C	0.66	B	0.68	B
15. Airport Boulevard/Terminal Drive (North)	1.21	F	**1.27**	**F**	1.24	F	1.23	F
16. Airport Boulevard/Airport Parkway	2.03	F	**2.47**	**F**	**2.30**	**F**	**2.10**	**F**
17. Airport Boulevard/Terminal Drive (South)	0.75	C	0.88	D	0.82	D	0.78	C

TABLE 3.3.7
FUTURE LEVEL OF SERVICE, YEAR 2010 SCENARIOS - PM PEAK HOUR
(Continued)

	NO PROJECT ALTERNATIVE		PROJECT CASE		PROJECT CASE ALTERNATIVE A		PROJECT CASE ALTERNATIVE B	
Intersection	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
18. Guadalupe Parkway and Skyport Drive[b]	0.59	A	0.76	C	0.70	C	0.62	B
19. Technology Drive/Skyport Drive	0.30	A	0.36	A	0.35	A	0.31	A
21. Guadalupe Parkway (SR 87)/Taylor Street[b]	0.38	A	0.38	A	0.38	A	0.38	A
22. Julian Street/Guadalupe Parkway (SR 87)/ northbound ramps	0.67	B	0.67	B	0.67	B	0.67	B
23. Julian Street/Guadalupe Parkway (SR 87)/ sorthbound ramps	0.73	C	0.73	C	0.73	C	0.73	C
24. Coleman Avenue/Taylor Street	0.76	C	0.76	C	0.76	C	0.76	C
25. Coleman Avenue/Hedding Street	1.12	F	1.12	F	1.12	F	1.12	F
26. Coleman Avenue/I-880 northbound ramps	0.85	D	0.86	D	0.86	D	0.85	D
27. Coleman Avenue/I-880 southbound ramps	1.08	F	1.12	F	1.12	F	1.09	F
28. Coleman Avenue/Airport Boulevard	1.71	F	**1.91**	**F**	**1.84**	**F**	**1.77**	**F**
29. Coleman Avenue/Brokaw Road[c]	1.07	F	1.09	F	1.08	F	1.07	F
30. De La Cruz Boulevard/Reed Street[c]	0.97	E	0.98	E	0.98	E	0.97	E
31. De La Cruz Boulevard/Martin Avenue[c]	0.89	D	0.89	D	0.89	D	0.89	D
32. De La Cruz Boulevard/Central Expressway[c]	1.52	F	**1.59**	**F**	1.56	F	1.53	F

Note: Intersections 14 and 20 removed in future, replaced by grade separated roadways. Significant impacts are signified by bold type and are shaded.
[a] Intersection is included in North San Jose Deficiency Plan.
[b] Urban interchange analyzed as signalized intersection.
[c] Intersection is in City of Santa Clara.

hour. Under the Phase 3 No Project Alternative, the project trip generation would be approximately 44,800 daily trips, with approximately 3,600 AM peak hour trips and approximately 4,600 PM peak hour trips. Comparing the Project Case to the No Project Alternative in year 2010, daily traffic volumes to and from SJC under the Project Case would be approximately 52 percent higher.

Intersection Impacts. The Phase 3 Project Case impacts on signalized and unsignalized intersection operations were determined via the procedure outlined in the modeling discussion above. Levels of service were calculated in the same manner as for the existing traffic volumes, as described above. Table 3.3.7 lists the levels of service at each study intersection for each traffic scenario in Phase 3 (Year 2010). A number of intersections would operate at an unacceptable (i.e., LOS E or F) level of service in the year 2010 under the No Project Alternative.

Based upon the criteria described previously, the Project Case would result in a significant impact at the following seven intersections in the year 2010:

5. North First Street and Brokaw Road (AM and PM peak)
6. North First Street and Old Bayshore Highway (PM peak)
7. North First Street and Skyport Drive (PM peak)
15. Airport Boulevard and Terminal Drive North (AM and PM peak)
16. Airport Boulevard and Airport Parkway (AM and PM peak)
28. Airport Boulevard and Coleman Avenue (AM and PM peak)
32. De La Cruz Boulevard and Central Expressway (PM peak)

Intersection Level of Service Impacts: The number of vehicle trips generated by the Project Case would result in significant impacts at five intersections in the year 2000, four intersections in the year 2005, and seven intersections in the year 2010 in the Airport vicinity. (SIGNIFICANT)

Freeway Impacts

This section discusses the impact of the Project Case upon the various freeway segments located in the vicinity of SJC during the AM and PM peak commute periods. The freeway segments are all projected to be operating at LOS F during peak commute periods under the No Project Alternative, based upon existing and projected volumes and capacity. The data in Tables 3.3.8 through 3.3.10 show the added trips on each freeway segment as a percentage of the freeway's capacity. Using the criterion described previously, a significant impact would occur whenever the Project Case adds vehicles totaling more than one percent of the freeway's capacity.

The traffic generated under the Project Case would not result in any significant impacts upon freeways in the vicinity of SJC in the year 2000 (see Table 3.3.8).

TABLE 3.3.8
FREEWAY ANALYSIS, YEAR 2000

	Freeway Segment (Capacity)	AM PEAK HOUR		PM PEAK HOUR	
		Change in Number of Trips Compared to No Project Alternative	Change in Number of Trips as a Percent of Capacity	Change in Number of Trips Compared to No Project Alternative	Number of Trips as a Percent of Capacity
	US 101 north of SR 87 (14,200)				
Project Case Alternative		-89	-0.63%	-76	-0.54%
Project Case Alternative A		-85	-0.60%	-72	-0.51%
Project Case Alternative B		-100	-0.70%	-79	-0.56%
	SR 87 north of SJC (8,000)				
Project Case Alternative		-89	-1.11%	-76	-0.95%
Project Case Alternative A		-85	-1.06%	-72	-0.90%
Project Case Alternative B		-100	-1.25%	-79	-0.99%
	I-880 north of Coleman Ave (12,000)				
Project Case Alternative		2	0.02%	1	0.01%
Project Case Alternative A		7	0.06%	5	0.04%
Project Case Alternative B		1	0.03%	-1	-0.01%
	US 101 south of I-880 (14,200)				
Project Case Alternative		5	0.04%	-16	-0.11%
Project Case Alternative A		8	0.06%	-12	-0.08%
Project Case Alternative B		4	0.03%	-16	-0.13%
	SR 87 south of I-880 (8,000)				
Project Case Alternative		-37	-0.46%	-76	-0.95%
Project Case Alternative A		-33	-0.41%	-72	-0.90%
Project Case Alternative B		-41	-0.51%	-79	-0.99%
	I-880 south of Coleman Ave (12,000)				
Project Case Alternative		13	0.11%	19	0.16%
Project Case Alternative A		17	0.14%	22	0.18%
Project Case Alternative B		14	0.12%	19	0.16%

Capacity based on City of San Jose, *Interim Guidelines for Traffic Impact Analysis of Land Developments*, Table 3, June 1994.
Mixed flow lanes = 2,000 vehicles per hour per lane (vphpl), HOV lanes + 1,100 vphpl, auxiliary lanes = 1,100 vphpl.

The traffic generated under the Project Case would significantly affect the following freeway segments in the year 2005: U.S. 101 north of SR 87; SR 87 north of SJC; I-880 north of Coleman Avenue; and SR 87 south of I-880 (see Table 3.3.9).

The traffic generated under the Project Case would significant affect the following freeway segments in the year 2010: U.S. 101 north of SR 87; SR 87 north of SJC; I-880 north of Coleman Avenue; SR 87 south of I-880; and I-880 south of Coleman Avenue (see Table 3.3.10).

Freeway Impacts: Project-generated vehicle trips on various freeway segments in the Airport vicinity would be more than one percent of peak-hour capacity on four segments in 2005 and five segments in 2010. (SIGNIFICANT)

Public Transit Impacts

Based on existing and projected levels of transit ridership in Santa Clara County, the Project Case is not anticipated to add many additional transit riders to Santa Clara Valley Transportation Authority (SCVTA) bus lines and light rail transit (LRT) trains. The existing transit mode share is one percent of vehicle trips at SJC. Therefore, the Project Case would not have a significant impact on SCVTA transit operations.

Public Transit Impacts: The increase in public transit trips from the Airport would be accommodated by the transit system. (LESS THAN SIGNIFICANT)

Pedestrian Impacts

Air passengers and employees who park at the existing short-term lot or who are dropped off in the departure area would walk to the terminal buildings in the same manner that they do today. Air passengers who park at one of the new garages would be shuttled to and from the terminals. Pedestrian elements would be included in the design plans for sidewalks, crosswalks, and moving walkways at the Airport.

Pedestrian Impacts: The Project Case would safely accommodate any increase in pedestrian trips to, from, and within the Airport. (LESS THAN SIGNIFICANT)

Bicycling Impacts

The Project Case would not alter existing or proposed bicycle routes in San Jose or the surrounding communities. Since transportation surveys associated with SJC did not break out bicyclists as a separate percentage, it is not possible to quantify the number of additional bicycle trips that would be attributed to the Project Case. It is not anticipated that the relative percentage of air passengers and employees using bicycles would increase in future years. Some additional bicycle trips would be generated by the Project Case, most likely proportional to employment

TABLE 3.3.9
FREEWAY ANALYSIS, YEAR 2005

	Freeway Segment (Capacity)	AM PEAK HOUR		PM PEAK HOUR	
		Change in Number of Trips Compared to No Project Alternative	Change in Number of Trips as a Percent of Capacity	Change in Number of Trips Compared to No Project Alternative	Number of Trips as a Percent of Capacity
	US 101 north of SR 87 (14,200)				
Project Case Alternative		227	**1.60%**	309	**2.18%**
Project Case Alternative A		101	0.71%	132	0.93%
Project Case Alternative B		68	0.48%	95	0.67%
	SR 87 north of SJC (11,200)				
Project Case Alternative		227	**2.03%**	309	**2.76%**
Project Case Alternative A		101	0.90%	132	**1.18%**
Project Case Alternative B		68	0.61%	95	0.85%
	I-880 north of Coleman Ave (12,000)				
Project Case Alternative		158	**1.32%**	163	**1.36%**
Project Case Alternative A		108	0.90%	92	0.77%
Project Case Alternative B		89	0.74%	68	0.57%
	US 101 south of I-880 (14,200)				
Project Case Alternative		15	0.11%	15	0.11%
Project Case Alternative A		-5	-0.04%	-6	-0.04%
Project Case Alternative B		10	0.07%	13	0.09%
	SR 87 south of I-880 (11,200)				
Project Case Alternative		110	0.98%	151	**1.35%**
Project Case Alternative A		48	0.43%	65	0.58%
Project Case Alternative B		31	0.28%	45	0.40%
	I-880 south of Coleman Ave (12,000)				
Project Case Alternative		86	0.72%	85	0.71%
Project Case Alternative A		58	0.48%	49	0.41%
Project Case Alternative B		45	0.38%	34	0.28%

Capacity based on City of San Jose, *Interim Guidelines for Traffic Impact Analysis of Land Developments,* Table 3, June 1994.
Mixed flow lanes = 2,000 vehicles per hour per lane (vphpl), HOV lanes + 1,100 vphpl, auxiliary lanes = 1,100 vphpl.
Note: Significant impacts are signified by bold type and are shaded.

TABLE 3.3.10
FREEWAY ANALYSIS, YEAR 2010

	Freeway Segment (Capacity)	AM PEAK HOUR		PM PEAK HOUR	
		Change in Number of Trips Compared to No Project Alternative	Change in Number of Trips as a Percent of Capacity	Change in Number of Trips Compared to No Project Alternative	Number of Trips as a Percent of Capacity
	US 101 north of SR 87 (14,200)				
Project Case Alternative		374	**2.63%**	503	**3.54%**
Project Case Alternative A		163	**1.15%**	292	**2.06%**
Project Case Alternative B		96	0.68%	100	0.70%
	SR 87 north of SJC (8,000)				
Project Case Alternative		374	**3.34%**	503	**4.49%**
Project Case Alternative A		163	**1.46%**	292	**2.61%**
Project Case Alternative B		96	0.86%	100	0.89%
	I-880 north of Coleman Ave (12,000)				
Project Case Alternative		223	**1.86%**	249	**2.08%**
Project Case Alternative A		140	**1.17%**	161	**1.34%**
Project Case Alternative B		101	0.84%	70	0.58%
	US 101 south of I-880 (14,200)				
Project Case Alternative		57	0.40%	69	0.49%
Project Case Alternative A		8	0.06%	18	0.13%
Project Case Alternative B		19	0.13%	25	0.18%
	SR 87 south of I-880 (8,000)				
Project Case Alternative		185	**1.65%**	248	**2.21%**
Project Case Alternative A		82	0.73%	144	**1.29%**
Project Case Alternative B		45	0.40%	47	0.42%
	I-880 south of Coleman Ave (12,000)				
Project Case Alternative		129	**1.08%**	134	**1.12%**
Project Case Alternative A		80	0.67%	90	0.75%
Project Case Alternative B		52	0.43%	34	0.28%

Capacity based on City of San Jose, *Interim Guidelines for Traffic Impact Analysis of Land Developments*, Table 3, June 1994.
Mixed flow lanes = 2,000 vehicles per hour per lane (vphpl), HOV lanes + 1,100 vphpl, auxiliary lanes = 1,100 vphpl.
Note: Significant impacts are signified by bold type and are shaded.

growth at SJC, but those trips would not be anticipated to affect traffic conditions in and around the Airport.

Bicycling Impacts: The Project Case would not alter existing or proposed bicycle routes and would safely accommodate any increase in bicycle trips to and from the Airport. (LESS THAN SIGNIFICANT)

Parking Impacts

The master planning process included a determination of the number of parking spaces that would be required based on the amount of air passenger activity, air cargo activity, and general aviation activity at the Airport. Thus, the number of parking spaces included in various project components (e.g., Projects T-4, T-7, and T-8) are the result of the master planning effort.

For purposes of this project, a significant impact would occur if the demand for parking exceeded the parking supply. Since the Project Case would provide adequate parking to accommodate demand, this is considered to be a less-than-significant impact.

Parking Impacts: The Project Case would provide adequate parking for the parking demand at the Airport. (LESS THAN SIGNIFICANT)

Construction Traffic Impacts

Although no detailed plans for construction of the proposed SJC facilities have been developed, it is possible that construction activities could result in the temporary closure of travel lanes on roadways on Airport property. The roadway most likely to be affected by any closure would be Terminal Drive. Since the Airport would minimize the number of lanes subject to closure at any one time and since the duration of lane closure would be minimized, this is considered to be a less-than-significant impact.

Pedestrian access at the Airport would be maintained and safely accommodated during all construction activities.

Construction Traffic Impacts: The project would not result in the closure of a roadway preventing access to Airport facilities during construction activities or adversely affect pedestrian safety during construction. (LESS THAN SIGNIFICANT)

General Aviation Displacement Impacts

Methodology

The purpose of this analysis is to assess the transportation impacts associated with projected general aviation demand that would be accommodated at SJC. These potential effects are

measured primarily in the form of airport capacity impacts at other general aviation airports in the area at which the demand not accommodated at SJC would be served (see also Section 5, Cumulative Impacts, for a discussion of this issue in the context of Santa Clara County's proposal to close nearby Reid-Hillview Airport [RHV]).

For the purposes of determining where a general aviation aircraft owner otherwise assumed to be based at SJC would chose to base his/her aircraft under the Project Case and Project Case Alternatives, this analysis assumed that, all other factors being relatively equal (e.g., weather, facilities, tie-down and hangar rental costs, etc.), the owner's first choice would be the airport closest to his/her place of residence. This assumption is corroborated by records maintained by the Santa Clara County Tax Assessor's Office, which show that the residences of pilots who have aircraft based at SJC are concentrated in the greater San Jose area (Santa Clara County, 1996). Building on this assumption, this analysis looked at other general aviation airports within approximately 60-75 minutes driving time of San Jose as airports to which San Jose-based pilots might chose to base their aircraft. Within this study area, there are 13 general aviation airports (see Figure 3.3.8). Beyond this study area, the next closest airports are approximately two hours driving time from San Jose.

For the 13 study airports, this analysis projected the demand for based aircraft for each of the three horizon years analyzed in this EIR. To be conservative, a 25 percent growth factor was assumed for the period of 1990 to 2010, which is the "high forecast" for general aviation in the *Regional Airport System Plan* for the San Francisco Bay Area (MTC, 1994). This growth factor was uniformly applied to each airport except for SJC, Watsonville, and Salinas. For SJC, the demand projected for this Master Plan Update by TRA was used. For Watsonville and Salinas, recently completed forecasts for those facilities were used (AMBAG, 1995). Based upon this methodology, Tables 3.3.11, 3.3.12, and 3.3.13 show projected demand at the 13 study airports for 2000, 2005, and 2010, respectively.

This analysis also determined future based aircraft capacity at each of the 13 study airports. This determination was based upon conversations with the management of each airport, as well as a review of the airport's approved Master Plan and/or Airport Layout Plan. These capacities are shown in Tables 3.3.11, 3.3.12, and 3.3.13.

General aviation demand that is not assumed to be accommodated at SJC under the Project Case Alternatives was then reallocated to the closest airports to SJC where there is projected to be excess based aircraft capacity. The reallocation was based upon the following steps:

1) No aircraft were reallocated to Palo Alto, San Carlos, Frazier Lake, or Half Moon Bay Airports because those airports are projected to be at capacity in 2000, 2005, and 2010.

2) Due to its proximity to San Jose, RHV was assumed to be the facility of choice for pilots who would otherwise base their aircraft at SJC. South County Airport was assumed to be

the second-choice airport for pilots who would otherwise base their aircraft at SJC. Thus, aircraft were reallocated to South County when excess capacity at RHV was fully used. (For a discussion of project effects assuming the County of Santa Clara actually closes RHV, see Section 5, Cumulative Impacts, of this EIR.)

Analysis Results

Tables 3.3.11 and 3.3.14 present the results of the general aviation analysis for the year 2000. The based aircraft demand at SJC would be 540, while the capacity under the Project Case would be 380, resulting in an unmet demand for 160 based aircraft at SJC (see Table 3.3.11). This unmet demand of 160 based aircraft could be met at RHV, because RHV is projected to have a surplus capacity of 276 based aircraft. If all of SJC's unmet demand were to be met at RHV, RHV's based aircraft would increase by approximately 26 percent (see Table 3.3.14).

Tables 3.3.12 and 3.3.14 present the results of the general aviation analysis for the year 2005. The based aircraft demand at SJC would be 585, while the capacity under the Project Case would be 325, resulting in an unmet demand for 260 based aircraft at SJC (see Table 3.3.12). This unmet demand of 260 based aircraft could be met at RHV and South County Airports because those facilities are projected to have a combined surplus capacity of 461 based aircraft. Under this scenario, RHV's based aircraft would increase by approximately 37 percent and South County's based aircraft would increase by approximately 24 percent (see Table 3.3.14).

Tables 3.3.13 and 3.3.14 present the results of the general aviation analysis for the year 2010. The based aircraft demand at SJC would be 630, while the capacity under the Project Case would be 320, resulting in an unmet demand for 310 based aircraft at SJC (see Table 3.3.13). Assuming RHV is open, this unmet demand of 310 based aircraft could be met at RHV and South County Airports because those facilities are projected to have a combined surplus capacity of 422 based aircraft. Under this scenario, RHV's based aircraft would increase by approximately 30 percent and South County's based aircraft would increase by approximately 124 percent (see Table 3.3.14).

General Aviation Displacement Impact: The project would not result in unaccommodated demand for general aviation facilities within the region. (LESS THAN SIGNIFICANT)

3.3.2.2 PROJECT CASE ALTERNATIVE A

Intersection Level of Service Impacts

Phase 1 (Year 2000)

Trip Generation Summary. As shown on Table 3.3.4, Project Case Alternative A would generate a total of about 42,400 daily vehicle trips in 2000 (as compared to 41,400 daily vehicle trips under the No Project Alternative), including approximately 3,300 trips during the weekday

TABLE 3.3.11
GENERAL AVIATION BASED AIRCRAFT DEMAND AND CAPACITY - YEAR 2000

AIRPORT	Number of Existing Based Aircraft	Year 2000 Demand	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
			2000 Capacity	Surplus/ Shortfall	2000 Capacity	Surplus/ Shortfall	2000 Capacity	Surplus/ Shortfall	2000 Capacity	Surplus/ Shortfall
San Jose	491	540	600	60	380	-160	440	-100	440	-100
Reid-Hillview	555	624	900	276	900	276	900	276	900	276
Palo Alto	540	608	590	-18	590	-18	590	-18	590	-18
South County	67	75	300	225	300	225	300	225	300	225
Hayward	425	478	1,100	622	1,100	622	1,100	622	1,100	622
San Carlos	500	563	510	-53	510	-53	510	-53	510	-53
Livermore	584	657	810	153	810	153	810	153	810	153
Oakland	366	412	520	108	520	108	520	108	520	108
Hollister	133	150	325	175	325	175	325	175	325	175
Watsonville	311	308	466	158	466	158	466	158	466	158
Salinas	210	205	350	145	350	145	350	145	350	145
Half Moon Bay	71	80	72	-8	72	-8	72	-8	72	-8
Frazier Lake	87	98	100	2	100	2	100	2	100	2
TOTALS:	**4,340**	**4,797**	**6,643**	**1,846**	**6,423**	**1,626**	**6,483**	**1,686**	**6,483**	**1,686**

SOURCE: City of San Jose

TABLE 3.3.12
GENERAL AVIATION BASED AIRCRAFT DEMAND AND CAPACITY - YEAR 2005

AIRPORT	Number of Existing Based Aircraft	Year 2005 Demand	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
			2005 Capacity	Surplus/ Shortfall	2005 Capacity	Surplus/ Shortfall	2005 Capacity	Surplus/ Shortfall	2005 Capacity	Surplus/ Shortfall
San Jose	491	585	600	15	325	-260	410	-175	490	-95
Reid-Hillview	555	659	900	241	900	241	900	241	900	241
Palo Alto	540	641	590	-51	590	-51	590	-51	590	-51
South County	67	80	300	220	300	220	300	220	300	220
Hayward	425	505	1,100	595	1,100	595	1,100	595	1,100	595
San Carlos	500	594	510	-84	510	-84	510	-84	510	-84
Livermore	584	694	810	117	810	117	810	117	810	117
Oakland	366	435	520	85	520	85	520	85	520	85
Hollister	133	158	325	167	325	167	325	167	325	167
Watsonville	311	310	466	156	466	156	466	156	466	156
Salinas	210	206	350	144	350	144	350	144	350	144
Half Moon Bay	71	84	72	-12	72	-12	72	-12	72	-12
Frazier Lake	87	103	100	-3	100	-3	100	-3	100	-3
TOTALS:	**4,340**	**5,053**	**6,643**	**1,590**	**6,368**	**1,315**	**6,453**	**1,400**	**6,533**	**1,480**

SOURCE: City of San Jose

TABLE 3.3.13
GENERAL AVIATION BASED AIRCRAFT DEMAND AND CAPACITY - YEAR 2010

AIRPORT	Number of Existing Based Aircraft	Year 2010 Demand	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
			2010 Capacity	Surplus/ Shortfall	2010 Capacity	Surplus/ Shortfall	2010 Capacity	Surplus/ Shortfall	2010 Capacity	Surplus/ Shortfall
San Jose	491	630	600	-30	320	-310	430	-200	490	-140
Reid-Hillview	555	694	900	206	900	206	900	206	900	206
Palo Alto	540	675	590	-85	590	-85	590	-85	590	-85
South County	67	84	300	216	300	216	300	216	300	216
Hayward	425	531	1,100	569	1,100	569	1,100	569	1,100	569
San Carlos	500	625	560	-65	560	-65	560	-65	560	-65
Livermore	584	730	810	80	810	80	810	80	810	80
Oakland	366	458	520	63	520	63	520	63	520	63
Hollister	133	166	325	159	325	159	325	159	325	159
Watsonville	311	327	466	139	466	139	466	139	466	139
Salinas	210	217	350	133	350	133	350	133	350	133
Half Moon Bay	71	89	86	-3	86	-3	86	-3	86	-3
Frazier Lake	87	109	100	-9	100	-9	100	-9	100	-9
TOTALS:	**4,340**	**5,334**	**6,707**	**1,373**	**6,427**	**1,093**	**6,537**	**1,203**	**6,597**	**1,263**

SOURCE: City of San Jose

TABLE 3.3.14
REALLOCATION OF GENERAL AVIATION BASED AIRCRAFT

Airport	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
	# of Aircraft	% Change	# of Aircraft	% Change	# of Aircraft	% Change	# of Aircraft	% Change
Year 2000								
San Jose	0	0%	-160	-30%	-100	-19%	-100	-19%
Reid-Hillview	0	0%	160	26%	100	16%	100	16%
South County	0	0%	0	0%	0	0%	0	0%
Year 2005								
San Jose	0	0%	-260	-44%	-175	-30%	-95	-16%
Reid-Hillview	0	0%	241	37%	175	27%	95	14%
South County	0	0%	19	24%	0	0%	0	0%
Year 2010								
San Jose	-30	-5%	-310	-49%	-200	-32%	-140	-22%
Reid-Hillview	30	4%	206	30%	200	29%	140	20%
South County	0	0%	104	124%	0	0%	0	0%

AM peak hour and approximately 4,300 trips during the weekday PM peak hour. Comparing Project Case Alternative A to the No Project Alternative in year 2000, daily traffic volumes to and from SJC under Project Case Alternative A would be approximately 2 percent higher.

Intersection Impacts. The Phase 1 Project Case Alternative A impacts on signalized and unsignalized intersection operations were determined by adding traffic generated by Project Case Alternative A to the future No Project traffic volumes and calculating intersection levels of service. Levels of service were calculated in the same manner as for the existing conditions, as described previously. Table 3.3.5 lists the levels of service at each study intersection for Project Case Alternative A in Phase 1 (Year 2000). Several intersections would operate at an unacceptable level of service (i.e., LOS E or F) in the future under the No Project Alternative.

Based upon the criteria described previously, Project Case Alternative A would result in a significant impact at the following five intersections in the year 2000:

27. Coleman Avenue and I-880 southbound ramps (PM peak)
28. Coleman Avenue and Airport Boulevard (PM peak)
29. Coleman Avenue and Brokaw Road (PM peak)
31. De La Cruz Boulevard and Martin Avenue (AM peak)
32. De La Cruz Boulevard and Central Expressway (AM peak)

Phase 2 (Year 2005)

Trip Generation Summary. As shown on Table 3.3.4, Project Case Alternative A would generate a total of about 50,100 daily vehicle trips in 2005, including approximately 3,900 trips during the weekday AM peak hour and approximately 5,100 trips during the weekday PM peak hour. Project Case Alternative A would have about 7,280 fewer daily vehicle trips, 500 fewer AM peak-hour trips and 700 fewer PM peak-hour trips than the Project Case. Comparing Project Case Alternative A to the No Project Alternative in year 2005, daily traffic volumes to and from SJC under the Project Case Alternative A would be approximately 16 percent higher.

Intersection Impacts. The Phase 2 Project Case Alternative A impacts on signalized and unsignalized intersection operations were determined via the procedure outlined in the modeling discussion above. Levels of service were calculated in the same manner as for the existing traffic conditions, as described previously. Table 3.3.7 lists the levels of service at each study intersection for each traffic condition in Phase 2 (Year 2005). A number of intersections would operate at an unacceptable (i.e., LOS E or F) level of service in the year 2005 under the No Project Alternative.

Based upon the criteria described previously, Project Case Alternative A would result in a significant impact at the following two intersections in the year 2005:

16. Airport Boulevard and Airport Parkway (AM and PM peak)
28. Coleman Avenue and Airport Boulevard (AM peak)

Phase 3 (Year 2010)

Trip Generation Summary. As shown on Table 3.3.4, Project Case Alternative A would generate a total of about 55,900 daily vehicle trips in 2010, including approximately 4,400 trips during the weekday AM peak hour and approximately 5,700 trips during the weekday PM peak hour. Project Case Alternative A would have about 12,000 fewer daily vehicle trips, 800 fewer AM peak-hour trips and 1,200 fewer PM peak-hour trips, than the Project Case. Comparing Project Case Alternative A to the No Project Alternative in year 2010, daily traffic volumes to and from SJC under the Project Case would be approximately 25 percent higher.

Potential For Trip Diversion. An important factor in considering the impact of airport development at any Bay Area airport is the potential for air passengers to divert to other airports in the region. The Project Case at SJC for each phase of development is designed to accommodate the anticipated air passenger forecast. Each of the Project Case Alternatives and the No Project Alternative, would not accommodate air passengers; however, the regional demand for air passenger activity in the Bay Area is considered fixed and those air passengers not accommodated at SJC would use either San Francisco International Airport or Metropolitan Oakland International Airport.

A potential beneficial impact of the Project Case is that regional trip lengths could be reduced if the air passengers come to SJC rather than to one of the other Bay Area airports. However, as a result of the analysis tools available, this is a non-quantifiable impact. None of the regional or City travel forecast models provide enough detail at an airport traffic analysis zone (TAZ) along with the ability to forecast which airport a traveler would select as an alternative. The choice of alternative airport is based on distance, travel time, flight availability, fare, mode choice alternatives, parking, and other factors.

The amount of trip length reduction is difficult to quantify. For example, if a traveler in Palo Alto decides to fly out of San Francisco instead of San Jose, the trip length is roughly comparable. If a traveler in Gilroy decides to fly out of Oakland or San Francisco instead of San Jose, then the trip length is greatly increased. If a traveler from San Mateo decides to fly out of SJC, the trip length is increased, and the mode choice to get to the airport may switch from shuttle bus to single occupant vehicle. When other items are factored into the decision process, such as availability of alternative modes of transportation (i.e., shuttle buses, which are heavily used at San Francisco International Airport, but less so elsewhere), rail connections, international or domestic flight and need for a transfer en route, parking cost and availability, fares and flight schedule, as well as personal preferences, then the change in trip length calculation becomes difficult to assess.

What can be forecast is the overall traffic volume that would use one of the other Bay Area airports. The difference in trip generation for each Project Case Alternative, as shown in Table 3.3.4, is the traffic volume that would continue on the regional roadway network to another airport, and not enter the local roadway system at SJC.

Intersection Impacts. The Phase 3 Project Case Alternative A impacts on signalized and unsignalized intersection operations were determined via the procedure outlined in the modeling discussion above. Levels of service were calculated in the same manner as for the existing traffic conditions, as described previously. Table 3.3.9 lists the levels of service at each study intersection for each project case alternative in Phase 3 (Year 2010). A number of intersections that would operate at an unacceptable (i.e., LOS E or F) level of service in the year 2010 under the No Project Alternative.

Based upon the criteria described previously, Project Case Alternative A would result in a significant impact at the following three intersections in the year 2010:

15. Airport Boulevard and Terminal Drive North (AM peak)
16. Airport Boulevard and Airport Parkway (AM and PM peak)
28. Coleman Avenue and Airport Boulevard (AM and PM peak)

No intersections located in the Golden Triangle of North San Jose would experience an increase of greater than one percent in critical traffic volume due to Project Case Alternative A. Therefore, under the criteria set forth above, this is not a significant impact.

Freeway Impacts

Using the same methodology outlined in Section 3.2.1, this section discusses the impact of Project Case Alternative A upon the various freeway segments located in the vicinity of SJC during the AM and PM commute periods.

The traffic generated under Project Case Alternative A would not result in any significant impacts upon freeways in the vicinity of SJC in the year 2000 (see Table 3.3.8).

The traffic generated under Project Case Alternative A would significantly affect the following freeway segment in the year 2005: SR 87 north of SJC (see Table 3.3.9).

The traffic generated under Project Case Alternative A would significant affect the following freeway segments in the year 2010: U.S. 101 north of SR 87; SR 87 north of SJC; I-880 north of Coleman Avenue; and SR 87 south of I-880 (see Table 3.3.10).

Public Transit Impacts

Since the number of air passengers and the number of employees under Project Case Alternative A would be less than that described for the Project Case, the number of additional transit riders to SCVTA bus lines and light rail trains would be proportionately less for Project Case Alternative A than that described for the Project Case. This is a less-than-significant impact. See the discussion of Public Transit Impacts under the Project Case, Section 3.3.2.1, above.

Pedestrian Impacts

Since the number of air passengers and the number of employees under Project Case Alternative A would be proportionately less for Project Case Alternative A than that described for the Project Case. The pedestrian elements that would be developed under Project Case Alternative A would be similar to those developed under the Project Case. This is a less-than-significant impact. See the discussion of Pedestrian Impacts under the Project Case, Section 3.3.2.1, above.

Bicycling Impacts

The location of bicycle routes in the Airport vicinity would be the same under Project Case Alternative A as that described for the Project Case. With fewer employees anticipated under Project Case Alternative A, it is expected that the number of bicyclists would be proportionately less than that expected for the Project Case. This is a less-than-significant impact. See the discussion of Pedestrian Impacts under the Project Case, Section 3.3.2.1, above.

Parking Impacts

As under the Project Case, the master planning process included a review of the parking demand that would occur under Project Case Alternative A and the number of parking spaces was included in various project components to accommodate parking demand. Therefore, no adverse parking impacts are anticipated as a result of Project Case Alternative A.

Construction Traffic Impacts

As under the Project Case, construction traffic impacts would be limited to lane closures on Airport roadways and would not result in the closure of a roadway preventing access to the Airport. The Airport would minimize the number of lanes subject to closure at any one time and limit the duration of lane closures. As under the Project Case, pedestrian access at the Airport would be maintained and safely accommodated during all construction activities. Therefore, no adverse construction traffic impacts are anticipated as a result of Project Case Alternative A.

General Aviation Displacement Impacts

The impacts of not fully accommodating projected general aviation demand at SJC in year 2000 for Project Case Alternative A are the same as for the Project Case, except that the impacts would be to a lesser degree. As shown in Table 3.3.11, Project Case Alternative A would meet more of the projected general aviation demand than would the Project Case (i.e., 440 versus 380 based aircraft). By meeting more of the demand at SJC, there would be less need to accommodate unmet demand at other general aviation airports (as compared to the Project Case). The reallocation of unmet general aviation demand from SJC to other airports under Project Case Alternative A is shown in Table 3.3.14. As with the Project Case, all of the unmet general aviation demand under Project Case Alternative A can be accommodated at the facilities of other nearby general aviation airports.

The impacts of not fully accommodating projected general aviation demand at SJC in year 2005 for Project Case Alternative A are the same as for the Project Case, except that the impacts would be to a lesser degree. As shown in Table 3.3.12, Project Case Alternative A would meet more of the projected general aviation demand than would the Project Case (i.e., 410 versus 325 based aircraft). By meeting more of the demand at SJC, there would be less need to accommodate unmet demand at other general aviation airports (as compared to the Project Case). The reallocation of unmet general aviation demand from SJC to other airports under Project Case Alternative A is shown in Table 3.3.14. As with the Project Case, all of the unmet general aviation demand under Project Case Alternative A can be accommodated at the facilities of other nearby general aviation airports.

The impacts of not fully accommodating projected general aviation demand at SJC in year 2010 for Project Case Alternative A are the same as for the Project Case, except that the impacts would be to a lesser degree. As shown in Table 3.3.13, Project Case Alternative A would meet more of the projected general aviation demand than would the Project Case (i.e., 430 versus 320 based aircraft). By meeting more of the demand at SJC, there would be less need to accommodate unmet demand at other general aviation airports (as compared to the Project Case). The reallocation of unmet general aviation demand from SJC to other airports under Project Case Alternative A is shown in Table 3.3.14. As with the Project Case, all of the unmet general aviation demand under Project Case Alternative A can be accommodated at the facilities of other nearby general aviation airports.

3.3.2.3 Project Case Alternative B

Intersection Level of Service Impacts

Phase 1 (Year 2000)

Trip Generation Summary. As shown on Table 3.3.4, Project Case Alternative B would generate a total of about 41,800 daily vehicle trips in 2000 (as compared to 41,400 daily vehicle trips under the No Project Alternative), including approximately 3,300 trips during the weekday AM peak hour and approximately 4,300 trips during the weekday PM peak hour. These volumes are similar to the Project Case. Comparing Project Case Alternative B to the No Project Alternative in year 2000, daily traffic volumes to and from SJC under Project Case Alternative B would be approximately 1 percent higher.

As with Project Case Alternative A, the potential for trip diversion to other airports also exists under Project Case Alternative B (see discussion under Project Case Alternative A).

Intersection Impacts. The Phase 1 Project Case Alternative B impacts on signalized and unsignalized intersection operations were determined by adding traffic generated by Project Case Alternative B to the future No Project traffic volumes and calculating intersection levels of service. Levels of service were calculated in the same manner as for the existing traffic conditions, as described previously. Table 3.3.5 lists the levels of service at each study intersection for each traffic condition in Phase 1 (Year 2000).

Based upon the criteria described previously, Project Case Alternative B would result in a significant impact at the following five intersections in the year 2000:

27. Coleman Avenue and I-880 southbound ramps (PM peak)
28. Coleman Avenue and Airport Boulevard (PM peak)
29. Coleman Avenue and Brokaw Road (PM peak)
31. De La Cruz Boulevard and Martin Avenue (AM peak)
32. De La Cruz Bolevard and Central Expressway (AM peak)

Phase 2 (Year 2005)

Trip Generation Summary. As shown on Table 3.3.4, the Project Case Alternative B would generate a total of about 47,800 daily vehicle trips in 2005, including approximately 3,700 trips during the weekday AM peak hour and approximately 4,900 trips during the weekday PM peak hour. Project Case Alternative B would have about 9,500 fewer daily vehicle trips, 700 fewer AM peak-hour trips and 900 fewer PM peak-hour trips than the Project Case. Comparing Project Case Alternative B to the No Project Alternative in year 2005, daily traffic volumes to and from SJC under the Project Case Alternative B would be approximately 11 percent higher.

Intersection Impacts. The Phase 2 Project Case Alternative B impacts on signalized and unsignalized intersection operations were determined via the procedure outlined in the modeling discussion above. Levels of service were calculated in the same manner as for the existing trafficconditions, as described previously. Table 3.3.7 lists the levels of service at each analysis methodology and each traffic condition in Phase 2 (Year 2005).

Based upon the criteria described previously, Project Case Alternative B would result in a significant impact at the following two intersections in the year 2005:

16. Airport Boulevard and Airport Parkway (AM and PM peak)
28. Coleman Avenue and Airport Boulevard (AM peak)

Phase 3 (Year 2010)

Trip Generation Summary. As shown on Table 3.3.4, the Project Case Alternative B would generate a total of about 51,100 daily vehicle trips in 2010, including approximately 4,000 trips during the weekday AM peak hour and approximately 5,200 trips during the weekday PM peak hour. Project Case Alternative B would have about 17,000 fewer daily vehicle trips, 1,200 fewer AM peak-hour, and 1,700 fewer PM peak-hour trips, than the Project Case. Comparing Project Case Alternative B to the No Project Alternative in year 2010, daily traffic volumes to and from SJC under Project Case Alternative B would be approximately 14 percent higher.

Potential for Trip Diversion. The potential for trip diversion under Project Case Alternative B would be similar to that described for Project Case Alternative A. See the discussion of Intersection Levels of Service Impacts under Project Case Alternative A, Section 3.3.2.2, above.

Intersection Impacts. The Phase 3 Project Case Alternative B impacts on signalized and unsignalized intersection operations were determined via the procedure outlined in the modeling discussion above. Levels of service were calculated in the same manner as for the existing trafficconditions, as described previously. Table 3.3.9 lists the levels of service at each study intersection for each traffic condition in Phase 3 (Year 2010).

Based upon the criteria described previously, Project Case Alternative B would result in a significant impact at the following two intersections in the year 2010:

16. Airport Boulevard and Airport Parkway (AM and PM peak)
28. Coleman Avenue and Airport Boulevard (AM and PM peak)

Freeway Impacts

Using the same methodology outlined in Section 3.2.1, this section discusses the impact of Project Case Alternative B upon the various freeway segments located in the vicinity of SJC during the AM and PM commute periods.

The traffic generated under Project Case Alternative B would not result in any significant impacts upon freeways in the vicinity of SJC in the years 2000, 2005, or 2010 (see Tables 3.3.8 through 3.3.10).

Public Transit Impacts

Since the number of air passengers and the number of employees under Project Case Alternative B would be less than that described for the Project Case, the number of additional transit riders to SCVTA bus lines and light rail trains would be proportionately less for Project Case Alternative B than that described for the Project Case. This is a less-than-significant impact. See the discussion of Public Transit Impacts under the Project Case, Section 3.3.2.1, above.

Pedestrian Impacts

Since the number of air passengers and the number of employees under Project Case Alternative B would be proportionately less for Project Case Alternative A than that described for the Project Case. The pedestrian elements that would be developed under Project Case Alternative A would be similar to those developed under the Project Case. This is a less-than-significant impact. See the discussion of Pedestrian Impacts under the Project Case, Section 3.3.2.1, above.

Bicycling Impacts

The location of bicycle routes in the Airport vicinity would be the same under Project Case Alternative B as that described for the Project Case. With fewer employees anticipated under Project Case Alternative B, it is expected that the number of bicyclists would be proportionately less than that expected for the Project Case. This is a less-than-significant impact. See the discussion of Pedestrian Impacts under the Project Case, Section 3.3.2.1, above.

Parking Impacts

As under the Project Case, the master planning process included a review of the parking demand that would occur under Project Case Alternative B and the number of parking spaces was included in various project components to accommodate parking demand. Therefore, no adverse parking impacts are anticipated as a result of Project Case Alternative B.

Construction Traffic Impacts

As under the Project Case, construction traffic impacts would be limited to lane closures on Airport roadways and would not result in the closure of a roadway preventing access to the Airport. The Airport would minimize the number of lanes subject to closure at any one time and limit the duration of lane closures. As under the Project Case, pedestrian access at the Airport would be maintained and safely accommodated during all construction activities. Therefore, no adverse construction traffic impacts are anticipated as a result of Project Case Alternative B.

General Aviation Displacement Impacts

The impacts of not fully accommodating projected general aviation demand at SJC in year 2000 for Project Case Alternative B are the same as for the Project Case, except that the impacts would be to a lesser degree. As shown in Table 3.3.11, Project Case Alternative B would meet more of the projected general aviation demand than would the Project Case (i.e., 440 versus 380 based aircraft). By meeting more of the demand at SJC, there would be less need to accommodate unmet demand at other general aviation airports (as compared to the Project Case). The reallocation of unmet general aviation demand from SJC to other airports under Project Case Alternative B is shown in Table 3.3.14. As with the Project Case, all of the unmet general aviation demand under Project Case Alternative B can be accommodated at the facilities of other nearby general aviation airports.

The impacts of not fully accommodating projected general aviation demand at SJC in year 2005 for Project Case Alternative B are the same as for the Project Case, except that the impacts would be to a lesser degree. As shown in Table 3.3.12, Project Case Alternative B would meet more of the projected general aviation demand than would the Project Case (i.e., 490 versus 325 based aircraft). By meeting more of the demand at SJC, there would be less need to accommodate unmet demand at other general aviation airports (as compared to the Project Case). The reallocation of unmet general aviation demand from SJC to other airports under Project Case Alternative B is shown in Table 3.3.14. As with the Project Case, all of the unmet general aviation demand under Project Case Alternative B can be accommodated at the facilities of other nearby general aviation airports.

The impacts of not fully accommodating projected general aviation demand at SJC in year 2010 for Project Case Alternative B are the same as for the Project Case, except that the impacts would be to a lesser degree. As shown in Table 3.3.13, Project Case Alternative B would meet more of the projected general aviation demand than would the Project Case (i.e., 490 versus 320 based aircraft). By meeting more of the demand at SJC, there would be less need to accommodate unmet demand at other general aviation airports (as compared to the Project Case). The reallocation of unmet general aviation demand from SJC to other airports under Project Case Alternative B is shown in Table 3.3.14. As with the Project Case, all of the unmet general

aviation demand under Project Case Alternative B can be accommodated at the facilities of other nearby general aviation airports.

3.3.2.4 No Project Alternative

The No Project Alternative would not result in the development of any new facilities or structures at the Airport. However, the number of air passengers and the amount of air cargo tonnage would increase over existing conditions. Table 3.3.5 provides the levels of service at intersections in the Airport vicinity that would occur under the No Project Alternative in the Year 2000. Table 3.3.6 provides the levels of service at intersections in the Airport vicinity that would occur under the No Project Alternative in the Year 2005. Table 3.3.7 provides the levels of service at intersections in the Airport vicinity that would occur under the No Project Alternative in the Year 2010.

3.3.3 MITIGATION MEASURES FOR SIGNIFICANT TRANSPORTATION AND CIRCULATION IMPACTS

The above analysis identified significant impacts at a number of intersections for all three horizon years in the vicinity of SJC due to increases in traffic associated with the Project Case Alternatives. The above analysis also identified significant impacts to a number of freeways in the vicinity of SJC in years 2005 and 2010 due to increases in traffic associated with the Project Case and Project Case Alternative A. This section identifies mitigation measures for these significant impacts.

3.3.3.1 Mitigations for Intersection Level of Service Impacts

The following discussion identifies mitigation measures at each of the impacted intersections. The mitigation measures were designed to improve the operation of the intersection to, at a minimum, conditions associated with the No Project Alternative. Table 3.3.15 provides a summary of the change in the volume to capacity ratio at each of the intersections with the implementation of the identified mitigation measures.

Intersection of North First Street and Brokaw Road (Intersection 5)

The Project Case would have an impact at this intersection during the PM peak hour in 2005 and during the AM and PM peak hours in 2010. The improvement necessary to mitigate for this impact would be the addition of a third westbound through lane on Brokaw Road. This mitigation would require the acquisition of additional right-of-way on the north side of Brokaw Road, which would result in the relocation of the existing sidewalks, utilities, landscaping, and parking. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO THE PROJECT CASE ONLY)***

TABLE 3.3.15
FUTURE LEVEL OF SERVICE, YEARS 2000, 2005, AND 2010
MITIGATED CONDITIONS - AM PEAK HOUR

Intersection	Condition	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
YEAR 2000									
31. De La Cruz Blvd / Martin Ave.	Unmitigated	0.86	D	0.93	E	0.93	E	0.93	E
	Mitigated	--	--	0.77	C	0.77	C	0.77	C
32. De La Cruz Blvd / Central Expwy	Unmitigated	1.16	F	1.19	F	1.19	F	1.19	F
	Mitigated	--	--	1.05	F	1.06	F	1.06	F
YEAR 2005									
15. Airport Blvd / Terminal Dr. (No.)	Unmitigated	0.96	E	1.04	F	1.00	E	0.98	E
	Mitigated	--	--	0.84	D	--	--	--	--
16. Airport Blvd / Airport Pkwy	Unmitigated	1.31	F	1.53	F	1.41	F	1.38	F
	Mitigated	--	--	1.09	F	1.01	F	0.99	E
28. Coleman Ave / Airport Blvd	Unmitigated	1.28	F	1.35	F	1.33	F	1.34	F
	Mitigated	--	--	1.26	F	1.25	F	1.26	F
YEAR 2010									
5. No. First Street / Brokaw Rd.	Unmitigated	1.09	F	1.16	F	--	--	--	--
	Mitigated	--	--	0.96	E	--	--	--	--
15. Airport Blvd / Terminal Dr. (No.)	Unmitigated	1.07	F	1.17	F	1.12	F	--	--
	Mitigated	--	--	0.97	E	0.91	E	--	--
16. Airport Blvd / Airport Pkwy	Unmitigated	1.50	F	1.81	F	1.63	F	1.57	F
	Mitigated	--	--	1.28	F	1.17	F	1.12	F
28. Coleman Ave / Airport Blvd	Unmitigated	1.40	F	1.50	F	1.47	F	1.45	F
	Mitigated	--	--	1.37	F	1.35	F	1.34	F

(Continued)

TABLE 3.3.15 (Continued)
FUTURE LEVEL OF SERVICE, YEARS 2000, 2005, AND 2010
MITIGATED CONDITIONS - PM PEAK HOUR

Intersection	Condition	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
		V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
YEAR 2000									
29. Coleman Ave / Brokaw Rd.	Unmitigated	1.06	F	1.16	F	1.15	F	1.15	F
	Mitigated	--	--	0.98	E	0.98	E	0.98	E
32. De La Cruz Blvd / Central Expwy	Unmitigated	1.52	F	1.59	F	--	--	--	--
	Mitigated	--	--	1.40	F	--	--	--	--
YEAR 2005									
5. No. First Street / Brokaw Rd.	Unmitigated	1.07	F	1.12	F	--	--	--	--
	Mitigated	--	--	0.99	E	--	--	--	--
15. Airport Blvd / Terminal Dr. (No.)	Unmitigated	1.11	F	1.17	F	--	--	--	--
	Mitigated	--	--	0.92	E	--	--	--	--
16. Airport Blvd / Airport Pkwy	Unmitigated	1.80	F	2.09	F	1.94	F	1.89	F
	Mitigated	--	--	1.50	F	1.41	F	1.37	F
YEAR 2010									
5. North First St / Brokaw Rd.	Unmitigated	1.12	F	1.19	F	--	--	--	--
	Mitigated	--	--	1.04	F	--	--	--	--
6. North First St / Old Bayshore Hwy	Unmitigated	0.89	D	0.95	E	--	--	--	--
	Mitigated	--	--	0.85	D	--	--	--	--
7. North First St / Skyport Dr.	Unmitigated	0.85	D	0.90	E	--	--	--	--
	Mitigated	--	--	0.67	B	--	--	--	--
15. Airport Blvd / Terminal Dr. (No.)	Unmitigated	1.21	F	1.27	F	--	--	--	--
	Mitigated	--	--	1.01	F	--	--	--	--
16. Airport Blvd / Airport Pkwy	Unmitigated	2.03	F	2.47	F	2.30	F	2.10	F
	Mitigated	--	--	1.76	F	1.65	F	1.52	F
28. Coleman Ave / Airport Blvd	Unmitigated	1.71	F	1.91	F	1.84	F	1.77	F
	Mitigated	--	--	1.48	F	1.46	F	1.45	F
32. De La Cruz Blvd / Central Expwy	Unmitigated	1.52	F	1.59	F	--	--	--	--
	Mitigated	--	--	1.40	F	--	--	--	--

[a] Impact significance determined by use if weighted average v/c ratio. See Appendix 3.3.A.

SOURCE: DKS Associates

Intersection of North First Street and Old Bayshore Highway (Intersection 6)

The Project Case would have an impact at this intersection in 2010 in the PM peak hour. The mitigation is the addition of a third eastbound through lane on Old Bayshore Highway. This extra lane would require additional right-of-way which would, in turn, require relocation of a sidewalk and removal of landscaping. Utility relocations also may be necessary. This mitigation would also likely require the removal of some existing on-street diagonal parking in the southeast quadrant of the intersection. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO THE PROJECT CASE ONLY)***

Intersection of North First Street and Skyport Drive (Intersection 7)

The Project Case would have an impact at this intersection in 2010 in the PM peak hour. The mitigation is restriping an existing southbound lane plus adding an exclusive southbound right-turn lane. To add the extra lane would require right-of-way acquisition. The right-of-way acquisition would likely require some relocation of utilities. It would also require the removal of 3 or 4 landscaping trees along the edge of First Street, plus a realignment of the sidewalk These trees are not ordinance-sized (18-inch diameter at 24 inches off the ground) and would not require a permit for their removal. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO THE PROJECT CASE ONLY)***

Intersection of Airport Boulevard and Terminal Drive North (Intersection 15)

Impacts at this on-Airport intersection would be in 2005 and 2010 under the Project Case, and in 2010 under Project Case Alternative A. The mitigation is the addition of a third northbound left-turn lane on Airport Boulevard. The design of this mitigation would be incorporated into the design of the proposed improvements in the passenger terminal area. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO THE PROJECT CASE AND PROJECT CASE ALTERNATIVE A)***

Intersection of Airport Boulevard at Airport Parkway (Intersection 16)

This on-Airport intersection would be impacted in 2005 and 2010 by all of the Project Case Alternatives. The mitigation is the addition of a northbound and southbound through lane on Airport Boulevard. The design of this mitigation would be incorporated into the design of the proposed improvements in the passenger terminal area. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Intersection of Coleman Avenue and I-880 Southbound Ramps (Intersection 27)

Impacts at this intersection would be only in the short-term (i.e., year 2000) during the PM peak hour. This impact would occur under the Project Case Alternatives and the No Project

Alternative. Prior to the years 2005 and 2010, the SR 87 freeway project will have been completed, which would result in an improvement at this intersection under the Project Case Alternatives and the No Project Alternative.

The mitigation measure for the short-term impact is the addition of a third southbound through lane on Coleman Avenue. The implementation of this mitigation would require the reconstruction of the I-880/Coleman interchange, including the widening or replacement of the Coleman Avenue overcrossing over the freeway.

The existing interchange does not meet current Caltrans standards and, because this interchange is in proximity to the I-880/First Street interchange, the reconstruction of this interchange would require the reconstruction of both interchanges and the addition of an auxiliary lane on I-880 itself. Implementation of this mitigation measure would require project design, Caltrans approvals, Federal Highway Administration (FHWA) approvals, and the actual construction. If this project were part of an approved capital improvement program either locally, regionally, or statewide, the implementation of this mitigation measure would take at least five years. Since this project is not part of an existing approved capital improvement program, the implementation time will be substantially longer.

Given this lengthy process for implementation, the completion of this mitigation measure could not occur during the time period in which there are significant impacts under the Project Case Alterantives and the No Project Alternative. In addition, deferral of the adoption of any of the Project Case Alternatives until after the completion of SR 87 would not mitigate the significant short-term impacts since they will occur under the No Project Alternative. Therefore, this measure would not mitigate the significant impacts at this location under the Project Case Alternatives or the No Project Alternative. ***(MITIGATION NOT FEASIBLE - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Intersection of Coleman Avenue at Airport Boulevard (Intersection 28)

Impacts at this intersection would occur for all three horizon years. Separate mitigation is required for the year 2000 impact than that which is required for the 2005 and 2010 horizon years, both of which are described below.

Impacts at this intersection for the short-term (i.e., year 2000) would occur during the PM peak hour. This impact would occur under the Project Case Alternatives and the No Project Alternative. The short-term impact at this intersection would be eliminated due to the completion of the SR 87 freeway project before 2005.

The mitigation measure for the short-term impact is the addition of a third westbound left-turn lane onto southbound Coleman Avenue and a third southbound through lane on Coleman

Avenue. The implementation of this mitigation would require the reconstruction of the I-880/Coleman interchange, including the widening or replacement of the Coleman Avenue overcrossing over the freeway.

The existing interchange does not meet current Caltrans standards and, because this interchange is in proximity to the I-880/First Street interchange, the reconstruction of this interchange would require the reconstruction of both interchanges and the addition of an auxiliary lane on I-880 itself. Implementation of this mitigation measure would require project design, Caltrans approvals, Federal Highway Administration (FHWA) approvals, and the actual construction. If this project were part of an approved capital improvement program either locally, regionally, or statewide, the implementation of this mitigation measure would take at least five years. Since this project is not part of an existing approved capital improvement program, the implementation time will be substantially longer.

Given this lengthy process for implementation, this mitigation measure could not be implemented prior to the year 2000. This measure would not mitigate the short-term significant impacts that would occur at this location under the No Project Alternative or the Project Case Alternatives. ***(MITIGATION NOT INCLUDED IN THE PROJECT - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

The mitigation for 2005 and 2010 is the construction of a second left-turn lane from southbound Coleman Avenue onto Airport Boulevard. This mitigation will require a strip of right-of-way from the east and/or west side of Coleman Avenue. It will also likely require some relocation of utilities and reconstruction and/or realignment of the intersection. Even if the widening were to be done on the west side of Coleman Avenue, it would not materially affect the land use on the west side because of the existing large setback of the existing uses from Coleman Avenue. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Intersection of Coleman Avenue at Brokaw Road (Intersection 29)

Impacts at this intersection would occur in the PM peak hour for the year 2000. The mitigation is the restriping of the westbound approach on Brokaw Road to include an exclusive left-turn lane and one shared left/through/ right-turn lane. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Intersection of De La Cruz Boulevard at Martin Avenue (Intersection 31)

Impacts at this intersection would occur in the AM peak hour for the year 2000. The mitigation is the prohibition of left turns into the public and employee parking lots on Martin Avenue while these parking lots on the west side of the Airport are operational. Traffic to these parking lots

from De La Cruz Boulevard and Coleman Avenue would be via Brokaw Road where there is available capacity to accommodate additional demand. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***.

Intersection of De La Cruz Boulevard at Central Expressway (Intersection 32)

Impacts at this intersection would occur in the years 2000 and 2010. The mitigation is the addition of a third left-turn lane from eastbound Central Expressway onto northbound De La Cruz Boulevard. This mitigation would require right-of-way from the Airport property at the northwest corner of that intersection and some reconstruction and/or realignment of the intersection. There are three receiving lanes on De La Cruz Boulevard that could accommodate the traffic from the three left-turn lanes on Central Expressway. ***(MITIGATION INCLUDED IN THE PROJECT - APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

> ***Mitigation for Intersection Level of Service Impacts: The City will implement specific intersection improvements identified above as included in the project to reduce level of service impacts to less-than-significant levels at all intersections, except the Coleman Avenue and Airport Boulevard intersection and the Coleman Avenue and I-880 southbound ramps intersection. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Impact Significance Conclusion: Implementation of these Mitigation Measures will improve the level of service at all intersections in the Airport vicinity to an acceptable level, except at the intersections of Coleman Avenue/Airport Boulevard and Coleman Avenue/I-880 southbound ramps in the year 2000. (IMPACT IS SIGNIFICANT AND UNAVOIDABLE)

3.3.3.2 Mitigation for Freeway Impacts

As described previously in Section 3.3.2.1, the three freeways in the vicinity of SJC (i.e., U.S. 101, I-880, and SR 87) are projected to operate at LOS F under the No Project Alternative in 2000, 2005, and 2010 (see Tables 3.3.8 through 3.3.10). The Project Case and Project Case Alternative A would contribute to this projected congestion by increasing traffic by more than one percent of the freeways' capacities, which is a significant impact. The mitigation for this impact could take the form of either: 1) physically increasing the capacity of the freeways by adding more lanes; or 2) implementing a program which would reduce the number of additional vehicles generated by SJC to a point where the Airport's contribution would be less than one percent. Both of these mitigation measures are discussed below.

Freeway Improvements

The construction of an additional lane in each direction on U.S. 101, I-880, and SR 87 would provide enough new capacity to these freeways to fully mitigate the identifed impact. This mitigation, however, could not reasonably be implemented by a single development due to the

magnitude of the improvement required on these regional facilities. For example, the widening of a four-mile segment of I-880 in the vicinity of SJC (between I-280 and U.S. 101) would require an additional lane of pavement in each direction as well as the reconstruction/ reconfiguration of five interchanges and several bridge structures.[5] The widening of I-880 in this area is not included in any short or long-term capital improvement programs. Any widening of either U.S. 101 and/or SR 87 in the vicinity of SJC would require the acquisition and relocation of numerous businesses and residences because those freeways are constructed[6] to their maximum width within the existing rights-of-way. Finally, any improvements to these facilities would require approval from Caltrans and FHWA, as well as approval from MTC, with regard to conformance with the federal Clean Air Act.

The SCVTA is in the process of preparing a Countywide Deficiency Plan (CDP). The purpose of the CDP is to identify a program of measures to be undertaken on a Countywide basis to improve the regional transportation network. One element of the CDP will identify mechanisms for the funding of future improvements, one of which may include an "impact fee" on future development. Since completion of the CDP is not anticipated prior to early 1997, it is not yet known whether the CDP would include impact fees. Should the CDP include such a funding mechanism, the City could participate in such a program as a way of offsetting Airport project-related impacts to the freeway system. This is not "mitigation" as defined by CEQA, but may contribute to the circumstances taken into account by a Lead Agency in a decision to approve a project.

Reduction of Vehicle Trips

A Transportation System Management (TSM) program can be established to minimize the impacts on freeways identified in the Impacts section by limiting auto use. The objective of the TSM program would be to reduce travel throughout the day by private automobile, especially single-occupant vehicles. The role of a TSM Manager would be to develop the specific program and coordinate it with activities of SJC, the Cities of San Jose and Santa Clara, the Santa Clara Valley Transportation Authority Congestion Management Program, shuttle / van / taxi companies that serve SJC, and other public agencies whose services or regulatory functions affect the mode of travel chosen by employees and air passengers.

TSM Program elements that could be implemented at SJC include:

- Flexible work hours for the major employers, to reduce traffic congestion in the typical 6:00 - 9:00 AM and 3:00 - 6:00 PM peak hours;

[5] For comparison purposes, the SR 87 freeway project between Julian Street and U.S. 101 (an approximately three mile segment) would include two interchanges and five other bridge structures is projected to cost in excess of $150 million.

[6] SR 87 is not yet constructed to its full width. However, as described previously, SR 87 will be upgraded to a 6-lane freeway by 2001. This planned project has been included in the modeling undertaken for this EIR.

- Pricing of parking (highest for single-occupant vehicles; graduated lower rates for carpools / vanpools) and preferential parking location for carpools / vanpools;
- Incentives for transit use (e.g., free or subsidized transit fares / shuttle vouchers, electronic transit / shuttle information in all baggage claim areas) to support existing transit services;
- Carpool / vanpool matching through a centralized SJC matching service (or contracted to RIDES for Bay Area Commuters);
- Participation in the Santa Clara County Congestion Management Program, the Silicon Valley SMART Corridor project, the Metropolitan Transportation Commission's TravInfo traveler information project, and other local and regional efforts to reduce transportation related congestion and the use of single-occupant vehicles;
- Provide information to encourage air passengers to take transit (e.g., up-to-date shuttle and bus information distributed with all airline tickets-by-mail (sent to Northern California zip codes) and tickets sold at SJC and Bay Area airline counters; and
- Provide a share (based on SJC employee and air passenger patronage) of the transit operating costs for SCVTA to support increased transit operations to SJC.

The implementation of an individual TSM program element would not have a large effect on reducing traffic. The implementation of several effective TSM program elements could help reduce the number of single-occupant vehicles generated by Airport activities. However, even with an effective TSM program, freeway impacts would not be reduced to a less-than-significant level.

Mitigation for Freeway Impacts: The City will implement a TSM program to reduce traffic congestion on freeways in the Airport vicinity. (APPLIES TO THE PROJECT CASE AND PROJECT CASE ALTERNATIVE A)

Impact Significance Conclusion: Implementation of this Mitigation Measure will not reduce the Airport's contribution to freeway congestion in the Airport vicinity to a less-than-significant level. (IMPACT IS SIGNIFICANT AND UNAVOIDABLE)

3.3.3.3 Other Mitigation Measures Considered but Not Recommended for Inclusion in the Project

In addition to the measures described in Sections 3.3.3.1 and 3.3.3.2, this section addresses the following two other measures identified by C.A.A.P.

1) dedicate shuttle service between terminal buildings and rail stations

   This measure is unnecessary because it is already in place at SJC. Specifically, as described in Section 3.1, there is an existing shuttle between the terminals at SJC and the Metro/Airport LRT Station on North First Street and there is an existing SCVTA bus service to the CalTrain Station in Santa Clara. In addition, continued support of the shuttle and bus services is included in the TSM program (see Section 3.3.3.2).

2) other surface traffic reduction projects, such as on-Airport people movers

This measure would not mitigate any identified significant impacts (see Section 3.2). Therefore, the inclusion of this mitigation is not necessary. The Project Case Alternatives all include public parking garages adjacent to the terminal buildings, which actually reduces the need for on-Airport shuttle service. In addition, on-Airport people mover systems could be incorporated as a design feature in the future terminal development. Also, the adoption of the TSM program identified in Section 3.3.3.2 will serve to reduce surface traffic.

3.4 AIR QUALITY

The subject of air quality relates to ambient concentrations of pollutants in the atmosphere. This section translates the expected changes at the Airport that would occur under the Project Case Alternatives and the No Project Alternative, such as new building construction, increased commercial flights, and ground traffic, into the language of air quality assessment, namely "emissions" and "concentrations." "Emissions" estimates relay information in terms of quantities of a given pollutant per unit of time. Typically, emissions are reported in units of grams per second, pounds per day or tons per year. "Concentration" estimates relay information in terms of quantities of a given pollutant in a given volume of air. Typically, concentrations are reported in parts per million (by volume) or micrograms per cubic meter. Emissions estimates themselves cannot be directly compared to ambient air quality standards but rather provide only a rough indication of the relative contribution of a source to ambient concentrations. Concentration estimates, on the other hand, can be directly compared to ambient air quality standards. Ambient air quality standards represent concentrations of air pollutants below which public health and welfare are protected. Appendix 3.4.A contains additional details concerning the emissions and concentration estimates contained in this section.

3.4.1 SETTING AND EXISTING CONDITIONS

3.4.1.1 Climate and Meteorology

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. SJC lies at the northern end of Santa Clara Valley (the Valley). Santa Clara Valley is oriented northwest-southeast and is bounded by mountains to the west, east, and south and by San Francisco Bay to the north. The air pollution potential of the Valley is high (Association of Bay Area Governments, 1994). In addition to the many local sources of pollution, emissions from San Francisco, San Mateo and Alameda Counties are carried by prevailing winds to the Valley, making it a major pollutant receptor. During summer and fall, emissions generated within, and those transported to, the Valley can combine with abundant sunshine under the restraining influences of topography and temperature inversions to create conditions that are conducive to the formation of photochemical pollutants, like ozone.

Wind measurements taken at SJC indicate that the predominant wind flow is out of the northwest (California Air Resources Board, 1984). Northwest winds occur approximately 36 percent of the time. Calm conditions are fairly frequent at SJC, occurring approximately 17 percent of the time.

3.4.1.2 Air Quality Regulations, Plans, and Policies

Regulation of air pollution is achieved through national and State ambient air quality standards and emissions limits for individual sources of air pollutants.

Criteria Air Pollutants

The federal Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to identify National Ambient Air Quality Standards (national standards, also known as NAAQS) to protect public health and welfare. National standards have been established for ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), suspended particulate matter (PM_{10}), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria set forth in the federal Clean Air Act. California has adopted more stringent ambient air quality standards for the criteria air pollutants (referred to as State Ambient Air Quality Standards, or state standards or SAAQS) and has adopted air quality standards for some pollutants for which there are no corresponding national standards. Both sets of ambient air quality standards (i.e., national and State) are presented in Table 69 of Appendix 3.4.A.

Under amendments to the federal Clean Air Act, EPA has classified Air Basins, or portions thereof, as either "attainment" or "nonattainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. In 1988, the State Legislature passed the California Clean Air Act, which is patterned after the federal Clean Air Act to the extent that it also requires areas to be designated as "attainment" or "nonattainment," but with respect to the state standards, rather than the national standards. SJC lies within the urbanized portion of Santa Clara County, a sub-region within the nine-county San Francisco Bay Area Air Basin. The entire Bay Area is designated as "nonattainment" for the State standards for ozone and PM_{10} (California Air Resources Board, 1995b). Urbanized areas within the Bay Area are "nonattainment" for the national eight-hour average CO standard. The Bay Area is "attainment" or "unclassified" for the other State and federal criteria pollutants. In April 1995, EPA approved a request to change the designation of the Bay Area from "nonattainment" to "attainment" for the national ozone standard (U.S. Environmental Protection Agency, 1995).

Both the federal Clean Air Act and the State California Clean Air Act require nonattainment areas to prepare plans that include strategies for achieving attainment. To satisfy federal Clean Air Act requirements, an Air Quality Plan for the Bay Area was adopted in 1982 to achieve attainment of the national standard for ozone and CO by 1987 (Association of Bay Area Governments, 1982). Under the federal Clean Air Act Amendments of 1990, a "Maintenance Plan" was developed to replace the 1982 Air Quality Plan (Association of Bay Area Governments, 1993a). This air quality plan was prepared in anticipation of EPA's change of designation for the Bay Area to "attainment" and is termed a "maintenance plan" because it demonstrates how the Bay Area will continue to "maintain" the national standard for ozone (now that the standard has been attained). A separate air quality plan addresses the "nonattainment" status for the national standard for CO in the urbanized portions of the Bay Area (Association of Bay Area Governments, 1993b). Air quality plans developed to meet federal requirements are included in an overall program referred to as the State Implementation Plan (SIP).

In 1991, an air quality plan, *Bay Area '91 Clean Air Plan ('91 CAP)*, was developed to meet the requirements of the State California Clean Air Act (Bay Area Air Quality Management District, 1991). The goal of the *'91 CAP* is to improve air quality through the 1990s through tighter industry controls, cleaner cars and trucks, cleaner fuels, and increased commute alternatives. The *'91 CAP* has been updated with the *Bay Area '94 Clean Air Plan ('94 CAP)*. The *'94 CAP* contains additional control strategies, including development of new rules that would require operators of airport ground support equipment (GSE), such as baggage tractors, belt loaders, etc., to convert to (or replace with) alternatively-fueled vehicles (Bay Area Air Quality Management District, 1994). As of October 1996, the Bay Area Air Quality Management District (BAAQMD) had not yet proposed a GSE-related rule. In addition, the *'94 CAP* includes a Transportation Control Measure that calls for improving transit access to airports.

The City's *General Plan* contains the goal of maintaining acceptable levels of air quality for the residents of San Jose and minimizing the air pollution produced by new development (City of San Jose, 1994). To reach this goal, the City policies state that expansion and improvement of public transportation services and facilities should be promoted, where appropriate, to both encourage energy conservation and reduce air pollution.

Toxic Air Contaminants

Regulation of toxic air contaminants[1] is achieved through federal and State controls on individual sources. Toxic air contaminants are air pollutants with short-term (acute) and/or long-term (chronic or carcinogenic) adverse human health effects, for which no ambient standards have been established. The 1990 federal Clean Air Act Amendments offer a comprehensive plan for achieving significant reductions in both mobile and stationary source emissions of certain designated toxic air contaminants.

The Bay Area Air Quality Management District (BAAQMD) administers the Bay Area's Toxic Air Contaminant Control Program, which is intended to reduce public exposure to toxic air contaminants from stationary sources in the Bay Area. BAAQMD is currently working to control toxic air contaminant impacts from local "hot spots" and to reduce toxic air contaminant background concentrations. The control strategy involves reviewing new stationary sources to ensure compliance with required emission controls and limits, maintaining an inventory of existing stationary sources of toxic air contaminants, and developing new rules and regulations to reduce toxic air contaminant emissions.

Regulation of toxic air contaminants from mobile sources has traditionally been achieved through promulgation of reactive organic gases (ROG) emissions standards for on-road motor

[1] Federal environmental laws refer to "hazardous air pollutants" (HAPs) and California environmental laws refer to "toxic air contaminants" (TACs). Each of these two terms basically encompasses the same constituent toxic compounds. For the sake of simplicity, this report will use the term TACs when referring to these compounds.

vehicles (enforced on vehicle manufacturers) and through specifications for gasoline and diesel fuel sold in California (enforced on fuel refineries and retailers), rather than through land use decisions, air quality permits or regulations addressing how motor vehicles are used by the general public.

Regulatory Agencies

Regulation of emissions sources of both criteria air pollutants and toxic air contaminants associated with an airport is a responsibility that is shared among federal, State, and regional agencies. Under the federal Clean Air Act, EPA established emission standards for new commercial jet aircraft engines, and the Federal Aviation Administration (FAA) enforces these standards through its aircraft engine certification program. These emissions standards can be found in Federal Aviation Regulations Part 34. For commercial jet engines, emissions standards have been established to reduce ROG and smoke emissions. No emissions standards have been established for general aviation aircraft, or GSE. However, EPA has decided to establish standards for GSE over the next several years.

Under the federal Clean Air Act Amendments of 1990, federal agencies must make a determination of conformity with the SIP before taking any action on a proposed project (e.g., setting aside money, granting a permit, etc.). EPA published a rule (referred to as the General Conformity Rule) that indicates how most federal agencies are to make such a determination (U.S. Environmental Protection Agency, 1993). The FAA has the responsibility for making the determination of conformity for actions related to airport development.

California's State air quality management agency, the California Air Resources Board (CARB), regulates mobile emissions sources (excluding aircraft) and oversees the activities of regional/county air districts. Mobile sources include on-road vehicles (e.g., cars, vans, trucks, motor cycles, and buses) and "other mobile souces" (e.g., locomotives and ships). CARB is responsible for establishing emissions standards for on-road motor vehicles sold in California. Emissions standards for on-road motor vehicles were developed primarily as a means to reduce emissions of CO and ozone precursors (such as ROG), but by reducing ROG emissions, such standards also serve to reduce toxic air contaminants. (ROG emissions include both toxic and non-toxic constituents.)

In addition to enforcing exhaust standards for motor vehicles, regulators have also sought to reduce emissions through establishment of specifications for the fuels used by these vehicles. One early example was the elimination of lead from gasoline. In the early 1990s, the California Air Resources Board established Phase 2 Reformulated Gasoline regulations that require that motor gasoline be reformulated to achieve cleaner combustion in motor vehicles, with lower evaporative emissions than can be obtained from gasoline used at present. These regulations took effect in June 1996 and changed the historical composition of motor gasoline. One of the

new specifications for gasoline lowers the average benzene (a carcinogen) content in gasoline by 70 percent.

California's air pollution control agencies have also taken an aggressive approach to the control of emissions of nitrogen oxides (NO_x). Mobile sources account for approximately 74 percent of the total statewide 1989 NO_x emission inventory (CARB, 1992). The remainder is attributed to stationary sources. Gasoline passenger cars and heavy-duty diesel trucks represent the greatest proportion of the NO_x emission inventory from the "on-road vehicles" category. Farm, construction, mining, and forestry vehicles account for the greatest proportion of the NO_x emission inventory from "other mobile sources."

BAAQMD is the regional agency empowered to regulate air pollutant emissions from stationary sources in the San Francisco Bay Area Air Basin. BAAQMD regulates air quality through its permit authority over most types of stationary emission sources and through its planning and review activities. Stationary sources at SJC that currently operate under BAAQMD permits include diesel and gasoline (aviation and motor vehicle) storage tanks.

3.4.1.3 Existing Air Quality

Criteria Air Pollutants

BAAQMD's regional air quality monitoring network provides information on ambient concentrations of criteria air pollutants. Monitored ambient air pollutant concentrations reflect the number and strength of emissions sources and the influence of topographical and meteorological factors.

Table 3.4.1 is a five-year summary of air pollutant (concentration) monitoring data, collected at two air quality monitoring stations in the vicinity of SJC: the downtown San Jose station on North Fourth Street and the Burbank station on West San Carlos Street. SJC is approximately 1.7 miles northwest of the downtown San Jose station and approximately 1.9 miles north of the Burbank station. In Table 3.4.1, air pollutant concentrations are compared with the state standards, which are more stringent than the corresponding national standards. Pollutant concentrations measured at these two San Jose stations are representative of background air pollutant concentrations in the greater SJC vicinity.

Some criteria pollutants are considered regional in nature, some are considered local, and some have characteristics that are both regional and local. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) compounds and

TABLE 3.4.1
AIR POLLUTANT SUMMARY FOR SJC VICINITY, 1991-1995

Pollutant	Std.[b]	Concentrations, by Year[a] 1991	1992	1993	1994	1995
Ozone (O_3)						
(North Fourth Street Station):						
Highest 1-hr. average concentration, ppm[c]	0.09	**0.10**	**0.12**	**0.11**	**0.11**	**0.13**
Number of exceedances[d]		6	3	3	2	14
(West San Carlos Street Station):						
Highest 1-hr. average concentration, ppm[c]	0.09	0.08	**0.11**	**0.13**	**0.10**	NA
Number of exceedances[d]		0	1	4	1	NA
Carbon Monoxide (CO)						
(North Fourth Street Station):						
Highest 1-hr. average concentration, ppm	20	15	11	14	12	NA
Number of exceedances		0	0	0	0	NA
Highest 8-hr. average concentration, ppm	9.0	**11.0**	7.8	6.9	8.9	5.4
Number of exceedances		4	0	0	0	0
(West San Carlos Street Station):						
Highest 1-hr. average concentration, ppm	20	13	11	13	11	NA
Number of exceedances		0	0	0	0	NA
Highest 8-hr. average concentration, ppm	9.0	8.0	7.6	6.6	6.8	NA
Number of exceedances		0	0	0	0	NA
Nitrogen Dioxide (NO_2)						
(North Fourth Street Station):						
Highest 1-hr. average concentration, ppm	0.25	0.14	0.10	0.12	0.11	0.12
Number of exceedances		0	0	0	0	0
(West San Carlos Street Station):						
Highest 1-hr. average concentration, ppm	0.25	0.14	0.10	0.11	0.10	NA
Number of exceedances		0	0	0	0	NA

(Continued)

TABLE 3.4.1 (Continued)
AIR POLLUTANT SUMMARY FOR SJC VICINITY, 1991-1995

Pollutant	Std.[b]	Concentrations, by Year[a] 1991	1992	1993	1994	1995
Suspended Particulate (PM_{10})						
(North Fourth Street Station):						
Highest 24-hr. average concentration, $\mu g/m^3$ [c]	50	**153**	**106**	**92**	**93**	**60**
Exceedances/Samples[e]		26/170	13/61	8/40	7/55	4/61
Annual Geometric Mean, $\mu g/m^3$	30	27.5	28	28.1	26.6	22.0
(West San Carlos Street Station):						
Highest 24-hr. average concentration, $\mu g/m^3$[c]	50	**111**	**112**	**93**	**80**	NA
Exceedances/Samples[e]		14/60	9/61	5/61	6/61	NA
Annual Geometric Mean, $\mu g/m^3$	30	**31.5**	29.5	24.0	25.0	NA

a Pollutant data were collected at the downtown San Jose monitoring station (North Fourth Street) and at the Burbank monitoring station (West San Carlos Street).
b State standard, not to be exceeded.
c ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter.
d For ozone, "number of exceedances" refers to the number of days in a given year during which excesses of the standards were recorded.
e Indicates the number of exceedances and the number of samples taken in a given year.

NOTE: **Bold** values are in excess of applicable standard. NA = Not Available.

SOURCE: California Air Resources Board, *Air Quality Data Summary*, 1991 through 1994; Bay Area Air Quality Management District, *Contaminant & Weather Summary*, January through December 1995.

nitrogen oxides (NO_x). ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursor presence for approximately three hours in a stable atmosphere with strong sunlight. Ozone is a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production. The data contained in Table 3.4.1 shows that maximum hourly ozone concentrations were notably high in year 1995 and that maximum hourly ozone concentrations in downtown San Jose typically exceed the State standard on two to three days per year. Aircraft operations in the region (including those at SJC) contribute approximately 1.1 percent and 2.4 percent to the Bay Area's inventory of ROG and NO_x, respectively (California Air Resources Board, 1995a).

Ambient CO concentrations normally are considered a local effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic. CO concentrations also are influenced by wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area out to some distance from vehicular sources. Table 3.4.1 shows that, since the introduction of oxygenated fuels in 1992, background CO concentrations no longer exceed State standards even during stagnant wintertime conditions. However, CO concentrations in the vicinity of congested intersections and highway segments would be expected to be higher than the monitoring data in Table 3.4.1.

PM_{10} consists of particulates 10 microns (a micron is one one-millionth of a meter) or less in diameter, which can be inhaled and cause adverse health effects. Particulates in the atmosphere result from many kinds of dust- and fumes-producing industrial and agricultural operations, combustion, and atmospheric photochemical reactions. Some of these operations, such as demolition and construction activities, contribute to increases in local PM_{10} concentrations, while others, such as vehicular traffic, affect regional PM_{10} concentrations.

Table 3.4.1 indicates that background PM_{10} concentrations in downtown San Jose have decreased over the past five years although exceedances of the State 24-hour-average standard still occur on occasion.

NO_2 and SO_2 are two compounds within a larger group of compounds, NO_x and sulfur oxides (SO_x), respectively, that are products of the combustion of fuel. NO_x and SO_x emissions sources can elevate local NO_2 and SO_2 concentrations, and both are regional precursor compounds to PM_{10}. As described above, NO_x is also an ozone precursor compound and can affect regional visibility.

Toxic Air Contaminants

The ambient background of toxic air contaminants is the combined result of many diverse human activities, including gasoline stations, automobiles, dry cleaners, industrial operations, hospital sterilizers and painting operations. Motor vehicles, as a category, are the sources of toxic air contaminants that contribute most significantly to related health risks in the Bay Area and other urban areas (BAAQMD, 1995). The BAAQMD operates a network of monitoring stations that measure ambient concentrations of certain toxic air contaminants that are associated with strong health-related effects and are present in appreciable concentrations in the Bay Area, as in all urban areas.

Average ambient concentrations for most toxic air contaminants monitored at the North Fourth Street station in San Jose are similar to the average for the Bay Area, as shown in Table 3.4.2. In San Jose, average ambient concentrations appear to be higher for benzene and toluene, but lower for trichloroethane and perchloroethylene compared to the Bay Area average. The overall

TABLE 3.4.2
AVERAGE AMBIENT TOXIC AIR CONTAMINANT CONCENTRATIONS IN SAN JOSE AND THE BAY AREA

	Measured Average Concentration (ppb)[a]			
	1992		1994	
Toxic Air Contaminant	San Jose	Bay Area	San Jose	Bay Area
Vinyl Chloride	< 0.3	< 0.3	< 0.3	0.15
Methylene Chloride	0.50	0.71	0.55	0.70
Chloroform	0.02	0.02	0.02	0.01
Ethylene Dichloride	< 0.10	< 0.10	< 0.10	0.05
Trichloroethane	0.69	1.18	0.51	0.64
Carbon Tetrachloride	0.11	0.11	0.11	0.11
Trichloroethylene	< 0.08	0.08	0.05	0.05
Benzene	2.26	1.58	2.02	1.30
Ethylene Dibromide	< 0.02	< 0.02	< 0.02	0.01
Perchloroethylene	0.11	0.33	0.11	0.25
Toluene	4.14	2.82	3.95	2.70

a Concentrations shown are in parts per billion (ppb) and represent the average values taken over the course of the year. San Jose data are from the North Fourth Street air monitoring station. Bay Area average concentrations represent the compilation of data from all Bay Area air monitoring stations (currently 19).

SOURCE: Bay Area Air Quality Management District, *Toxic Air Contaminant Control Program, Annual Report,* 1993 and 1994.

network data indicate that background toxic air contaminant concentrations are relatively uniform throughout the Bay Area.

3.4.1.4 Existing Air Pollutant Emissions Associated with SJC

Sources of pollutant emissions at SJC include aircraft, ground access vehicles, GSE, fuel storage and handling, boilers, and off-site electricity generation. Ground access vehicles include those associated with passenger (private auto, rental cars, vans, taxis, and buses) and employee trips to and from SJC, air cargo truck trips, general aviation-related vehicle trips, and parking shuttle buses. Other stationary source emissions, such as those from industrial processes and emergency generators, are negligible; BAAQMD inventories indicate that no major emitting (industrial) facilities are located at SJC (BAAQMD, 1993). An inventory of criteria pollutant emissions at SJC has been compiled and is shown in Table 3.4.3.

The aircraft emissions estimates shown in Table 3.4.3 were calculated based on the FAA Aircraft Engine Emissions Database (FAA, 1995) and aircraft fleet mix estimates prepared for this report.

TABLE 3.4.3
SJC CRITERIA AIR POLLUTANT EMISSIONS INVENTORY, 1994

Emissions Source Category	Subcategory	Emissions by Pollutant (pounds per annual-average day)				
		Carbon Monoxide	Reactive Organic Gases	Nitrogen Oxides	Sulfur Oxides	Particulate Matter
Aircraft		5,445	639	2,704	209	ND[a]
Motor Vehicle	Autos	12,445	941	770	41	908[b]
	Shuttles/Vans	146	11	13	0	7[b]
	Heavy Trucks	65	7	37	1	10[b]
	Buses	75	18	106	1	30[b]
	Parking Shuttles	74	15	44	0	12[b]
Ground Support Equipment		3,447	76	269	3	7
Fuel Trucks		10	3	15	1	5[b]
Fuel Storage and Handling		0	179	0	0	0
Building Energy Use: Natural Gas		5	0	18	0	2
Building Energy Use: Electricity		14	5	11	1	8
TOTAL		21,726	1,894	3,987	257	989
Total As a Percent of County[c]:		2	1	2	2	< 0.5
Total As a Percent of Region[c]:		0.5	0.2	0.4	0.1	0.1

a ND = Not Determined; PM10 emissions factors for most types of commercial aircraft are not included in published EPA and FAA aircraft emissions databases.
b Includes exhaust particulates, tire wear, and 0.69 grams per mile for entrained road dust.
c County and region-wide emissions estimates are based on emissions inventories provided in BAAQMD's CEQA Guidelines (BAAQMD, 1996).

SOURCE: Environmental Science Associates, 1996.

On-road motor vehicle emissions were calculated based on vehicle-miles-traveled (VMT) estimates that include passengers, cargo truck trips, employees, and general aviation (auto) trips and the latest vehicle emissions factors (EMFAC7F, version 1.1) developed by the California Air Resources Board. Estimated emissions from GSE are based on emissions factors published by the California Air Resource Board (California Air Resources Board, 1994) and assumed use rates per landing-takeoff (LTO) cycle.[2]

2 For this report, GSE includes ground power units and auxiliary power units (APU) in addition to baggage tractors, tow tractors, food trucks, etc. Although APUs are a part of the aircraft itself, they are considered as GSE since their importance for air quality purposes is their use while the aircraft is being serviced on the ground with the main engines turned off.

Fuel storage and handling emissions are based on EPA emission factors and total throughput of the various types of petroleum products in use at SJC, including Jet A, AvGas, diesel and gasoline. Natural gas combustion emissions are based on EPA emissions factors for boilers, and (off-site) power plant emissions (for generating electricity) are based on electricity use at SJC and emissions factors published by the California Energy Commission. Section 3.4.1.2 of Appendix 3.4.A contains additional information on the methodology and assumptions used to compile Table 3.4.3.

Table 3.4.3 provides emissions estimates related exclusively to operations at SJC. These estimates indicate that of pollutant sources at SJC, aircraft contribute the most to the SJC emissions inventory of NO_x and SO_x, and on-road motor vehicles contribute the most to emissions of CO, ROG, and PM_{10}. SJC-related emissions of CO and NO_x contribute to local CO and NO_2 concentrations, and SJC emissions of ROG, NO_x, and PM_{10} contribute incrementally to regional ozone and PM_{10} concentrations and to reduced regional visibility. SJC emissions sources also generate toxic air contaminants; an inventory of toxic air contaminants from combustion of fuels by aircraft, on-road motor vehicles, and ground support equipment is shown in Table 3.4.4.

3.4.1.5 Sensitive Receptors

Land uses such as schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because infants, the elderly, and people with health afflictions, especially respiratory ailments, are more susceptible to respiratory infections and other air-quality-related health problems than the general public. Residential areas are also considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present.

In the SJC vicinity, the nearest residential areas are located south of the Airport near Chestnut Street; other nearby residential areas are located east of Guadalupe Parkway. Commercial/office uses are located south of I-880 across from Runways 30L and 30R. Land uses in the SJC vicinity are described in more detail in Section 3.1, Land Use.

3.4.2 AIR QUALITY IMPACTS

This section identifies three types of Air Quality impacts associated with the Project Case Alternatives and the significance level of impacts identified. These impacts relate to regional criteria air pollutant emissions, local criteria air pollutant concentrations, and toxic air contaminant emissions. The primary differences in impacts among the Project Case Alternatives relate to predicted levels of aircraft and ground vehicle activity and to different runway configurations. Different levels of aircraft and passenger activity result in different levels of aircraft operations, GSE use, fuel storage and handling, and passenger and employee motor vehicle trips which, in turn, result

TABLE 3.4.4
SJC TOXIC AIR CONTAMINANT EMISSIONS INVENTORY, 1994

Pollutant	Emissions (lbs/year)[a]			
	Ground Vehicles[b]	Aircraft[c]	Total	As a Percent of County[f]
Acetaldehyde	3,080	430	3,510	0.4
Acrolein	560	--[e]	560	1.7
Benzene	6,880	1,920	8,800	0.7
1,3 Butadiene	5,140	--[e]	5,140	0.7
Chlorobenzene	10	--[e]	10	0.5
Formaldehyde	7,790	650	8,440	0.9
PAH[d]	10	--[e]	10	0.5
Propylene	5,190	1,950	7,140	0.4
Toluene	21,200	2,570	23,800	0.6
Xylenes	11,200	25,000	36,200	1.3

a Estimates are based on derived weight fractions for specific toxic air contaminants (CARB, 1991). Estimates have been rounded to no more than three significant digits.
b Includes gasoline-powered motor vehicles (with catalytic converters), gasoline-powered motor vehicles (non-catalytic), and diesel-powered vehicles.
c Includes piston and jet aircraft.
d PAH = Polycyclic aromatic hydrocarbons.
e The CARB reference cited above provides the most up-to-date data on emissions of toxic air contaminants from mobile sources and supplements the most recent EPA data which was published in 1990. However, CARB data does not list all toxic air contaminant compounds for each emissions source.
f "Percent of County" refers to estimated existing mobile-source emissions of specific compounds within Santa Clara County.

SOURCE: Environmental Science Associates, 1996.

in different emissions projections for SJC. Different runway configurations affect where emissions sources would be concentrated and thereby affect local pollutant concentrations.

The significance of air quality impacts among the Project Case Alternatives is summarized in Table 3.4.5. Additional summary impact information is provided in Tables 3.4.6 (criteria air pollutant emissions), 3.4.7 (impact of SJC aircraft on local criteria air pollutant concentrations), 3.4.8 (impact of SJC traffic on local CO concentrations), and 3.4.9 (toxic air contaminant emissions). The section first identifies and analyzes impacts of the Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by impacts of the No Project Alternative.

TABLE 3.4.5
SUMMARY OF AIR QUALITY IMPACTS AMONG THE PROJECT CASE ALTERNATIVES

	Project Case	Project Case Alternative A	Project Case Alternative B
Criteria Air Pollutant Emissions			
Phase 1	X	X	X
Phase 2	X	X	X
Phase 3	X	X	X
Criteria Air Pollutant Concentrations			
Nitrogen Dioxide:			
Phase 1	X	X	X
Phase 2	X	X	X
Phase 3	X	X	X
Carbon Monoxide:			
Phase 1	L	L	L
Phase 2	L	L	L
Phase 3	L	L	L
Sulfur Dioxide:			
Phase 1	L	L	L
Phase 2	L	L	L
Phase 3	L	L	L
Toxic Air Contaminant Emissions			
Phase 1	L	L	L
Phase 2	L	L	L
Phase 3	L	L	L

X denotes significant impact.
L denotes less-than-significant impact

SOURCE: Environmental Science Associates, 1996.

TABLE 3.4.6
CRITERIA POLLUTANT EMISSIONS ASSOCIATED WITH SJC

Emissions Summary (annual average pounds per day):

		YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	21,725	19,224	19,550	19,156	19,527	18,346	16,307	16,165	16,243	12,341	10,978	10,582	14,535
Reactive Organic Gases	1,894	1,904	1,892	1,829	1,765	1,962	1,703	1,590	1,468	1,847	1,543	1,378	1,319
Nitrogen Oxides	3,987	5,089	4,906	4,660	4,399	6,403	5,195	4,694	4,199	6,909	5,228	4,461	4,113
Sulfur Oxides	257	307	292	275	257	404	324	293	256	443	330	283	252
Particulate Matter	989	1,987	1,716	1,441	1,109	2,303	1,819	1,501	1,137	2,428	1,738	1,320	1,169

Net Change Versus Existing:

		YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	0	-2,501	-2,175	-2,569	-2,198	-3,379	-5,418	-5,560	-5,482	-9,384	-10,747	-11,143	-7,190
Reactive Organic Gases	0	10	-2	-65	-129	68	-191	-304	-426	-47	-351	-516	-575
Nitrogen Oxides	0	**1,102**	**919**	**673**	**412**	**2,416**	**1,208**	**707**	**212**	**2,922**	**1,241**	**474**	**126**
Sulfur Oxides	0	50	35	18	0	147	67	36	-1	186	73	26	-5
Particulate Matter	0	**998**	**727**	**452**	**120**	**1,314**	**830**	**512**	**148**	**1,439**	**749**	**331**	**180**

Net Change Versus the No Project Alternative:

		YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	NA	-303	23	-371	0	2,103	64	-78	0	-2,194	-3,557	-3,953	0
Reactive Organic Gases	NA	**139**	**127**	64	0	**494**	**235**	**122**	0	**528**	**224**	59	0
Nitrogen Oxides	NA	**690**	**507**	**261**	0	**2,204**	**996**	**495**	0	**2,796**	**1,115**	**348**	0
Sulfur Oxides	NA	50	35	18	0	148	68	37	0	191	78	31	0
Particulate Matter	NA	**878**	**607**	**332**	0	**1,166**	**682**	**364**	0	**1,259**	**569**	**151**	0

NA = Not Applicable. Values that exceed significance criteria are shown in bold type and are shaded.

SOURCE: Environmental Science Associates, 1996.

TABLE 3.4.7
CRITERIA POLLUTANT CONCENTRATION IN SJC VICINITY

Maximally Affected Residential Area (Chestnut Street)[b]:

				Pollutant Concentration (micrograms per cubic meter)[a]												
					YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Averaging Period	Standard	Standard applicability	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	1-hour	23,000	State Standard	22,095	15,606	14,942	17,891	21,069	14,182	13,107	16,275	18,939	13,910	12,423	15,868	18,474
	8-hour	10,000	State and National	**10,992**	8,344	8,180	8,767	9,773	7,299	7,033	7,611	8,520	6,923	6,571	7,176	8,104
Nitrogen Dioxide	1-hour	470	State Standard	**581**	376	442	**581**	**626**	442	**472**	**608**	**617**	**473**	**500**	**622**	**616**
	annual	100	National Standard	**103**	78	87	**110**	**111**	98	98	**117**	**111**	**107**	**105**	**120**	**112**
Sulfur Dioxide	1-hour	655	State Standard	329	188	198	267	363	219	212	284	360	238	221	291	359
	3-hour	1,300	National Standard	242	157	151	214	266	181	160	226	265	194	166	232	266
	24-hour	105	State Standard	54	46	43	51	57	52	45	53	58	56	48	55	59
	annual	80	National Standard	6	6	6	7	7	6	6	7	7	6	6	7	7

Maximally Affected Commercial Area (McKendrie Street)[c]:

				Pollutant Concentration (micrograms per cubic meter)[a]												
					YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Averaging Period	Standard	Standard applicability	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	1-hour	23,000	State Standard	17,404	15,815	15,002	15,349	15,246	14,657	13,107	13,580	13,214	14,573	12,439	12,950	12,476
	8-hour	10,000	State and National	9,952	8,650	8,215	8,595	8,547	7,490	6,992	7,451	7,311	7,144	6,506	7,017	6,836
Nitrogen Dioxide	1-hour	470	State Standard	378	**804**	**600**	388	388	**953**	**617**	400	387	**1,049**	**624**	407	390
	annual	100	National Standard	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfur Dioxide	1-hour	655	State Standard	219	319	251	243	241	396	267	258	240	440	275	264	242
	3-hour	1,300	National Standard	177	226	184	195	193	271	194	206	194	297	200	212	196
	24-hour	105	State Standard	53	54	45	57	57	60	47	60	57	66	50	62	59
	annual	80	National Standard	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

[a] Includes SJC-related concentration increments plus pollutant background concentrations.
[b] Maximally affected residential location corresponds to Receptor #1 shown on Figure 3.4.1.
[c] Maximally affected commercial area corresponds to Receptor #4 shown on Figure 3.4.1.

NA = Not Applicable. Annual averages are not applicable in commercial areas since no person would reasonably be expected to be present for the duration of the averaging period.
Values that exceed State or national standards are shown in bold type and are shaded.

SOURCE: Environmental Science Associates, 1996.

TABLE 3.4.8
CARBON MONOXIDE CONCENTRATIONS NEAR SELECTED INTERSECTIONS IN SJC VICINITY

				Pollutant Concentration (micrograms per cubic meter)[a]:												
					YEAR 2000				YEAR 2005				YEAR 2010			
Intersection	Averaging Period	Standard	Standard applicability	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Guadalupe Parkway /	1-hour	23,000	State Standard	**23,575**	19,608	19,723	19,608	19,723	12,593	12,478	12,478	12,478	11,385	11,270	11,270	11,270
Airport Parkway[b]	8-hour	10,000	State and National	**14,950**	**12,432**	**12,513**	**12,432**	**12,513**	7,729	7,648	7,648	7,648	6,969	6,889	6,889	6,889
Airport Parkway /	1-hour	23,000	State Standard	**26,105**	20,988	20,988	20,988	20,988	14,548	14,663	14,663	14,778	12,765	12,650	12,880	12,995
Airport Boulevard[c]	8-hour	10,000	State and National	**16,721**	**13,398**	**13,398**	**13,398**	**13,398**	9,097	9,178	9,178	9,258	7,935	7,855	8,016	8,096
Guadalupe Parkway	1-hour	23,000	State Standard	17,135	14,548	14,548	14,548	14,548	13,858	13,743	13,743	13,628	12,305	12,190	12,075	12,075
Skyport Drive[d]	8-hour	10,000	State and National	**10,442**	8,890	8,890	8,890	8,890	8,614	8,534	8,534	8,453	7,613	7,533	7,452	7,452
Terminal Way /	1-hour	23,000	State Standard	19,780	17,193	17,193	17,078	17,193	12,478	12,823	12,478	12,363	11,270	11,270	11,155	11,155
Airport Boulevard[e]	8-hour	10,000	State and National	**12,294**	**10,742**	**10,742**	**10,661**	**10,742**	7,648	7,890	7,648	7,568	6,889	6,889	6,808	6,808

[a] Estimates include background concentrations, were made using CALINE4 and are based on p.m. peak hour traffic projections developed by DKS for this report.
[b] Corresponds to Receptor Location "A" shown in Figure 3.4.1.
[c] Corresponds to Receptor Location "C" shown in Figure 3.4.1.
[d] Corresponds to Receptor Location "G" shown in Figure 3.4.1.
[e] Corresponds to Receptor Location "J" shown in Figure 3.4.1.

Values that exceed State or national CO standards are shown in bold type and are shaded.

SOURCE: Environmental Science Associates, 1996.

TABLE 3.4.9
TOXIC AIR CONTAMINANT EMISSIONS ASSOCIATED WITH SJC

Emissions Summary (pounds per year):

		YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Acetaldehyde	3,512	3,815	3,674	3,445	3,082	3,168	2,728	2,518	2,588	2,259	1,890	1,578	2,303
Acrolein	557	388	384	375	345	311	270	258	210	233	199	173	136
Benzene	8,801	5,966	5,947	5,721	5,528	5,410	4,830	4,626	4,630	4,414	3,903	3,539	4,143
1,3 Butadiene	5,143	3,412	3,285	3,127	2,753	2,799	2,351	2,144	1,925	2,030	1,630	1,325	1,468
Chlorobenzene	14	33	28	24	16	29	23	18	16	26	18	12	17
Formaldehyde	8,435	10,100	9,602	8,944	7,732	8,533	7,195	6,475	6,218	6,486	5,192	4,182	5,375
PAH	12	28	24	21	14	25	20	15	14	22	15	10	14
Propylene	7,136	7,640	7,626	7,280	7,121	6,310	5,749	5,671	6,639	3,867	3,694	3,451	6,290
Toluene	23,757	18,955	19,031	18,537	17,895	15,100	13,605	13,447	13,627	9,790	9,134	8,443	11,139
Xylenes	36,204	41,467	41,485	40,200	39,756	46,130	40,127	36,927	34,079	46,592	38,958	34,953	31,863

Net Change Versus Existing as Percent of County[a]:

		YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Acetaldehyde	0.00%	0.05%	0.03%	-0.01%	-0.07%	-0.07%	-0.16%	-0.21%	-0.19%	-0.35%	-0.45%	-0.54%	-0.34%
Acrolein	0.00%	-0.73%	-0.74%	-0.78%	-0.91%	-1.32%	-1.54%	-1.60%	-1.86%	-2.32%	-2.56%	-2.74%	-3.01%
Benzene	0.00%	-0.54%	-0.54%	-0.59%	-0.62%	-0.81%	-0.95%	-1.00%	-0.99%	-1.39%	-1.56%	-1.67%	-1.48%
1,3 Butadiene	0.00%	-0.45%	-0.48%	-0.52%	-0.62%	-0.76%	-0.91%	-0.97%	-1.04%	-1.35%	-1.52%	-1.65%	-1.59%
Chlorobenzene	0.00%	0.95%	0.73%	0.51%	0.10%	0.75%	0.42%	0.16%	0.10%	0.56%	0.17%	-0.12%	0.11%
Formaldehyde	0.00%	0.21%	0.15%	0.07%	-0.09%	0.02%	-0.20%	-0.31%	-0.35%	-0.41%	-0.69%	-0.91%	-0.65%
PAH	0.00%	0.95%	0.73%	0.51%	0.10%	0.75%	0.42%	0.16%	0.10%	0.56%	0.17%	-0.12%	0.11%
Propylene	0.00%	0.04%	0.04%	0.01%	0.00%	-0.08%	-0.14%	-0.15%	-0.05%	-0.44%	-0.46%	-0.49%	-0.11%
Toluene	0.00%	-0.18%	-0.18%	-0.19%	-0.22%	-0.40%	-0.47%	-0.48%	-0.47%	-0.87%	-0.91%	-0.95%	-0.78%
Xylenes	0.00%	0.26%	0.26%	0.20%	0.18%	0.62%	0.24%	0.04%	-0.13%	0.86%	0.23%	-0.10%	-0.36%

Net Change Versus the No Project Alternative as Percent of County[a]:

		YEAR 2000				YEAR 2005				YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Acetaldehyde	NA	0.12%	0.10%	0.06%	0.00%	0.12%	0.03%	-0.01%	0.00%	-0.01%	-0.11%	-0.20%	0.00%
Acrolein	NA	0.19%	0.17%	0.13%	0.00%	0.54%	0.32%	0.25%	0.00%	0.69%	0.45%	0.27%	0.00%
Benzene	NA	0.08%	0.08%	0.04%	0.00%	0.19%	0.05%	0.00%	0.00%	0.09%	-0.08%	-0.19%	0.00%
1,3 Butadiene	NA	0.17%	0.14%	0.10%	0.00%	0.28%	0.14%	0.07%	0.00%	0.24%	0.07%	-0.06%	0.00%
Chlorobenzene	NA	0.85%	0.63%	0.41%	0.00%	0.65%	0.32%	0.06%	0.00%	0.45%	0.06%	-0.23%	0.00%
Formaldehyde	NA	0.30%	0.24%	0.15%	0.00%	0.37%	0.16%	0.04%	0.00%	0.24%	-0.04%	-0.25%	0.00%
PAH	NA	0.85%	0.63%	0.41%	0.00%	0.65%	0.32%	0.06%	0.00%	0.45%	0.06%	-0.23%	0.00%
Propylene	NA	0.04%	0.04%	0.01%	0.00%	-0.03%	-0.09%	-0.10%	0.00%	-0.32%	-0.35%	-0.38%	0.00%
Toluene	NA	0.04%	0.04%	0.02%	0.00%	0.07%	0.00%	-0.01%	0.00%	-0.08%	-0.12%	-0.17%	0.00%
Xylenes	NA	0.09%	0.09%	0.02%	0.00%	0.75%	0.38%	0.18%	0.00%	**1.22%**	0.59%	0.26%	0.00%

[a] "Percent of County" refers to mobile-source emissions of specific toxic air contaminants in Santa Clara County in the applicable year.
Note: Values that exceed applicable screening thresholds are shown in bold type and are shaded.
NA = Not Applicable.
SOURCE: Environmental Science Associates, 1996.

3.4.2.1 Air Quality Impacts of the Project Case

Criteria Air Pollutant Emissions Impact

Under the Project Case, SJC emissions would continue to be generated by the same types of sources that currently generate emissions, including mobile (aircraft, motor vehicles, ground support equipment), stationary (natural gas combustion and electricity use) and area sources (fuel storage and handling). Changes in emissions from these sources would result from changes in overall activity levels at SJC and from changes in technology. In addition, construction activities would occur at various times throughout the planning period from 1996 though 2010 and would represent a source category which is not a regular part of SJC emissions.

Table 3.4.6 compiles emissions from all sources associated with SJC for the Project Case in Analysis Years 2000, 2005, and 2010 and compares them with existing conditions, the Project Case Alternatives, and the No Project Alternative. Table 3.4.10 provides additional detail on the relative contributions of the various source categories (including construction) to the overall totals shown in Table 3.4.6. Section 3.4.1.2 of Appendix 3.4.A contains assumptions and methodology on preparation of the emissions inventories.

Construction activities at SJC would generate dust and other criteria pollutants, primarily through excavation and grading activities, construction equipment exhaust and haul truck trips, and related construction worker commute trips. Dust emissions would vary from day to day depending upon the level and type of activity, silt content of the soil, and the prevailing weather. Larger-diameter dust particles (i.e., greater than 30 microns) generally fall out of the atmosphere within several hundred feet of construction sites, but the smaller-diameter particles remain airborne until dispersed by moisture. Construction activities at SJC would occur at substantial distances (at least 1,000 feet) from residential populations, and thus construction dust would not be expected to cause local adverse impacts.

Construction equipment and construction-worker vehicle trips would generate criteria air pollutant emissions. ROG emissions would also be generated through use of paving materials. Exhaust emissions from construction equipment would vary depending on the type of equipment, duration of use, and the number of transport trips for people and materials. ROG emissions from paving materials would be proportional to the amount of material to be used. Most construction equipment is diesel-powered, and the pollutants of most concern with diesel equipment are NO_x and PM_{10}.

In addition to construction-related emissions, Airport development under the Project Case would accommodate a greater number of commercial aircraft operations and a lesser number of general aviation aircraft operations than that occurring under existing conditions and that assumed for the other alternatives. Differences in aircraft activity level would translate into different

TABLE 3.4.10
CRITERIA AIR POLLUTANT EMISSIONS, PROJECT CASE

Analysis Year	Emissions Source Category	Emissions by Pollutant (pounds per annual-average day) Carbon Monoxide	Reactive Organic Gases	Nitrogen Oxides	Sulfur Oxides	Particulate Matter
2000	Aircraft	5,126	833	3,301	244	ND
	Motor Vehicle	8,913	685	815	12	1,089
	Ground Support Equipment	4,549	100	345	3	9
	Fuel Trucks	7	2	10	0	3
	Fuel Storage and Handling	0	185	0	0	0
	Building Energy Use: Natural Gas	5	0	18	0	2
	Building Energy Use: Electricity	15	5	12	1	9
	Construction Activities	609	93	587	47	875
	Total:	19,224	1,903	5,088	307	1,987
	Total As a Percent of County:	2	1	3	2	1
	Total As a Percent of Region:	0.5	0.2	0.6	0.1	0.2
2005	Aircraft	5,589	976	4,639	338	ND
	Motor Vehicle	7,025	558	798	18	1,438
	Ground Support Equipment	5,212	101	346	1	4
	Fuel Trucks	10	2	13	1	3
	Fuel Storage and Handling	0	234	0	0	0
	Building Energy Use: Natural Gas	7	1	29	0	3
	Building Energy Use: Electricity	29	10	23	1	17
	Construction Activities	474	80	554	45	838
	Total:	18,346	1,962	6,402	404	2,303
	Total As a Percent of County:	2	1	3	3	1
	Total As a Percent of Region:	0.5	0.2	0.7	0.2	0.2
2010	Aircraft	6,062	1,022	5,349	384	ND
	Motor Vehicle	5,394	439	794	17	1,679
	Ground Support Equipment	473	47	208	0	0
	Fuel Trucks	11	3	14	1	4
	Fuel Storage and Handling	0	259	0	0	0
	Building Energy Use: Natural Gas	11	1	42	0	4
	Building Energy Use: Electricity	33	12	27	2	20
	Construction Activities	357	64	474	39	721
	Total:	12,341	1,847	6,908	443	2,428
	Total As a Percent of County:	2	1	4	3	1
	Total As a Percent of Region:	0.4	0.2	0.8	0.2	0.2

ND = Not Determined; PM10 emissions factors for most types of commercial aircraft are not included in published EPA and FAA aircraft emissions databases.

SOURCE: Environmental Science Associates, 1996.

emissions for the Project Case relative to existing conditions and the Project Case Alternatives A and B and the No Project Alternative.

As shown in Table 3.4.10, motor vehicle emissions are expected to decrease despite increases in overall passenger and employee trips because emissions (per vehicle mile traveled) for the typical on-road motor vehicle would continue to decline in the future as older vehicles are naturally replaced by newer vehicles designed to meet increasingly stringent state and federal emissions standards.

Under the Project Case, GSE emissions would decrease relative to existing conditions because the City would install compressed natural gas (CNG) fueling and battery recharge facilities as a feature of Aviation Support Project S-8 (Phase 2) and would design new or renovated terminal gates to provide ground power and pre-conditioned air as a feature of Passenger Terminal Projects T-5 (Phase 2) and T-9 (Phase 3).

Providing CNG and battery recharge facilities would accommodate the conversion of (or replacement of) gasoline/diesel-powered GSE with alternatively-fueled vehicles. GSE that run on CNG or electricity produce fewer emissions (particularly of CO) than gasoline or diesel powered GSE. Providing ground power and pre-conditioned air would reduce emissions associated with use of auxiliary power units (APUs) and certain GSE. In addition, the City would coordinate with the airlines (e.g., through provisions in lease agreements) to ensure that all types of GSE for which alternatively-fueled technology is available would operate on alternative fuels by 2010. These features have been included in the emissions inventories developed for the Project Case.

Table 3.4.6 shows the net change in emissions under the Project Case relative to existing and future No Project conditions. For purposes of this EIR, BAAQMD's criterion of 80 pounds per day (lb/day) of ROG, NO_x, or PM_{10} (BAAQMD, 1996) is used to determine whether changes in emissions due to a project would be significant. Table 3.4.6 indicates that the Project Case would result in significant increases in emissions of ROG, NO_x, and PM_{10} during Phase 1 and that this significant effect would increase in extent through year 2010. Unlike the regional pollutants (ROG, NO_x, and PM_{10}), emissions increases of CO and SO_x are not evaluated on the basis of emissions-based significance criteria, but rather are evaluated by comparing estimates of ambient concentrations with applicable ambient air quality standards (see discussion of Criteria Air Pollutant Concentrations Impact below).

As discussed in Chapter 2, the activity levels projected for all of the Project Case Alternatives and the No Project Alternative are based upon accepted airport design standards. These standards assume that airport facilities are designed to accommodate a specified level of demand with an acceptable level of service (i.e, aircraft delay factors). All of the analyses in this EIR, including the air quality analysis, are based upon these projected activity levels. However, in

recognition of the fact that the number of aircraft operations is primarily driven by demand and not simply by physical facilities at an airport, Table 3.4.11 presents an emissions scenario that reflects equal levels of aircraft activity for all Project Case Alternatives and the No Project Alternative. Comparing year 2010 estimates from Table 3.4.6 (worst-case analysis) with Table 3.4.11 shows that assumptions regarding the extent to which projected passenger and cargo demand would be accommodated at SJC have a substantial effect on conclusions regarding predicted impacts on regional emissions. Tables 3.4.6 and 3.4.11 can be viewed as bracketing the range of potential impacts relative to regional emissions, and while the information in Table 3.4.11 is provided for informational purposes, the conclusions of this analysis and the requirement for implementation of feasible mitigation measures are based on the worst-case assumption inherent in Table 3.4.6.

Criteria Air Pollutant Emissions Impact: Increases in air passenger and air cargo volumes at SJC would result in a net increase of more than 80 pounds per day each of ROG, NO_x, or PM_{10}. (SIGNIFICANT)

Criteria Air Pollutant Concentrations Impact

Pollutant concentrations would change in the SJC vicinity relative to existing conditions due to changes in activities levels of emissions sources (e.g., increased aircraft operations and increased ground access traffic), technology and fuels (e.g., aircraft fleet mix and cleaner-burning autos), and changes in roadway and runway configurations. The greatest effect of SJC activities on pollutant concentrations to which the members of the general public might be exposed would occur near the ends of runways and in the vicinity of intersections used by Airport-related traffic. Dispersion models are typically used to calculate concentrations due to local sources, and for this analysis, two different dispersion models, the FAA's Emission and Dispersion Modeling System (EDMS) and CALINE4, were used to evaluate the effect of SJC aircraft and related motor vehicle traffic, respectively, on local ground-level concentrations.

EDMS (FAA, 1993) was used to estimate concentrations near the ends of SJC runways due to aircraft queuing and takeoffs taking into account proposed changes in runway configurations at SJC, and CALINE4 (California Department of Transportation, 1986) was used to estimate concentrations in the vicinity of the principal intersections used by Airport-related traffic. EDMS provided concentration estimates for CO, NO_2, and SO_2; CALINE4 provided concentration estimates for CO. The results from EDMS and CALINE4 were added to maximum background concentrations and then compared to the applicable ambient concentration standards.

Meteorological assumptions are an important component to any dispersion modeling effort. With EDMS, five years of meteorological data from SJC were used to determine the combination of SJC activity levels and meteorological conditions that would generate worst-case

TABLE 3.4.11
CRITERIA POLLUTANT EMISSIONS ASSOCIATED WITH SJC ASSUMING EQUAL COMMERCIAL OPERATIONS

Emissions Summary (annual average pounds per day):[a]

		YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	21,725	12,341	13,630	15,593	23,518
Reactive Organic Gases	1,894	1,847	1,962	2,260	2,509
Nitrogen Oxides	3,987	6,609	6,423	6,411	6,765
Sulfur Oxides	257	443	441	475	493
Particulate Matter	989	2,428	2,046	1,727	1,709

Net Change Versus Existing:

		YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	0	-9,384	-8,095	-6,132	1,793
Reactive Organic Gases	0	-47	68	366	615
Nitrogen Oxides	0	2,622	2,436	2,424	2,778
Sulfur Oxides	0	186	184	218	236
Particulate Matter	0	1,439	1,057	738	720

Net Change Versus the No Project Alternative:

		YEAR 2010			
Pollutant	Existing	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	NA	-11,177	-9,888	-7,925	0
Reactive Organic Gases	NA	-662	-547	-249	0
Nitrogen Oxides	NA	-156	-342	-354	0
Sulfur Oxides	NA	-50	-52	-18	0
Particulate Matter	NA	719	337	18	0

a Emissions estimates assume that the same projected commercial aircraft demand at SJC would be accommodated under all alternatives. General aviation operations would differ by alternative relative to available facilities. Delay estimates provided by TRA (Renier, 1996) were adjusted by a factor of 0.64 to convert them to estimates of added taxi/idle time consistent with data included in FAA's 1994 Aviation Capacity Enhancement Plan. GSE conversion is assumed for the Project Case Alternatives (but not for the No Project Alternative).

NA = Not Applicable.

SOURCE: Environmental Science Associates, 1996.

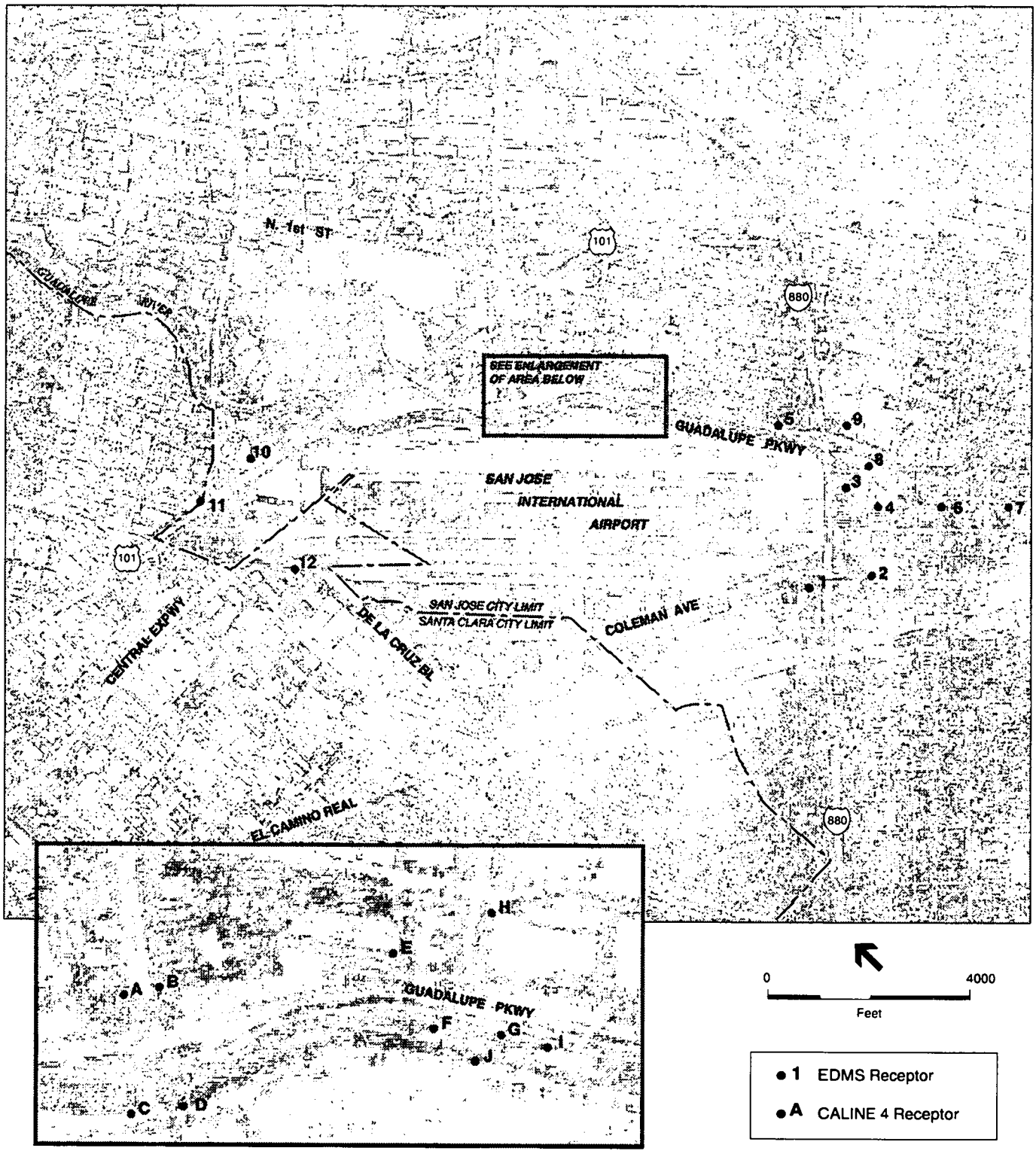
concentrations. The meteorological year with the highest concentrations became the meteorological constant for all of the concentration estimates made using EDMS. With CALINE4, worst-case default meteorology was used as input to the model. Additional details on dispersion modeling techniques and background concentrations are provided in Section 3.4.2 of Appendix 3.4.A.

The results of EDMS modeling are summarized in Table 3.4.7 for two locations in the immediate vicinity of the Airport. These locations correspond to receptors #1 (residential) and #4 (commercial/office) shown in Figure 3.4.1.

Commercial aircraft in take-off mode are substantial sources of NO_x in the vicinity of runways. Aircraft-generated NO_x emissions mostly include nitric oxide (NO) but also include NO_2. In addition, some of the NO converts to NO_2 depending upon several factors, including how much ozone is in the air (higher ozone levels allow for higher NO_2 levels). To account for the reactive nature of $NO/NO_x/NO_2$, the Ozone Limiting Method (Cole et al., 1979) was applied to convert EDMS-generated one-hour-average NO_x concentrations to NO_2. (For the purposes of this report, CO and SO_2 were assumed to be non-reactive.)

EDMS dispersion modeling conducted for this report also takes into account the redistribution of most of the commercial aircraft departures from Runway 12R/30L to 12L/30R under the Project Case, which would shift aircraft emissions away from the area on Chestnut Street, which contains some residential uses, and towards the commercial/office uses located south of I-880 in the vicinity of McKendrie Street. Table 3.4.7 indicates that NO_2 concentrations under the Project Case could exceed the State one-hour NO_2 standard in the commercial areas south and north of the Airport. A potential exceedance of an ambient air quality standard would be a significant effect of the project. This effect could occur by year 2000 and would increase in severity through year 2010.

The effect of aircraft operations on local NO_2 concentrations would decrease with increasing distance from the ends of the runways, but the dispersion modeling results suggest that this effect could reach a substantial distance from the ends of the runways. For example, based on the dispersion modeling results, maximum hourly NO_2 concentrations at receptors #4, #6, and #7 (see Figure 3.4.1) are estimated to reach 1,049 micrograms per cubic meter ($\mu g/m^3$), 633 $\mu g/m^3$, and 522 $\mu g/m^3$, respectively, under the Project Case in 2010. Receptors #4, #6, and #7 are approximately 1,450 feet, 2,900 feet, and 4,350 feet, respectively, from the end of (extended) Runway 30R. NO_2 concentrations under the Project Case also would slightly exceed the State one-hour standard in a small portion of the Chestnut Street area south of the Airport in 2010. The project-related contribution to this exceedance would result from the operation of jet aircraft engines.



SOURCE: Environmental Science Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.4.1
Receptor Locations
for Dispersion Modeling

The NO_2 estimates shown in Table 3.4.7 provide a reasonable basis for concluding that there would be the potential for an exceedence of the state NO_2 standard under the Project Case. However, it should be understood that the estimates are conservative in that individual uncertainties inherent in the analysis (such as background ozone and NO_2 concentrations) were each resolved in favor of producing a higher concentration estimate. To illustrate, background ozone concentrations vary continuously by hour of the day (typically highest in the afternoon) and by season (typically highest during summer and early fall) which means that the amount of NO_x generated by aircraft that converts to NO_2 also fluctuates continuously by hour of the day and by season. At high NO_x levels, an increasing proportion of NO_x converts to NO_2 as the background ozone concentration increases. Background NO_2 concentrations also vary by hour of the day and by season, and higher background NO_2 concentrations leads to higher total reported values.

BAAQMD monitors ozone and NO_2 at its North Fourth Street station on an hourly basis; however, it was not feasible to acquire and process hourly background ozone and NO_2 concentrations over the course of an entire year for use in developing the NO_2 estimates. Instead, hourly NO_x estimates produced by EDMS were converted to NO_2 based upon maximum hourly ozone concentrations (specific value by month but not by hour of the day) regardless of the hour of the day. The local NO_2 concentrations were then added to maximum background NO_2 concentrations (second highest hourly value in a given year) guaranteeing a conservative result. Also, EDMS modeling cannot take into account turbulence introduced by the presence of motor vehicle traffic on I-880 (to the south) or U.S. 101 (to the north) and the presence of blast fences. Greater turbulence could lead to increased dilution of NO_x emissions and lower concentrations as these emissions are transported downwind.

Table 3.4.7 also reports annual average NO_2 concentrations at the Chestnut Street area south of the Airport that exceed the national standard in 2010; however, these values were derived directly from EDMS-derived NO_x estimates and do not take into account the reactive nature of NO_2. It is not practical to apply the Ozone Limiting Method identified above to each hour of day for each alternative and each receptor. However, since the non-adjusted NO_x values would not be much higher than the applicable NO_2 standard, it is reasonable to conclude that annual average NO_2 concentrations are not currently exceeded in the SJC vicinity nor would they be exceeded in the future.

CALINE4 modeling of worst-case CO concentrations at local intersections of interest are shown in Table 3.4.8. CO modeling at the intersections most affected by SJC traffic indicate that CO exceedances would be expected to occur under existing worst-case conditions. While CO concentrations would decline in the future, CO exceedances are expected to continue to occur under worst-case meteorological conditions through 2000. At the three intersections where CO concentrations would exceed the 8-hour standard, the concentrations would be the same under

the Project Case Alternatives and the No Project Alternative in 2000. Therefore, the project would not be considered to contribute substantially to the projected exceedance of local CO standards. By 2005, no more exceedances would be expected at the intersections selected for analysis due to decreasing CO emissions per motor vehicle. The CALINE4 analysis for years 2005 and 2010 takes into account the changes in the local intersections due to the implementation of the SR 87 freeway project. CO impacts would be less than significant.

NO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in NO_2 concentrations in the Airport vicinity. Concentrations of one-hour average NO_2 could exceed the corresponding State standard south and north of SJC. (SIGNIFICANT)

CO Concentrations Impact: Changes in activity levels at SJC would result in changes in CO concentrations in the Airport vicinity and along roads serving SJC traffic. Concentrations of CO would continue to exceed the State and national eight-hour CO standard through year 2000 under worst-case conditions at the principal intersections that provide access to the Airport, but these concentrations would be less than existing conditions and would be the same as under the No Project Alternative. (LESS THAN SIGNIFICANT)

SO_2 Concentrations Impact: Changes in activity levels at SJC would result in changes in SO_2 concentrations in the Airport vicinity. Concentrations of SO_2 would not exceed the corresponding State or national standards. (LESS THAN SIGNIFICANT)

Toxic Air Contaminant Emissions Impact

Toxic air contaminant emissions associated with SJC have been estimated based on the emissions inventory for ROG emissions discussed above and a CARB volatile organic compound (VOC) speciation study (i.e., a reference that documents the individual organic compounds that comprise ROG emissions from various sources) (CARB, 1991). These estimates are shown in Table 3.4.9 for Analysis Years 2000, 2005 and 2010. Differences in toxic air contaminant emissions among the Project Case Alternatives derive from differences in expected activity levels of the various emissions sources at SJC (e.g. aircraft, ground access and GSE).

Toxic air contaminants are typically evaluated in a health risk assessment (HRA) prepared pursuant to applying for a permit from the local air district. Such permits are required for most stationary sources, but are not required for the vast majority of emissions sources associated with the Airport (which are mobile sources). The California Air Pollution Control Officers Association (CAPCOA) provides guidance on assessing health risks associated with toxic air contaminant emissions from stationary sources at individual facilities (CAPCOA, 1993). There is no approved, standardized protocol for assessing the risks associated with mobile source emissions of toxic air contaminants from individual facilities, like airports, unlike the protocol that exists for evaluating stationary sources. Therefore, an HRA was not conducted for this report, and risk levels have not been quantified.

As a substitute evaluative tool, this report uses a screening criterion of a net increase of one percent of County-wide, mobile-source emissions to identify potentially significant increases of specific toxic air contaminant compounds. Under this criterion, a net increase of more than one percent of County-wide, mobile-source emissions of a given toxic air contaminant compound would be considered significant unless modeling can show that related concentrations would be below acute or chronic health effects thresholds.

As shown in Table 3.4.9, the project would result in an increase of certain toxic air contaminant compounds but, with the exception of xylenes in Analysis Year 2010, the increase would be less than one percent of the County-wide mobile source emissions of toxic air contaminants. SJC-related xylene emissions can be evaluated using dispersion modeling techniques because, unlike most of the other toxic air contaminant compounds listed in Table 3.4.9, nearly all (approximately 90 percent) of xylene emissions in 2010 would derive from only one source category, namely, aircraft, which can be modeled using EDMS. Xylene concentrations can be estimated by combining EDMS results for concentrations of ROG with the VOC speciation data for jet aircraft exhaust.

EDMS modeling indicates that maximum concentrations of xylenes south of the Airport would be approximately 150 micrograms per cubic meter ($\mu g/m^3$), one-hour average, and 1.9 $\mu g/m^3$, annual average. These estimates relate to Receptor #10 shown on Figure 3.4.1 for year 2010. These predicted values would be below the health effects threshold for acute effects from exposure to xylenes (2,200 $\mu g/m^3$, one-hour average) (California Environmental Protection Agency, 1994) and the health effects threshold for chronic effects (300 $\mu g/m^3$, annual average) (CAPCOA, 1993). (Xylene is not considered a carcinogen.) Although background xylene concentrations are unknown, the substantial difference between predicted concentrations and related health thresholds leads to the conclusion that the expected increase in xylene emissions would not result in a significant effect.

Toxic Air Contaminant Emissions Impact: Additional ROG combustion products generated by aircraft, on-road motor vehicles, and ground support equipment would increase toxic air contaminant emissions associated with SJC operations. (LESS THAN SIGNIFICANT)

3.4.2.2 Air Quality Impacts of the Project Case Alternative A

Criteria Air Pollutant Emissions Impact

Like the Project Case, GSE emissions would decrease relative to existing conditions because of specific actions the City would take under the Master Plan Update. Under Project Case Alternative A, the City would install compressed natural gas (CNG) fueling and battery recharge facilities as a feature of Aviation Support Project S-8a (Phase 2) and would design new or

renovated terminal gates to provide ground power and pre-conditioned air as a feature of Passenger Terminal Projects T-5a (Phase 2) and T-9a (Phase 3). These features have been included in the emissions inventories developed for the Project Case Alternative A.

Table 3.4.6 contains emissions inventories for SJC under the Project Case Alternative A in Analysis Years 2000, 2005, and 2010 and shows the net change of these emissions versus Existing and No Project conditions. Table 3.4.12 provides additional detail on the emissions inventories by showing how much each of the various emissions categories contributes to the overall total. Based on the BAAQMD-recommended significance criteria of 80 lb/day of ROG, NO_x, or PM_{10}, the impact of emissions under the Project Case Alternative A would be significant for all three pollutants in all three analysis years.

Criteria Air Pollutant Concentrations Impact

Like the Project Case, increased NO_x emissions in the commercial area south of the Airport would result in a significant effect on short-term NO_2 concentrations during all three phases and increased NO_x emissions in the residential area south of the Airport would result in a significant effect on short-term NO_2 concentrations in 2010. However, predicted NO_2 concentrations north of SJC would be substantially less under Project Case Alternative A than under the Project Case and would not be expected to exceed the State one-hour standard until 2010. Traffic-related CO impacts would be less than significant.

Toxic Air Contaminant Emissions Impact

Table 3.4.9 indicates that increased activity at SJC under this alternative would result in increased emissions of certain toxic air contaminants but that the increases would be less than one percent of the County-wide mobile source emissions of toxic air contaminants. Like the Project Case, the effect of these increases would be less than significant.

3.4.2.3 Air Quality Impacts of the Project Case Alternative B

Criteria Air Pollutant Emissions Impact

Like the Project Case, GSE emissions would decrease relative to existing conditions because of specific actions the City would take under the Master Plan Update. Under Project Case Alternative B, the City would install compressed natural gas (CNG) fueling and battery recharge facilities as a feature of Aviation Support Project S-8b (Phase 2) and would design new or renovated terminal gates to provide ground power and pre-conditioned air as a feature of Passenger Terminal Projects T-5b (Phase 2). These features have been included in the emissions inventories developed for the Project Case Alternative B.

TABLE 3.4.12
CRITERIA AIR POLLUTANT EMISSIONS, PROJECT CASE ALTERNATIVE A

Analysis Year	Emissions Source Category	Emissions by Pollutant (pounds per annual-average day)				
		Carbon Monoxide	Reactive Organic Gases	Nitrogen Oxides	Sulfur Oxides	Particulate Matter
2000	Aircraft	5,603	842	3,302	244	ND
	Motor Vehicle	8,957	689	819	12	1,099
	Ground Support Equipment	4,549	100	345	3	9
	Fuel Trucks	7	2	10	0	3
	Fuel Storage and Handling	0	191	0	0	0
	Building Energy Use: Natural Gas	5	0	18	0	2
	Building Energy Use: Electricity	15	5	12	1	9
	Construction Activities	414	62	399	32	594
	Total:	19,550	1,891	4,905	292	1,716
	Total As a Percent of County:	2	1	3	2	1
	Total As a Percent of Region:	0.5	0.2	0.6	0.1	0.2
2005	Aircraft	5,641	860	3,798	277	ND
	Motor Vehicle	6,100	491	697	16	1,253
	Ground Support Equipment	4,217	82	280	1	3
	Fuel Trucks	8	2	11	0	3
	Fuel Storage and Handling	0	207	0	0	0
	Building Energy Use: Natural Gas	7	1	28	0	3
	Building Energy Use: Electricity	28	10	23	1	16
	Construction Activities	306	50	358	29	541
	Total:	16,307	1,703	5,195	324	1,819
	Total As a Percent of County:	2	1	3	2	1
	Total As a Percent of Region:	0.5	0.2	0.6	0.2	0.2
2010	Aircraft	6,007	866	4,122	295	ND
	Motor Vehicle	4,398	366	656	15	1,372
	Ground Support Equipment	358	35	157	0	0
	Fuel Trucks	8	2	11	0	3
	Fuel Storage and Handling	0	217	0	0	0
	Building Energy Use: Natural Gas	8	1	33	0	3
	Building Energy Use: Electricity	29	11	24	1	17
	Construction Activities	170	46	226	19	343
	Total:	10,978	1,544	5,229	330	1,738
	Total As a Percent of County:	2	1	3	2	1
	Total As a Percent of Region:	0.3	0.2	0.6	0.1	0.2

ND = Not Determined; PM10 emissions factors for most types of commercial aircraft are not included in published EPA and FAA aircraft emissions databases.

SOURCE: Environmental Science Associates, 1996.

Table 3.4.6 contains emissions inventories for SJC under the Project Case Alternative B in Analysis Years 2000, 2005, and 2010 and shows the net change of these emissions versus Existing and No Project conditions. Table 3.4.13 provides additional detail on the emissions inventories by showing how much each of the various emissions categories contributes to the overall total. Based on the BAAQMD-recommended significance criteria of 80 lb/day of ROG, NO_x, or PM_{10}, the impact of emissions under the Project Case Alternative B would be significant in all three analysis years for NO_x and PM_{10}, and in 2005 and 2010 for ROG.

Criteria Air Pollutant Concentrations Impact

Like the Project Case, increased NO_x emissions south of the Airport would result in a significant effect on short-term NO_2 concentrations. However, predicted NO_2 concentrations north of SJC would be substantially less under Project Case Alternative B than under the Project Case and would not be expected to exceed the State one-hour standard until 2005.

Toxic Air Contaminant Emissions Impact

Table 3.4.9 indicates that increased activity at SJC under this alternative would result in increased emissions of certain toxic air contaminants but that the increases would be less than one percent of the County-wide mobile source emissions of toxic air contaminants. Like the Project Case, the effect of these increases would be less than significant.

3.4.2.4 Air Quality Impacts of the No Project Alternative

Under the No Project Alternative, GSE emissions would not decrease relative to existing conditions because no specific action would be taken by the City to convert GSE to alternative fuels. Table 3.4.6 contains emissions inventories for SJC under the No Project Alternative in Analysis Years 2000, 2005, and 2010 and shows the net change of these emissions versus Existing conditions. Table 3.4.14 provides additional detail on the emissions inventories by showing how much each of the various emissions categories contribute to the overall total. Under the No Project Alternative, SJC-related NO_x and PM_{10} would increase significantly relative to existing conditions. The increase in NO_x would be primarily due to newer jet engine technology and increased jet operations at SJC. The increase in PM_{10} would be primarily due to increases in vehicle-miles-traveled (VMT) by passengers. For the possible impacts associated with the activity levels in excess of those assumed for the year 2010 under the No Project Alternative, see Table 3.4.11.

Exceedances of the state one-hour average NO_2 concentrations would be expected to continue to occur under the No Project Alternative in the residential area south of the Airport. North of the Airport, NO_2 concentrations would not be expected to exceed the State one-hour standard under the No Project Alternative.

TABLE 3.4.13
CRITERIA AIR POLLUTANT EMISSIONS, PROJECT CASE ALTERNATIVE B

Analysis Year	Emissions Source Category	Emissions by Pollutant (pounds per annual-average day) Carbon Monoxide	Reactive Organic Gases	Nitrogen Oxides	Sulfur Oxides	Particulate Matter
2000	Aircraft	5,545	816	3,251	241	ND
	Motor Vehicle	8,853	682	805	12	1,086
	Ground Support Equipment	4,501	99	342	3	9
	Fuel Trucks	7	2	10	0	3
	Fuel Storage and Handling	0	189	0	0	0
	Building Energy Use: Natural Gas	4	0	18	0	2
	Building Energy Use: Electricity	13	5	11	1	8
	Construction Activities	232	36	223	18	333
	Total:	19,155	1,829	4,660	275	1,441
	Total As a Percent of County:	2	1	3	2	1
	Total As a Percent of Region:	0.5	0.2	0.5	0.1	0.1
2005	Aircraft	6,075	797	3,544	261	ND
	Motor Vehicle	5,901	474	657	15	1,218
	Ground Support Equipment	4,006	78	266	1	3
	Fuel Trucks	8	2	10	0	3
	Fuel Storage and Handling	0	207	0	0	0
	Building Energy Use: Natural Gas	7	1	28	0	3
	Building Energy Use: Electricity	19	7	15	1	11
	Construction Activities	149	25	173	15	263
	Total:	16,165	1,591	4,693	293	1,501
	Total As a Percent of County:	2	1	3	2	1
	Total As a Percent of Region:	0.5	0.2	0.5	0.1	0.1
2010	Aircraft	6,146	788	3,657	267	ND
	Motor Vehicle	4,059	337	585	13	1,274
	Ground Support Equipment	327	32	143	0	0
	Fuel Trucks	8	2	10	0	2
	Fuel Storage and Handling	0	207	0	0	0
	Building Energy Use: Natural Gas	7	1	30	0	3
	Building Energy Use: Electricity	19	7	16	1	12
	Construction Activities	15	4	20	2	30
	Total:	10,581	1,378	4,461	283	1,321
	Total As a Percent of County:	1	1	2	2	< 0.5
	Total As a Percent of Region:	0.3	0.2	0.5	0.1	0.1

ND = Not Determined; PM10 emissions factors for most types of commercial aircraft are not included in published EPA and FAA aircraft emissions databases.

SOURCE: Environmental Science Associates, 1996.

TABLE 3.4.14
CRITERIA AIR POLLUTANT EMISSIONS, NO PROJECT ALTERNATIVE

Analysis Year	Emissions Source Category	Emissions by Pollutant (pounds per annual-average day)				
		Carbon Monoxide	Reactive Organic Gases	Nitrogen Oxides	Sulfur Oxides	Particulate Matter
2000	Aircraft	6,340	830	3,253	241	ND
	Motor Vehicle	8,656	631	759	11	1,086
	Ground Support Equipment	4,501	99	342	3	9
	Fuel Trucks	12	3	16	1	4
	Fuel Storage and Handling	0	197	0	0	0
	Building Energy Use: Natural Gas	5	0	18	0	2
	Building Energy Use: Electricity	14	5	11	1	8
	Construction Activities	0	0	0	0	0
	Total:	19,528	1,765	4,399	257	1,109
	Total As a Percent of County:	2	1	2	2	< 0.5
	Total As a Percent of Region:	0.5	0.2	0.5	0.1	0.1
2005	Aircraft	6,596	761	3,216	237	ND
	Motor Vehicle	5,304	402	612	14	1,114
	Ground Support Equipment	4,314	95	328	3	9
	Fuel Trucks	11	3	14	1	4
	Fuel Storage and Handling	0	202	0	0	0
	Building Energy Use: Natural Gas	5	0	18	0	2
	Building Energy Use: Electricity	14	5	11	1	8
	Construction Activities	0	0	0	0	0
	Total:	16,244	1,468	4,199	256	1,137
	Total As a Percent of County:	2	1	2	2	< 0.5
	Total As a Percent of Region:	0.5	0.2	0.5	0.1	0.1
2010	Aircraft	6,720	743	3,215	235	ND
	Motor Vehicle	3,614	276	537	12	1,148
	Ground Support Equipment	4,172	92	318	3	8
	Fuel Trucks	11	3	14	1	3
	Fuel Storage and Handling	0	200	0	0	0
	Building Energy Use: Natural Gas	5	0	18	0	2
	Building Energy Use: Electricity	14	5	11	1	8
	Construction Activities	0	0	0	0	0
	Total:	14,536	1,319	4,113	252	1,169
	Total As a Percent of County:	2	1	2	2	< 0.5
	Total As a Percent of Region:	0.5	0.2	0.5	0.1	0.1

ND = Not Determined; PM10 emissions factors for most types of commercial aircraft are not included in published EPA and FAA aircraft emissions databases.

SOURCE: Environmental Science Associates, 1996.

For most toxic air contaminant compounds, emissions in the future would be less than under existing conditions due to decreases in motor vehicle ROG emissions and introduction of Phase 2 Reformulated fuels.

3.4.3 MITIGATION MEASURES FOR SIGNIFICANT AIR QUALITY IMPACTS

3.4.3.1 Mitigation for Criteria Air Pollutant Emissions Impact

Construction activities would generate dust and other criteria pollutants, primarily through excavation and grading activities, construction equipment exhaust and haul truck trips, and related construction worker commute trips. A typical construction emissions abatement program contains the following components:

- Water all active construction areas at least twice daily.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard (i.e., the minimum required space between the top of the load and the top of the trailer).
- Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.
- Sweep daily (preferably with water sweepers) all paved access roads, parking areas and staging areas at construction sites.
- Sweep street daily (preferably with water sweepers) if visible soil material is carried onto adjacent public streets.
- Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas.
- Enclose, cover, water twice daily or apply (non-toxic) soil stabilizers to exposed stockpiles (dirt, sand, etc.).
- Limit traffic speeds on unpaved roads to 15 mph.
- Install sandbags or other erosion control measures to prevent silt runoff to public roadways.
- Replant vegetation in disturbed areas as quickly as possible.
- Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 miles per hour.
- Provide rideshare and transit incentives for construction personnel.
- Install wheel washers for all existing trucks, or wash off the tires or tracks of all trucks and equipment leaving the site.
- Install wind breaks, or plant trees/vegetative wind breaks, where feasible at windward side(s) of construction areas.

- Designate a person or persons to oversee the implementation of a comprehensive dust control program and to increase watering, as necessary.

- Maintain and operate construction equipment so as to minimize particulates from exhaust emissions. During construction, trucks and equipment should be running only when necessary. Equipment should be kept in good condition and well-tuned, to minimize exhaust emissions.

- Prohibit trucks and equipment to idle without purpose for long periods.

Mitigation Measure 1 for Criteria Air Pollutant Emissions Impact: A construction emissions abatement program patterned after the list presented in the EIR will be included in construction contracts under the Project Case Alternatives to reduce PM_{10} and ROG/NO_x emissions from construction. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

The on-road fleet of vans, shuttles, rental cars, and cargo trucks associated with SJC would contribute incrementally to significant increases in criteria air pollutant emissions. Conversion of these vehicles to electricity or alternative fuels (e.g., compressed natural gas) will reduce such emissions but not to a substantial extent since on-road motor vehicles (including cars, vans and shuttles) already are subject to stringent emissions controls.

Mitigation Measure 2 for Criteria Air Pollutant Emissions Impact: The City, in writing, will inform the operators of the van/shuttle, rental car, and air cargo truck fleets that regularly serve SJC that City policy encourages them to convert their on-road vehicles to alternative fuels (i.e., compressed natural gas [CNG] or electricity) to reduce pollutant emissions. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Section 3.3.3.2 identifies a Transportation System Management (TSM) program for SJC as mitigation to reduce freeway impacts. By reducing employee and passenger trips to and from the Airport, a TSM program would also reduce the associated vehicle emissions and, therefore, would act as air quality mitigation as well. The effectiveness of this measure in reducing vehicle trips cannot be assessed at this time as it would depend upon many factors, including the specific tasks undertaken by the City and the willingness of SJC tenants to cooperate with the program. However, a reasonable goal for this program could be to achieve an average vehicle ridership (AVR) of 1.35 for SJC-related employees. The specific definition of AVR is provided in (former) BAAQMD Regulation 13, Rule 1.

Mitigation Measure 3 for Criteria Air Pollutant Emissions Impact: The City will implement a TSM program as described in Section 3.3.3.2. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Stationary sources, such as those as boilers and aircraft maintenance facilities, are not a substantial source of emissions at SJC. Expansion of fuel storage and aircraft maintenance facilities under the Project Case Alternatives would result in an increase in emissions from such

sources. Generally, however, these types of stationary sources are covered by BAAQMD *Rules and Regulations* and any substantial modifications or increases in throughput would require a permit or permit modification from BAAQMD. If a new source or modification would increase emissions by more than 10 pounds per highest day, BAAQMD *Rules and Regulations* typically require the permit applicant to install Best Available Control Technology (BACT) and provide emissions offsets. The following measure represents a procedural step that would minimize emissions from stationary sources through compliance with BAAQMD requirements.

> ***Mitigation Measure 4 for Criteria Air Pollutant Emissions Impact: The City will comply with all BAAQMD Rules and Regulations with respect to new and modified stationary sources at SJC and will ensure that tenants secure the appropriate BAAQMD permits with respect to new or modified stationary sources that may accompany new or expanded fuel storage and aircraft/equipment maintenance facilities under the Master Plan. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)***
>
> ***Mitigation Measure 5 for Criteria Air Pollutant Emissions Impact: The City will advise tenant airlines in writing that the City supports the use of single or reduced engine taxiing to the extent that it would provide identifiable air quality benefits to the local community and the region, and if and to the extent that it is determined by the FAA and the airlines to be a safe and efficient operational procedure for air carrier aircraft at SJC. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)"***

Impact Significance Conclusion: Mitigation Measure 1 would effect substantial reductions in PM_{10}. However, the net change in emissions of regional emissions of ROG, NO_x, and PM_{10} would still exceed 80 lb/day and thus the impact would not be reduced to a level of insignificance. (IMPACT IS SIGNIFICANT AND UNAVOIDABLE)

Mitigation for Criteria Air Pollutant Concentrations Impact

EDMS dispersion modeling indicates that NO_2 concentrations in the vicinity of Runways 30L and 30R may violate the State one-hour average ambient NO_2 standard. No mitigation measures have been identified that would reduce the NO_2 concentrations. This is based on the fact that State and local entities are pre-empted from imposing emission standards on any aircraft or aircraft engines that are different from those established under federal law.

Impact Significance Conclusion: No reasonable or feasible mitigation measures are available to reduce the significance of this impact. (IMPACT IS SIGNIFICANT AND UNAVOIDABLE)

3.4.3.2 Mitigation Measures Considered but not Recommended for Inclusion in the Project

C.A.A.P. has requested that the City consider the installation of an on-Airport air quality monitoring system. This monitor would supplement the existing monitoring stations operated by BAAQMD. Presumably the intent of this request is that an on-Airport monitoring station would provide more accurate data than that provided by BAAQMD. Although a monitoring station may provide more

localized data on air quality in the Airport vicinity, it would not mitigate any of the significant air quality impacts identified above.

3.5 NOISE

Noise is an important environmental issue with regard to the operation of most airports, including SJC. Due to this importance, this section presents a comprehensive analysis of the existing noise environment at SJC and the projected noise impacts of the Project Case Alternatives and the No Project Alternative. Included in this discussion is an overview of how noise is measured, the criteria for determining significant increases in noise levels, and an overview of the comprehensive program already in place at SJC to reduce noise impacts. This section focuses on the anticipated impacts resulting from the three principal noise sources that are typically related to an airport development project such as those analyzed in this EIR: aircraft noise, surface transportation (traffic) noise, and construction noise during those periods when construction contemplated by the project is occurring. This analysis is based upon and reported in a technical noise analysis and report completed by Brown-Buntin Associates, Inc., which is included as part of this EIR and contained in Appendix 3.5.A.

3.5.1 SETTING AND EXISTING CONDITIONS

3.5.1.1 Noise and Its Effects on People

Noise Fundamentals

Noise is usually described as unwanted sound. Sound is variations in air pressure that the ear can detect. The scientific unit of sound measurement is the decibel (dB).

The range of sounds in normal human experience can be compressed into the range of 0 dB to 140 dB. As a practical matter, a change of 3 dB is noticeable to an average person, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as a doubling (or halving) of the sound level.

To compensate for the fact that the ear is not as sensitive at some frequencies and sound pressure levels as at others, a number of frequency weighting scales have been developed. The "A" weighting scale is most commonly used for environmental noise assessment because it closely approximates the frequency response of the human ear. When an A-weighting filter is used to measure sound pressure levels, the results may be expressed as *sound levels*, in decibels (dB or dBA). Table 3.5.1 shows typical sound levels and relative loudness for various types of noise environments.

This reflects an important feature of these descriptors that frequently causes confusion, and which is important to remember in considering the information presented in this section of the EIR. Noise is measured and described by the use of mathematical logarithms, not in a mathematically "linear" fashion. In other words, and as described more completely in this section and in the noise report (see Setting and Existing Conditions, Section A.1, Noise Fundamentals, of Appendix 3.5.A), a noise event of 100 dBA is ***not*** twice as "loud" as a noise event of 50 dBA. Rather, a noise event of 53 dBA would contain twice as much "noise energy"

TABLE 3.5.1
EXAMPLES OF A-WEIGHTED SOUND LEVELS AND RELATIVE LOUDNESS

Sound	Sound Level (dBA)	Relative Loudness (approximate)	Relative Sound Energy
Jet aircraft, 100 feet	130	128	10,000,000
Rock music with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobile at low speed	50	½	.1
Average office	40	1/4	.01
City residence	30	1/8	.001
1Quiet country residence	20	1/16	.0001
Rustle of leaves	10	1/32	.00001
Threshold of hearing	0	1/64	.000001

SOURCE: U.S. Department of Housing and Urban Development, "Aircraft Noise Impact -- Planning Guidelines for Local Agencies," 1972.

as a noise event of 50 dBA. Nor would two noise events of 50 dBA each, when added together, equal a single noise event of 100 dBA. Rather, 50 dBA plus 50 dBA equals 53 dBA in the logarithmic mathematics universally used in the calculation and description of noise.

However, as noted above, since the human ear does not perceive noise with the efficiency of a carefully designed acoustical measuring system, most people do not perceive an increase of 3 dBA as a doubling of noise. Rather, most people perceive an increase of approximately 10 dBA as a doubling of the noise, or, conversely, a reduction of 10 dBA as a halving of the noise.

Environmental Noise Descriptors

Most environmental noise sources produce varying amounts of noise over time, so the measured sound levels also vary. Various governmental agencies (see Section 3.5.1.2, below) have developed a variety of noise descriptors as a means of quantifying, describing, and regulating these sound levels. This discussion presents an overview of the descriptors that are typically used to assess noise from aircraft and surface traffic as well as construction related noise.

There are two basic approaches for quantifying, describing, and regulating noise levels that are generally used in the United States for transportation noise sources. These approaches are generally reported in terms of "noise descriptors" which, as described below and in Setting and Existing Conditions, Section A.2, of Appendix 3.5.A, are based upon established principles of physics and reported in numerical terms.

The first approach addresses the noise resulting from a single noise "event." This approach has the most direct relevence to aircraft noise events, which are generally perceived as discrete occurrences. It also is sometimes relevant in assessing construction noise impacts. These "single event" descriptors usually are not as directly relevant or meaningful for assessing surface transportation noise sources. Surface traffic noise, particularly on major arterials or freeways handling large volumes of traffic, is usually perceived as a more-or-less continuous background noise level that may vary in magnitude from hour to hour, depending upon the total volume of traffic during any such time period, but which is usually not perceived or described as clearly discrete noise events.

While a variety of "single event" descriptors have been developed, the two which have come to be accepted in the United States as the most relevant to analysis of the type performed in this EIR are the "maximum A-weighted sound level" (L_{max}) and Sound Exposure Level (SEL) descriptors. Both of these descriptors have been used in the analysis performed for this EIR and are discussed in this section. In addition, and as discussed in more detail below, the analysis performed for this EIR also provides information in terms of a third descriptor, which is referred to as a "time above" analysis (TA).

The second type of noise descriptor commonly used to describe aircraft and surface traffic noise is most frequently referred to as a "cumulative" noise descriptor. These descriptors describe in numerical terms the amount of noise occurring at a given location over a defined period of time. This period of time, depending upon the descriptor used, can be as short as one hour, but is more commonly calculated for an annualized 24-hour period. Cumulative noise descriptors can be used to describe cumulative noise levels from a specific source, such as a roadway or an airport, or they can be used to describe the cumulative noise level from all noise sources affecting the location at that the noise environment is being described. For purposes of this EIR, the principal focus has been on analyzing and describing noise levels (cumulative and single event) from

those specific noise sources associated with the Project Case Alternatives that are analyzed in this EIR. As discussed more completely below, the cumulative noise descriptor defined for use in the State of California, and which is used in this analysis, is the "Community Noise Equivalent Level" (CNEL) descriptor.

These descriptors are available tools that measure and describe various aspects or effects of noise that might be generated as a result of implementation of the Project Case Alternatives. Each of these descriptors provides particularly useful information for some purposes of the analysis, but may not provide as much information as other descriptors in assessing other potential effects of noise. For this reason, the analysis performed for this EIR uses a range of these "tools" (i.e., descriptors) as they are best suited to describe the results of particular aspects of the environmental analysis.

The specific descriptors used in this EIR, and their role in contributing to the analysis, are described in the following discussion.

Single Event Descriptors Used in this EIR

Maximum A-Weighted Noise Level (L_{max}). The maximum noise level measured in A-weighted decibels (dBA) is one of the most basic and useful of the single event noise descriptors for purposes of performing an environmental noise analysis. This descriptor describes the *maximum* noise level reached during a single noise event. This descriptor, however, does not provide any information regarding the *duration* of the noise event, nor does it attempt to describe or incorporate noise levels of the specific noise event at any level below the *maximum* level. In other words, if a specific noise event is described as reaching 65 dBA, the reader would know that the maximum level reached during the event was 65 dBA. The reader would not know from this description, and the descriptor does not account for: (1) how long the noise event remained at 65 dBA; (2) how long the noise event lasted at any noise level below 65 dBA; or (3) how many such events would occur at a given location during any period of time.

However, this descriptor, when used with other information presented in this EIR, is particularly useful in assessing the potential for noise caused interference with speech communications, the potential for sleep disturbance, or other similar potential effects of an given noise source. This descriptor also is useful, for example, for comparing the relative noisiness of two (or more) different aircraft types.

This descriptor is one of the two essential components of the "time above" (TA) descriptor described below.

Sound Exposure Level (SEL). This descriptor is measured in terms of A-weighted decibels, but also provides a correction that takes into account the duration of a single noise event. In

practical terms, this descriptor is calculated by reference to all of the noise "energy" caused by a single noise event, however long the noise event is generating noise levels at the measuring location within that range. This noise energy is then compressed into a reference duration of one second.

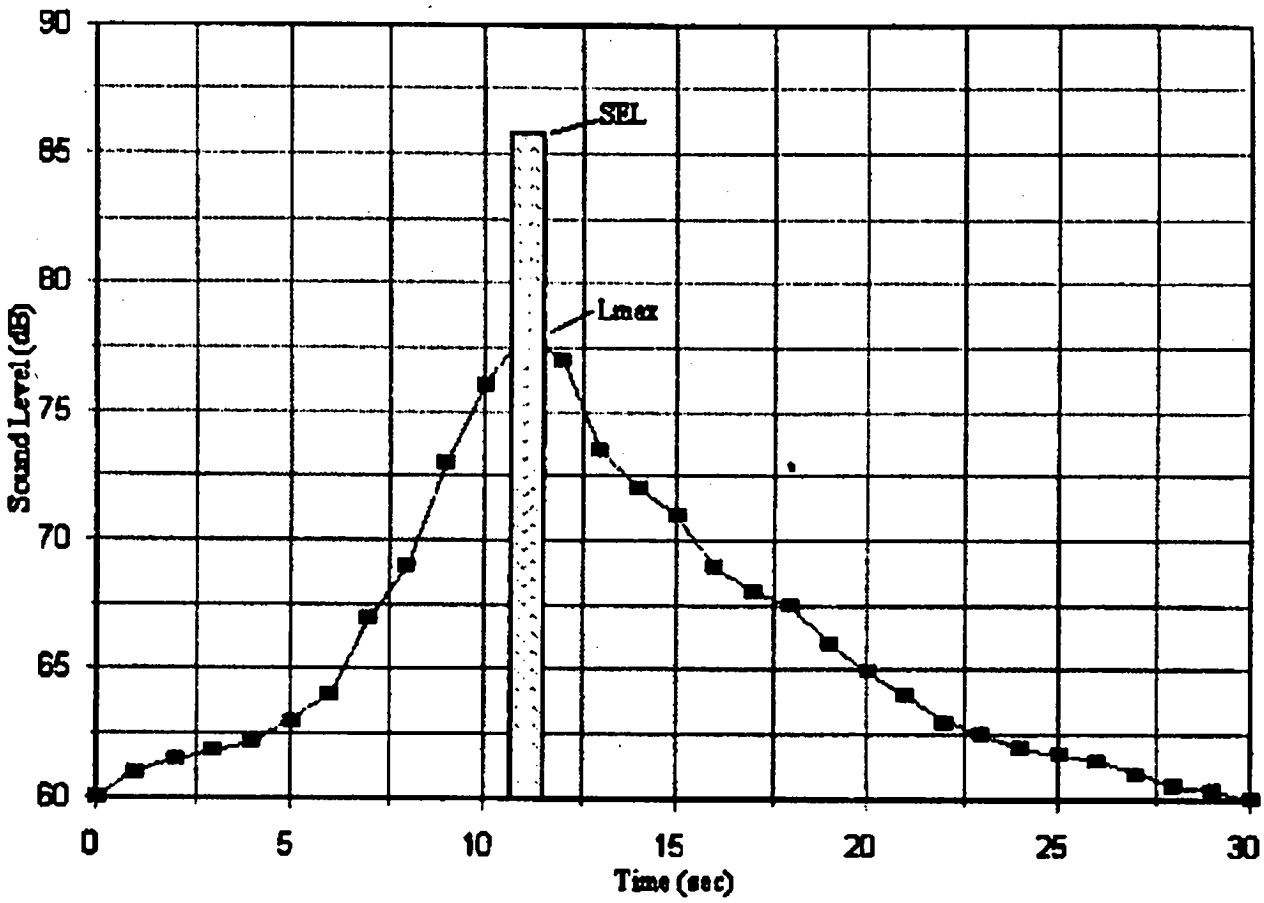
The inclusion of a "duration correction" in the SEL descriptor further facilitates the comparison of noise levels generated by different aircraft types or models. Because of the "duration correction," the SEL noise level for a typical aircraft noise event is usually between 5 - 10 dB higher than the "maximum noise level" for the same aircraft noise event.

SEL is an essential acoustical "building block" used to calculate the cumulative noise descriptor used in this analysis, CNEL. The relationship between the SEL and the L_{max} for a typical aircraft noise event is shown in Figure 3.5.1.

Time Above (TA) Analysis. This "descriptor" is not as widely used in the acoustical field as the other descriptors used in this EIR. However, it can be a useful tool that provides some additional information not otherwise readily discernable by use of the other descriptors used in this EIR. Specifically, a TA analysis can facilitate the assessment of the potential for speech interference caused by various noise sources, particulary aircraft noise. In that context, it has been recognized by federal authorities as a tool that may, at least under certain circumstances, be useful in the environmental assessment of an airport project.

This descriptor is used to calculate how many minutes per day a given location is exposed to noise above a defined level. For this EIR, the TA analyses use 75 dBA and 85 dBA as the reference noise levels. Noise studies performed at various locations over a period of years have led to a "rule-of-thumb" generally accepted by acoustical professionals that typical California residential construction provides approximately 25 dB of noise reduction with the windows and doors closed and that the typical noise reduction with windows partially open is approximately 15 dB.

Generally, an intruding noise event would be expected to begin to interfere with normal conversation when it reaches a level of 60 dBA. The "TA 85" values contained in the discussion and tables later in this section represent the number of minutes per day that aircraft noise levels would be expected to exceed approximately 60 dBA inside a typical California house with windows and doors closed, and the TA 75 values represent the number of minutes per day that interior noise levels would be expected to exceed 60 dBA with windows partially open. Therefore, the TA 75 and TA 85 values represent the outdoor noise levels at which speech interference might begin to occur indoors under typical windows and doors partially open, and windows and doors closed conditions, respectively.



SOURCE: Environmental Science Associates

San Jose International Airport Master Plan Update / 940404

Figure 3.5.1
Typical Aircraft Noise Event

Cumulative Noise Descriptors Used in this EIR

Community Noise Equivalent Level (CNEL). The cumulative noise descriptor used in the analysis performed for this EIR is CNEL. In the case of aircraft noise, this descriptor is typically used to describe cumulative noise exposure for an annual average day of aircraft operations, including penalties of about 4.8 dB for operations occurring during the evening hours (7:00 p.m. - 10:00 p.m.) and 10 dB for operations occurring during the nighttime hours (10:00 p.m. - 7:00 a.m.). As a practical matter, this means that aircraft events occurring during the evening hours are treated as three noise events for purposes of calculating CNEL values. Each aircraft noise event occurring during the nighttime hours is treated as if ten aircraft noise events had occurred. This calculation "weighting" or "penalty" for the evening and nighttime hours is included in CNEL to account for the assumption that noise events occurring during those are hours are more "intrusive" or "annoying" to the average person than events occurring during the daytime hours.

The CNEL descriptor is used by the State of California, the City of San Jose and the City of Santa Clara to evaluate land use compatibility around airports.[1] It also is used by those agencies for purposes of assessing and adressing surface traffic noise impacts. Under some circumstances, CNEL may be appropriate for evaluating construction noise impacts as well, although the short-term, temporary, and often transitory nature of typical construction activities for projects of the type evaluated in this EIR make it significantly less valuable for this purpose.

The CNEL is similar to the Day-Night Average Level (L_{dn}) descriptor used by the FAA for the evaluation of airport improvement projects and in the Part 150 noise compatibility planning process in states other than California. The Federal Aviation Regulations (FAR) recognize the CNEL descriptor in California to maintain consistency with state airport noise assessment criteria. The CNEL and L_{dn} are generally equivalent descriptors of the airport noise environment within plus or minus 1.5 dB. The only difference between the two descriptors is that CNEL includes the evening (7:00 p.m. - 10:00 p.m.) weighting penalty, while L_{dn} does not. Therefore, CNEL is the more "conservative" descriptor. The State of California defines 65 CNEL as the noise level "acceptable to a reasonable person residing in the vicinity of an airport." Therefore, noise-sensitive land uses (such as residences and schools) in this area are deemed to be not compatible with airport activity unless certain conditions are met (see discussion in Section 3.5.1.2, below).

One of the most controversial aspects of quantifying aircraft noise exposure in terms of the CNEL is that most people feel that they react to individual aircraft noise events rather than to the annual average CNEL. For this reason, it is important to understand the relationship between single events and the CNEL. The CNEL is calculated by mathematically combining the number

[1] The CNEL descriptor is defined in regulations implemented by the California Department of Transportation (Caltrans), which appear at Title 21 of the California Code of Regulations, Section 5001 and following. The related federal noise descriptor, Ldn, is described in Part 36 of the Federal Aviation Regulations, 14 Code of Federal Regulations, Section 36.1 and following.

of single events that occur during a 24-hour day with how loud the events were and what time of day they occurred. The weighting factors described above for the CNEL have been shown to correlate well with increased sensitivity to noise at night due to the potential for sleep disturbance and typically quieter background (or ambient) noise levels. Because of the inter-relationship between the weighted number of daily noise events and the SELs generated by the events, it is possible to have the same CNEL value for an area exposed to a few loud events as for an area exposed to many quieter events. It is for this reason that supplementing CNEL analysis with analysis performed using some single event descriptors is considered helpful.

It is equally important to recognize the principal purpose for which CNEL is valuable in assessing community noise impacts. For more than 30 years, professional studies have been performed around various airports throughout the world to assess community reaction and community annoyance with an airport noise enviornment. Those studies have consistently shown that there is very little statistical correlation between community annoyance and single event types of descriptors. In fact, in many studies, the only statistically significant correlation between noise levels and community attitudes towards the noise enviornment occur when using a cumulative noise descriptor such as CNEL. Therefore, CNEL has special value for two purposes: (1) it is the best (and arguably only available) scientific means to assess community reaction to long-term noise exposure in a residential environment; and (2) it is, for that reason, a particularly valuable tool for land use compatibility planning.

Noise Assessment Methodology

The FAA's *Airport Improvement Program (AIP) Handbook (FAA Order 5100.38A)* describes two methods for evaluating the significance of noise impacts resulting from proposed airport improvements projects. The first test pertains to the relative increase in area inside the 65 CNEL or L_{dn} contour. If the increase in land area inside the 65 CNEL or L_{dn} contour does not exceed 17 percent (measured from the no project condition), the impact is considered insignificant and no further analysis is required. A 17 percent increase in land area is considered by the FAA to be approximately equivalent to a 1 dB increase in cumulative noise exposure, as defined by the CNEL or L_{dn} descriptors.

The second test is applied in situations where the increase in land area inside the 65 CNEL or L_{dn} contour will be 17 percent or greater as the result of an airport improvement project. Under these circumstances the FAA requires that a point-specific analysis be performed for areas where noise-sensitive land uses are located. If this analysis shows that cumulative noise exposure as defined by CNEL or L_{dn} does not increase by 1.5 dB or greater, the aircraft noise impacts of the project are considered insignificant.

In 1990, the Federal Interagency Committee on Noise (FICON) was organized to review federal policies that govern the assessment of airport noise impacts. This committee included

representatives from all of the federal agencies that have a significant interest in noise issues, including the FAA, the Environmental Protection Agency (EPA), the Department of Housing and Urban Development, and other federal agencies. The FICON focused on the following issues:

- The manner in which noise impacts are determined, including whether aircraft noise impacts are fundamentally different from other transportation noise impacts.
- The manner in which noise impacts are described.
- The extent of impacts outside of the 65 L_{dn} contour that should be reviewed in a National Environmental Policy Act (NEPA) document.
- The range of FAA-controlled mitigation options (noise abatement and flight track procedures) to be analyzed.
- The relationship of the FAR Part 150 process to the NEPA process, including ramifications to the NEPA process if they are separate, and exploration of the means by which the two processes can be handled to maximize benefits.

The FICON published a report of its findings and recommendations in August 1992. With reference to the assessment of noise impacts related to airport improvement projects, the FICON concluded that the L_{dn} (or CNEL in California) is still the best metric for describing cumulative exposure to aircraft noise, but that in some cases supplementary analysis of noise impacts using other metrics may be appropriate. With regard to cumulative noise exposure outside the 65 L_{dn} or CNEL contour, the FICON report recommended that for noise-sensitive areas exposed to aircraft noise levels of 60-65 L_{dn} or CNEL, further analysis may be provided to determine if noise exposure increases by 3 dB or more as a result of an airport improvement project. From this it may be inferred that a 3 dB increase in L_{dn} or CNEL values in noise-sensitive areas may be considered a significant noise impact.

Supplementary Analysis of Potential Noise Impacts

The FICON report suggested that there may be circumstances where supplementary noise analyses are appropriate to look beyond cumulative noise exposure as defined by the L_{dn} or CNEL. The areas of supplementary analysis suggested by the FICON report include consideration of single events and the time above (TA) a certain noise level.

Single-event noise exposure may be quantified in terms of the SEL or maximum A-weighted sound level (L_{max}). As described above, the SEL compresses the acoustical energy of a noise event into a reference time period of one second, whereas the L_{max} is the actual maximum noise level observed during a single noise event. Typically, for aircraft overflights, the SEL is approximately 5-10 dB higher than the L_{max} for the same event. However, there are no FAA-

approved or adopted criteria or thresholds for evaluating the significance of changes in aircraft single events that may result from an airport improvement project.

Outside the laboratory, a single-event increase in sound level of at least 3 dB is generally required before most people perceive that a change has occurred. An increase of 5 dB is required before a change is clearly noticeable. A common practice is to assume that a minimally perceptible change of 3 dB represents a significant change in single event noise exposure as defined by the SEL or L_{max}.

Single-event noise exposure also may be described in terms of the number of overflights by potentially noise-significant aircraft during a stated time period. Changes in the number of overflights resulting from a proposed action may be determined by comparing the proposed or projected number of overflights to conditions without the project. Although this information may be useful in considering the perceived impact of a proposed action, there are no established federal, state or local criteria that may be directly applied to determining the significance of such changes. However, the operational projections and assumptions that underly the analysis in this EIR are described in detail elsewhere in this document, including the noise report (Setting and Existing Conditions, Section A, of Appendix 3.5.A). As stated above with reference to the noise levels produced by aircraft single events, the L_{dn} and CNEL descriptors not only account for the cumulative effects of the magnitude and frequency of aircraft single events occurring during a 24-hour period, they are an essential element of the CNEL calculation.

As described above, the TA metric may be used to describe the cumulative number of minutes per day that the noise level exceeds a prescribed threshold for purposes of providing additional information regarding potential speech interference effects of aircraft or other noise. Although the TA provides a useful "single number" indicator of the potential for speech interference, a major limitation is that the TA does not provide information concerning the number of individual events or their timing relative to activities subject to speech interference. TA analysis also does not account for existing sources of noise within an occupied home, which frequently generate levels of 60 dBA or greater that can cause their own speech interference (e.g., televisions, radios, food processing equipment, and vacuum cleaners). Therefore, for purposes of the analysis performed for this EIR, the TA metric is most useful for providing *comparative* information regarding the project alternatives and the "no project" condition.

There are no established federal, State or local significance criteria for the type of TA analysis performed for this EIR, and there do not appear to be any significant studies in the professional literature that would support a definitive conclusion regarding specific significance criteria for a speech interference TA analysis. As discussed below, however, the analysis performed for this EIR shows a substantial correlation between relative increases (or decreases) in CNEL and relative

increases (or decreases) in TA values at specific locations around the Airport. For that reason, CNEL will be used as a significance surrogate for the TA analysis in the context of this EIR.

Acoustical terms are more fully defined in Setting and Existing Conditions, Sections A and B, of Appendix 3.5.A.

Noise Effects

The effects of noise on people can be categorized in terms of social, economic and health effects. Setting and Existing Conditions, Section A, of Appendix 3.5.A describes pertinent findings of a number of studies concerning the effects of noise on people.

3.5.1.2 Noise Regulations, Plans, and Policies

Overview

The following section presents an overview of noise regulations, plans and policies that pertain to the regulation of noise from aircraft and other sources in the area surrounding SJC. Generally, the regulation of noise at the aircraft source is solely the responsibility of the federal government. Regulations pertaining to the compatibility of various types of land uses with aircraft or other noise sources are the responsibility of local jurisdictions, based upon guidelines that have been developed by the federal and state governments. A more detailed discussion of these regulations is presented in Setting and Existing Conditions, Section A, of Appendix 3.5.A.

Federal Regulation of Aircraft Noise

FAR Part 36. Federal Aviation Regulation (FAR) Part 36 establishes noise limits for the certification of new aircraft by the federal government for use in the United States. FAR Part 36 standards are comprised of three "stages" which generally pertain to the engine technology used on transport category and turbojet powered aircraft The oldest models of commercial jet aircraft (e.g., the DC-8 and the Boeing 707), as originally manufactured, were characterized in FAR Part 36 as "Stage 1 aircraft," which are the noisiest of the aircraft classes defined in FAR Part 36. It is presently illegal to operate a Stage 1 commercial aircraft in the domestic United States.

The second class of aircraft defined in FAR Part 36 are characterized as "Stage 2 aircraft." The most common commercial aircraft manufactured domestically that was manufactured as a Stage 2 aircraft is the Boeing 727-100 and 727-200 series airplanes. Smaller Stage 2 commercial aircraft still in use in the domestic fleet include the McDonnell Douglas DC-9 (pre-MD-80) aircraft and the Boeing 737-200 aircraft. All other factors being equal, Stage 2 aircraft are quieter than Stage 1 aircraft, but noisier than Stage 3 aircraft.

The third and quietest class of commercial aircraft defined in FAR Part 36 are referred to as "Stage 3 aircraft." The most common aircraft in the domestic commercial fleet that was first manufactured as a certified Stage 3 aircraft was the McDonnell Douglas MD-80 series airplane. The Boeing 737-300 (and later) series, all of the Boeing 757 aircraft, all of the Boeing 767 aircraft, and virtually all of the Airbus 300 series airplanes (i.e., A-300, A-310, A-320, etc.) are Stage 3 aircraft.

In addition to aircraft originally manufactured as Stage 3 aircraft, various "hush-kits" and "re-engining" programs are available (and are being used by some operators) to retrofit Stage 2 airplanes to Stage 3 standards. These kits and other programs are certified by FAA to meet Stage 3 standards.

FAR Part 150. FAR Part 150 establishes a single system for measurement and prediction of aircraft noise and a standardized airport noise compatibility planning program. The primary goals of the Part 150 noise compatibility planning process are the reduction of existing noncompatible land uses around airports and the prevention of additional noncompatible uses through the cooperative efforts of all involved with the planning process. The Part 150 program is voluntary. Typical noise mitigation programs under Part 150 include school and residential sound insulation programs, the purchase and operation of airport noise monitoring systems, acquisition of noncompatible land uses in high noise impact areas, and transaction assistance for relocation of persons desiring to move away from an airport.

An FAR Part 150 study was prepared for SJC in 1985-86. See Section 3.5.1.3, below, for a discussion of how various provisions of this study have been implemented.

Airport Noise and Capacity Act of 1990. The Airport Noise and Capacity Act (ANCA) of 1990 requires phase-out of the relatively noisy Stage 2 aircraft by December 31, 1999. As of February 1996, major U.S. air carriers had achieved a 70 percent Stage 3 fleet.

Since one of the primary objectives of ANCA was to limit the development of new local noise abatement procedures by establishing the above-described phase-out program for Stage 2 aircraft, the early phase-out (i.e., prior to 2000) of Stage 2 aircraft would require either a voluntary agreement with the affected airlines or a detailed economic study under FAR Part 161.[2]

State Regulation of Airport Noise

California Airport Noise Regulation. The California Airport Noise Regulation (California Code of Regulations Title 21, Division 2.5, Chapter 6) identifies the 65 CNEL contour for aircraft operations at an airport as the Noise Impact Boundary. Within the Noise Impact

[2] A Part 161 study was completed at SJC in 1995. See Sections 3.5.1.3 and 3.5.3.2 for details.

Boundary, the airport proprietor is required to ensure that all land uses are compatible with the aircraft noise environment or the airport proprietor must secure a variance from the California Department of Transportation (Caltrans). Under the California Airport Noise Regulation, residences within the Noise Impact Boundary are deemed to be noncompatible, unless certain conditions are met. These conditions include the following: 1) the airport operator has obtained an avigation easement for aircraft noise; or 2) the residence was in existence prior to January 1, 1989 and has adequate insulation to ensure an interior CNEL of 45 dB or less; or 3) the residence is owned by the airport proprietor; or 4) the residence is a high-rise apartment or condominium having an interior CNEL of 45 dB or less; or 5) the airport proprietor has made a genuine effort to acoustically treat affected residences or acquire avigation easements, or both, but the property owner has refused to take part in the program.

Since there were still land uses inside SJC's 65 CNEL Noise Impact Boundary that did not meet the conditions of compatibility described above, the City of San Jose applied for a variance. Caltrans issued a variance to the City in July 1993. The State is in the process of issuing a new three-year variance. The factors considered by Caltrans in granting the variance and the specific conditions of the variance are summarized in Setting and Existing Conditions, Section A, of Appendix 3.5.A.

Local Regulation of Airport Noise

SJC Noise Control Program. The SJC Noise Control Program (NCP) was approved by the San Jose City Council in 1984. The NCP consists of a program of noise abatement procedures and noise remedies whose goal is to reduce the noise impacts of the Airport on the community. The NCP includes Airport "time-of-day" restrictions (commonly referred to as a "curfew"), restrictions on engine run-ups, restrictions on training operations, and FAA-approved noise abatement arrival and departure procedures. Further details regarding the NCP and its implementation are found in Section 3.5.1.3, below.

Santa Clara County Airport Land Use Commission. In September 1992, the Santa Clara County Airport Land Use Commission (ALUC) adopted the *Land Use Plan for Areas Surrounding Santa Clara County Airports.* According to the Plan, the ALUC is charged with providing guidance to local jurisdictions to ensure that planned or proposed land uses established in the vicinity of SJC are compatible with the aircraft noise environment.

The ALUC land use compatibility standards for SJC include maximum interior noise levels for intermittent noise (aircraft single events) that are to be applied to new construction near the Airport. Those levels were used to determine the noise reduction requirements for new buildings during takeoff and landing operations.

The ALUC has also adopted a land use compatibility chart for projects in the vicinity of SJC that is consistent with the California Airport Noise Regulation. The land use compatibility chart provides a general overview of the types of land uses which are permissible in different aircraft noise environments. To determine the SJC noise environment at a project location, the ALUC has prepared a "Referral Boundary" map, which is based upon the 65 CNEL contour prepared in September 1981.

3.5.1.3 History of Noise Control at SJC

Overview

The City of San Jose has recognized public concerns with noise produced by aircraft operations at SJC since the early 1970s, evidenced in part by the installation in 1974 of one of California's first aircraft noise and operations monitoring systems. In the more than twenty years of responding to aircraft noise concerns, the City has adopted noise abatement and mitigation procedures for use at SJC, and has conducted a variety of noise compatibility studies. In addition, administrative mechanisms have been placed into service to provide input on noise issues by local officials, citizens, aircraft operators, Airport users, and other jurisdictions. Some of the noise abatement and mitigation measures have been implemented in response to the requirements of the California Airport Noise Regulation, while others have grown out of the citizen and users input processes.

Airport noise issues are routinely reviewed and monitored by the Airport Department of the City of San Jose, the San Jose Airport Commission, the Airport Noise Advisory Committee, and the Santa Clara County ALUC (land use compatibility issues). The County of Santa Clara and the California Division of Aeronautics also review noise levels on a quarterly basis in accordance with the California Airport Noise Regulation.

Existing noise control programs and procedures at SJC consist of the following:

Use of Quieter Aircraft. In addition to the federally mandated phaseout of Stage 1 and Stage 2 aircraft (see previous discussion), the City has been working with the airlines and air cargo carriers that serve SJC for the purpose of achieving a voluntary 100 percent Stage 3 fleet at SJC as soon as reasonably practicable. As a result, SJC has one of the highest percentage Stage 3 fleets of any international airport in the United States. The percentage of Stage 3 commercial turbojet operations at SJC is in excess of 90 percent, with 100 percent voluntary Stage 3 fleets used at SJC by the following airlines and air cargo carriers: Alaska, American, Continental, Federal Express, Mexicana, Northwest, Reno, Southwest, TWA, UPS, and Western Pacific (City of San Jose, 1996).

Time of Day Restrictions (Airport Curfew). The SJC NCP, which was adopted in 1984, includes restrictions that regulate the time of day when certain aircraft types may schedule operations at the Airport in order to limit the number and type of events occuring during the CNEL "nightime" period. This restriction is commonly referred to as a "curfew," and it has been effective in reducing aircraft-related noise in the community, particularly because of the "nightime penalty" calculations inherent in the CNEL metric. The curfew contains an exemption that allows a scheduled airline flight to land at or depart from SJC during curfew hours if one or more of the following conditions that are beyond the control of the air carrier occur: 1) delays due to adverse weather conditions; 2) delays due to aircraft mechanical problems; and 3) delays due to FAA air traffic control factors. In addition, California state law specifically exempts emergency medical flights from any local curfew restrictions.

The Airport Department informs all tenant airlines and based aircraft operators of the time of day restrictions in the NCP. Airport operations staff meet with all new airline entrants at the Airport to inform them verbally of the restricted hours of operation under the NCP and to give copies of the restrictions to the operators. Airport operations staff also are available 24 hours a day to advise whether the operation would comply with the NCP, in the event that an aircraft operator seeks to operate or to schedule an operation during curfew hours.

All fixed base operators (FBOs) are fully advised of the restrictions and also advised to refer any new entrants or questions to Airport staff, so that as much information as possible is disseminated to FBOs based aircraft operators concerning the time of day restrictions in the NCP.

If a scheduled operation is delayed, the aircraft operators are informed to contact the Airport operations Manager on Duty to ascertain if an operation during nighttime hours would comply with restrictions in the curfew, and operations are approved or approval denied accordingly. Appropriate recordkeeping is conducted of operations during curfew hours and all operations during the restricted hours are investigated by Airport staff for compliance with the parameters of the NCP, whether or not a complaint is lodged. Follow-on discussions are conducted and letters are sent to operators conducting operations that do not conform to the NCP. In instances where there is evidence indicating intentional or deliberate scheduling of restricted aircraft operations during nighttime hours, the City Attorney's Office is prepared to file litigation.

Historically, there has been a very high compliance rate with the time of day restrictions in the NCP. In the 4-year period ending June 30, 1996, there were 2,252 turbojet operations during the curfew hours. Of this total, 137 of the operations, or 6 percent, did not conform to the time of day restrictions in the NCP. These non-complying operations averaged three per month. Roughly two out of every three of these operations were related to a late departure of a scheduled air carrier flight due to an unforeseen circumstance, and not to the purposeful scheduling of such

an operation during restricted nighttime hours. In most instances, the delay in departure was due to passenger or crew delays that caused the flight to depart 5 to 10 minutes into the curfew. The remaining one out of every three non-complying operations are attributable to general aviation pilots who were not familiar with SJC's restrictions. In this same four year period, there were only three general aviation aircraft that conducted non-complying operations during the curfew on more than one occasion.

Restrictions on Engine Run-ups. Aircraft engine run-ups are conducted at SJC on an ongoing basis. The purpose of the run-ups is to test the engine's performance for safety reasons, typically after the engine undergoes maintenance or repair. For reporting purposes, run-ups are divided into three categories at SJC: (1) high-power (greater than 90 percent); (2) part-power (60 percent to 90 percent); and (3) low-power (less than 60 percent). For the first six months of 1996, SJC averaged 31 run-ups per month (i.e., an average of one per day). Of this total, an average of 1.0 was a high-power run-up during the curfew, an average of 0.3 were part-power run-ups during the curfew, an average of 24.7 were low-power run-ups during the curfew, an average of 3.2 were high-power run-ups during non-curfew hours, an average of 0.7 were part-power run-ups during the non-curfew hours, and an average of 1.3 were low-power run-ups during the non-curfew hours.

The Airport NCP, when originally adopted in 1984, disallowed static jet engine testing between the hours of 11:30 PM and 6:30 AM. In 1990, it became apparent to the Airport administration that the run-up proscription in the NCP was not obtaining adequate adherence by air carriers at the Airport, and needed clarification in order to ensure that concerns with neighborhood disturbance, adequate safety of aircraft after maintenance, and ability of air carriers to meet departure times from 6:30 AM on, were addressed. The Director of Aviation, based upon provisions of the NCP authorizing exemptions to the NCP, promulgated a nondiscriminatory administrative exemption as a matter of departmental policy that instituted the following parameters for engine run-ups:

- Requests for low power run-ups are generally approved. This reflects the acceptable level of noise with these operations.
- Requests for high power engine run-ups only are considered if the flight is to depart before 7:30 AM that day. It is presumed that run-ups can be performed after 6:30 AM if the flight departs after 7:30AM.
- High power engine run-ups are not approved before 4 AM.
- All high power run-ups are restricted to a designated area adjacent to Taxiway K.

In 1993, in response to a request by Citizens Against Airport Pollution (C.A.A.P.), a local citizen's group, the City commissioned a study that was intended to review the feasibility and noise reduction benefits of constructing a noise attenuation facility (commonly referred to as a

"hush-house"). The study reached the conclusion that the above-described restrictions were effective. That same study also recommended that a "hush-house" be reconsidered if a major airline base was established at SJC or if the annual average number of high-power run-ups occurring curfew hours averages four or more per month. Since the time the study was completed, no airline maintenance base has been established at SJC, and the number of high power run-ups during curfew hours from January 1995 through June 1996 averaged less than one per month.

Arrival and Departure Noise Abatement Flight Tracks. All jet aircraft arrivals and departures on Runway 12R/30L follow FAA-approved noise abatement flight tracks (see Setting and Existing Conditions, Section C, of Appendix 3.5.A). These procedures consist of requiring the aircraft to maintain specified headings and altitudes for the purpose of minimizing noise impacts. In addition, the City regularly works with the community and the FAA to modify flight tracks for the purpose of reducing noise. As an example, in response to requests from the community and the City, the FAA modified SJC's "Fairgrounds Visual Approach" to Runway 30L in 1996 to reduce noise (FAA, 1996).

Runway Use Restrictions. All transport category jet aircraft takeoffs and landings at SJC are restricted to Runway 12R/30L. In addition, all jet aircraft takeoffs are initiated at the end of the runway.

Restrictions on Aircraft Training. All jet aircraft training operations are prohibited at SJC.

Land Acquisition Program. Since 1974, the City has had a program of acquiring parcels of land within noise affected areas. This program included the acquisition of approximately 625 mostly residential parcels in San Jose in an area known as the "Coleman Loop" (see also Section 3.1.2.2, Existing Surrounding Land Uses). The City also acquired several mobile home parks in Santa Clara that were located in noise affected areas.

Acoustical Treatment Program The City approved an Acoustical Treatment (ACT) Program on October 26, 1993. Based upon the predicted location of the 65 CNEL for the year 2000 as published in the City's FAR Part 150 study for SJC, the ACT is intended to improve the living environment of residents by reducing interior noise to meet the standard of the California Airport Noise Regulations. The goal is to provide acoustical treatment to all homes in the Noise Impact Area by the year 2000. The estimated cost of the ACT program is 34 million dollars. So far, the City has obtained passenger facility charge (PFC) authorization from the FAA of approximately 6 million dollars towards the implementation of the program. (The City anticipates that the remaining cost of the ACT program will be covered by federal AIP grants and/or PFCs.)

Typical noise attenuation treatment under the ACT program has included installation of attic insulation, acoustical windows, solid-core exterior doors, weather-stripping and air conditioning at no cost to the homeowner. The FAR Part 150 study had estimated that up to 1,750 dwellings would be eligible for acoustical treatment.

Land Use Planning and Control. The *General Plans* of both San Jose and Santa Clara contain noise policies regarding new construction in noise-sensitive areas, as defined by the 65 CNEL contour. All proposed new development located within the 65 CNEL contour of SJC is referred to the Santa Clara County ALUC for the purpose of determining the compatibility of the proposed use with the existing noise environment.

Installation of Aircraft Noise Monitoring System. In 1994, SJC installed a state-of-the-art noise monitoring system, referred to as ANOMS (Airport Noise and Operations Monitoring System). ANOMS correlates aircraft flight tracks with noise measurements. The system is used to prepare quarterly noise reports, as well as assisting Airport staff in resolving noise complaints.

Conclusion. The end result of all of the above-described measures has been a substantial reduction in SJC related aircraft noise levels in the surrounding communities since 1978. This reduction has occurred despite the substantial increase in the number of operations at SJC by jet aircraft during that same period. Table 3.5.2 presents the data that quantify some of the more significant historical benefits of the implementation of these noise control measures at SJC.

TABLE 3.5.2
EFFECT OF EXISTING NOISE CONTROL MEASURES AT SJC

	1978	1984	1991	1994
Number of Residential Units Within 65 CNEL Contour	3,652	2,992	1,887	1,495
Population Within 65 CNEL Contour	10,049	8,888	5,624	3,751
Number of Annual Operations by Air Passenger and Air Cargo Carriers	56,692	66,274	94,906	111,390

SOURCE: City of San Jose

3.5.1.4 Existing Noise Sources and Noise Levels in Vicinity of SJC

Overview

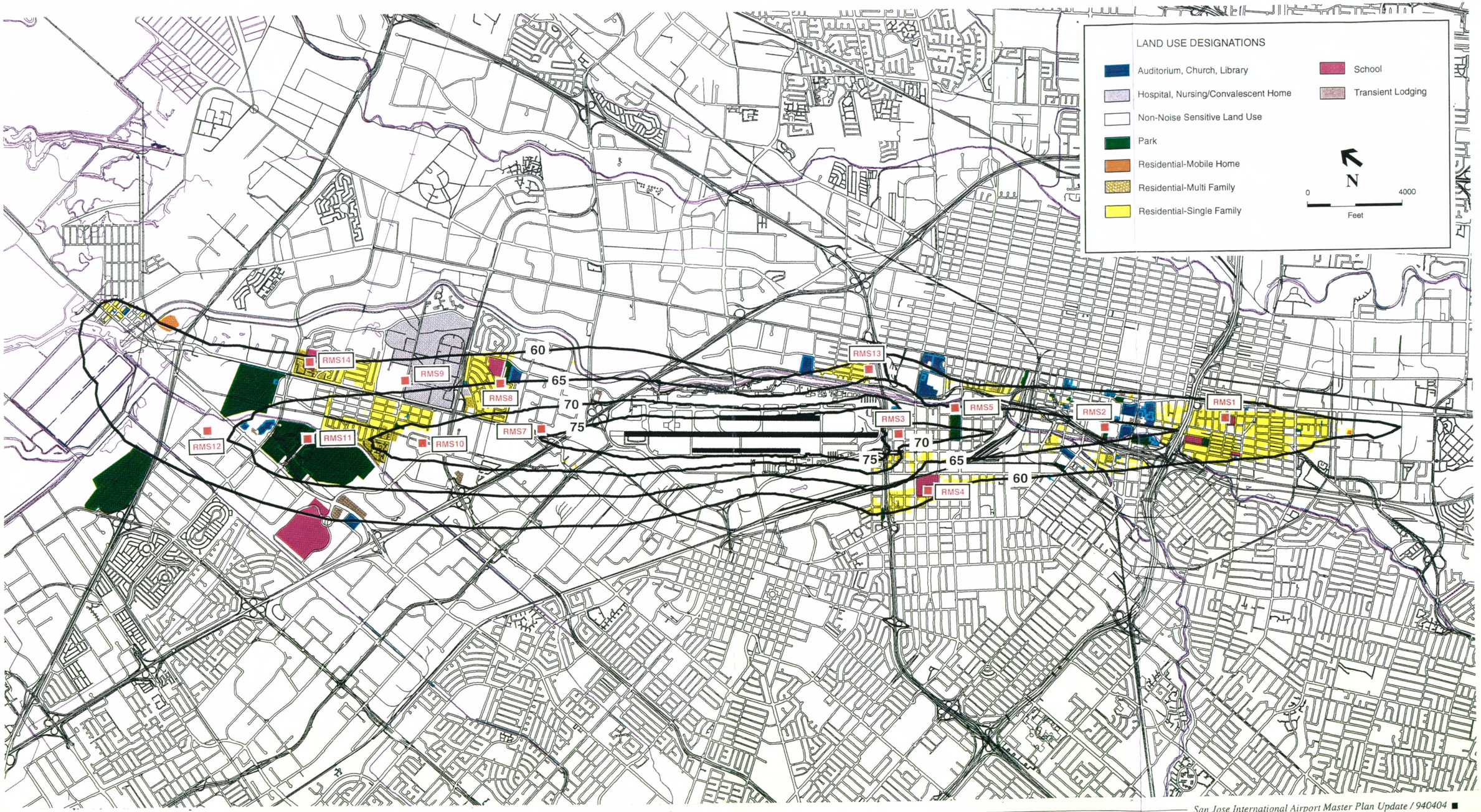
This section describes existing noise sources and noise levels in the Airport vicinity. Included are discussions of noise from aircraft, railroad and surface traffic sources. The ongoing aircraft noise monitoring program of the City of San Jose at SJC is described along with ambient noise level measurements conducted at supplemental locations specifically for the Master Plan Update noise impact analysis. Also described are the methods and assumptions used to prepare a noise exposure map for existing aircraft operations and noise levels at SJC using the CNEL and SEL descriptors. For purposes of this analysis, 1994 is the base year because it is the most recent calendar year for which complete aircraft operations data were available when this noise study was commenced.

Existing Aircraft Noise Levels

City of San Jose Airport Noise Monitoring Program. SJC operates an aircraft noise monitoring system (ANOMS) that incorporates monitoring units, computers, a passive radar device, and software that correlates noise measurement and operational data and allows graphic representation of aircraft flight tracks. Thirteen Remote Monitoring Stations (RMSs) are currently operational, and one other RMS is temporarily inactive due to nearby construction. RMS locations were selected in accordance with the California Airport Noise Regulation to allow accurate location of CNEL contours in residential areas affected by noise from aircraft operating at SJC.

The City of San Jose applies the data collected by the ANOMS to prepare quarterly noise monitoring reports and CNEL contours in accordance with the requirements of the California Airport Noise Regulation, and to investigate noise complaints. The City periodically contracts for outside validation of the ANOMS performance in terms of measured noise levels, aircraft noise event matching, and suitability of monitoring locations. Figure 3.5.2 shows the RMS locations, as well as the computed location of the 65 CNEL contour for SJC operations during the 1994 base year. Measured aircraft CNEL values at the RMSs during the 1994 base year are reported in Table 5 of Appendix 3.5.A.

Preparation of Aircraft Noise Exposure Contours with the Integrated Noise Model. The Federal Aviation Administration's Integrated Noise Model (INM) Version 4.11 was used to prepare CNEL noise exposure maps for existing operations at SJC based upon aircraft noise levels and Airport operational data for the 1994 base year. The INM was developed for the FAA, and represents the federally-approved and preferred method for analyzing aircraft/airport noise exposure. The INM is described in Setting and Existing Conditions, Section C.2.b of Appendix 3.5.A. This appendix also contains a detailed description of the technical assumptions that were input into the INM for the purpose of quantifying existing and future noise levels at



San Jose International Airport Master Plan Update / 940404 ■

SOURCE: City of San Jose

Figure 3.5.2
Remote Monitoring Site (RMS)
Locations and 1994 Noise Contours

SJC. These technical assumptions include parameters such as runway usage, aircraft fleet composition, time of day, destinations of departing aircraft[3], and numbers of daily operations. Setting and Existing Conditions, Section C.2, of Appendix 3.5.A also explains how the INM is validated with the ANOMS to ensure accuracy.

Analysis of Cumulative Noise Exposure. For analysis of cumulative aircraft noise exposure at specific locations around SJC, twenty reference grid locations were selected. Nine of these locations are existing RMS sites used by the ANOMS. The remaining eleven locations are other noise-sensitive sites. Table 3.5.3 lists the location of each site, along with the jurisdiction within which the site is located. Also shown in Table 3.5.3 are the aircraft CNEL values calculated by the INM for each site using the previously described 1994 base year Airport operations and noise level assumptions. Figure 3.5.3 shows the locations of the reference grid point sites on a map of the area surrounding the Airport.

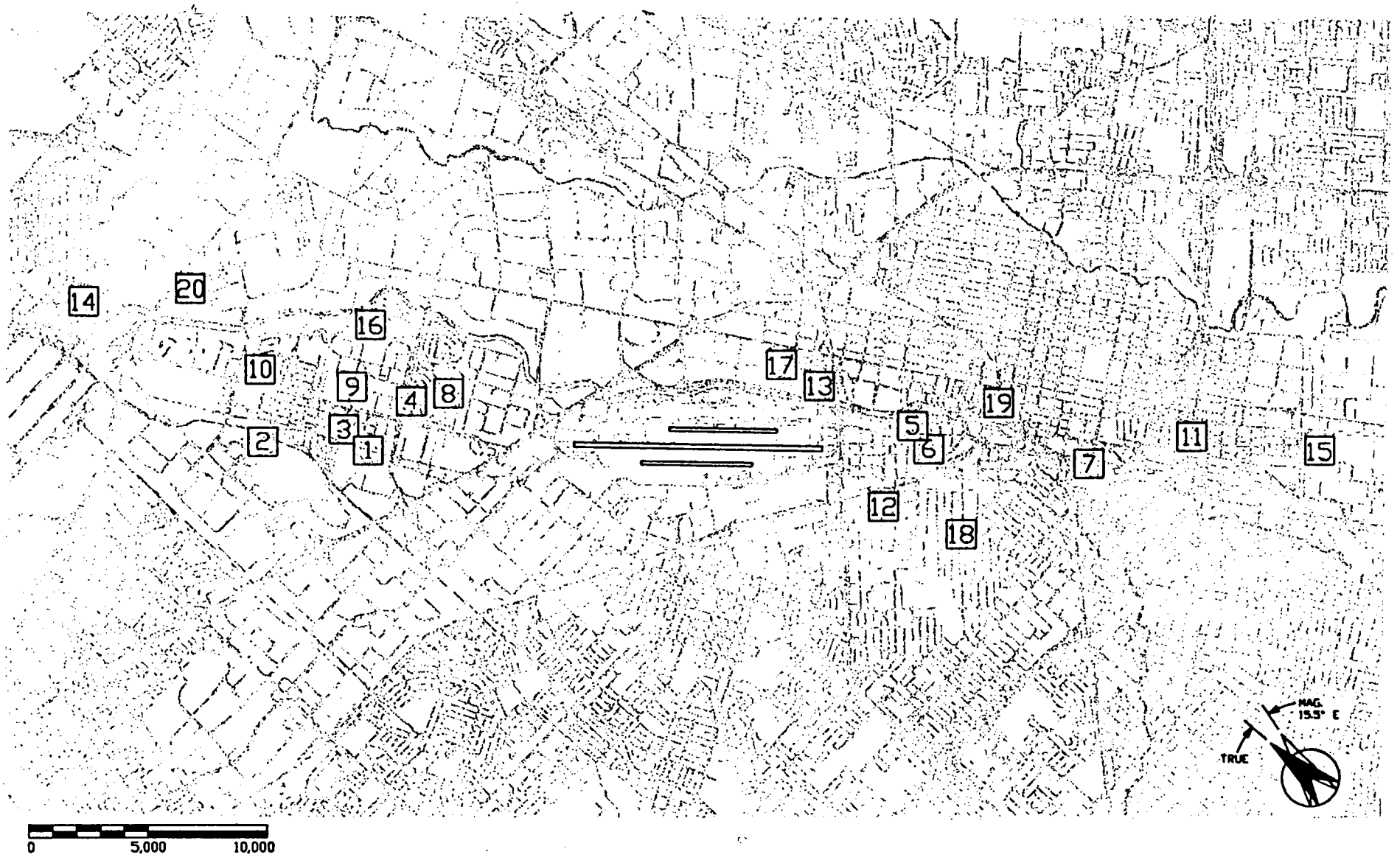
Analysis of Single Event Noise Exposure. In order to compare the relative noise levels of typical air carrier jet operations at SJC, single event noise levels were calculated by the INM for each of the above-described reference grid point locations using the SEL metric.

For this analysis, the Boeing 737-300, McDonnell Douglas MD-80, McDonnell Douglas MD-11 and Boeing 727-200 (as hushkitted by Federal Express) were used to represent typical air carrier single event aircraft noise exposure in the SJC environs. Table 3.5.4 presents a summary of the highest SEL values calculated by the INM for each of the selected aircraft types at the reference grid point locations. In some cases, the highest SEL values were the result of departures; in some cases they were the result of arrivals.

To provide an overall indication of the relative extent of noise exposure due to single arrivals or departures by typical air carrier jet aircraft at SJC, 90 SEL contours were prepared using the INM and the above-referenced typical aircraft types. The 90 SEL contours are presented in Figure 3.5.4. The SEL contours indicate areas around the Airport where the SEL would equal or exceed 90 dBA during a single arrival on Runway 30L or a single departure on Runway 30L by each referenced aircraft type. Due to prevailing weather conditions, approximately 85 percent of the total arrivals and departures by jet aircraft during a typical year occur on Runway 30L.

Analysis of Land Use and Population Affected by Existing Aircraft Noise Exposure. Table 3.5.5 summarizes the estimated land area within CNEL contours for the 1994 base year along with the estimated number of residential dwelling units, schools, hospitals and churches located within the contours. Table 3.5.5 also provides an estimate of the residential population

[3] The destination of a departing aircraft is important for noise modeling purposes because, all other factors being equal, the farther the destination from San Jose, the more fuel the aircraft will be carrying. Since fuel adds weight to an aircraft, a heavier aircraft will be closer to the ground (and thus noisier) during its departure than will the same aircraft with less weight.



SOURCE: BBA

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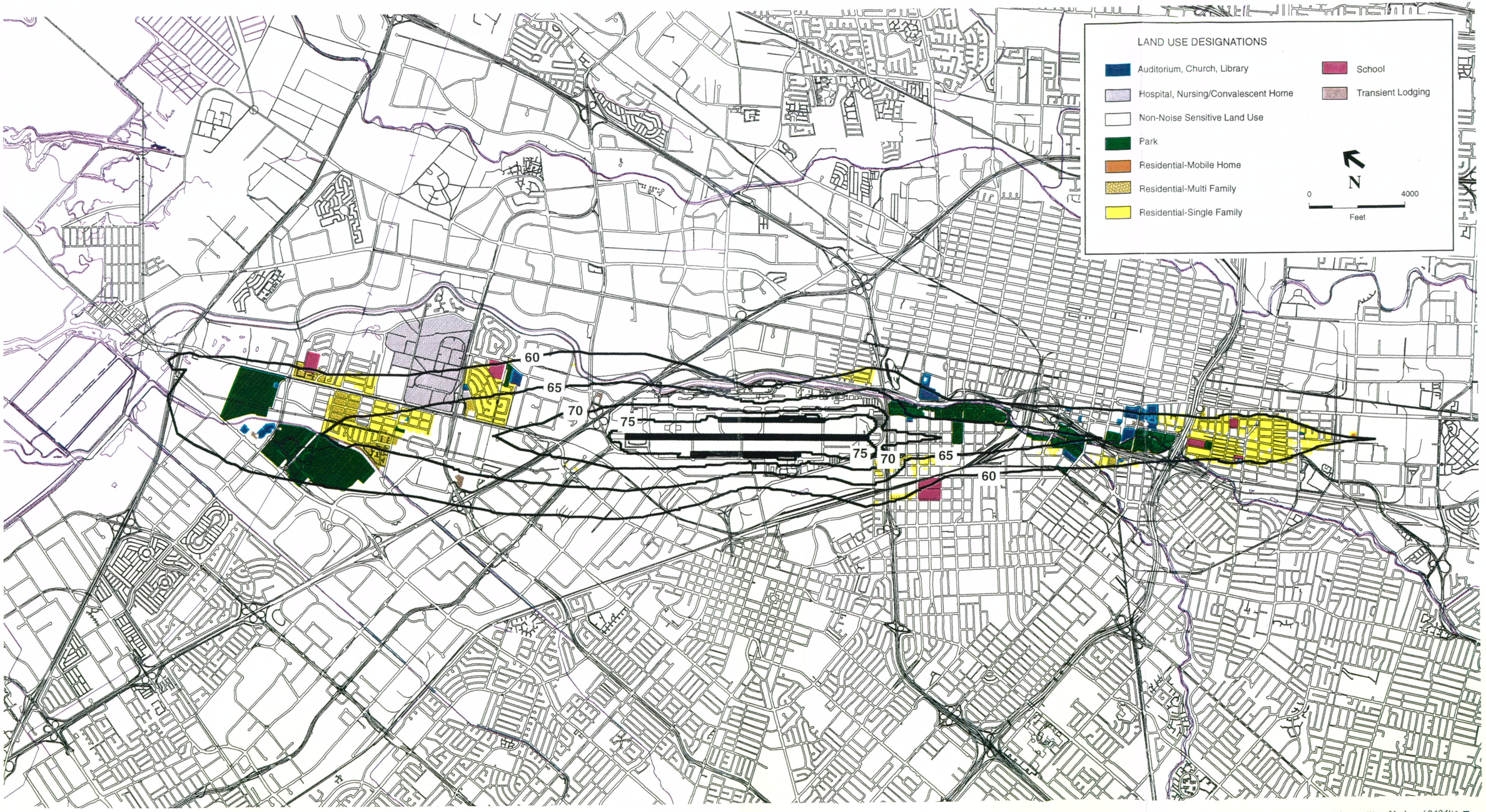
Figure 3.5.3
Reference Grid Points



SOURCE: City of San Jose

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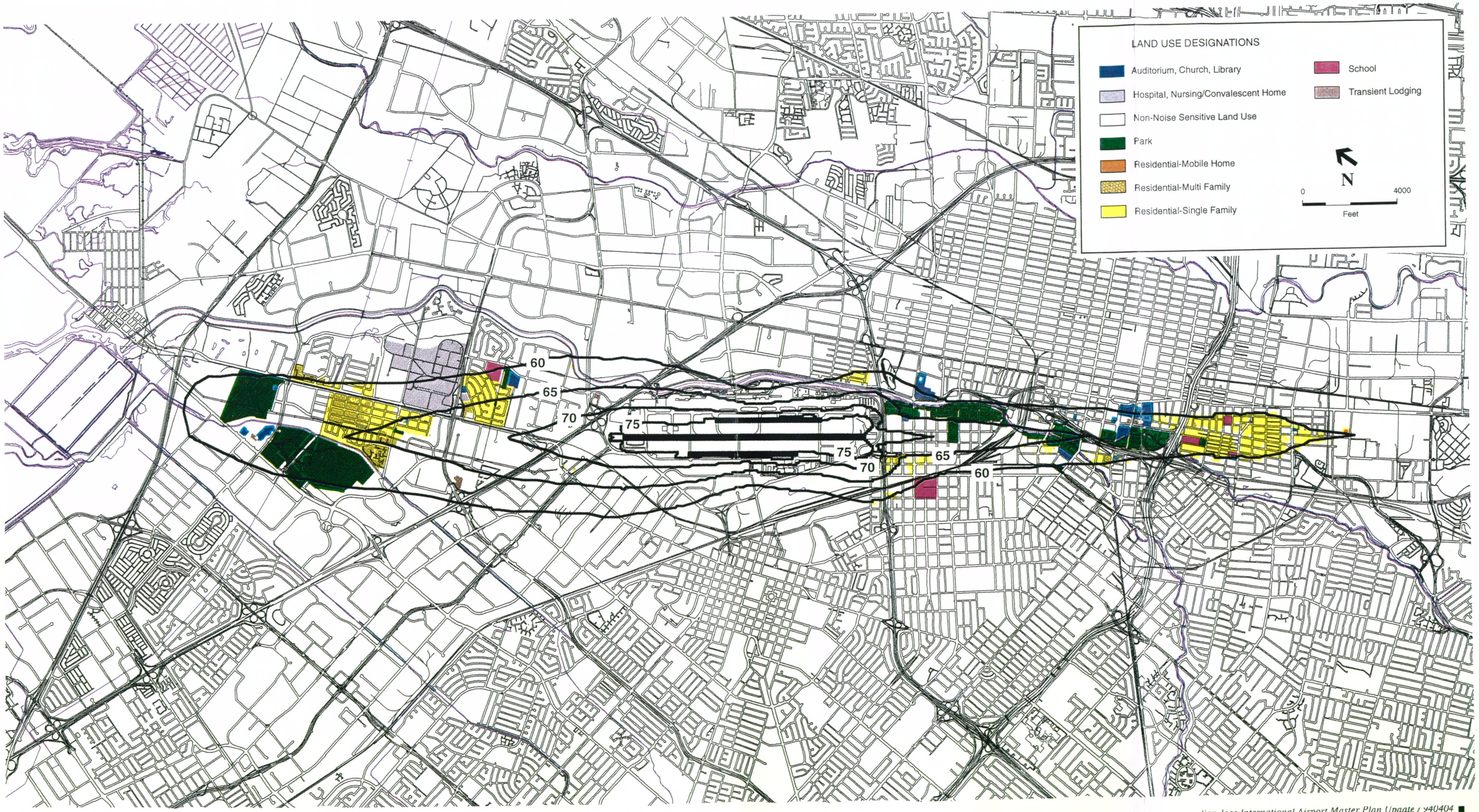
Figure 3.5.5
No Project Alternative
Noise Contours - Year 2000



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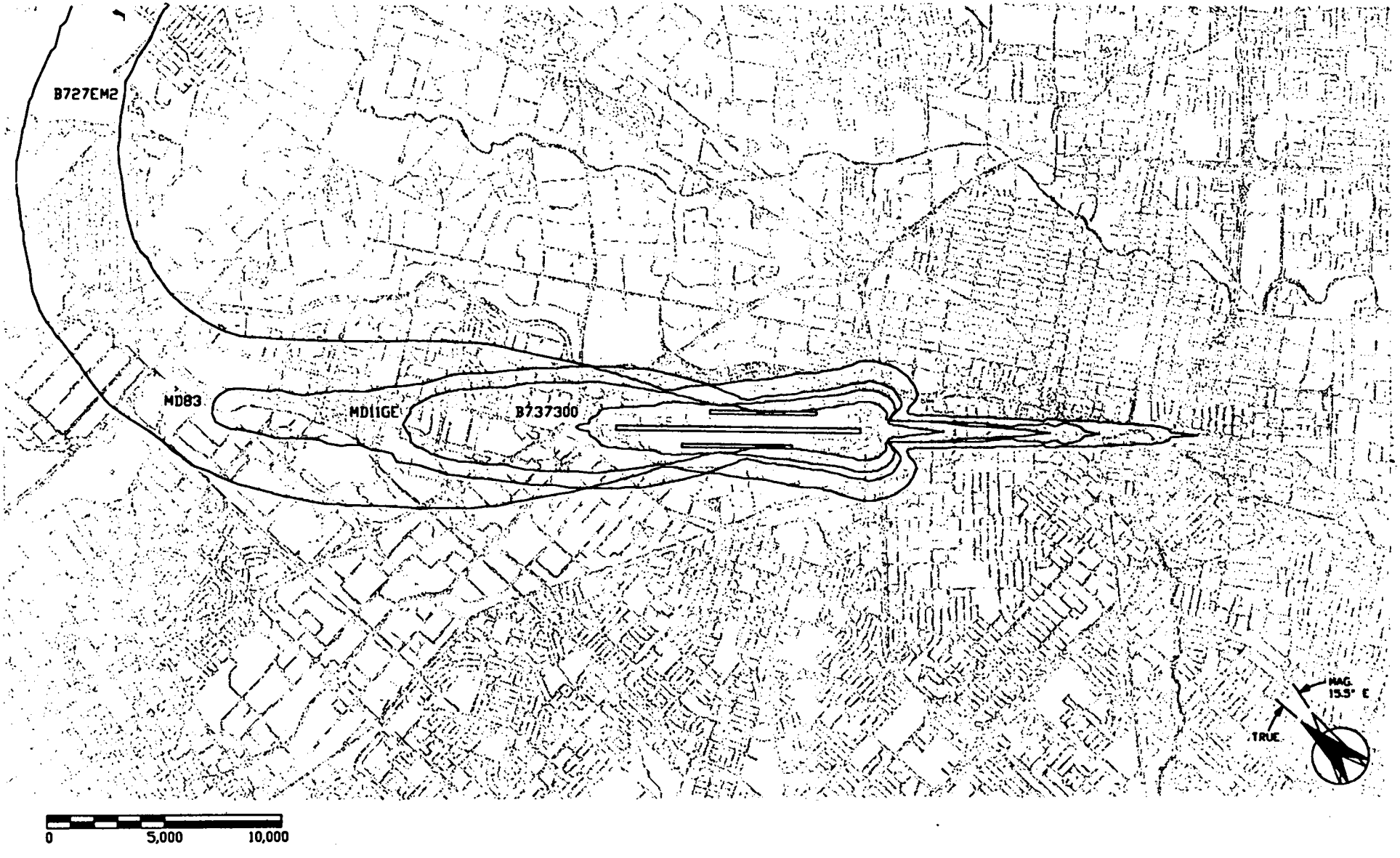
SOURCE: City of San Jose

Figure 3.5.6
No Project Alternative
Noise Contours - Year 2005



SOURCE: BBA

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.4
1994 Base Year / No Project
Alternative SEL 90 dB Contours

TABLE 3.5.3
REFERENCE GRID LOCATIONS AND NOISE EXPOSURE

Reference Grid Locations and Land Use	City	1994 CNEL[a]
1. RMS 10 - Residential	Santa Clara	71.3
2. RMS 11- Public Utility (adjacent residential)	Santa Clara	68.2
3. Agnew Park - SW cr. Agnew Rd./. Cheeney St.	Santa Clara	69.9
4. Convalescent Hospital - N. Side Clyde Ave. @ Loch Lomond St.	Santa Clara	66.3
5. RMS 5 - Vacant (Airport land, adjacent to Guadalupe River Park)	San Jose	65.3
6. Interim Rose Garden - SE cr. Taylor St./Spring St. (Airport land)	San Jose	68.7
7. Performing Arts Center - SW cr. Almaden Blvd./Park Ave.	San Jose	66.0
8. RMS 8 - Montague Park/School	Santa Clara	64.9
9. RMS 9 - Agnews State Hospital	Santa Clara	63.8
10. RMS 14 - Fairway Glen Park/Hughes School	Santa Clara	60.6
11. RMS 1 - Washington School	San Jose	63.1
12. RMS 4 - Bellarmine School	San Jose	61.4
13. RMS 13 - Residential	San Jose	63.7
14. Alviso Community Center - SE cr. San Jose Alviso Rd./Liberty St.	San Jose	60.2
15. Cottage Trailer Grove - SW cr. Monterey Hwy./San Jose Ave.	San Jose	60.4
16. Agnews State Hospital - SW cr. Lick Mill Rd./Lick Mill Blvd.	Santa Clara	55.7
17. Bachrodt School - SE cr. Sonora Ave./Forrestal Ave.	San Jose	56.9
18. Hester School - SE cr. The Alameda/Pershing Ave.	San Jose	55.3
19. Ryland Park - SW cr. N. First St./Fox Ave.	San Jose	58.3
20. Lamplighter Trailer Park - SW of Hwy 237 and N. First St.	San Jose	57.5

[a] Calculated by Version 4.11 of the INM for aircraft operations occurring during the 1994 base year.

SOURCES: City of San Jose; Brown-Buntin Associates, Inc.

TABLE 3.5.4
SINGLE-EVENT NOISE EXPOSURE
1994 BASE CASE

Reference Grid Location[b]	SEL, dB[a]			
	Boeing 737-300	McDonnell Douglas MD-80	McDonnell Douglas MD-11	Boeing 727-200 (Federal Express Hushkit)
1	90.3	93.8	91.9	104.0
2	87.2	91.9	89.1	101.8
3	86.9	92.7	89.0	103.3
4	82.8	92.4	88.4	99.1
5	87.5	96.4	94.2	102.2
6	89.3	97.9	96.2	106.5
7	88.0	92.6	89.6	103.4
8	82.2	90.9	87.0	96.1
9	81.3	89.3	84.0	96.7
10	80.9	89.9	80.3	93.9
11	85.3	91.5	87.9	100.7
12	82.2	90.8	87.6	92.5
13	79.6	89.7	86.2	92.1
14	78.0	87.2	83.4	94.8
15	83.4	88.7	86.2	96.4
16	74.5	81.7	76.4	86.7
17	77.4	83.5	79.4	85.5
18	77.7	85.9	82.6	90.0
19	80.8	89.9	86.8	95.2
20	80.2	89.1	80.2	88.9

a Calculated by INM Version 4.11. For departures by Boeing 737-300 and McDonnell Douglas MD-80 aircraft, a trip length of 500-1000 nautical miles was assumed. For departures by McDonnell Douglas MD-11 and Boeing 727-200 aircraft, a trip length of 1500-2500 nautical miles was assumed. These are typical trip lengths for aircraft at SJC.

b Refer to Figure 3.5.3 for a map showing the locations of reference grid locations.

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.5
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
1994 BASE CASE

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	8	70	701	2,583
Multi-Family Residential	0	397	794	2,895
Mobile Homes	0	0	0	146
Schools	0	0	0	7
Hospitals/Nursing/ Convalescent Homes	0	0	2	4
Places of Public Assembly[a]	0	1	8	41
Transient Lodgings	0	0	3	17
Residential Population Exposed[b]	25	1,164	3,751	16,033
Total Land Area, Acres	539	1,329	3,113	6,577

a Includes churches, libraries, and auditoriums.
b Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. Land use and population estimates summarized by Table 3.5.5 were prepared by the City of San Jose by overlaying the CNEL contours prepared using the INM on digitized land use base maps representative of existing land uses around the Airport.

Time Above Analysis. Table 3.5.6 summarizes the time in minutes per day that the sound level due to aircraft operations at SJC would be above either 75 or 85 dBA. The reference points listed in Table 3.5.6 are the same locations described above in Table 3.5.3 for analysis of CNEL values at the reference grid point locations.

TABLE 3.5.6
TIME ABOVE ANALYSIS AT REFERENCE GRID LOCATIONS
1994 BASE CASE

Reference Grid Location	Time Above, Minutes/Day[a]	
	75 dBA	85 dBA
1	26.1	4.5
2	17.5	1.9
3	22.2	3.0
4	18.4	1.7
5	11.0	1.2
6	18.4	1.8
7	13.2	0.7
8	17.5	1.5
9	13.2	1.2
10	8.4	0.6
11	6.2	0.3
12	10.2	0.9
13	29.2	2.5
14	7.9	0.4
15	2.8	0.1
16	2.9	0.4
17	19.1	1.4
18	3.2	0.2
19	3.5	0.2
20	4.6	0.1

a As calculated by Version 4.11 of the INM.

SOURCE: Brown-Buntin Associates, Inc.

Frequency of Operations Table 3.5.7 summarizes the number of base year (1994) jet aircraft overflights for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

Engine Run-ups. Engine run-ups are a source of noise at SJC (see the previous discussion of engine run-ups in Section 3.5.1.3).

TABLE 3.5.7
ANNUAL AVERAGE DAILY JET AIRCRAFT OPERATIONS[a]
1994 BASE CASE

Observer Location	Time of Day	Annual Average Number Operations/Day[b] Arrival	Departure
North of Airport	7a - 7p	18	110
	7p - 10p	5	20
	10p - 7a	2	10
South of Airport	7a - 7p	103	19
	7p - 10p	28	4
	10p - 7a	10	2

a Includes all air carrier, air cargo and general aviation jet aircraft. An operation is an arrival or depature. Operations are rounded to the nearest whole number.
b Determined by dividing the total number of operations forecast for the year by 365 and then adjusting for annual average runway use.

SOURCE: Brown-Buntin Associates, Inc.

Helicopter Noise Issues. Helicopters currently are based on both the east and west sides of the airfield. Most helicopter operations originate or terminate on the ramp areas generally in front of Aris Helicopters (west side) or ACM (east side). Helicopters are generally instructed to follow runway heading until leaving the airfield. Due to their noise level generation characteristics and the fact that there are relatively few operations by helicopters at SJC, helicopters are not considered a significant noise source when compared to other aircraft operations at the Airport.

Community Aircraft Noise Complaints. Overall, complaint records maintained by the City indicate that air carrier jet operations are the most frequent source of noise complaints from members of the surrounding community. Engine run-ups are another, less frequent, source of complaints. Noise complaints are routinely logged by the City's Airport Noise Abatement Office using a telephone hotline system. Complaints can be called in 24 hours per day using this system. The City attempts to respond to all aircraft noise complaints received by determining the nature of the aircraft operation of concern using the ANOMS. Each month the City publishes a noise report that summarizes all noise complaints received (including the geographic origin of all complaints).

Existing Non-Aircraft Noise Levels

Around SJC are three principal and several minor noise sources. The most obvious principal source is aircraft noise. However, like most urban areas, traffic noise is pervasive in the Airport environs. The third principal source is railroad noise. At locations near the tracks, railroad noise can be substantial. The smaller sources include industries, commercial uses and the everyday sources associated with human activity, such as barking dogs, lawnmowers, and air conditioning systems.

This analysis of existing non-aircraft noise levels includes the results and a discussion of noise level measurements near SJC, and specific discussions of railroad noise and traffic noise.

Non-Aircraft Noise Levels. In addition to recording aircraft noise levels in the SJC environs, the ANOMS also records and reports non-aircraft noise levels. The reported CNEL values at the ANOMS sites are shown in Table 3.5.8. The non-aircraft noise levels reported by Table 3.5.8 are for the months of October 1994 through December 1994. This is considered a representative sampling of non-aircraft noise levels in the vicinity of SJC. As can be seen, typical monthly average non-aircraft noise levels ranged from a low of about 57 CNEL at RMS 14 to a high of about 68 CNEL at RMSs 2 and 7.

To describe noise levels at other locations within the SJC environs, ambient noise measurements were conducted at six locations in April 1996. Long-term (24 hour) measurements were made at two locations, and short term (15-minute) measurements were made at four locations. Monitoring locations were selected to represent areas of the community where noise-sensitive land uses are exposed to aircraft and other noise sources. The results of the noise measurements are presented in Setting and Existing Conditions, Section C, of Appendix 3.5.A. Sound levels measured in the SJC vicinity were primarily affected by aircraft, railroad and automobile/truck traffic.

Railroad Noise Levels. The Southern Pacific Transportation Company railroad tracks that connect San Jose to the East Bay are located about ½ mile southwest of the Airport.

The major noise sources of a train are the locomotives and cars, and the warning horn that is blown near grade crossings. Information in the *San Jose 2020 General Plan Final Environmental Impact Report (Final EIR)* indicates that eight Amtrak commuter trains plus 5 to 10 freight trains operate on this track daily. Most of the freight service is at night.

According to the Final EIR, diesel locomotives produce maximum noise levels of about 75-80 dBA at 100 feet and the cars generate maximum levels of 70-75 dBA at the same distance. Warning horns generate a maximum level of about 100 dBA at 100 feet, although the level varies because of the directionality of the horn. In terms of the L_{dn}, the noise level generated by

TABLE 3.5.8
NON-AIRCRAFT NOISE LEVELS AT SJC MONITORING SITES
OCTOBER 1, 1994 TO DECEMBER 31, 1994

RMS Number	Measured CNEL, dB			
	October	November	December	Average
1	62.8	63.2	62.9	62.9
2	68.0	NA	NA	68.0
3	65.5	66.3	65.7	65.8
4	60.3	60.7	60.2	60.4
5	62.4	63.1	63.0	62.8
7	67.6	68.3	68.2	68.1
8	59.0	60.0	60.1	59.8
9	58.1	58.6	58.7	58.5
10	60.8	61.3	61.1	61.1
11	59.2	58.6	58.5	58.8
12	60.1	60.8	60.7	60.6
13	66.3	67.3	67.5	67.1
14	57.4	57.8	57.2	57.5

NA - no data available

SOURCE: City of San Jose

trains is about 67 dB at 100 feet. The distance to the 60 L_{dn} contour is about 300 feet. Railroad operations are not considered a dominant source of noise unless the observer is located very close to the tracks and otherwise away from the direct influence of the Airport or major roadways.

Surface Traffic Noise Levels. Traffic noise from roadways was calculated using the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and the L_{dn} descriptor. The FHWA Model is the analytical method currently favored by most State and local agencies, including Caltrans, for highway traffic noise prediction. The FHWA Model is described in Setting and Existing Conditions, Section C.3.c, of Appendix 3.5.A.

Roadways selected for quantitative traffic noise analysis in the Airport vicinity were those that met the following criteria:

1. roadways that were adjacent to noise-sensitive uses (principally residential uses) for at least a portion of their length; and

2. roadways that would experience an increase in traffic volumes due to the Project Case Alternatives that would cause an increase of 1 dB or more in cumulative traffic noise levels as defined by the L_{dn}.

Traffic volumes used in the FHWA Model were obtained from DKS Associates. Traffic modeling assumptions are summarized for existing conditions in Appendix 3.3.A.

Traffic noise levels were calculated at 100 feet from the center of roadways, which is representative of the distance of the nearest noise-sensitive uses to the roads. Soundwalls are planned to be constructed within the next year along Guadalupe Parkway next to two residential neighborhoods. The typical noise reduction provided by these soundwalls reported in the *Caltrans Route 87 Freeway Project Final EIS* was accounted for in the calculations. Table 3.5.9 summarizes calculated L_{dn} values for the roadways analyzed.

3.5.2 NOISE IMPACTS

This section presents the noise impacts of the Project Case Alternatives and the No Project Alternative for the three horizon years of 2000, 2005, and 2010. The impacts are quantified using the descriptors described previously (i.e., CNEL, SEL, and TA). The significance of the noise impacts of the Project Case Alternatives is determined based upon a comparison to the No Project Alternative using the criteria described below.

To facilitate the reader's understanding of the noise impacts, the discussion of the No Project Alternative is presented first, because each of the Project Case Alternatives is compared to the No Project Alternative.

When reading this section, the reader will note that, despite the projected increases in the number of annual aircraft operations under the various Project Case Alternatives, the noise impact area is projected to be smaller than it is under base year (1994) conditions. The explanation for this trend toward a smaller noise impact area by the year 2000 is the anticipated elimination of all Stage 2 aircraft operations at SJC. All of the analyses for 2000, 2005, and 2010 assume a 100 percent Stage 3 aircraft fleet. After the year 2000, the two major factors that will result in decreases in noise exposure for the three horizon years are: (1) retirement of Stage 2 hushkitted aircraft (i.e., retrofitted for Stage 3 compliance); and (2) a change in the aircraft fleet from large numbers of MD-80 aircraft to Boeing 737-300+ series aircraft.[4]

3.5.2.1 Thresholds of Significance

For purposes of this analysis, and in consideration of the applicable federal, state and local noise level criteria described previously in Section 3.5.1.1, the following significance thresholds are

[4] The noise levels generated by departing MD-80 aircraft are approximately 5 to 10 dB higher than those generated by departing Boeing 737-300 series aircraft (see Table 3.5.4).

TABLE 3.5.9
TRAFFIC NOISE LEVELS,
EXISTING CONDITIONS (1995)

Roadway Description	L_{dn}, dB @ 100 Feet[a]	Distance to 60 dB L_{dn} Contour, Feet[a]
Coleman Avenue		
I-880 to Hedding Street	62.1	138
Hedding Street to Taylor Street	61.0	117
North First Street		
Skyport Drive to I-880	60.7	111
Guadalupe Parkway		
Skyport Drive to Sonora Avenue	70.6	509
Sonora Avenue to Ferrari Avenue	58.6	81
Ferrari Avenue to Taylor Street	70.6	509
Taylor Street to Coleman Avenue	64.1	188
Coleman Avenue to Julian Street	74.1	871

a Relative to the center of the roadway.

SOURCE: Brown-Buntin Associates, Inc.

used to evaluate the aircraft and surface traffic noise impacts of the Project Case Alternatives. These thresholds are based on use of the CNEL as well a supplementary noise metric (the SEL) that was determined to be appropriate for this EIR.

The No Project Alternative is used as the basis of comparison of noise exposure for purposes of determining the significance of project-related noise impacts. The California Noise Standards have determined that 65 CNEL is the level of noise "acceptable to a reasonable person residing in the vicinity of an airport." This is consistent with federal (FAA and HUD) land use compatibility guidelines and federal noise attenuation grant funding eligibility criteria. Therefore, the primary focus of the noise impact analysis is on areas located within the 65 CNEL contours for the Project Case Alternatives. However, the noise analysis also addresses areas located between the 60 and 65 CNEL contours in recognition of FICON recommendations.

Aircraft Noise Impacts Criteria

- Changes in cumulative noise exposure in noise-sensitive areas where the No Project Alternative noise exposure is 65 CNEL or greater are considered significant if the alternative being analyzed results in a change in CNEL of 1.5 dB or greater. Changes are considered significant in noise-sensitive areas where the No Project Alternative noise exposure is less than 65 CNEL if the Project Case Alternative being analyzed results in a change in CNEL of 3 dB or greater.

- Time Above (TA) analysis is provided to indicate relative changes in the potential for speech interference. The TA reference levels selected for analysis are 75 and 85 dBA to address potential speech interference inside a typical residential structure within the San Jose area with the windows open or closed, respectively. There are no generally recognized or officially adopted significance criteria for this descriptor. However, as discussed below, the analysis for this EIR shows that at SJC, and for the analyzed Project Case Alternatives, there is a significant correlation between the magnitude of the predicted CNEL increases or decreases at the reference grid locations and the relative magnitude of the predicted TA increases or decreases at the same locations. Therefore, for purposes of this EIR the determination of significance with respect to CNEL values will be considered a determination of significance for the TA analysis.

- Changes in the *magnitude* of aircraft single event noise exposure, as defined by the SEL metric, are considered significant if the Project Case Alternative being analyzed results in a change in SEL of 3 dB or greater during individual aircraft operations affecting a noise-sensitive area when compared to the No Project Alternative.

Surface Traffic Noise Impact Criterion

- Project-related changes in cumulative surface traffic noise exposure using the L_{dn} metric are considered significant if they exceed 3 dB and the resulting cumulative surface traffic noise level exceeds 60 L_{dn}.

Construction-Related Noise Impact Criterion

- Temporary impacts during construction are considered significant if they exceed 70 dBA at any noise-sensitive land use.

3.5.2.2 General Methodology and Assumptions

Aircraft noise levels resulting from the Project Case Alternatives were quantified using Version 4.11 of the FAA INM as described in Section 3.5.1.4 for existing aircraft noise levels. Inputs to the INM were changed as appropriate to account for changes in the volume of aircraft operations, fleet mix or airfield configuration that would result with implementation of the Project Case Alternative being analyzed. Determination of significance was based upon the previously-described thresholds of significance using the No Project Alternative as the basis for comparison. General assumptions and methodologies with respect to the level of operations, fleet mix, temporal distribution, and distribution of aircraft trip lengths for the Project Case Alternatives and the No Project Alternative are presented in Tables 16-18 of Appendix 3.5.A.

3.5.2.3 Baseline for Comparison of Aircraft Noise Impacts

The aircraft noise impacts of the No Project Alternative are discussed first because it forms the basis for determining whether changes in aircraft noise exposure are significant.

Noise Modeling Assumptions

The No Project Alternative, would result in no changes to the configuration of the airfield or how it is operated. Therefore, runway use and generalized aircraft flight track utilization factors would be the same as described for the base year (1994).

Cumulative Noise Exposure Analysis

Figures 3.5.5 through 3.5.7 show the CNEL contours for the No Project Alternative prepared using the above-described airport operational data for the years of 2000, 2005 and 2010. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year. Tables 3.5.10 through 3.5.12 show cumulative noise exposure as defined by the CNEL at the twenty reference grid locations for the three planning horizon years.

Single Event Noise Exposure Analysis

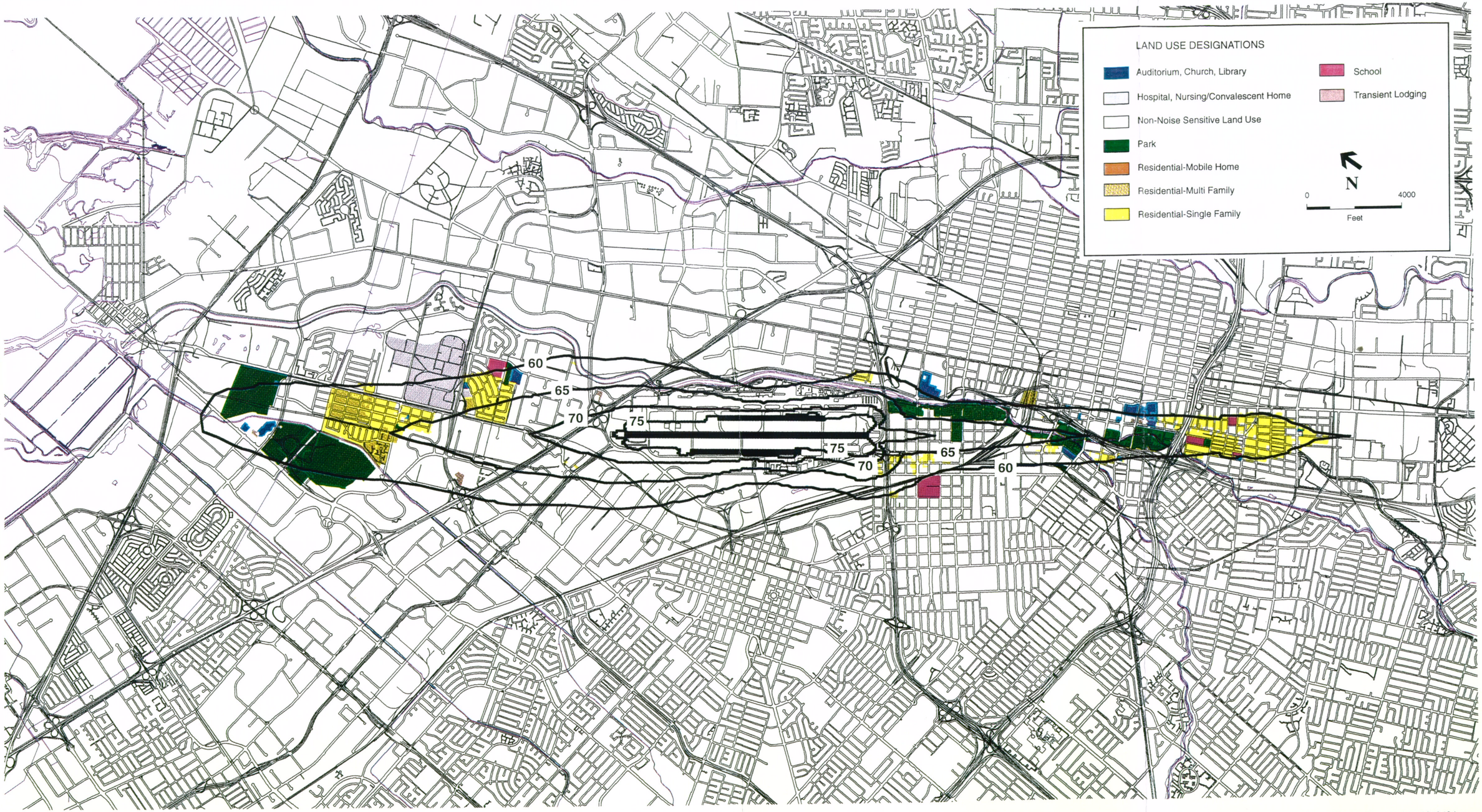
Single event noise exposure with implementation of the No Project Alternative would be unchanged from that depicted by the 90 SEL contours shown in Figure 3.5.4 for the base year (1994). SEL values at the twenty reference grid locations would likewise be the same as reported in Table 3.5.4 for the base year.

Land Use and Population Affected by Aircraft Noise Exposure

Tables 3.5.13 through 3.5.15 summarize the estimated land area within CNEL contours for the No Project Alternative (years 2000, 2005 and 2010, respectively) along with the estimated number of residential dwelling units, schools, hospitals and churches located within the contours. The tables also provide an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. Land use and population estimates summarized by Tables 3.5.13 through 3.5.15 were prepared by the City of San Jose by overlaying the CNEL contours prepared using the INM on digitized land use base maps representative of the land uses around the Airport expected during each of the planning horizon years.

Time Above Analysis

Tables 3.5.16 through 3.5.18 summarize the time in minutes per day that the sound level due to aircraft operations with the No Project Alternative would be above either 75 or 85 dBA for the three planning horizon years.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.7
No Project Alternative
Noise Contours - Year 2010

TABLE 3.5.10
COMPARISON OF CNEL VALUES - YEAR 2000

Reference Point	No Project Alternative	Change from No Project Alternative		
		Project Case	Project Case Alternative A	Project Case Alternative B
1	67.1	-0.7	-0.3	-0.2
2	64.6	-0.5	-0.1	-0.2
3	65.8	0.2	0.4	-0.1
4	63.5	2.0	2.2	-0.2
5	63.6	2.1	2.3	-0.4
6	66.9	0.3	0.5	-0.4
7	64.5	-0.4	-0.3	-0.1
8	62.6	2.2	2.4	-0.2
9	60.8	2.0	2.0	-0.1
10	58.9	1.5	1.0	0.2
11	62.1	0.1	0.3	-0.2
12	59.5	-1.1	-1.4	0.4
13	61.6	2.7	**3.3**	-0.9
14	58.6	-0.1	0.5	-0.1
15	59.9	0.2	0.2	0.0
16	53.5	1.4	1.4	0.0
17	55.2	1.9	1.7	0.2
18	53.3	-1.2	-1.2	-0.2
19	56.1	1.5	1.8	-0.5
20	57.3	0.7	0.3	0.2

Significant Impacts are shown in **BOLD TYPE** and are shaded.

Reference Grid Locations are shown on Figure 3.5.3.

TABLE 3.5.11
COMPARISON OF CNEL VALUES - YEAR 2005

Reference Point	No Project Alternative	Change from No Project Alternative		
		Project Case	Project Case Alternative A	Project Case Alternative B
1	66.4	0.8	0.4	0.2
2	63.8	1.1	0.7	0.3
3	65.0	**1.8**	1.2	0.3
4	62.7	**3.4**	2.9	0.3
5	63.2	**3.5**	2.9	-0.1
6	66.6	**1.8**	1.1	0.0
7	64.3	1.0	0.3	0.3
8	62.0	**3.5**	2.9	0.2
9	60.1	**3.3**	2.6	0.4
10	58.2	2.9	1.7	0.7
11	61.9	1.6	0.8	0.2
12	59.1	0.2	-1.0	0.7
13	61.2	**3.9**	**3.7**	-0.6
14	57.8	1.4	1.1	0.3
15	59.8	1.6	0.7	0.3
16	52.9	2.7	1.9	0.4
17	54.7	3.2	2.2	0.5
18	52.8	0.2	-0.7	0.2
19	55.6	2.8	2.3	-0.1
20	56.6	2.2	0.9	0.7

Significant Impacts are shown in **BOLD TYPE** and are shaded.

Reference Grid Locations are shown on Figure 3.5.3.

TABLE 3.5.12
COMPARISON OF CNEL VALUES - YEAR 2010

Reference Point	No Project Alternative	Change from No Project Alternative		
		Project Case	Project Case Alternative A	Project Case Alternative B
1	65.7	1.3	0.6	0.4
2	63.0	1.7	0.9	0.5
3	64.3	2.2	1.3	0.4
4	61.9	**3.9**	**3.0**	0.4
5	62.8	**4.2**	**3.2**	0.0
6	66.4	**2.4**	1.4	0.2
7	64.2	1.6	0.5	0.4
8	61.2	**4.0**	**3.1**	0.3
9	59.3	**3.9**	2.8	0.5
10	57.4	**3.4**	1.9	0.8
11	61.7	2.2	1.2	0.4
12	58.5	0.9	-0.5	0.9
13	60.6	**4.4**	**3.9**	-0.5
14	56.9	2.0	1.4	0.5
15	59.7	2.1	1.0	0.4
16	52.1	3.3	2.2	0.6
17	54.1	3.7	2.5	0.6
18	52.3	0.6	-0.4	0.2
19	55.0	3.4	2.6	0.0
20	55.8	2.7	1.2	0.8

Significant Impacts are shown in **BOLD TYPE** and are shaded.

Reference Grid Locations are shown on Figure 3.5.3.

TABLE 3.5.13
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
NO PROJECT ALTERNATIVE - YEAR 2000

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	12	522	1,875
Multi-Family Residential	0	0	665	2,491
Mobile Homes	0	0	0	34
Schools	0	0	0	8
Hospitals/Nursing/ Convalescent Homes	0	0	2	2
Places of Public Assembly[a]	0	0	3	29
Transient Lodging	0	0	1	7
Residential Population Exposed[b]	0	37	2,924	12,246
Total Land Area, Acres	393	839	2,043	4,855

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

Frequency of Aircraft Operations

Tables 3.5.19 summarize the projected number of jet aircraft overflights under the No Project Alternative in the three horizon years for locations north and south of SJC. The tables include a breakdown by time of day and type of operation (i.e., arrival or departure).

Surface Traffic Noise Impact

Traffic noise levels produced under the No Project Alternative were calculated using the FHWA Model. A discussion of the FHWA Model and the scope of the traffic noise analysis is found in Setting and Existing Conditions, Section C.3.c, of Appendix 3.5.A. The traffic assumptions used in the FHWA Model also are shown in Setting and Existing Conditions, Section C.3.c, of Appendix 3.5.A. The year 2010 has been used for all traffic noise modeling since that year

TABLE 3.5.14
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES NO PROJECT ALTERNATIVE - YEAR 2005

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	8	351	1,660
Multi-Family Residential	0	0	432	2,610
Mobile Homes	0	0	0	34
Schools	0	0	0	7
Hospitals/Nursing Convalescent Homes	0	0	1	2
Places of Public Assembly[a]	0	0	3	29
Transient Lodgings	0	0	1	6
Residential Population Exposed[b]	0	25	1,943	11,880
Total Land Area, Acres	372	769	1,848	4,486

a Includes churches, libraries, and auditoriums.
b Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

represents full buildout of the area affected by the Project Case Alternatives, and therefore, a worst-case assessment of potential project-related noise impacts.

Table 3.5.20 shows the No Project Alternative traffic noise levels for year 2010 conditions. Noise levels are calculated at 100 feet from roadway centers which represent the typical setback of the nearest noise-sensitive receivers from roads. Table 3.5.20 shows No Project Alternative traffic noise levels along all the studied roadways.

TABLE 3.5.15
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES NO PROJECT ALTERNATIVE - YEAR 2010

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	7	168	1,523
Multi-Family Residential	0	0	668	2,814
Mobile Homes	0	0	0	0
Schools	0	0	0	7
Hospitals/Nursing/ Convalescent Homes	0	0	0	2
Places of Public Assembly[a]	0	0	2	27
Transient Lodgings	0	0	1	7
Residential Population Exposed[b]	0	22	2,271	12,061
Total Land Area, Acres	354	705	1,669	4,100

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

TABLE 3.5.16
COMPARISON OF TIME ABOVE 75 AND 85 DBA - YEAR 2000

Reference Grid Location	Time Above 75 dbA				Time Above 85 dBA			
	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B
1	23.1	-2.3	-0.6	-0.8	2.5	-1.0	-0.6	-0.4
2	14.1	-0.8	-0.4	-0.3	0.5	-0.1	+0.1	0.0
3	19.6	-0.1	+1.0	-0.8	1.3	+0.2	+0.4	-0.1
4	15.7	+4.0	+5.1	-0.7	0.3	+1.0	+1.0	0.0
5	10.2	+3.2	+3.4	-0.5	0.8	+0.4	+0.4	-0.1
6	19.0	-0.2	+0.3	-0.7	1.3	0.0	+0.2	-0.2
7	13.4	-1.2	-0.9	-0.5	0.3	-0.1	-0.1	0.0
8	14.1	+5.1	+5.9	-0.6	0.0	+0.7	+1.1	0.0
9	9.9	+2.7	+2.9	-0.4	0.0	+0.2	+0.2	0.0
10	6.2	+2.1	+1.5	+0.2	0.0	+0.1	0.0	0.0
11	5.6	+0.9	+1.0	-0.3	0.0	+0.1	+0.1	0.0
12	3.6	-1.2	-0.8	-0.2	0.0	0.0	0.0	0.0
13	19.2	+24.3	+16.6	+6.2	0.0	+0.2	+0.3	0.0
14	5.3	+0.3	+0.7	-0.1	0.0	0.0	0.0	0.0
15	2.2	+0.2	+0.2	0.0	0.0	0.0	0.0	0.0
16	0.4	+1.2	+1.1	-0.1	0.0	0.0	0.0	0.0
17	12.8	+8.3	+6.9	+0.5	0.0	0.0	0.0	0.0
18	1.4	-0.7	-0.5	-0.2	0.0	0.0	0.0	0.0
19	2.4	+0.4	+0.7	-0.4	0.0	0.0	+0.1	0.0
20	3.2	+1.1	+0.3	+0.4	0.0	0.0	0.0	0.0

Data under No Project Alternative are shown in minutes per day. Data under the Project Case Alternatives are expressed in the increase/decrease in minutes per day compared to the No Project Alternative.

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.17
COMPARISON OF TIME ABOVE 75 AND 85 DBA - YEAR 2005

Reference Grid Location	Time Above 75 dbA				Time Above 85 dBA			
	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B
1	20.7	+5.2	+2.3	+1.7	1.9	-0.2	-0.1	0.0
2	11.8	+4.2	+1.6	+1.1	0.4	0.0	+0.2	0.0
3	17.3	+6.8	+3.6	+0.9	1.0	+0.7	+0.6	+0.1
4	13.3	+10.6	+7.5	+0.7	0.2	+1.1	+1.0	0.0
5	9.9	+8.2	+5.1	+0.4	0.6	+0.8	+0.5	+0.1
6	18.3	+7.1	+3.0	+1.1	1.0	+0.5	+0.4	-0.1
7	12.9	+3.7	+1.0	+0.8	0.2	0.0	0.0	0.0
8	11.8	+11.2	+7.9	+0.6	0.0	+0.7	+1.0	0.0
9	8.0	+6.6	+4.2	+0.5	0.0	+0.2	+0.2	0.0
10	4.9	+4.5	+2.2	+0.7	0.0	+0.1	0.0	0.0
11	5.4	+3.5	+2.0	+0.3	0.0	0.0	+0.1	0.0
12	3.1	-0.3	-0.4	0.0	0.0	0.0	0.0	0.0
13	15.7	+36.3	+18.4	+7.4	0.0	+0.2	+0.3	0.0
14	4.2	+2.1	+1.3	+0.3	0.0	0.0	0.0	0.0
15	1.9	+1.0	+0.5	+0.1	0.0	0.0	0.0	0.0
16	0.2	+1.5	+1.1	0.0	0.0	0.0	0.0	0.0
17	10.1	+13.9	+8.2	+1.5	0.0	0.0	0.0	0.0
18	1.1	-0.3	-0.3	0.0	0.0	0.0	0.0	0.0
19	1.9	+1.4	+1.1	-0.1	0.0	+0.1	+0.1	0.0
20	2.6	+2.3	+0.6	+0.6	0.0	0.0	0.0	0.0

Data under No Project Alternative are shown in minutes per day. Data under the Project Case Alternatives are expressed in the increase/decrease in minutes per day compared to the No Project Alternative.

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.18
COMPARISON OF TIME ABOVE 75 AND 85 DBA - YEAR 2010

Reference Grid Location	Time Above 75 dbA				Time Above 85 dBA			
	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B
1	18.2	+7.4	+3.2	+1.7	1.4	0.0	0.0	0.0
2	9.4	+5.1	+2.1	+1.1	0.3	0.0	+0.1	0.0
3	14.8	+8.6	+4.4	+1.1	0.7	+0.6	+0.5	+0.1
4	10.7	+11.8	+7.5	+0.8	0.1	+1.0	+0.8	0.0
5	9.7	+10.1	+5.7	+0.7	0.5	+0.7	+0.4	0.0
6	17.8	+10.3	+4.3	+1.7	0.8	+0.7	+0.5	0.0
7	12.4	+6.1	+2.0	+1.2	0.2	-0.1	0.0	-0.1
8	9.3	+10.8	+7.7	+0.7	0.0	+0.5	+0.7	0.0
9	5.9	+6.9	+3.9	+0.6	0.0	+0.1	+0.1	0.0
10	3.5	+4.3	+1.9	+0.6	0.0	0.0	0.0	0.0
11	5.3	+4.8	+2.5	+0.6	0.0	0.0	0.0	0.0
12	2.6	-0.1	-0.3	0.0	0.0	0.0	0.0	0.0
13	11.9	+36.2	+15.2	+6.4	0.0	+0.2	+0.2	0.0
14	3.0	+2.2	+1.2	+0.4	0.0	0.0	0.0	0.0
15	1.6	+1.3	+0.6	+0.2	0.0	0.0	0.0	0.0
16	0.1	+1.2	+0.9	+0.1	0.0	0.0	0.0	0.0
17	7.1	+13.2	+6.6	+1.4	0.0	0.0	0.0	0.0
18	0.8	-0.2	-0.2	0.0	0.0	0.0	0.0	0.0
19	1.5	+1.4	+1.0	-0.1	0.0	0.0	+0.1	0.0
20	1.8	+2.2	+0.6	+0.6	0.0	0.0	0.0	0.0

Data under No Project Alternative are shown in minutes per day. Data under the Project Case Alternatives are expressed in the increase/decrease in minutes per day compared to the No Project Alternative.

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.19
ANNUAL AVERAGE DAILY JET AIRCRAFT OPERATIONS[a]
NO PROJECT ALTERNATIVE

Observer Location	Time of Day	Annual Average Number Operations/Day[b] Arrival	Departure
2000			
North of Airport	7a - 7p	20	121
	7p - 10p	6	25
	10p - 7a	2	13
South of of Airport	7a - 7p	116	21
	7p - 10p	33	4
	10p - 7a	10	2
2005			
North of Airport	7a - 7p	22	121
	7p - 10p	6	24
	10p - 7a	2	14
South of of Airport	7a - 7p	115	21
	7p - 10p	33	4
	10p - 7a	10	2
2010			
North of Airport	7a - 7p	20	121
	7p - 10p	6	23
	10p - 7a	2	14
South of of Airport	7a - 7p	115	21
	7p - 10p	33	4
	10p - 7a	10	3

a Includes all air carrier, air cargo and general aviation jet aircraft. An operation is an arrival or depature. Operations are rounded to the nearest whole number.

b Determined by dividing the total number of operations forecast for the year by 365 and then adjusting for annual average runway use.

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.20
TRAFFIC NOISE LEVELS
NO PROJECT ALTERNATIVE - YEAR 2010

Roadway Description	**Traffic Noise Levels, L_{dn}** No Project Alternative
Coleman Avenue	
I-880 to Hedding Street	62.8
Hedding Street to Taylor Street	61.8
North First Street	
Skyport Drive to I-880	60.3
Guadalupe Parkway	
Skyport Drive to Sonora Avenue	74.2
Sonora Avenue to Ferrari Avenue	62.2
Ferrari Avenue to Taylor Street	74.2
Taylor Street to Coleman Avenue	65.5
Coleman Avenue to Julian Street	75.5

SOURCE: Brown-Buntin Associates, Inc.

3.5.2.4 Noise Impacts of the Project Case

When compared to the No Project Alternative, noise impacts at SJC under the Project Case could occur for the following reasons: 1) the extension of Runway 12L/30R to air carrier length during Phase 1; 2) projected increases in air carrier and air cargo operations during Phases 2 and 3; 3) projected increases in surface traffic volumes; and 4) short-term construction activities.

Aircraft Noise Impact

Phase 1 (Year 2000)

Noise Modeling Assumptions. The Project Case includes reconstruction and extension of Runways 12R/30L and 12L/30R in Phase 1 so that they are both air carrier runways about the same length (approximately 11,000 feet).

Cumulative Noise Exposure Analysis. Figure 3.5.8 shows the CNEL contours for the year 2000. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

Table 3.5.10 compares cumulative noise exposure as defined by the CNEL for the Project Case to the No Project Alternative at the twenty reference grid locations for the year 2000. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows no significant changes in CNEL values under the Project Case in the year 2000.

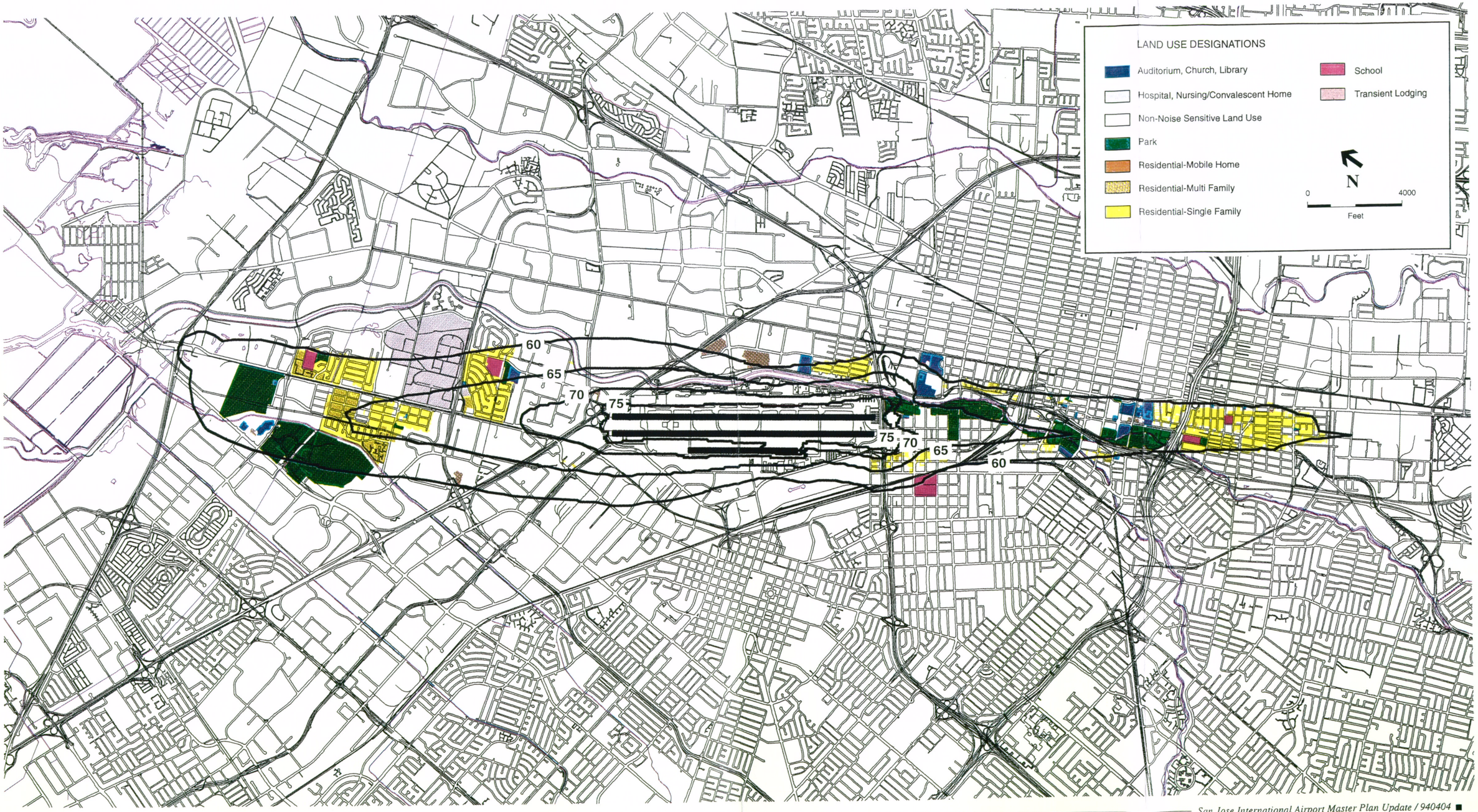
Table 3.5.16 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of the Project Case would be above either 75 or 85 dBA for the year 2000.

Table 3.5.21 summarizes the projected number of jet aircraft overflights under the Project Case in the year 2000 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

Single-Event Noise Exposure Analysis. Single-event noise exposure with implementation of the Project Case in Phase 1 would increase in some areas near SJC because jet aircraft would be able to operate on Runway 12L/30R. SEL values at the twenty reference locations are shown in Table 3.5.22 for individual operations by representative aircraft.

For comparison purposes, the SEL values reported in Table 3.5.22 have been compared to the No Project Alternative to determine if a significant change in single event noise exposure as defined by the thresholds of significance defined for this analysis would occur. Significant changes are shown as **bold** numbers and are shaded. The table shows presumed significant changes at eight of the reference grid locations. Figure 3.5.9 depicts the extent of the 90 SEL contours for individual operations by these same aircraft under the Project Case.

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.23 summarizes the estimated land area within CNEL contours for the Project Case in the year 2000 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. Land use and population estimates summarized by Table 3.5.22 were prepared by the City of San Jose by overlaying the CNEL contours prepared using the INM on digitized land use base maps representative of the land uses expected in the year 2000. The data in Table 3.5.23 indicate that the number of people within the 65 CNEL contour would be 2,789 under the Project Case, as compared to 2,924 under the No Project Alternative in year 2000. This decrease of approximately five percent under the Project Case occurs principally because



SOURCE: City of San Jose

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Figure 3.5.8
Proposed Project Noise Contours - Year 2000

TABLE 3.5.21
ANNUAL AVERAGE DAILY JET AIRCRAFT OPERATIONS[a]
PROJECT CASE

Observer Location	Time of Day	Annual Average Number Operations/Day[b] Arrival	Departure
	2000		
North of Airport	7a - 7p	21	121
	7p - 10p	6	25
	10p - 7a	2	13
South of of Airport	7a - 7p	116	21
	7p - 10p	33	4
	10p - 7a	11	2
	2005		
North of Airport	7a - 7p	28	165
	7p - 10p	8	33
	10p - 7a	3	20
South of of Airport	7a - 7p	157	29
	7p - 10p	46	6
	10p - 7a	15	4
	2010		
North of Airport	7a - 7p	31	187
	7p - 10p	9	37
	10p - 7a	3	23
South of of Airport	7a - 7p	177	33
	7p - 10p	53	7
	10p - 7a	17	4

a Includes all air carrier, air cargo and general aviation jet aircraft. An operation is an arrival or depature. Operations are rounded to the nearest whole number.

b Determined by dividing the total number of operations forecast for the year by 365 and then adjusting for annual average runway use. The relative percentages of jet aircraft operations on Runway 12R/30L and 12L/30R is provided in Table 1 of Appendix 3.5.A.

SOURCE: Brown-Buntin Associates, Inc.

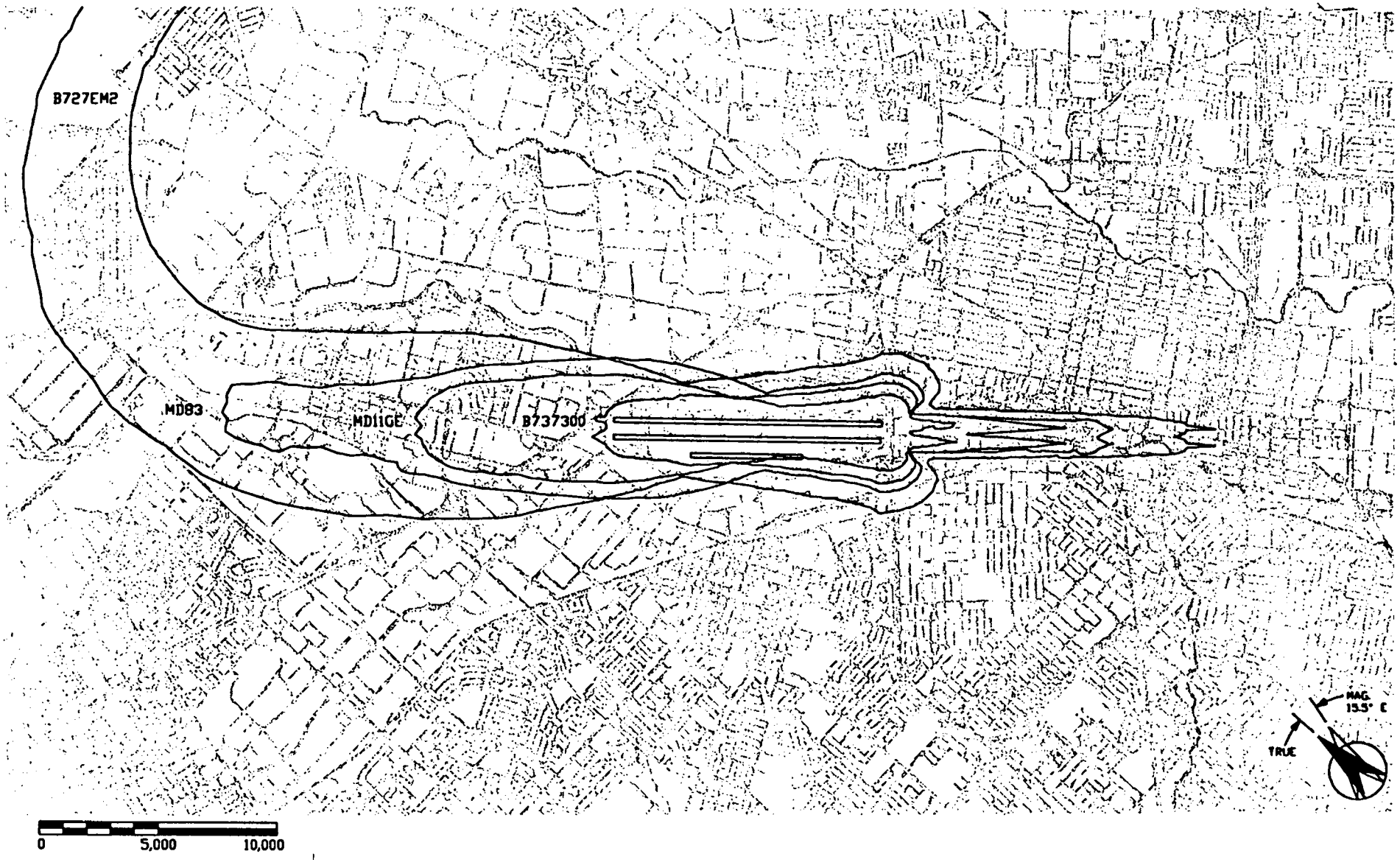
TABLE 3.5.22
SINGLE EVENT NOISE EXPOSURE
PROJECT CASE COMPARED TO NO PROJECT ALTERNATIVE

	SEL, dB[a]			
Reference Grid Location[b]	Boeing 737-300 ([c])	McDonnell Douglas MD-80 ([c])	McDonnell Douglas MD-11 ([c])	Boeing 727-200 ([c]) (Fed. Exp. Hushkit)
1	90.3 (0.0)	93.6 (-0.2)	91.1 (0.0)	104.0 (0.0)
2	87.2 (0.0)	91.8 (-0.1)	89.1 (0.0)	101.9 (0.1)
3	89.3 (2.4)	92.8 (0.1)	91.0 (2.0)	103.4 (0.1)
4	84.7 (1.9)	94.5 (2.1)	92.5 **(4.1)**	102.6 **(3.5)**
5	91.2 **(3.7)**	97.7 (1.3)	95.9 (1.7)	106.5 **(4.3)**
6	91.6 (2.3)	96.9 (-1.0)	95.1 (-1.1)	106.2 (-0.3)
7	88.0 (0.0)	92.3 (-0.3)	89.6 (0.0)	102.4 (-1.0)
8	84.7 (2.5)	93.8 (2.9)	91.1 **(4.1)**	100.3 **(4.2)**
9	82.9 (1.6)	91.4 (2.1)	87.7 **(3.7)**	100.2 **(3.5)**
10	81.5 (0.6)	91.4 (1.5)	84.9 **(4.6)**	96.9 **(3.0)**
11	86.3 (1.0)	90.7 (-0.8)	88.9 (1.0)	100.3 (-0.4)
12	82.0 (-0.2)	90.4 (-0.4)	87.6 (0.0)	92.9 (0.4)
13	85.0 **(5.4)**	93.2 **(3.5)**	90.2 **(4.0)**	95.8 **(3.7)**
14	78.0 (0.0)	87.6 (0.4)	84.1 (0.7)	94.9 (0.1)
15	84.9 (1.5)	88.6 (-0.1)	86.9 (0.7)	96.0 (-0.4)
16	76.1 (1.6)	83.4 (1.7)	79.2 (2.8)	88.9 (2.2)
17	80.6 **(3.2)**	87.8 **(4.3)**	82.8 **(3.4)**	87.5 (2.0)
18	76.9 (-0.8)	85.7 (-0.2)	82.3 (-0.3)	90.1 (0.1)
19	82.3 (1.5)	91.8 (1.9)	86.0 (-0.8)	98.4 **(3.2)**
20	80.3 (0.1)	89.0 (-0.1)	81.9 (1.7)	90.9 (2.0)

Note: Changes assumed to be significant are noted by bold numbers and are shaded.

a Calculated by INM Version 4.11. For departures by Boeing 737-300 and McDonnell Douglas MD-80 aircraft, a trip length of 500-1000 nautical miles was assumed. For departures by McDonnell Douglas MD-11 and Boeing 727-200 aircraft, a trip length of 1500-2500 nautical miles was assumed. These are typical trip lengths for aircraft at SJC.
b Refer to Figure 3.5.3 for a map showing the reference grid locations.
c Changes are relative to the No Project Alternative.

SOURCE: Brown-Buntin Associates, Inc.



SOURCE: City of San Jose

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Figure 3.5.9
Project Case SEL 90 dBA Contours

TABLE 3.5.23
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE - YEAR 2000

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	7	542	2,253
Multi-Family Residential	0	0	592	2,489
Mobile Homes	0	0	0	0
Schools	0	0	0	2
Hospitals/Nursing/ Convalescent Homes	0	0	2	3
Places of Pubilc Assembly[a]	0	0	5	32
Transient Lodging	0	1	1	13
Residential Popopulation Exposed[b]	0	22	2,789	13,089
Total Land Area, Acres	475	915	2,070	4,937

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

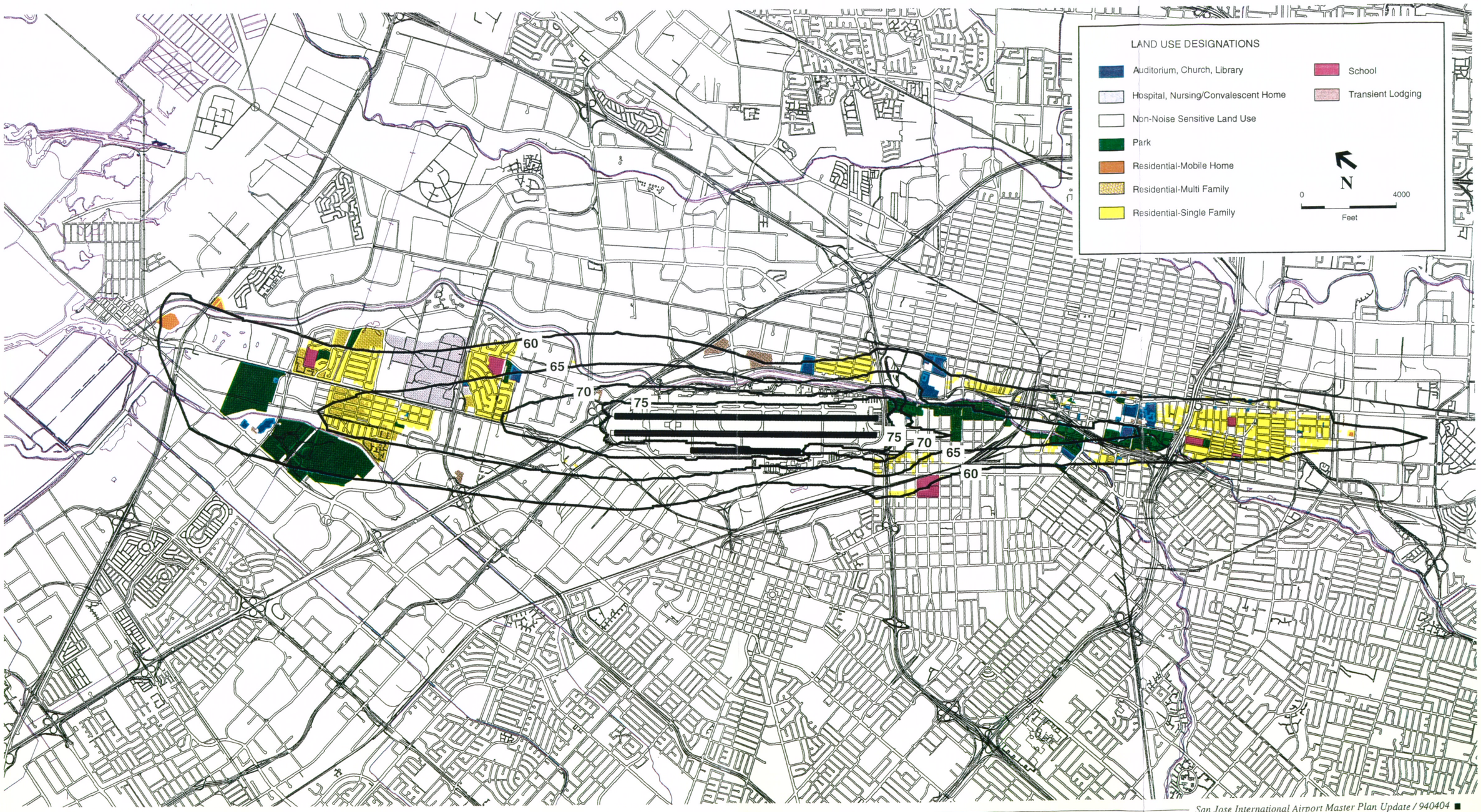
the aircraft operations are distributed to two runways instead of one runway, which results in a reduction in the extent of the CNEL contours in areas where noise-sensitive land uses are located (see Figure 3.5.8).

Phase 2 (Year 2005)

Noise Modeling Assumptions. The Project Case includes the construction of new passenger and air cargo facilities during Phase 2, as described in Section 2.3.1.

Cumulative Noise Exposure Analysis. Figure 3.5.10 shows the CNEL contours prepared using the above-described airport operational data for the year 2005. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

Table 3.5.11 compares cumulative noise exposure as defined by the CNEL for the Project Case to the No Project Alternative at the twenty reference grid locations for the year 2005. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows significant changes in CNEL values at seven of the twenty reference grid locations under the Project Case in the year 2005.



SOURCE: City of San Jose

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Figure 3.5.10
Project Case Noise Contours - Year 2005

Table 3.5.17 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of the Project Case would be above either 75 or 85 dBA for the year 2005.

Table 3.5.21 summarizes the projected number of jet aircraft overflights under the Project Case in the year 2005 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

Single-Event Noise Exposure Analysis. The single-event noise impacts identified above under Phase 1 would continue to occur under Phase 2. Phase 2 does not include any changes to the airfield which would change the SEL values disclosed above (see Table 3.5.22)

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.24 summarizes the estimated land area within CNEL contours for the Project Case in the year 2005 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the General Plans of San Jose and Santa Clara. Land use and population estimates summarized by Table 3.5.24 were prepared by the City of San Jose by overlaying the CNEL contours prepared using the INM on digitized land use base maps representative of the land uses expected in the year 2005. The data in Table 3.5.24 indicate that the number of people within the 65 CNEL contour would be 4,949 under the Project Case, as compared to 1,943 under the No Project Alternative in year 2005. This increase of 155 percent under the Project Case is the result of increased air carrier and air cargo operations forecasts for the year 2005.

Phase 3 (Year 2010)

Noise Modeling Assumptions. The Project Case includes the construction of new passenger and air cargo facilities during Phase 3, as described in Section 2.3.1.

Cumulative Noise Exposure Analysis. Figure 3.5.11 shows the CNEL contours prepared using the above-described airport operational data for the year 2010. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

Table 3.5.12 compares cumulative noise exposure as defined by the CNEL for the Project Case to the No Project Alternative at the twenty reference grid locations for the year 2010. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows significant changes in CNEL values at eight of the twenty reference grid locations under the Project Case in the year 2010.

TABLE 3.5.24
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE - YEAR 2005

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	17	708	2,711
Multi-Family Residential	0	19	1,295	6,003
Mobile Homes	0	0	0	158
Schools	0	0	1	8
Hospitals/Nursing/ Convalescent Homes	0	0	2	3
Places of Public Assembly[a]	1	2	7	46
Transient Lodgings	0	1	1	19
Residential Population Exposed[b]	0	96	4,949	23,735
Total Land Area, Acres	524	1,041	2,414	5,730

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

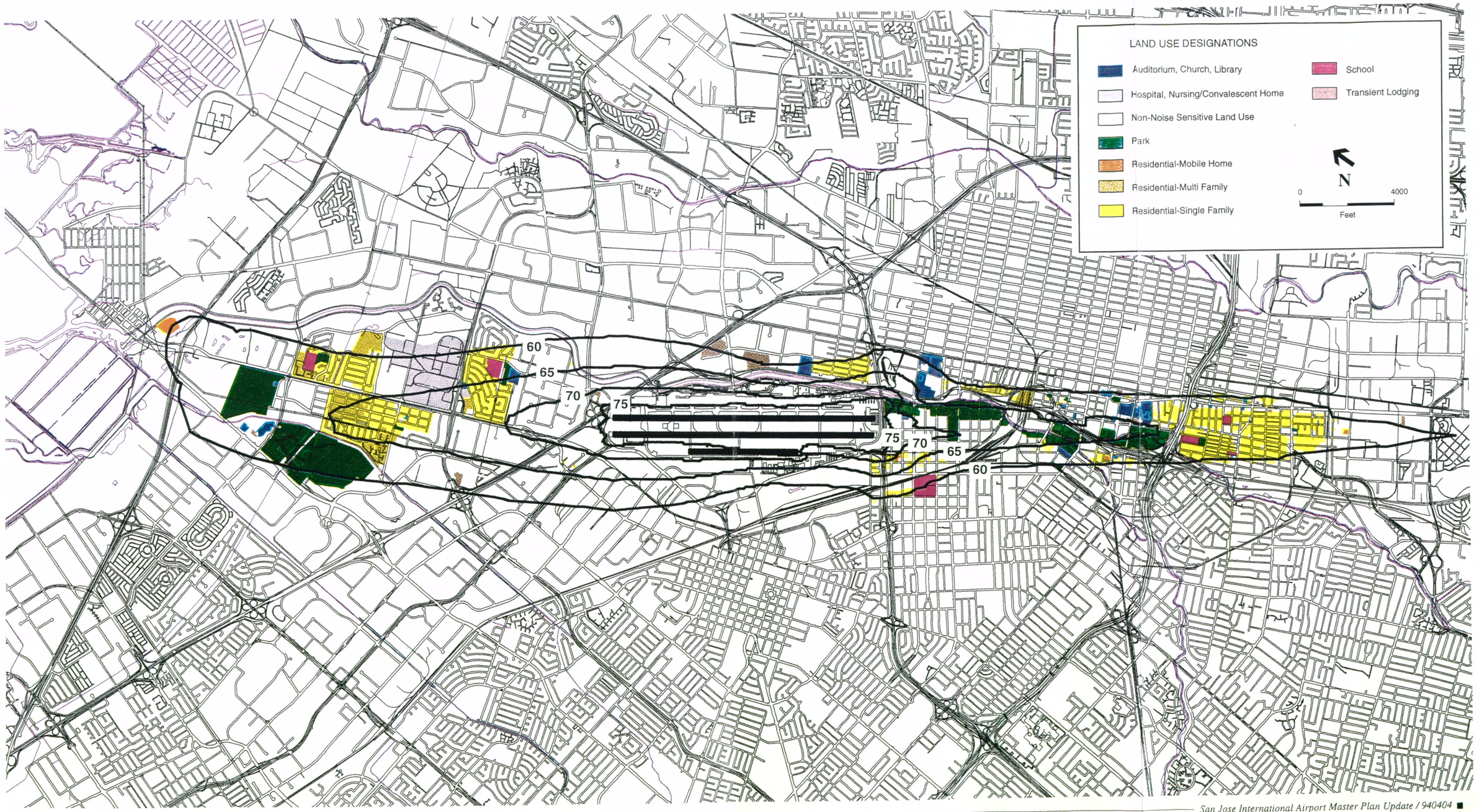
SOURCE: City of San Jose

Table 3.5.18 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of the Project Case would be above either 75 or 85 dBA for the year 2010.

Table 3.5.21 summarizes the projected number of jet aircraft overflights under the Project Case in the year 2010 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

Single-Event Noise Exposure Analysis. The single-event noise impacts identified above under Phase 1 would continue to occur under Phase 3. Phase 3 does not include any changes to the airfield which would change the SEL values disclosed above (see Table 3.5.22)

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.25 summarizes the estimated land area within CNEL contours for the Project Case in the year 2010 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the General Plans of San Jose and Santa Clara. Land use and population estimates summarized by Table 3.5.25 were prepared by the City of San Jose by overlaying the CNEL contours prepared using the INM on digitized land use base maps representative of the land uses expected in the year 2010. The data



SOURCE: City of San Jose

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Figure 3.5.11

Proposed Project Noise Contours - Year 2010

TABLE 3.5.25
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES PROJECT CASE - YEAR 2010

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	12	668	2,708
Multi-Family Residential	0	11	1,370	6,173
Mobile Homes	0	0	0	146
Schools	0	0	0	8
Hospitals/Nursing/ Convalescent Homes	0	0	2	3
Places of Pubilc Assembly[a]	1	2	9	45
Transient Lodgings	0	1	3	21
Residential Population Exposed[b]	0	71	5,241	24,405
Total Land Area, Acres	522	1,033	2,409	5,653

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

in Table 3.5.25 indicate that the number of people within the 65 CNEL contour would be 5,241 under the Project Case, as compared to 2,271 under the No Project Alternative in year 2010. This increase of 131 percent under the Project Case is the result of increased air carrier and air cargo operations forecast for the year 2010.

Cumulative Aircraft Noise Impact for 2000: In 2000, the Project Case would not result in any significant increases in the CNEL at any reference grid locations. (LESS THAN SIGNIFICANT)

Cumulative Aircraft Noise Impact for 2005 and 2010: In 2005, of the 20 reference grid locations (see Figure 3.5.3), the Project Case would result in significant increases in the CNEL at two reference grid locations inside the 65 CNEL contour (locations 3 and 6) and at five reference grid locations between the 60 CNEL and 65 CNEL contours (locations 4, 5, 8, 9, and 13). In 2010, of the 20 reference grid locations (see Figure 3.5.3), the Project Case would result in significant increases in the CNEL at one reference grid location inside the 65 CNEL contour (location 6) and at six reference grid locations between the 60 CNEL and 65 CNEL contours (locations 4, 5, 8, 9, 10, and 13). (SIGNIFICANT)

Single Event Aircraft Noise Impact: Of the 20 reference grid point locations (see Figure 3.5.3), the Project Case would result in significant increases in SEL at eight locations (locations 4, 5, 8, 9, 10, 13, 17, and 19). (SIGNIFICANT)

Time Above Aircraft Noise Impacts for 2005 and 2010: In 2005, of the 20 reference grid locations (see Figure 3.5.3), the Project Case would result in significant increases in the TA 75 at seven reference grid locations (locations 3, 4, 5, 6, 8, 9, and 13). In 2010, of the 20 reference grid locations (see Figure 3.5.3), the Project Case would result in significant increases in the TA 75 at seven reference grid locations (locations 4, 5, 6, 8, 9, 10, and 13). (SIGNIFICANT)

Surface Traffic Noise Impact

Table 3.5.26 shows Project Case surface traffic noise levels compared to the No Project Alternative for year 2010 conditions and the changes in traffic noise levels attributable to the Project Case. As under the No Project Alternative, the surface traffic noise levels would exceed the City of San Jose's 60 dB Ldn residential land use compatibility standard at 100 feet from the center of the roadway along all the studied roadways. However, the increase in surface traffic noise levels attributable to the Project Case would range from 0 to +0.1 dB. Such increases would be less than significant.

Surface Traffic Noise Impact: Increases in Airport activity would result in increases in surface traffic noise levels from 0 to +0.1 dB along all studied roadways near SJC. (LESS THAN SIGNIFICANT)

Construction Noise Impact

During the construction phases of the Project Case, noise from construction activities would occur. The closest noise-sensitive uses from any proposed construction location include the motel off Trimble Road, the residential area north of I-880 and west of Coleman Avenue, and the residential area north of I-880 and east of Guadalupe Parkway. Construction equipment generates single-event noise levels in the range of 70 to 90 dBA at a 50-foot distance from the source and has the potential for disturbing surrounding land uses when equipment is operating in their vicinity (see Table 3.5.27). However, noise levels from a point source, such as construction equipment, decrease at the rate of appproximately 6 dB with each doubling of distance from the source. Therefore, at a distance of 800 feet, which is the closest distance between a construction location and a sensitive noise use, the resulting construction equipment noise would range from 46 dBA to 66 dBA. In some cases, intervening buildings and other structures would further reduce noise at noise-sensitive locations. These are exterior noise levels, and interior noise levels typically would be 15 to 25 dB lower. Such noise levels are comparable to common noise events that occur in any residential neighborhood.

Construction Noise Impact: Construction noise associated with the project components would not exceed 70 dBA at any noise-sensitive land use in the vicinity of SJC. (LESS THAN SIGNIFICANT)

TABLE 3.5.26
TRAFFIC NOISE LEVELS
PROJECT CASE COMPARED TO NO PROJECT ALTERNATIVE - YEAR 2010

Roadway Description	Project Case	No project Alternative	Change, dB
Coleman Avenue			
I-880 to Hedding Street	62.8	62.8	0.0
Hedding Street to Taylor Street	61.9	61.8	+0.1
North First Street			
Skyport Drive to I-880	60.4	60.3	+0.1
Guadalupe Parkway			
Skyport Drive to Sonora Avenue	74.3	74.2	+0.1
Sonora Avenue to Ferrari Avenue	62.3	62.2	+0.1
Ferrari Avenue to Taylor Street	74.3	74.2	+0.1
Taylor Street to Coleman Avenue	65.6	65.5	+0.1
Coleman Avenue to Julian Street	75.6	75.5	+0.1

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.27
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Maximum Level, dBA (50 Feet)
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

SOURCE: Cunniff, 1977

3.5.2.5 Noise Impacts of the Project Case Alternative A

When compared to the No Project Alternative, noise impacts at SJC under Project Case Alternative A could occur for the following reasons: 1) the extension of Runway 12L/30R to air carrier length during Phase 1; 2) projected increases in air carrier and air cargo operations during Phases 2 and 3; 3) projected increases in surface traffic volumes; and 4) short-term construction activities.

Aircraft Noise Impact

Phase 1 (Year 2000)

Noise Modeling Assumptions. The primary difference between Project Case Alternative A and the Project Case is that Runway 12L/30R would be reconstructed and extended to a length of 8,900 feet rather than 11,050 feet.

Cumulative Noise Exposure Analysis. Figure 3.5.12 shows the CNEL contours prepared using the above-described Airport operational data for the year 2000. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

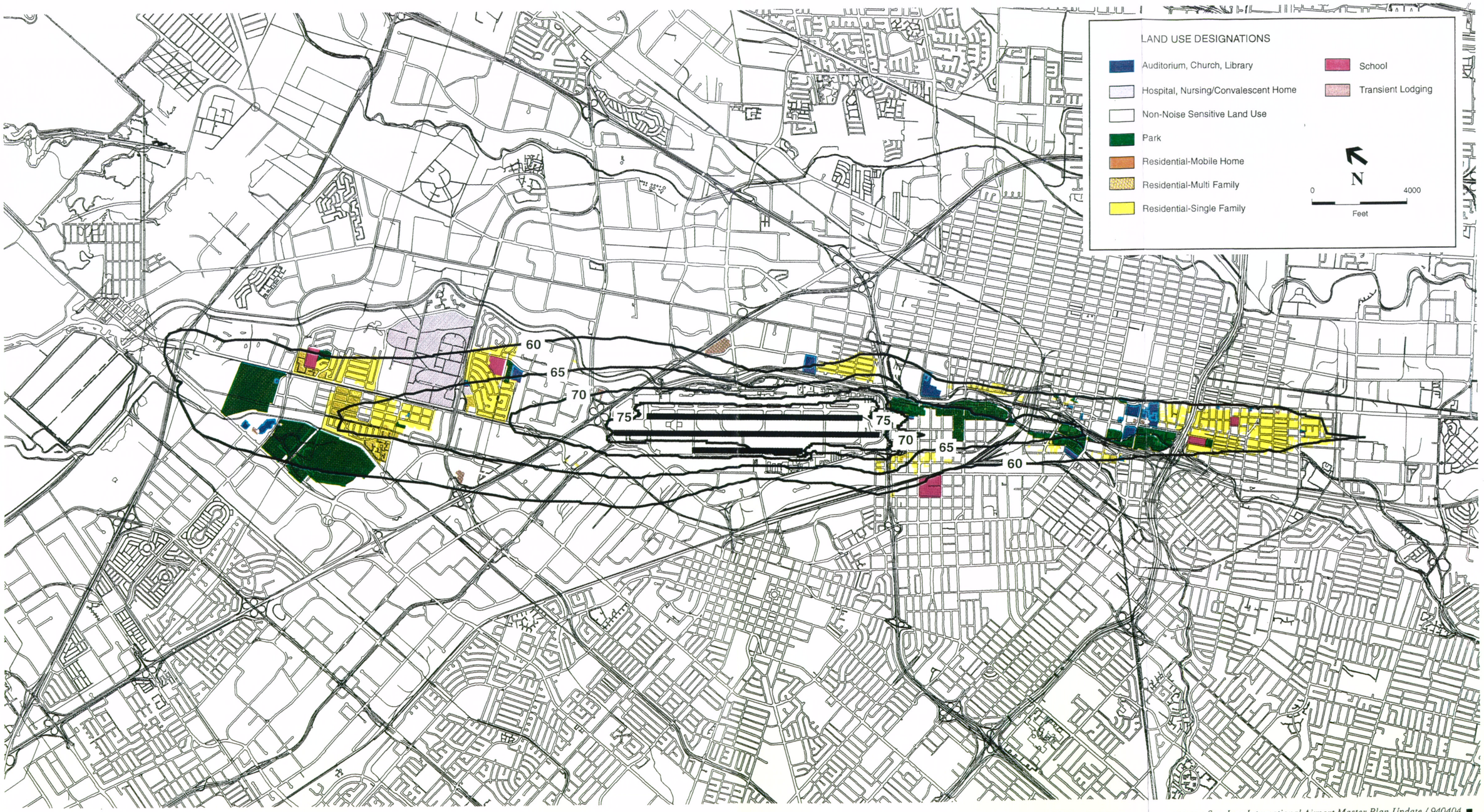
Table 3.5.10 compares cumulative noise exposure as defined by the CNEL for Project Case Alternative A to the No Project Alternative at the twenty reference grid locations for the year 2000. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows a significant change in the CNEL value at one location under Project Case Alternative A in the year 2000.

Table 3.5.16 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of Project Case Alternative A would be above either 75 or 85 dBA for the year 2000.

Table 3.5.28 summarizes the projected number of jet aircraft overflights under Project Case Alternative A in the year 2000 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

In 2000, of the 20 reference grid locations (see Figure 3.5.3), Project Case Alternative A would result in significant increases in the CNEL at one reference grid location between the 60 CNEL and 65 CNEL contours (location 13). This would be a significant impact.

Single-Event Noise Exposure Analysis. Single-event noise exposure with implementation of Project Case Alternative A in Phase 1 would increase in some areas near SJC because larger jet aircraft would be able to operate on Runway 12L/30R. SEL values at the twenty reference locations are shown in Table 3.5.29 for representative aircraft.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.12
Alternative A
Noise Contours - Year 2000

TABLE 3.5.28
ANNUAL AVERAGE DAILY JET AIRCRAFT OPERATIONS[1]
PROJECT CASE ALTERNATIVE A

Observer Location	Time of Day	Annual Average Number Operations/Day[2] Arrival	Departure
	2000		
North of Airport	7a - 7p	21	121
	7p - 10p	6	25
	10p - 7a	2	13
South of of Airport	7a - 7p	116	21
	7p - 10p	33	4
	10p - 7a	11	2
	2005		
North of Airport	7a - 7p	23	136
	7p - 10p	7	27
	10p - 7a	2	16
South of of Airport	7a - 7p	130	24
	7p - 10p	38	5
	10p - 7a	12	3
	2010		
North of Airport	7a - 7p	25	146
	7p - 10p	7	28
	10p - 7a	2	18
South of of Airport	7a - 7p	139	26
	7p - 10p	41	5
	10p - 7a	13	3

1 Includes all air carrier, air cargo and general aviation jet aircraft. An operation is an arrival or depature. Operations are rounded to the nearest whole number.

2 Determined by dividing the total number of operations forecast for the year by 365 and then adjusting for annual average runway use. The relative percentages of jet aircraft operations on Runway 12R/30L and 12L/30R is provided in Table 1 of Appendix 3.5.A.

SOURCE: Brown-Buntin Associates, Inc.

TABLE 3.5.29
SINGLE EVENT NOISE EXPOSURE
PROJECT CASE ALTERNATIVE A COMPARED TO NO PROJECT ALTERNATIVE

	SEL, dB[a]			
Reference Grid Location[b]	Boeing 737-300 ([c])	McDonnell Douglas MD-80 ([c])	McDonnell Douglas MD-11 ([c])	Boeing 727-200 ([c]) (Fed. Exp. Hushkit)
1	90.3 (0.0)	93.9 (0.1)	91.9 (0.0)	104.0 (0.0)
2	87.2 (0.0)	92.1 (0.2)	89.1 (0.0)	101.6 (-0.2)
3	89.3 (2.4)	93.2 (0.5)	90.4 (1.4)	103.3 (0.0)
4	85.0 (2.2)	95.2 (2.8)	89.6 (1.2)	98.9 (-0.2)
5	91.2 **(3.7)**	98.2 (1.8)	93.5 (-0.7)	101.9 (-0.3)
6	91.6 (2.3)	98.2 (0.3)	94.8 (-1.4)	105.4 (-1.1)
7	88.0 (0.0)	92.3 (-0.3)	89.6 (0.0)	102.4 (-1.0)
8	84.9 (2.7)	93.8 (2.9)	88.0 (1.0)	96.5 (0.4)
9	83.5 (2.2)	91.9 (2.6)	85.3 (1.3)	96.9 (0.2)
10	81.4 (0.5)	90.6 (0.7)	82.9 (2.6)	94.1 (0.2)
11	86.3 (1.0)	91.8 (0.3)	89.0 (1.1)	99.8 (-0.9)
12	82.0 (-0.2)	90.4 (-0.4)	87.6 (0.0)	92.9 (0.4)
13	85.4 **(5.8)**	93.5 **(3.8)**	86.5 (0.3)	91.4 (-0.7)
14	78.6 (0.6)	87.8 (0.6)	83.7 (0.3)	94.1 (-0.7)
15	84.5 (1.1)	88.8 (0.1)	86.9 (0.7)	95.7 (-0.7)
16	75.9 (1.4)	83.5 (1.8)	77.2 (0.8)	86.8 (0.1)
17	80.1 (2.7)	86.2 (2.7)	80.1 (0.7)	85.3 (-0.2)
18	76.9 (-0.8)	85.7 (-0.2)	82.3 (-0.3)	90.1 (0.1)
19	83.4 (2.6)	92.7 (2.8)	86.0 (-0.8)	94.9 (-0.3)
20	80.5 (0.3)	89.4 (0.3)	80.8 (0.6)	89.6 (0.7)

Note: Changes assumed to be significant are noted by bold numbers and are shaded.

a Calculated by INM Version 4.11. For departures by Boeing 737-300 and McDonnell Douglas MD-80 aircraft, a trip length of 500-1000 nautical miles was assumed. For departures by McDonnell Douglas MD-11 and Boeing 727-200 aircraft, a trip length of 1500-2500 nautical miles was assumed. These are typical trip lengths for aircraft at SJC.
b Refer to Figure 3.5.3 for a map showing the reference grids locations.
c Changes are relative to the No Project Alternative.

SOURCE: Brown-Buntin Associates, Inc.

For comparison purposes, the SEL values reported in Table 3.5.29 have been compared to the No Project Alternative to determine if a significant change in single event noise exposure as defined by the thresholds of significance defined for this analysis would occur. Significant changes are shown as **bold** numbers and are shaded. Of the 20 reference grid point locations (see Figure 3.5.3), the table shows significant changes at two of the reference grid locations (locations 5 and 13). Figure 3.5.13 depicts the extent of the 90 SEL contours for individual operations by these same aircraft under Project Case Alternative A.

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.30 summarizes the estimated land area within CNEL contours for Project Case Alternative A in the year 2000 along with the estimated number of residential units, schools, hospitals and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. The data in Table 3.5.30 indicate that the number of people within the 65 CNEL contour would be 3,253 under Project Case Alternative A, as compared to 2,924 under the No Project Alternative in year 2000. This increase of 11 percent under Project Case Alternative A is the result of the redistribution of a portion of the air carrier jet aircraft to Runway 12L/30R, which, in turn, results in changes to the extent of CNEL contours in areas where noise-sensitive land uses are located.

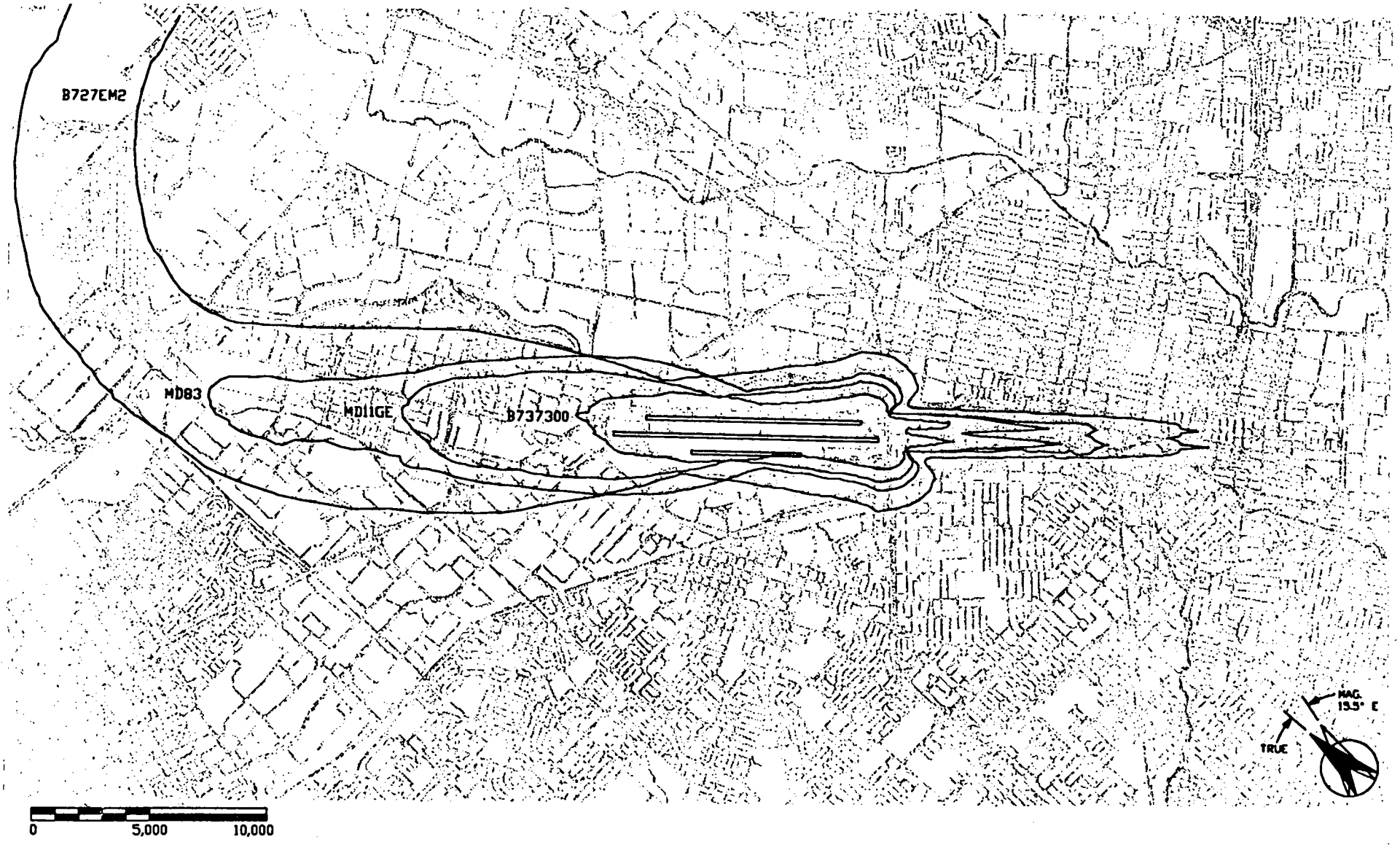
Under Project Case Alternative A, there would be 464 more people within the 65 CNEL contour than under the Project Case. The primary reason for this difference is that the point of departure for Runway 30R is approximately 2,000 feet further north under Project Case Alternative A than for the Project Case and the extent of the contour is displaced to the northeast where residential areas exist.

Phase 2 (Year 2005)

Noise Modeling Assumptions. Project Case Alternative A includes the construction of new passenger and air cargo facilities during Phase 2, as described in Section 2.3.2.

Cumulative Noise Exposure Analysis. Figure 3.5.14 shows the CNEL contours prepared using the above-described airport operational data for the year 2005. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

Table 3.5.11 compares cumulative noise exposure as defined by the CNEL for Project Case Alternative A to the No Project Alternative at the twenty reference grid locations for the year 2005. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows significant changes in CNEL values at one of the twenty reference grid locations under Project Case Alternative A in the year 2005.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.13
Project Case Alternative A
SEL 90 dB Contours

TABLE 3.5.30
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE ALTERNATIVE A - YEAR 2000

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	8	618	2,290
Multi-Family Residential	0	0	703	2,545
Mobile Homes	0	0	0	0
Schools	0	0	0	5
Hospitals/Nursing/ Convalescent Homes	0	0	2	3
Places of Public Assembly[a]	0	0	5	31
Transient Lodgings	0	1	1	13
Residential Population Exposed[b]	0	25	3,253	13,391
Total Land Area, Acres	463	928	2,143	5,039

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara General Plans.

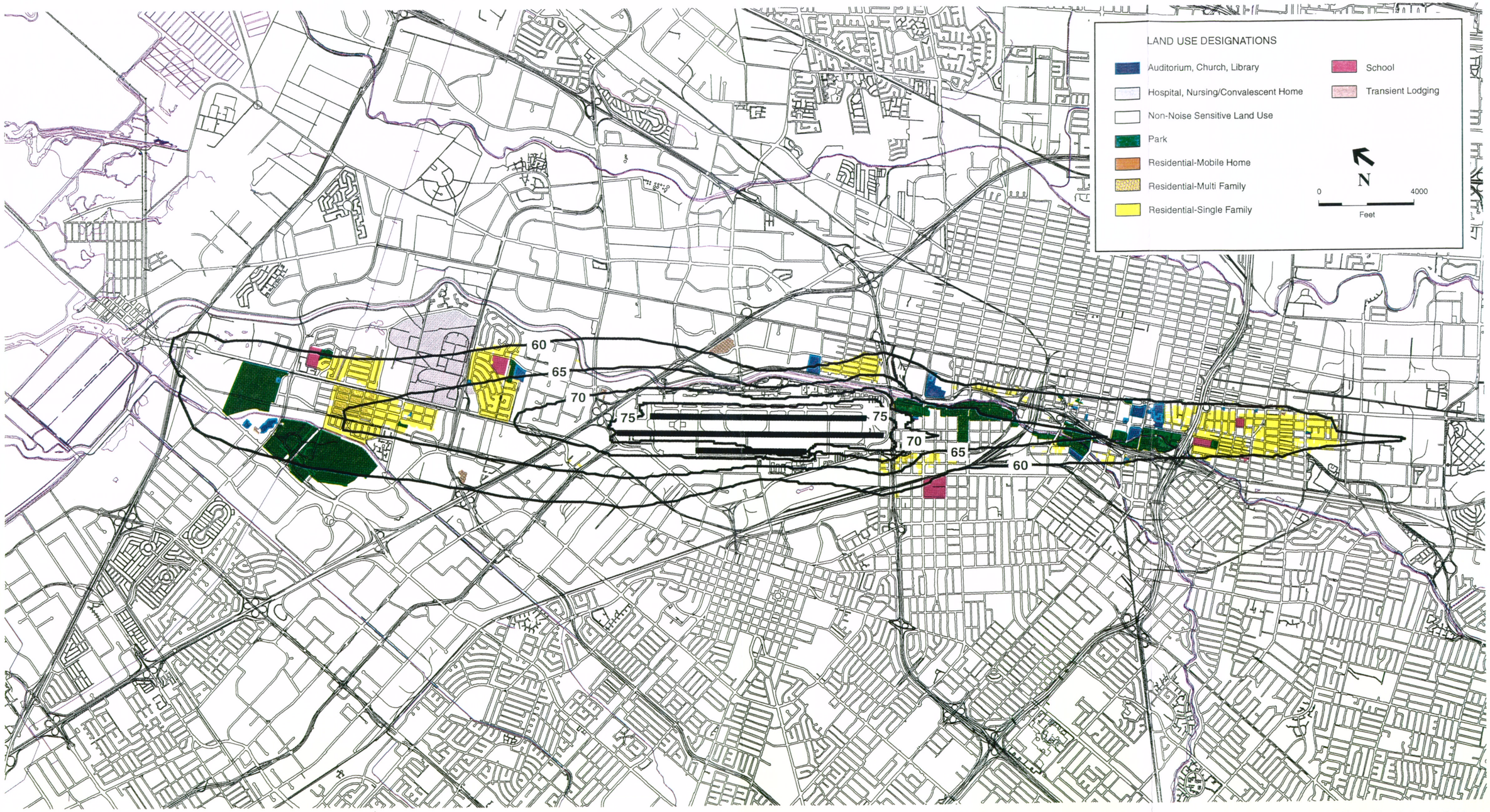
SOURCE: City of San Jose

Table 3.5.17 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of Project Case Alternative A would be above either 75 or 85 dBA for the year 2005.

Table 3.5.28 summarizes the projected number of jet aircraft overflights under Project Case Alternative A in the year 2005 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

In 2005, of the 20 reference grid locations (see Figure 3.5.3), Project Case Alternative A would result in significant increases in the CNEL at one reference grid location between the 60 CNEL and 65 CNEL contours (location 13). This would be a significant impact.

Single-Event Noise Exposure Analysis. The single-event noise impacts identified above under Phase 1 would continue to occur under Phase 2. Phase 2 does not include any changes to the airfield that would change the SEL values disclosed above (see Table 3.5.29). Of the 20 reference grid point locations (see Figure 3.5.3), the table shows significant changes at two of the reference grid locations (locations 5 and 13).



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.14
Project Case Alternative A
Noise Contours - Year 2005

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.31 summarizes the estimated land area within CNEL contours for Project Case Alternative A in the year 2005 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. The data in Table 3.5.31 indicate that the number of people within the 65 CNEL contour would be 3,316 under Project Case Alternative A, as compared to 1,943 under the No Project Alternative in year 2005. The increase of 71 percent under Project Case Alternative A is the result of increased air carrier and air cargo operations forecast for the year 2005.

TABLE 3.5.31
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE ALTERNATIVE A - YEAR 2005

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	10	600	2,361
Multi-Family Residential	0	0	746	2,816
Mobile Homes	0	0	0	34
Schools	0	0	0	6
Hospitals/Nursing Convalscent Homes	0	0	2	3
Places of Public Assembly[a]	0	1	5	33
Transient Lodgings	0	1	1	15
Residential Population Exposed[b]	0	31	3,316	14,438
Total Land Area, Acres	463	928	2,122	5,066

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

Under Project Case Alternative A, there would be 1,633 fewer people within the 65 CNEL contour than under the Project Case. The primary reason for this difference is the lower number of air carrier and air cargo operations forecast for the year 2005 under Project Case Alternative A compared to the Project Case.

Phase 3 (Year 2010)

Noise Modeling Assumptions. Project Case Alternative A includes the construction of new passenger and air cargo facilities during Phase 3, as described in Section 2.3.2.

Cumulative Noise Exposure Analysis. Figure 3.5.15 shows the CNEL contours prepared using the above-described Airport operational data for the year 2010. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

Table 3.5.12 compares cumulative noise exposure as defined by the CNEL for Project Case Alternative A to the No Project Alternative at the twenty reference grid locations for the year 2010. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows significant changes in CNEL values at four of the twenty reference grid locations under Project Case Alternative A in the year 2010.

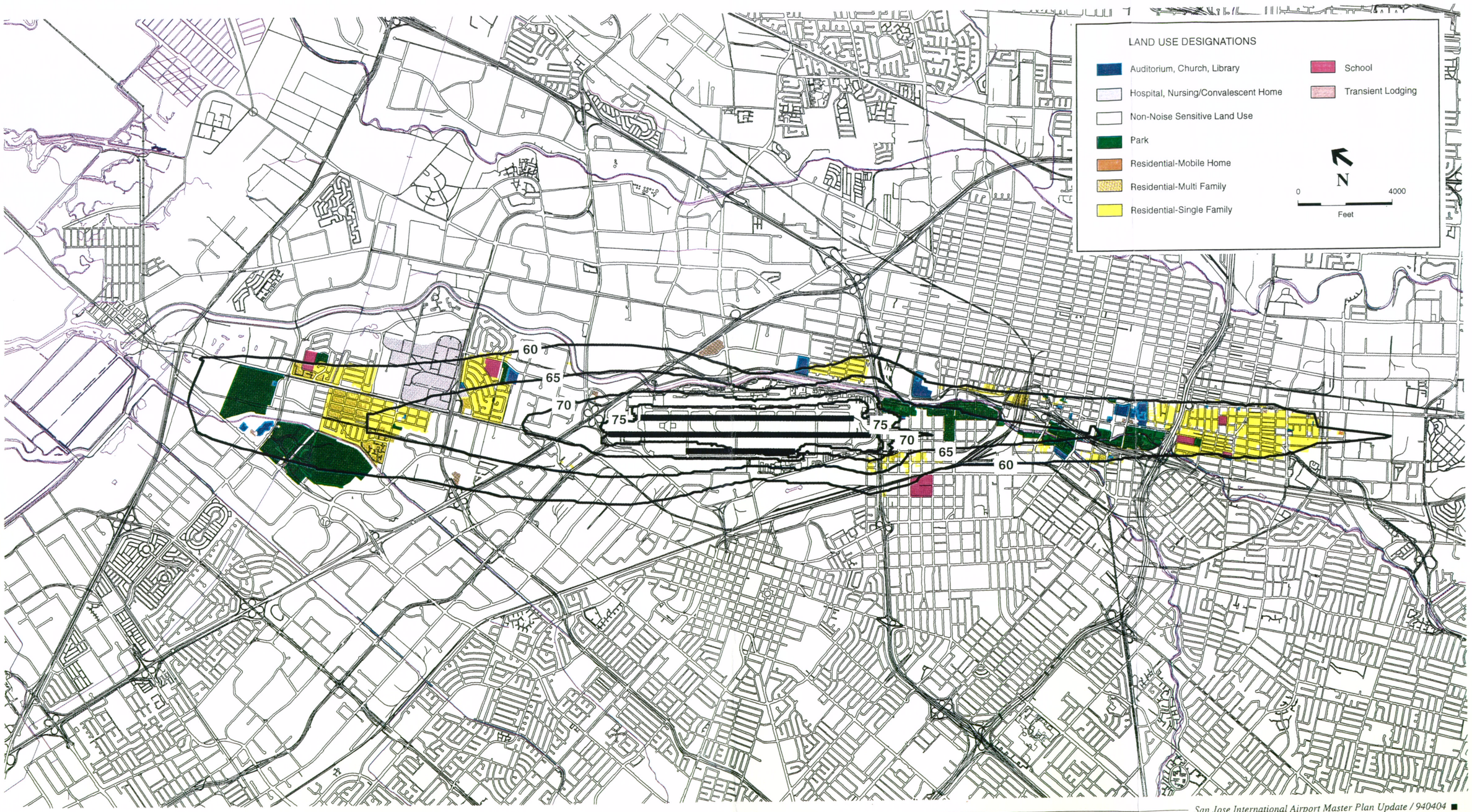
Table 3.5.18 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of Project Case Alternative A would be above either 75 or 85 dBA for the year 2010.

Table 3.5.28 summarizes the projected number of jet aircraft overflights under Project Case Alternative A in the year 2010 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

In 2010, of the 20 reference grid locations (see Figure 3.5.3), Project Case Alternative A would result in significant increases in the CNEL at four reference grid locations between the 60 CNEL and 65 CNEL contours (locations 4, 5, 8, and 13). This would be a significant impact.

Single-Event Noise Exposure Analysis. The single-event noise impacts identified above under Phase 1 would continue to occur under Phase 3. Phase 3 does not include any changes to the airfield that would change the SEL values disclosed above (see Table 3.5.29). Of the 20 reference grid point locations (see Figure 3.5.3), the table shows significant changes at two of the reference grid locations (locations 5 and 13).

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.32 summarizes the estimated land area within CNEL contours for Project Case Alternative A in the year 2010 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. The data in Table 3.5.32 indicate that the number of people within the 65 CNEL contour would be 3,397 under Project Case Alternative A, as compared to 2,271 under the No Project Alternative in year 2010. The increase of 50 percent under Project Case Alternative A is the result of increased air carrier and air cargo operations forecast for the year 2010.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.15
Alternative A
Noise Contours - Year 2010

TABLE 3.5.32
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE ALTERNATIVE A - YEAR 2010

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	10	489	2,317
Multi-Family Residential	0	0	803	3,261
Mobile Homes	0	0	0	34
Schools	0	0	0	8
Hospitals/Nursing/ Convalescent Homes	0	0	2	3
Places of Public Assembly[a]	0	2	4	34
Transient Lodgings	0	1	1	17
Residential Population Exposed[b]	0	31	3,397	15,696
Total Land Area, Acres	460	884	2,015	4,830

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.

SOURCE: City of San Jose

Under Project Case Alternative A, there would be 1,844 fewer people within the 65 CNEL contour, than under the Project Case. The primary reason for this difference is the lower number of air carrier and air cargo operations forecast for the year 2010 under Project Case Alternative A compared to the Project Case.

Surface Traffic Noise Impact

Table 3.5.33 shows Project Case Alternative A surface traffic noise levels compared to the No Project Alternative for year 2010 conditions and the changes in traffic noise levels attributable to Project Case Alternative A. As under the No Project Alternative, the surface traffic noise levels would exceed the City of San Jose's 60 dB Ldn residential land use compatibility standard at 100 feet from the center of the roadway along all the studied roadways. However, the increase in surface traffic noise levels attributable to Project Case Alternative A would range from 0 to +0.1 dB. Such increases would be less than significant.

TABLE 3.5.33
TRAFFIC NOISE LEVELS
PROJECT CASE ALTERNATIVE A
COMPARED TO NO PROJECT ALTERNATIVE - YEAR 2010

	Traffic Noise Levels, L_{dn}		
Roadway Description	Project Case Alternative A	No project Alternative	Change, dB
Coleman Avenue			
I-880 to Hedding Street	62.8	62.8	0.0
Hedding Street to Taylor Street	61.8	61.8	0.0
North First Street			
Skyport Drive to I-880	60.4	60.3	+0.1
Guadalupe Parkway			
Skyport Drive to Sonora Avenue	74.3	74.2	+0.1
Sonora Avenue to Ferrari Avenue	62.3	62.2	+0.1
Ferrari Avenue to Taylor Street	74.3	74.2	+0.1
Taylor Street to Coleman Avenue	65.6	65.5	+0.1
Coleman Avenue to Julian Street	75.6	75.5	+0.1

SOURCE: Brown-Buntin Associates, Inc.

Construction Noise Impact

During the construction phases of Project Case Alternative A, noise from construction activities would occur. The closest noise-sensitive uses from any proposed construction location include the motel off Trimble Road, the residential area north of I-880 and west of Coleman Avenue, and the residential area north of I-880 and east of Guadalupe Parkway. Construction equipment generates single-event noise levels in the range of 70 to 90 dBA at a 50-foot distance from the source and has the potential for disturbing surrounding land uses when equipment is operating in their vicinity (see Table 3.5.27). However, noise levels from a point source, such as construction equipment, decrease at the rate of appproximately 6 dB with each doubling of distance from the source. Therefore, at a distance of 800 feet, which is the closest distance between a construction location and a sensitive noise use, the resulting construction equipment noise would range from 46 dBA to 66 dBA. In some cases, intervening buildings and other structures would further reduce noise at noise-sensitive locations. These are exterior noise levels, and interior noise levels typically would be 15 to 25 dB lower. Such noise levels are comparable to common noise events that occur in any residential neighborhood.

3.5.2.6 Noise Impacts of the Project Case Alternative B

When compared to the No Project Alternative, noise impacts at SJC under Project Case Alternative B could occur for the following reasons: 1) a minor extension of Runway 12R/30L during Phase 1; 2) projected increases in air carrier and air cargo operations during Phases 2 and 3; 3) projected increases in surface traffic volumes; and 4) short-term construction activities

Aircraft Noise Impact

Phase 1 (Year 2000)

Noise Modeling Assumptions. Implementation of Project Case Alternative B would result in the reconstruction and extension of Runway 12R/30L to a length of 11,000 feet. Project Case Alternative B would not include the upgrading of Runway 12L/30R to the extent needed for use by air carrier jet, air cargo jet or corporate jet aircraft. Consequently, runway use factors for these types of aircraft would remain the same as for existing conditions (and the No Project Alternative).

Cumulative Noise Exposure Analysis. Figure 3.5.16 shows the CNEL contours prepared using the above-described Airport operational data for the year 2000. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

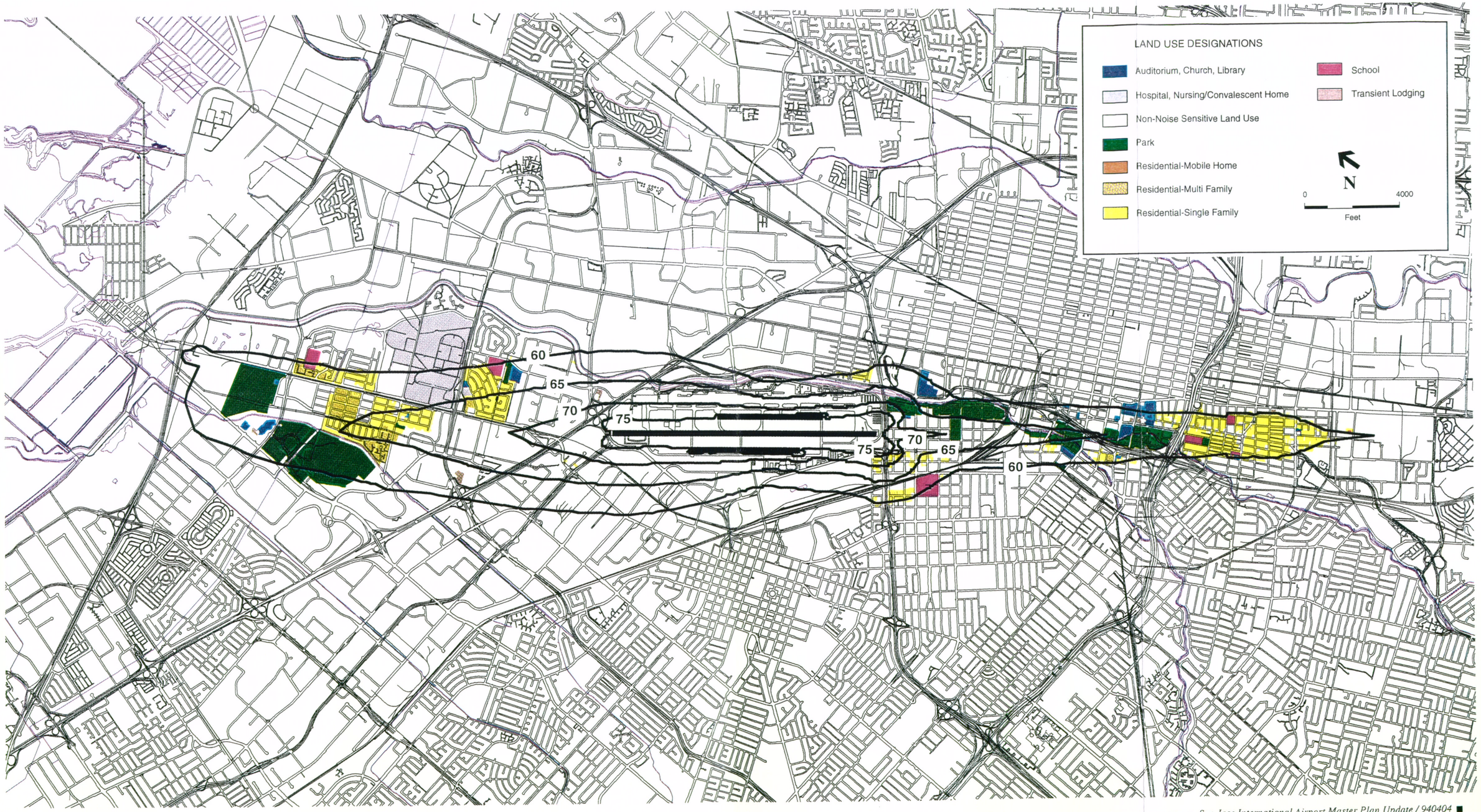
Table 3.5.10 compares cumulative noise exposure as defined by the CNEL for Project Case Alternative B to the No Project Alternative at the twenty reference grid locations for the year 2000. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows no significant change in CNEL values under Project Case Alternative B in the year 2000.

Table 3.5.16 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of Project Case Alternative B would be above either 75 or 85 dBA for the year 2000.

Table 3.5.34 summarizes the projected number of jet aircraft overflights under Project Case Alternative B in the year 2000 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

In 2000, Project Case Alternative B would not result in significant increases in the CNEL at any of the 20 reference grid locations. This would be a less-than-significant impact.

Single-Event Noise Exposure Analysis. Single-event noise exposure with implementation of Project Case Alternative B in Phase 1 would show minor increases in some areas near SJC because of the extension of Runway 12R/30L. However, there would also be some decreases in



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.16
Alternative B
Noise Contours - Year 2000

TABLE 3.5.34
ANNUAL AVERAGE DAILY JET AIRCRAFT OPERATIONS[1]
PROJECT CASE ALTERNATIVE B

Observer Location	Time of Day	Annual Average Number Operations/Day[2] Arrival	Departure
	2000		
North of Airport	7a - 7p	20	120
	7p - 10p	6	25
	10p - 7a	2	13
South of of Airport	7a - 7p	115	21
	7p - 10p	33	4
	10p - 7a	10	2
	2005		
North of Airport	7a - 7p	22	132
	7p - 10p	6	26
	10p - 7a	2	15
South of of Airport	7a - 7p	125	23
	7p - 10p	36	5
	10p - 7a	11	3
	2010		
North of Airport	7a - 7p	23	136
	7p - 10p	7	26
	10p - 7a	2	16
South of of Airport	7a - 7p	130	24
	7p - 10p	37	5
	10p - 7a	12	3

1 Includes all air carrier, air cargo and general aviation jet aircraft. An operation is an arrival or depature. Operations are rounded to the nearest whole number.

2 Determined by dividing the total number of operations forecast for the year by 365 and then adjusting for annual average runway use. The relative percentages of jet aircraft operations on Runway 12R/30L and 12L/30R is provided in Table 1 of Appendix 3.5.A.

SOURCE: Brown-Buntin Associates, Inc.

SEL values due to this extension. SEL values at the twenty reference locations are shown by Table 3.5.35 for representative aircraft.

For comparison purposes, the SEL values reported in Table 3.5.35 have been compared to the No Project Alternative to determine if a significant change in single-event noise exposure as defined by the thresholds of significance defined for this analysis would occur. Significant changes are shown as **bold** numbers and are shaded. The table shows no significant changes at any of the 20 reference grid locations. Figure 3.5.17 depicts the extent of the 90 SEL contours for individual operations by these same aircraft under Project Case Alternative B.

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.36 summarizes the estimated land area within CNEL contours for Project Case Alternative B in the year 2000 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the General Plans of San Jose and Santa Clara. The data in Table 3.5.36 indicate that the number of people within the 65 CNEL contour would be 2,463 under Project Case Alternative B, as compared to 2,924 under the No Project Alternative in year 2000. This decrease of 16 percent under Project Case Alternative B is the result of relocating the point of departure for Runway 30L approximately 300 feet to the south compared to the No Project Alternative.

Under Project Case Alternative B, there would be 326 fewer people within the 65 CNEL contour, than under the Project Case. The primary reason for this difference is that there is no redistribution of aircraft operations to a second air carrier runway as would occur under the Project Case.

Phase 2 (Year 2005)

Noise Modeling Assumptions. Project Case Alternative B includes the construction of new passenger and air cargo facilities during Phase 2, as described in Section 2.3.3.

Cumulative Noise Exposure Analysis. Figure 3.5.18 shows the CNEL contours prepared using the above-described airport operational data for the year 2005. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

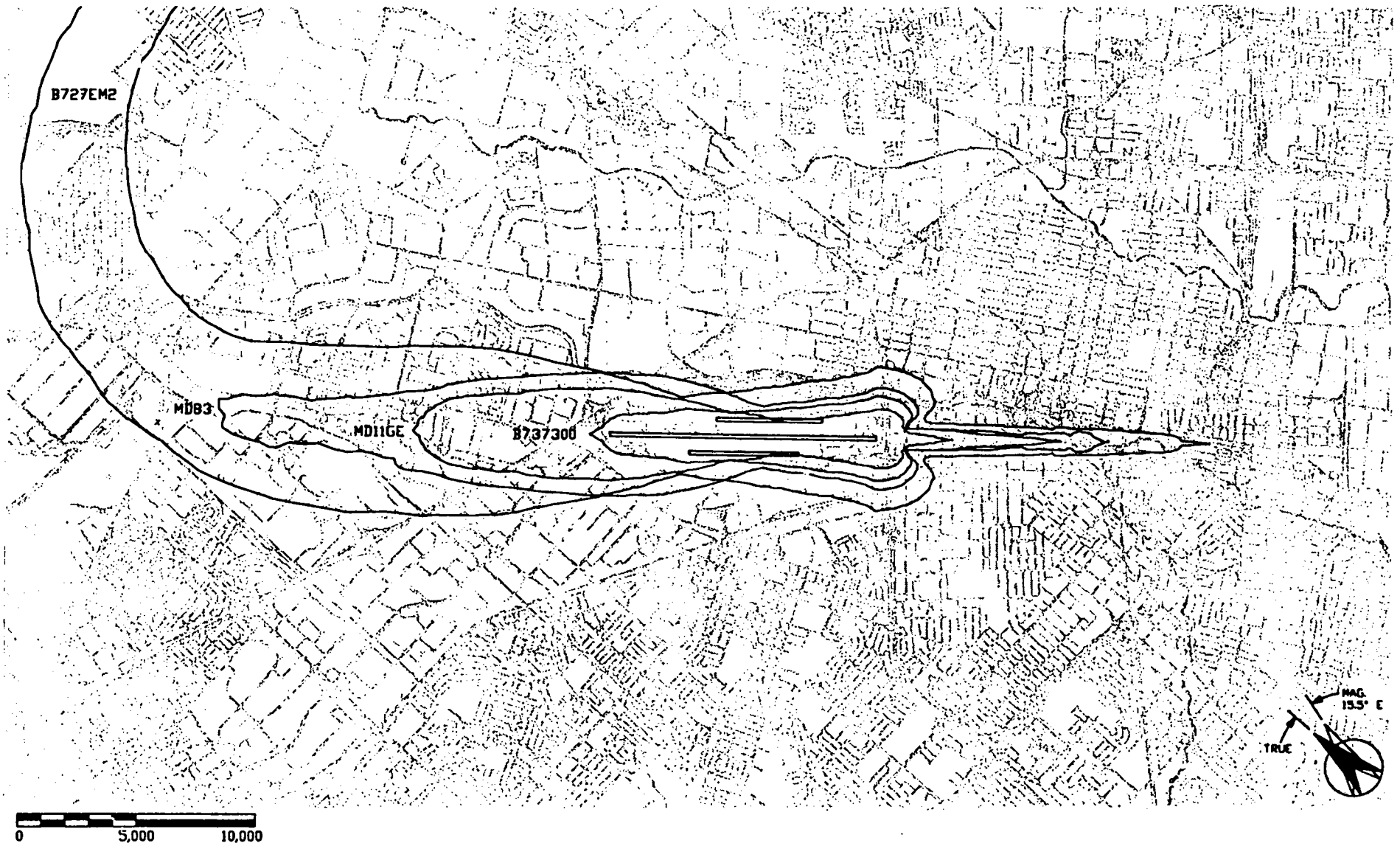
Table 3.5.11 compares cumulative noise exposure as defined by the CNEL for Project Case Alternative B to the No Project Alternative at the twenty reference grid locations for the year 2005. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows no significant changes in CNEL values at any of the twenty reference grid locations under Project Case Alternative B in the year 2005.

TABLE 3.5.35
SINGLE EVENT NOISE EXPOSURE
PROJECT CASE ALTERNATIVE B COMPARED TO NO PROJECT ALTERNATIVE

	SEL, dB[a]			
Reference Grid Location[b]	Boeing 737-300 ([c])	McDonnell Douglas MD-80 ([c])	McDonnell Douglas MD-11 ([c])	Boeing 727-200 ([c]) (Fed. Exp. Hushkit)
1	90.3 (0.0)	93.6 (-0.2)	91.9 (0.0)	104.0 (0.0)
2	87.2 (0.0)	91.8 (-0.1)	89.1 (0.0)	101.6 (-0.2)
3	86.9 (0.0)	92.6 (-0.1)	89.1 (0.1)	103.3 (0.0)
4	82.8 (0.0)	92.2 (-0.2)	89.6 (1.2)	98.9 (-0.2)
5	86.8 (-0.7)	96.0 (-0.4)	93.5 (-0.7)	101.9 (-0.3)
6	89.3 (0.0)	96.7 (-1.2)	94.8 (-1.4)	105.4 (-1.1)
7	88.0 (0.0)	92.3 (-0.3)	89.6 (0.0)	102.4 (-1.0)
8	82.0 (-0.2)	90.9 (0.0)	88.0 (1.0)	96.5 (0.4)
9	81.2 (-0.1)	89.3 (0.0)	85.3 (1.3)	96.9 (0.2)
10	81.0 (0.1)	90.5 (0.6)	82.9 (2.6)	94.1 (0.2)
11	85.3 (0.0)	90.4 (-1.1)	87.9 (0.0)	99.8 (-0.9)
12	82.0 (-0.2)	90.4 (-0.4)	87.6 (0.0)	92.9 (0.4)
13	81.9 (2.3)	90.0 (0.3)	86.5 (0.3)	91.4 (-0.7)
14	77.7 (-0.3)	87.1 (-0.1)	83.7 (0.3)	94.1 (-0.7)
15	83.4 (0.0)	88.5 (-0.2)	86.2 (0.0)	95.7 (-0.7)
16	74.6 (0.1)	81.7 (0.0)	77.2 (0.8)	86.8 (0.1)
17	78.1 (0.7)	85.1 (1.6)	80.1 (0.7)	85.3 (-0.2)
18	76.9 (-0.8)	85.7 (-0.2)	82.3 (-0.3)	90.1 (0.1)
19	79.9 (-0.9)	89.1 (-0.8)	86.0 (-0.8)	94.9 (-0.3)
20	80.1 (-0.1)	88.9 (-0.2)	80.8 (0.6)	89.6 (0.7)

a Calculated by INM Version 4.11. For departures by Boeing 737-300 and McDonnell Douglas MD-80 aircraft, a trip length of 500-1000 nautical miles was assumed. For departures by McDonnell Douglas MD-11 and Boeing 727-200 aircraft, a trip length of 1500-2500 nautical miles was assumed. These are typical trip lengths for aircraft at SJC.
b Refer to Figure 3.5.3 for a map showing the reference grid locations.
c Changes are relative to the No Project Alternative.

SOURCE: Brown-Buntin Associates, Inc.



SOURCE City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.17
Project Case Alternative B
SEL 90 dB Contours

TABLE 3.5.36
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE ALTERNATIVE B - YEAR 2000

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	25	458	1,856
Multi-Family Residential	0	19	525	2,485
Mobile Homes	0	0	0	34
Schools	0	0	0	8
Hospitals/Nursing/ Convalescent Homes	0	0	1	3
Places of Public Assembly[a]	0	1	3	30
Transient Lodgings	0	0	1	7
Residential Population Exposed[b]	0	136	2,463	12,168
Total Land Area, Acres	415	835	2,001	4,761

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.
SOURCE: City of San Jose

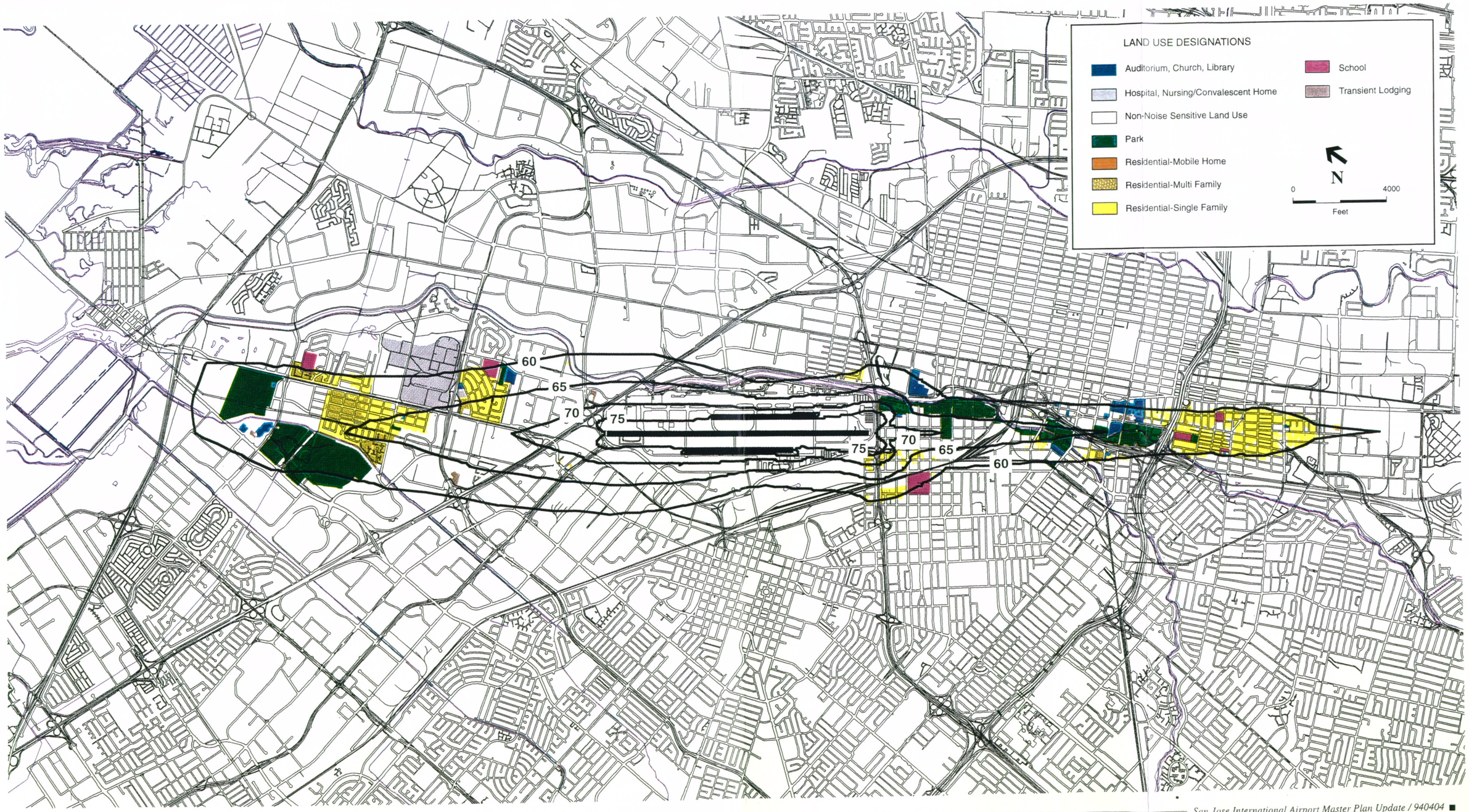
Table 3.5.17 summarizes the projected number of jet aircraft overflights under Project Case Alternative B in the year 2005 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

Table 3.5.34 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of Project Case Alternative B would be above either 75 or 85 dBA for the year 2005.

In 2005, Project Case Alternative B would not result in significant increases in the CNEL at any of the 20 reference grid locations. This would be a less-than-significant impact.

Single-Event Noise Exposure Analysis. The single-event noise impacts identified above under Phase 1 would continue to occur under Phase 2. Phase 2 does not include any changes to the airfield that would change the SEL values disclosed above (see Table 3.5.35). Significant changes in the SEL values would not occur at any of the 20 reference grid locations.

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.37 summarizes the estimated land area within CNEL contours for Project Case Alternative B in the year 2005 along



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.18
Project Case Alternative B
Noise Contours - Year 2005

TABLE 3.5.37
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE ALTERNATIVE B - YEAR 2005

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	24	384	1,875
Multi-Family Residential	0	19	488	2,754
Mobile Homes	0	0	0	34
Schools	0	0	0	8
Hospitals/Nursing/ Convalescent Homes	0	0	1	3
Places of Public Assembly[a]	0	1	3	30
Transient Lodgings	0	0	1	7
Residential Population Exposed[b]	0	133	2,209	12,953
Total Land Area, Acres	410	819	1,949	4,694

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.
SOURCE: City of San Jose

with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. The data in Table 3.5.37 indicate that the number of people within the 65 CNEL contour would be 2,209 under Project Case Alternative B, as compared to 1,943 under the No Project Alternative in year 2005. This increase of 14 percent under Project Case Alternative B is primarily the result of the increase in the number of air carrier and air cargo operations forecast as compared to the No Project Alternative.

Under Project Case Alternative B, there would be 2,740 fewer people within the 65 CNEL contour, than under the Project Case. The primary reasons for this difference are: (1) the lower number of air carrier and air cargo operations forecast as compared to the Project Case; and (2) no redistribution of aircraft operations to a second air carrier runway as would occur under the Project Case.

Phase 3 (Year 2010)

Noise Modeling Assumptions. Project Case Alternative B includes the construction of new belly freight facilities during Phase 3, as described in Section 2.3.3.

Cumulative Noise Exposure Analysis. Figure 3.5.19 shows the CNEL contours prepared using the above-described Airport operational data for the year 2010. Shown are the land uses inside or near the 60 CNEL contour expected by the referenced planning horizon year.

Table 3.5.12 compares cumulative noise exposure as defined by the CNEL for Project Case Alternative B to the No Project Alternative at the twenty reference grid locations for the year 2010. Changes that are considered significant as defined by the thresholds of significance used for this analysis are shown as **bold** numbers and are shaded. The table shows no significant changes in CNEL values at any of the twenty reference grid locations under Project Case Alternative B in the year 2010.

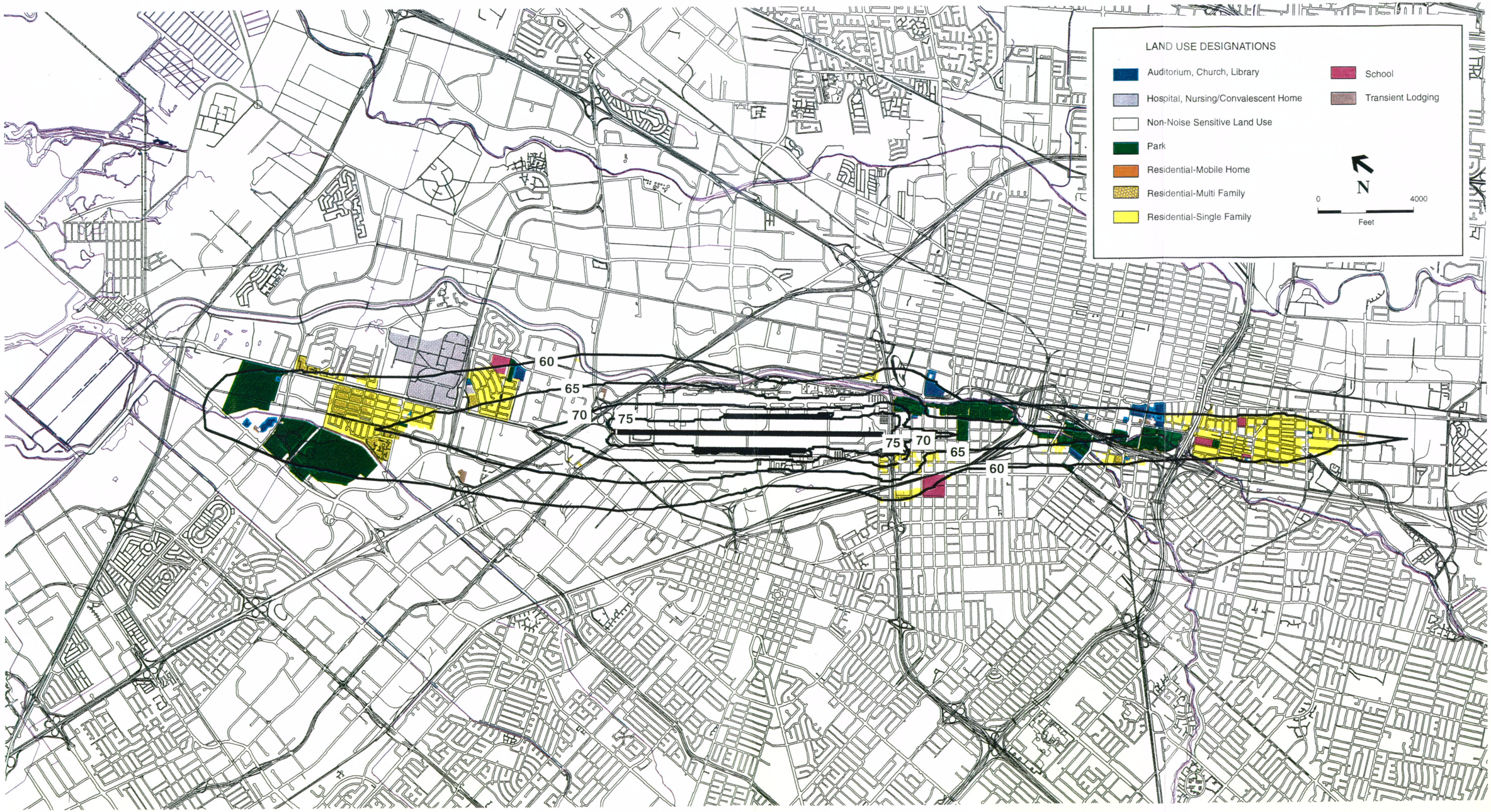
Table 3.5.18 summarizes the time in minutes per day that the sound level due to aircraft operations with implementation of Project Case Alternative B would be above either 75 or 85 dBA for the year 2010.

Table 3.5.34 summarizes the projected number of jet aircraft overflights under Project Case Alternative B in the year 2010 for locations north and south of SJC. The table includes a breakdown by time of day and type of operation (i.e., arrival or departure).

In 2010, Project Case Alternative B would not result in significant increases in the CNEL at any of the 20 reference grid locations. This would be a less-than-significant impact.

Single-Event Noise Exposure Analysis. The single-event noise impacts identified above under Phase 1 would continue to occur under Phase 3. Phase 3 does not include any changes to the airfield that would change the SEL values disclosed above (see Table 3.5.35). Significant changes in the SEL values would not occur at any of the 20 reference grid locations.

Land Use and Population Affected by Aircraft Noise Exposure. Table 3.5.38 summarizes the estimated land area within CNEL contours for Project Case Alternative B in the year 2010 along with the estimated number of residential units, schools, hospitals, and churches located within the contours. The table also provides an estimate of the residential population exposed to varying degrees of noise exposure based upon average household size as defined by the *General Plans* of San Jose and Santa Clara. The data in Table 3.5.38 indicate that the number of people within the 65 CNEL contour would be 2,631 under Project Case Alternative B, as compared to 2,271 under the No Project Alternative in year 2010. This increase of 16 percent under Project Case Alternative B is primarily the result of the increase in the number of air carrier and air cargo operations forecast as compared to the No Project Alternative.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.5.19
Alternative B
Noise Contours - Year 2010

TABLE 3.5.38
ESTIMATED EFFECTS OF AIRCRAFT NOISE EXPOSURE ON NOISE-SENSITIVE LAND USES
PROJECT CASE ALTERNATIVE B - YEAR 2010

	Noise Exposure Range (CNEL, dB)			
Description	75+	70+	65+	60+
Number of Units:				
Single Family Residential	0	24	211	1,768
Multi-Family Residential	0	19	753	3,087
Mobile Homes	0	0	0	34
Schools	0	0	0	7
Hospitals/Nursing/ Convalescent Homes	0	0	0	2
Places of Public Assembly[a]	0	1	2	28
Transient Lodgings	0	0	1	8
Residential Population Exposed[b]	0	133	2,631	13,656
Total Land Area, Acres	390	765	1,798	4,400

[a] Includes churches, libraries, and auditoriums.
[b] Based upon average household size as defined by San Jose and Santa Clara *General Plans*.
SOURCE: City of San Jose

Under Project Case Alternative B, there would be 2,610 fewer people within the 65 CNEL contour, than under the Project Case. The primary reasons for this difference are: (1) the lower number of air carrier and air cargo operations forecast as compared to the Project Case; and (2) no redistribution of aircraft operations to a second air carrier runway as would occur under the Project Case.

Surface Traffic Noise Impact

Table 3.5.39 shows Project Case Alternative B surface traffic noise levels compared to the No Project Alternative for year 2010 conditions and the changes in traffic noise levels attributable to Project Case Alternative A. As under the No Project Alternative, the surface traffic noise levels would exceed the City of San Jose's 60 dB Ldn residential land use compatibility standard at 100 feet from the center of the roadway along all the studied roadways. However, the increase in surface traffic noise levels attributable to Project Case Alternative B would range from 0 to +0.1 dB. Such increases would be less than significant.

Construction Noise Impact

During the construction phases of Project Case Alternative B, noise from construction activities would occur. The closest noise-sensitive uses from any proposed construction location include

TABLE 3.5.39
TRAFFIC NOISE LEVELS
PROJECT CASE ALTERNATIVE B
COMPARED TO NO PROJECT ALTERNATIVE - YEAR 2010

	Traffic Noise Levels, L_{dn}		
Roadway Description	Project Case Alternative B	No Project Alternative	Change, dB
Coleman Avenue			
I-880 to Hedding Street	62.8	62.8	0.0
Hedding Street to Taylor Street	61.8	61.8	0.0
North First Street			
Skyport Drive to I-880	60.3	60.3	0.0
Guadalupe Parkway			
Skyport Drive to Sonora Avenue	74.2	74.2	0.0
Sonora Avenue to Ferrari Avenue	62.2	62.2	0.0
Ferrari Avenue to Taylor Street	74.2	74.2	0.0
Taylor Street to Coleman Avenue	65.5	65.5	0.0
Coleman Avenue to Julian Street	75.5	75.5	0.0

SOURCE: Brown-Buntin Associates, Inc.

the motel off Trimble Road, the residential area north of I-880 and west of Coleman Avenue, and the residential area north of I-880 and east of Guadalupe Parkway. Construction equipment generates single-event noise levels in the range of 70 to 90 dBA at a 50-foot distance from the source and has the potential for disturbing surrounding land uses when equipment is operating in their vicinity (see Table 3.5.27). However, noise levels from a point source, such as construction equipment, decrease at the rate of appproximately 6 dB with each doubling of distance from the source. Therefore, at a distance of 800 feet, which is the closest distance between a construction location and a sensitive noise use, the resulting construction equipment noise would range from 46 dBA to 66 dBA. In some cases, intervening buildings and other structures would further reduce noise at noise-sensitive locations. These are exterior noise levels, and interior noise levels typically would be 15 to 25 dB lower. Such noise levels are comparable to common noise events that occur in any residential neighborhood.

3.5.2.7 Noise Impacts of the No Project Alternative

Aircraft Noise Impact

The aircraft noise impacts of the No Project Alternative are discussed in Section 3.5.2.3, Baseline for Comparison of Aircraft Noise Impacts, above.

Surface Traffic Noise Impact

The surface traffic noise impacts of the No Project Alternative are discussed in Section 3.5.2.3, Baseline for Comparison of Aircraft Noise Impacts, above.

Construction Noise Impact

The No Project Alternative would not involve any construction activity at the Airport; therefore, the construction noise impact would not occur.

3.5.3 MITIGATION MEASURES FOR SIGNIFICANT NOISE IMPACTS

The above discussion disclosed that the Project Case and Project Case Alternative A would result in significant aircraft-related noise impacts in each of the three horizon years. This section discusses mitigation measures that would avoid or reduce the identified noise impacts to a less-than-significant level. Because the CNEL, TA, and SEL descriptors are closely interrelated, the mitigation measures described below are not specific to an individual descriptor of noise. Rather, actions that would mitigate noise as measured by one of the descriptors also would have beneficial effects as measured by either of the other descriptors. The section is divided into two parts:

- Mitigation Measures for Aircraft Noise Impacts Included in the Project
- Mitigation Measures for Aircraft Noise Impacts Considered but Not Recommended for Inclusion in the Project

3.5.3.1 Mitigation Measures for Aircraft Noise Impacts Included in the Project

As described in Section 3.5.1.3, the City has an existing comprehensive program for noise control and abatement. This section discusses those measures that will be continued to address the impacts identified for the Project Case Alternatives. Where the existing measures are proposed to be modified, this section includes a discussion of the effects of those modifications. Finally, this section identifies new measures to mitigate impacts not covered by the existing noise control program and the proposed modifications to that program.

Continued Application of Noise Control Program

The following measures of the existing noise control program are proposed for continued implementation as mitigation measures incorporated into the Project Case Alternatives, as indicated:

- Use of Quieter Aircraft. The City will continue working with the airlines and air cargo carriers to encourage the use of the quietest available aircraft for their operations at SJC. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

- Airport Curfew. The City will continue implementation of the time-of-day operational restrictions currently applicable to operations at SJC. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

- Noise Abatement Arrival and Departure Tracks. The City will continue its ongoing program of identifying opportunities for, and assessing the feasibility of, further and future modifications to existing flight tracks for the purpose of minimizing noise impacts on the community. There are currently no specific opportunities for airspace modifictions that could provide such benefits. However, the FAA's regulation and management of the airspace in the Bay Area sometimes results in airspace modifications that might provide future opportunities for further noise reduction benefits in San Jose. Because the FAA has exclusive and preemptive regulatory authority over the operation of aircraft in flight, full implementation of this mitigation measure at any time in the future would require FAA concurrance and regulatory action. The City will actively pursue FAA concurrance for any flight track change that reasonably can be expected to provide noise reduction benefits in San Jose, and which maintains all necessary levels of air saftey of aircraft opertions in the Bay Area airspace. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

- Jet Aircraft Training. The City will continue the existing ban on the use of the Airport by jet aircraft for training purposes. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

Modification of Noise Control Program

The following measures of the existing noise control program are proposed for modification.

- Restrictions on Engine Run-Ups. The City will conduct noise measurements upon construction of the blast fences at the ends of Runway 12L/30R to determine the best location for aircraft run-ups so that noise impacts on noise-sensitive land uses from such operations will be minimized. The City will continue the existing program limiting high-power engine run-ups during the curfew hours. However, if the number of high-power run-ups average more than four per month during the curfew hours in any 12-month period after adoption of the selected Master Plan Update alternative, the City will re-consider constructing a noise attenuation facility. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

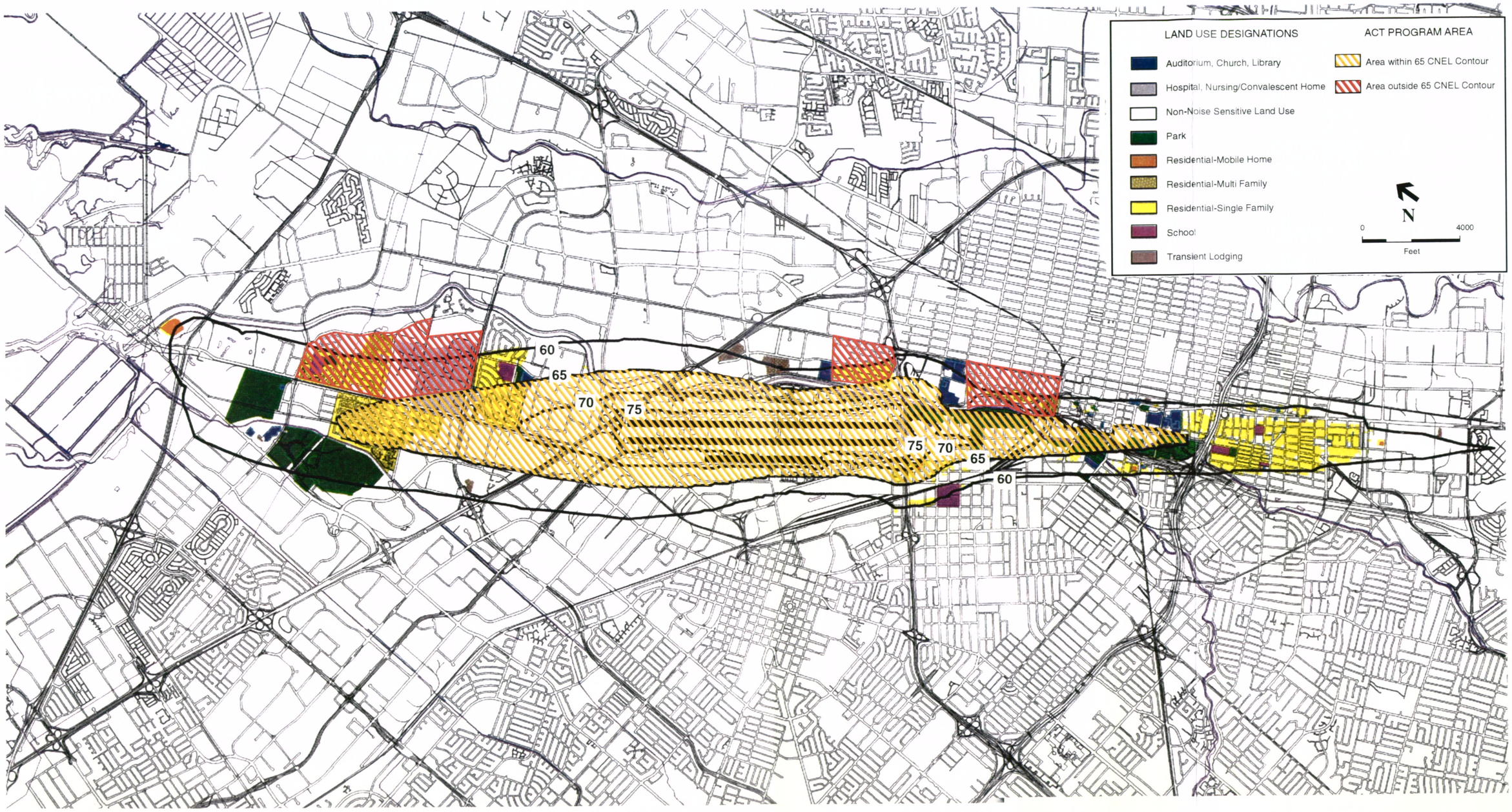
- Runway Use Restrictions. Subject to the concurrence and approval of the FAA, the City will impose the existing restrictions on jet take-offs for Runway 12R/30L on Runway 12L/30R. *(APPLIES TO PROJECT CASE AND PROJECT CASE ALTERNATIVE A)*

Continued Implementation of Noise Compatibilty Program

The following measures of the existing noise compatibility program are proposed for continued implementation.

- ACT Program. The City will continue to implement the ACT Program in order to mitigate interior residential noise exposure from aircraft noise to interior noise levels of 45 CNEL, including those areas identified in this EIR as being significantly affected by aircraft noise. The impact analysis of this EIR shows that these significantly affected areas are generally located in the vicinity of reference grid locations 3, 4, 5, 6, 8, 9, 10, 13, 17, and 19. Of

these ten reference grid locations, locations 3, 4, 5, 6, 8, and 13 would be within the projected 65 CNEL contour for year 2010 under the Project Case. The other four reference grid locations (locations 9, 10, 17, and 19) would be outside the projected 65 CNEL contour for year 2010. The four locations outside the projected 65 CNEL contour are San Jose's Rosemary Gardens neighborhood, portions of San Jose's Ryland Park and Vendome neighborhoods (i.e., the area bounded by State Route 87, Taylor Street, North First Street, and the Southern Pacific Railroad tracks), Santa Clara's Fairway Glen neighborhood (i.e., the area bounded by Lafayette Street, Tasman Drive, Lick Mill Boulevard, and Lick Mill Drive), and the long-term care units at Santa Clara's Agnews State Hospital. These areas are shown on Figure 3.5.20. The implementation of this



SOURCE: City of San Jose

Figure 3.5.20
ACT Program Area
for the Project Case

mitigation measure could result in impacts to historic buildings near these reference grid locations. The Airport has identified methods of not compromising the historic integrity of buildings as part of the implementation of the ACT Program (see Section 3.2.2). *(APPLIES TO PROJECT CASE)*

- ACT Program. The City will continue to implement the ACT Program in order to mitigate interior residential noise exposure from aircraft noise to interior noise levels of 45 CNEL, including those areas identified in this EIR as being significantly affected by aircraft noise. The impact analysis of this EIR shows that these significantly affected areas are generally located in the vicinity of reference grid locations 4, 5, 8, and 13. Of these four reference gride locations, location 5 would be within the projected 65 CNEL contour for year 2010 under Project Case Alternative A. The other three reference grid locations (locations 4, 8, and 13) would be outside the projected 65 CNEL contour for year 2010. The four locations outside the projected 65 CNEL contour are San Jose's Rosemary Gardens neighborhood and the residential area of Santa Clara bounded by Lafayette Street, Montague Expressway, DeLaCruz Boulevard, and Berto Avenue. These areas are shown on Figure 3.5.21. The implementation of this mitigation measure could result in impacts to historic buildings near these reference grid locations. The Airport has identified methods of not compromising the historic integrity of buildings as part of the implementation of the ACT Program (see Section 3.2.2). *(APPLIES TO PROJECT CASE ALERNATIVE A)*

- Land Use Planning and Control. After Council adoption of the selected Master Plan Update alternative, the City will promptly request that the County ALUC update the *Land Use Plan for Areas Surrounding Santa Clara County Airports* in a manner consistent with the adopted Master Plan for SJC and then current FAA land use compatibility guidelines. The City will continue to require avigation easements for new development within the 65 CNEL contour projected for 2010 under the selected Project Case Alternative. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

Modification of Noise Compatibility Program

The following measures of the existing noise compatibility program are proposed for modification.

- Land Acquisition Program. In coordination with the ACT Program, any residential units that are determined to be not feasible for acoustical treatment either will be acquired by the Airport or will be converted to compatible land uses. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

- Aircraft Noise Monitoring System. The City will relocate RMSs or add additional RMSs as required to monitor the noise levels from the adopted Master Plan Update alternative consistent with the California Airport Noise Regulations. *(APPLIES TO ALL PROJECT CASE ALTERNATIVES)*

- Supplemental Noise Attentuation Program. The impact analysis of this EIR identifies those areas in the Airport vicinity with significant noise impacts, as well as the necessary measures developed to mitigate interior aircraft-related noise in such significantly affected areas. However, because the Airport is located in a community that expects the City to address community concerns with aircraft noise issues without reference to the 65 CNEL contour, which is the recognized and accepted standard for determining land use

compatibility surrounding airports, and because there is a perception in the community that additiona steps are desired to avoid objectionable aircraft noise exposure from increased operations at SJC, the Airport Department recommends that the City Council approve, as a policy matter in order to address community concerns, a supplemental noise attenuation program for the Airport. The supplemental noise attenuation program would be conducted on a request basis, and would consist of taking interior noise measurements of residences located in ancillary residential areas that are within the projected 2010 60 CNEL contour, but which are not within those areas determined by the impact analysis of this EIR to be significantly affected by aircraft noise (depicted on Figures 3.5.20 and 3.5.21). Eligibility for possible noise attenuation soundproofing in the supplemental noise attenuation program would be determined in accordance with the established criteria of the ACT Program. Therefore, if, due to unanticipated unique or exceptional circumstances, some residences located in such ancillary areas within the projected 2010 60 CNEL contour actually experience an aircraft-related interior CNEL noise level of 45 dB or greater, the noise attenuation soundproofing measures in the ACT Program would be made available for such residences. This recommendation applies to any of the Project Case Alternatives adopted by the City Council.

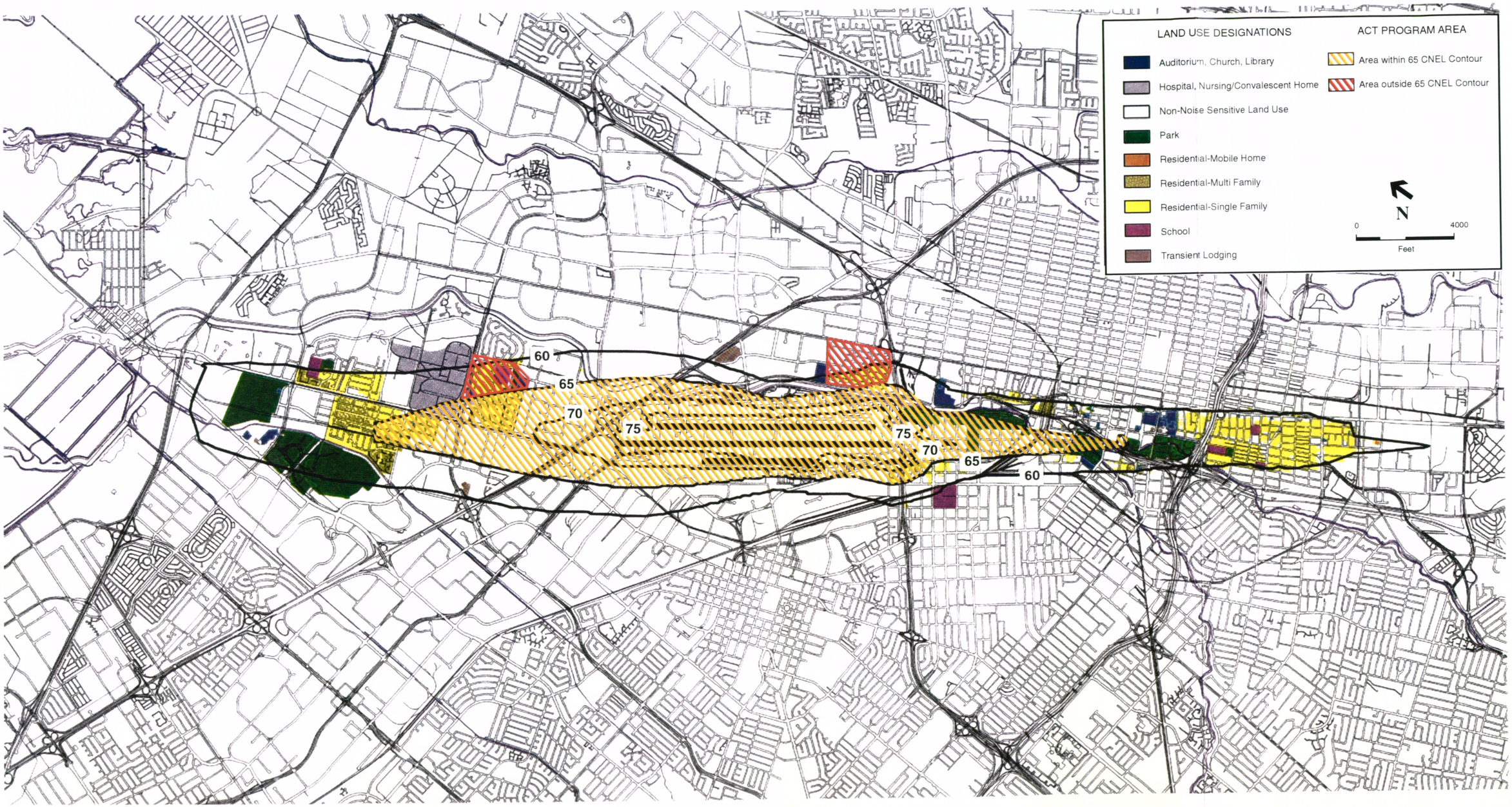
Additional Measures

The following additional measures are proposed for adoption.

- Rosemary Gardens Neighborhood. The City will monitor noise levels in the Rosemary Gardens neighborhood (reference grid location 13) after the construction of the SR 87 soundwall to determine whether or not to include those residential units in the ACT Program. If the monitoring shows that these units would be at interior noise levels of 45 CNEL or greater, then this neighborhood will be added to the ACT Program. *(APPLIES TO PROJECT CASE AND PROJECT CASE ALTERNATIVE A)*

- Insulation of Bachrodt Elementary School. The City will offer to sponsor acoustical insulation of this school (reference grid location 17) so that interior classroom noise levels do not exceed an hourly Equivalent Noise Level (Leq) criterion of 45 dBA during peak aircraft activities occurring during the normal school day. This is the standard applied by the FAA for determining compatibility of schools with aircraft noise exposure. *(APPLIES TO PROJECT CASE ONLY)*

- Insulation of Long-Term Care Units at Agnews State Hospital (Santa Clara Campus). The City will offer to sponsor acoustical insulation of the long-term care units (reference grid location 9) so that interior noise levels do not exceed 45 CNEL. This is the standard



SOURCE: City of San Jose

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Figure 3.5.21
Act Program Area for
the Project Case Alternative A

applied by the FAA for determining compatibility of long-term care facilities with aircraft noise exposure. *(APPLIES TO PROJECT CASE ONLY)*

Mitigation for Aircraft Noise Impacts Inside Noise-Sensitive Land Uses: The City will implement the specific measures identified above to reduce interior noise levels at affected residential and other identified noise-sensitive land uses in the vicinity of SJC to less-than-significant levels. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of these Mitigation Measures will mitigate the interior noise levels identified as a significant impact for the Project Case and Project Case Alternative A to an acceptable level. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

Mitigation for Exterior Aircraft Noise Impacts At Noise-Sensitive Land Uses: The City will implement the specific measures identified above to control and reduce exterior noise levels at noise-sensitive land use locations in the vicinity of SJC. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of these Mitigation Measures will not mitigate exterior noise levels to an acceptable level at all noise-sensitive land uses in the vicinity of SJC. (IMPACT IS SIGNIFICANT AND UNAVOIDABLE)

3.5.3.2 Mitigation Measures for Aircraft Noise Impacts Considered but Not Recommended for Inclusion in the Project

Introduction

The above discussion identified those mitigation measures for noise impacts that are proposed as a part of the project. CEQA also requires an EIR to disclose other measures that may reduce an identified significant impact, even if those measures have not been included in the project. In this context, the following discussion identifies and analyzes various measures that could potentially reduce noise impacts. Most of these measures were identified in various documents prepared and proposed for adoption by the City by a local citizen's group, Citizens Against Airport Pollution (C.A.A.P.). In the discussion which follows in this section of the EIR, these measures are sometimes collectively referred to as the "proposed noise mitigation measures."

In some cases, the feasibility of implementing a specific proposed noise mitigation measure is subject to significant legal questions and, in those cases, the legal issues are summarized. In other cases, the mitigation measure may be technically feasible for implementation, but the analysis has shown that either there would be little benefit from its adoption, or that the costs associated with its adoption would outweigh the potential benefits. In many cases, more than one of these circumstances is applicable to a specific proposed noise mitigation measure. For each mitigation measure, the discussion in this section addresses the following issues:

- Description of the Mitigation Measure
- The Effect of the Mitigation Measure on the Implementation of the Project
- Whether or Not the Measure will Produce any Mitigating Benefit
- The Feasibility of Implementing the Measure

The mitigation measures have been grouped into four categories: 1) aircraft or airport operating restrictions; 2) land use compatibility measures; 3) airport facilities development limitations; and 4) miscellaneous measures.

Noise Benefit Analysis Methodology

The noise-related implications of implementing the following mitigation measures were analyzed using the detailed grid analysis reporting capability of the INM. This allows for the computation of the relative contribution to cumulative noise exposure, as defined by the CNEL, by individual types of aircraft or groups of aircraft (i.e., air carrier jet, air cargo jet, general aviation jet, helicopters, etc.). Where a specific proposed mitigation measure calls for a reduction in operations by a specific aircraft type or group of aircraft, the INM is used to calculate the resulting change in contribution to CNEL values by that aircraft type or group of aircraft.

Since detailed operations scenarios were generally not available for analysis, it was necessary to develop generalized assumptions concerning the aircraft operations effects of implementing a particular measure. Generally, reductions in the number of aircraft operations by a specific group, or during a certain time of day, were analyzed by assuming that *all* aircraft within that group or time period would be equally affected. Discussions below concerning individual mitigation measures describe the assumptions made in this regard.

In considering the findings that have been made for specific mitigation measures, the following basic acoustical principal is applied. *Noise levels are added or subtracted on an energy (or logarithmic) basis*. This means, for example, that a 50 percent reduction in operations by a specific group of aircraft will result in a reduction in noise contribution from that group of aircraft of 3 dB, all other factors remaining constant. Similarly, a 25 percent reduction would result in about a 1 dB reduction in noise contribution from that group of aircraft.

In order for a proposed mitigation measure to be effective in reducing noise impacts, it must address an aircraft type or group of aircraft that produce a significant contribution to overall cumulative noise exposure as defined by the CNEL. In other words, the substantial reduction or elimination of operations by a type of aircraft that does not produce a significant contribution to overall CNEL values will not produce a significant change in the CNEL. Examples of types of aircraft or operations that do not produce significant contributions to overall CNEL values

around SJC (based on aviation forecasts) include Stage 3 general aviation jet aircraft, propeller-driven general aviation aircraft, helicopters and engine runups.

AIRCRAFT OR AIRPORT OPERATING RESTRICTIONS

The largest group of proposed noise mitigation measures analyzed in this section of the EIR (13 proposed measures) are typically characterized as aircraft or Airport "operating restrictions." Aircraft operating restrictions are generally regulatory restrictions which, for noise control or noise abatement purposes: (1) limit the type of aircraft which can use the Airport; (2) limit the time of day which certain aircraft can use the Airport (typically characterized as a "curfew"); or (3) limit the number of aircraft which can use the Airport during a defined time period (*i.e.*, one hour, one day, one month, one quarter, annually, *etc.*).

Historically, this has been a complex legal area where the federal government (principally the FAA) and the local airport proprietor have had shared regulatory authority. Historically, the airport proprietor has had some regulatory discretion to control and regulate the use of its airport for noise control purposes. However, that discretion has always been subject to substantial federal oversight and influence by a variety of legal means, including the City's obligations to the FAA under standard "grant assurances" given to the federal government under federal legislation dating back to 1946.

In 1990 the Congress significantly limited the scope of the local airport operator's regulatory discretion for noise control purposes by adopting the Airport Noise and Capacity Act of 1990 (ANCA). FAA has subsequently adopted regulations implementing ANCA under Part 161 of the Federal Aviation Regulations (FAR) (14 CFR section 161.1, *ff*). Collectively, ANCA and Part 161 make many traditional aircraft operating noise regulations by local airport proprietors infeasible without the concurrence of the air carriers or other operators affected by the restriction operate at SJC and, as a practical matter, beyond the regulatory authority of the airport operator.

The City has had formal meetings with the air carriers operating at SJC during the Master Plan Update planning process to discuss these issues, which continue to be a topic of informal discussion from time-to-time between individual operators and airport management. These discussions and negotiations have not concluded in a voluntary agreement under Subpart B of FAR Part 161. As noted earlier, however, informal discussions with individual air carriers continue to result in significant voluntary actions by many of those carriers to take action to control or reduce the noise produced by their operations at SJC, including the voluntary early use of 100 percent Stage 3 aircraft at SJC by individual air carriers.

The 13 aircraft and airport operating restrictions proposed by C.A.A.P. and analyzed in this section are as follows:

1. Restrict Stage 2 Aircraft Operations

Since 1969, FAA has set noise certification standards for newly certified aircraft types under Part 36 of the Federal Aviation Regulations (FAR Part 36, 14 CFR section 36.1, *ff*). The oldest models of commercial jet aircraft (e.g., the DC-8 and the Boeing 707), as originally manufactured, were characterized in FAR Part 36 as "Stage 1 aircraft" - the noisiest of the aircraft classes defined in FAR Part 36. It is presently illegal to operate a Stage 1 commercial aircraft in the domestic United States.

The second class of aircraft defined in FAR Part 36 are characterized as "Stage 2 airplane." The most common commercial aircraft manufacture domestically which was manufactured as a Stage 2 aircraft is the Boeing 727-100 and -200 series airplanes. Smaller Stage 2 commercial aircraft still in use in the domestic fleet include the McDonnell Douglas DC-9 (pre-MD-80) aircraft and the Boeing 737-200 aircraft. All other factors being equal, Stage 2 aircraft are quieter than Stage 1 aircraft, but noisier than Stage 3 aircraft.

The third and quietest class of commercial aircraft defined in FAR Part 36 are referred to as "Stage 3 airplane." The most common aircraft in the domestic commercial fleet which was first manufactured as a certified Stage 3 aircraft was the McDonnell Douglas MD-80 series airplane. The Boeing 737-300 (and later) series, all of the Boeing 757 aircraft, all of the Boeing 767 aircraft, and virtually of the Airbus 300 series airplanes (i.e., A-300, A-310, A-320, etc.) are Stage 3 aircraft.

In addition to aircraft originally manufactured as Stage 3 aircraft, various "hush-kits" and "re-engining" programs are available (and are being used by some operators) to retrofit Stage 2 airplanes to Stage 3 standards. These kits and other programs are certified by FAA to meet Stage 3 standards. Generally, and all other factors remaining equal, a newly manufactured Stage 3 aircraft creates less noise (particularly during takeoff) than an equivalent "hushkitted" aircraft even though both aircraft meet Stage 3 standards. This is because "hushkitting" older engines does not allow full advantage of the noise reduction technology incorporated into the most modern transport category aircraft engines. As noted earlier in the analysis in this section, the anticipated eventual retirement of "hushkitted" Stage 2 aircraft and replacement with more modern originally manufactured Stage 3 aircraft will have a beneficial effect in reducing or limiting the growth of the SJC CNEL contours in the future planning years (particularly by 2010).

The use of Stage 2 aircraft generally, and at SJC specifically, has been declining in recent years as the airlines purchase newer Stage 3 certified aircraft. In fact, the percentage of operations by Stage 3 aircraft at SJC has exceeded 90 percent since 1993.

Under ANCA and implementing regulations adopted by the FAA as part of FAR Part 91, the federal government requires all airlines operating in the U.S. to achieve a 100 percent Stage 3

aircraft fleet by January 1, 2000. The FAA has authority by statute to grant individual carriers waivers on that requirement to January 1, 2003, although, so far, FAA has denied all requests for waivers of interim fleet mix requirements under ANCA and FAR Part 91, and has indicated that it does not expect to grant waivers for the period after January 1, 2000.

Various models of older aircraft, referred to as "Stage 2" aircraft, produce substantially louder noise levels than the newer "Stage 3" aircraft. Examples of Stage 2 aircraft in use at SJC include the Boeing 727-200 and Boeing 737-200 aircraft. The use of these aircraft has been declining in recent years as the airlines purchase newer aircraft and, in fact, the percentage of operations by Stage 3 aircraft at SJC has exceeded 90 percent since 1993.

C.A.A.P. requested the City to analyze the feasibility of restricting or phasing out Stage 2 aircraft prior to the year 2000. Specifically, C.A.A.P. requested that two scenarios be analyzed: Scenario #1 required the City to adopt a regulation restricting Stage 2 takeoffs to an 8-hour window of 9 AM to 5 PM beginning on January 1, 1996, to a 4-hour window of 12 PM to 4 PM beginning on July 1996, and to a 1-hour window of 2 PM to 3 PM beginning on January 1, 1997; Scenario #2 restricted Stage 2 takeoffs to a 4-hour window of 12 PM to 4 PM beginning on July 1, 1996, and prohibited all Stage 2 operations beginning on January 1, 1998.

As discussed above, the Airport Noise and Capacity Act of 1990 placed new requirements on airport proprietors considering the adoption of restrictions or prohibitions on the operation of Stage 2 and Stage 3 aircraft. This legislation (and the implementing regulations of the FAA, FAR Part 161) mandate that airport proprietors conduct studies which detail the economic costs and benefits of proposed restrictions, as well as publish proposed restrictions and provide notice to potentially affected airlines and conduct any necessary environmental analysis, prior to enacting restrictions on the operations of Stage 2 or Stage 3 aircraft. Proposed restrictions on the operation of Stage 3 aircraft adopted (or to be adopted) after 1990 also require affirmative approval of the FAA under defined statutory criteria before they may legally be implemented. Such a study is referred to as a "Part 161 Study", because its requirements are described in Part 161 of the Federal Aviation Regulations.

The City completed a Part 161 Study in November of 1995 to analyze both of the above-described scenarios to restrict Stage 2 aircraft operations at SJC, as requested by C.A.A.P.. The study considered costs and benefits of the proposed scenarios, using a cost-benefit methodology designed to identify and measure the changes in aircraft operations that the proposed restrictions would cause, and to estimate the economic costs and benefits associated with the restrictions. The Part 161 Study is included in this EIR as Appendix 3.5.B.

The Part 161 Study concluded that the costs of either Scenario #1 or Scenario #2 would substantially exceed the projected benefits. The accelerated phase-out of Stage 2 aircraft under both scenarios would reduce the Airport's noise impact area during 1997-1999 that, in turn,

would reduce the number of homes included in the City's Acoustical Treatment Program. However, because some of those Stage 2 flights would be removed from SJC, the costs to the airlines in terms of lost profits, the costs to the Airport in terms of lost revenue, and the costs to the local economy in terms of lost spending by non-resident air passengers would be substantially greater than the monetary benefits to the City of reducing the number of homes needing acoustical retrofit before the year 2000.

It is also important to note in this discussion that all of the noise analyses undertaken for this EIR for 2000, 2005, and 2010 assumed a 100 percent Stage 3 fleet at SJC due to the federal mandate for full Stage 2 phase-out by the end of 1999. Thus, this measure of restricting Stage 2 aircraft operations would only be effective for reducing noise impacts during the near-term period (prior to January 1, 2000) when Stage 2 air carrier aircraft might still be operating at SJC. Once all Stage 2 aircraft operations have ceased as required by federal law, this measure would become moot and it would not reduce any of the noise impacts identified in this EIR for the Project Case, Project Case Alternative A, or Project Case Alternative B.

2. Restrict Engine Run-Ups

The City's existing engine run-up restrictions are described in detail in Section 3.5.1.3, above. Engine run-ups are an inconsequential component of SJC's existing and future noise contours (see Setting and Existing Conditions, Section C.2.f, of Appendix 3.5.A).

C.A.A.P. has asked that the City adopt a mitigation measure that: 1) would prohibit *all* engine run-ups during the period of 11:30 PM to 6:30 AM; and 2) would restrict engine run-ups at other times to the Taxiway J aircraft holding pad. In addition, C.A.A.P. asked the City to study the feasibility and cost-benefit associated with constructing a noise attenuating facility (commonly referred to as a "hush house") for engine run-ups.

In addition, the single event noise levels generated by aircraft engine run-ups would not exceed any single event noise thresholds of significance identified in this EIR at any sensitive land use in the vicinity of SJC. Thus, the adoption of this proposed mitigation measure would not provide a measurable reduction in the previously-identified significant noise impacts of the Project Case Alternatives. Further, a prohibition on all run-ups during curfew hours would directly and adversely affect the ability of the airlines to meet some scheduled early morning flight departures. The reason for this is that the required run-ups could not occur until after 6:30 AM which would, in turn, not allow enough time to complete the necessary maintenance/safety procedures and still meet 6:30 AM departure schedules. This would result in significant inconvenience to the passengers scheduled to depart on that flight, could significantly delay the aircraft throughout its operational day, and might, therefore, have a cascading effect of inconveniencing passengers scheduled to fly on that aircraft that day at various airports through significant delays, missed connecting flights, or for other reasons.

In 1993, the City retained an acoustical engineering firm to prepare a study on the feasibility and benefits of a hush house. The consultant reviewed existing run-up procedures, conducted actual field measurements during scheduled run-ups, and analyzed the cost/benefits of several noise attenuation facility options. The study was completed in December of 1993 and is included in this EIR as Appendix 3.5.C. The study concluded that construction of a hush house is not warranted based upon the measured noise levels and frequency of engine run-up noise events. However, the study did recommend that a hush house be reconsidered if a major airline maintenance base were established at SJC or if the number of high power run-ups occurring during curfew hours averaged four or more per month. Since the time the study was completed, no airline maintenance base has been established at SJC, and the number of high power run-ups during curfew hours from January 1995 through June 1996 averaged less than one per month.

3. Restrict Air Carrier Passenger Service at SJC to Origin-and-Desitination Passenger Demand Only

For any given airport, passenger volume is typically broken into two distinct groups. One group is comprised of locally-generated passengers, referred to as origin-and-destination (or O&D) passengers. These are, as the name implies, passengers whose flight originates or terminates at SJC. The other group is comprised of passengers who are using the airport to transfer between airline flights, referred to as "connecting" passengers. The distinction is important since O&D passengers use surface roadways, vehicle parking lots, and terminal building facilities, whereas connecting passengers only use portions of terminal buildings and related airport facilities. The percentage of an airport's total passenger volume which is comprised of connecting passengers is higher at those airports where one or more airlines operates a "hub".[5] As an example, when American Airlines operated a hub at SJC during 1988-1992, the percentage of connecting passengers rose to a high of 23 percent, whereas by 1993 when American had terminated hub operations at SJC, the percentage of connecting passengers had dropped to 9 percent. The 2010 forecast demand for connecting passengers at SJC is 15 percent of the total projected annual passenger volume (TRA).

C.A.A.P. has requested that the City consider restricting the use of SJC to O&D passengers only. The idea behind this request is that the restriction would lower the annual passenger volume which, in turn, would reduce the number of commercial aircraft operations to and from SJC, resulting in a proportionate decrease various aircraft caused environmental impacts, especially noise.

[5]One of the significant developments in the domestic air transportation industry which followed federal deregulation in 1978 was the development of a "hub and spoke" method of operation by many airlines. Most of the domestic passenger airlines rely on "hub" operations. For a passenger carrier, a "hub" is typically an airport where a number of flights by the hubbing airline arrive at the airport within minutes of each other. After a layover of approximately one hour, these aircraft then depart for their next destination. This permits passengers to easily transfer flights at a hub airport to reach their final destination promptly, even if the aircraft on which they arrived at the hub is going to some other city.

Implementation of this restriction would have the effect of reducing SJC's projected annual passenger volume in 2010 by 15 percent under the Project Case, and by 10 percent under Project Case Alternative A and Project Case Alternative B. Reducing passenger volume by these percentages would, in turn, reduce projected airline and commuter aircraft operations by approximately the same percentages. Such a reduction in commercial aircraft operations would lower (or "shrink") the Airport's CNEL contours in the future years studied in this EIR. The reduction attributable to this mitigation measure would typically be in the range of approximately 0.7 dB for the Project Case and 0.5 dB for Project Case Alternatives A and B.

Although this mitigation measure would have the effect of reducing CNEL values around SJC, the ability of the City to adopt this restriction is highly questionable from legal and practical perspectives. The federal constitutional prohibitions on discrimination against interstate commerce and interference with the right to travel preclude any policy, rule or regulation which restricts travel to those passengers flying to or from SJC. Further, this type of local regulation of the "rates, routes and services" of the commercial air carriers serving SJC would appear to be fundamentally inconsistent with the Airline Deregulation Act of 1978. That Act established a clear federal policy to rely upon open competition and free market opportunities among domestic air carriers to determine the extent of commercial air carrier service in any given community, rather than the extremely constrained federal regulatory structure governing airline routes, rates and services in effect prior to adoption of the Deregulation Act. By federal constitutional and stautory law, the City is not legally able to prevent an airline from structuring its operations to serve connecting passengers, or to limit the airline to serving *only* O&D passengers at SJC.

Equally important is the fact that there is no practical means by which a regulation of this type could be imposed. The airlines cannot legally be required by the City to inquire regarding the O&D status of the passenger, or the passenger's place of residence as a condition of issuing a ticket. The City does not have the authority to regulate the travel plans of passengers passing through SJC.

4. Restrict Air Cargo Levels to Those Which Occurred in 1988

C.A.A.P. has requested that the City consider restricting the level of air cargo activity to that which occurred in 1988 (i.e., approximately 3,000 annual operations). The idea behind this request is that the restriction would lower the projected number of air cargo flights which would, in turn, decrease aircraft-related noise impacts in the vicinity of SJC.

This restriction would decrease projected air cargo operations at SJC in the year 2010 by the following amounts: 77 percent for the Project Case, 77 percent for Project Case Alternative A, and 45 percent for Project Case Alternative B. In terms of average daily flight operations in 2010, this restriction would affect projected operations as follows: 10 daily operations with the restriction as compared to 43 daily operations without the restriction for both the Project Case

and Project Case Alternative A; 10 daily operations with the restriction as compared to 18 daily operations without the restriction for Project Case Alternative B. This reduction in air cargo operations would lower the CNEL values in surrounding areas by up to approximately 0.5 db.

Although this mitigation measure would have the effect of reducing CNEL values around SJC, the ability of the City to adopt this restriction is highly questionable both from legal and practical perspectives. Absent exceptional circumstances not present in this instance, local regulatory limitations imposed unequally on operations by air cargo aircraft are inconsistent with applicable federal law non-discrimination requirements. The City has accepted numerous federal grants, including grants for the construction of ramp area for the parking of aircraft conducting air cargo operations, which require that the airport be available for public use on reasonable terms and conditions and without unjust discrimination, as defined by the FAA, and that any air carrier operating at the airport will be subject to "nondiscriminatory and substantially comparable rules, regulations, and conditions...." [49 U.S.C. Appx. § 47107(a)(1)] . The City cannot remove the paved areas, or divest itself of these federal obligations, without FAA consent.

The Federal Aviation Act of 1958 (Section 308(a)) prevents airport proprietors from granting "exclusive rights" for the use of the airport to one operator or group of operators to the exclusion of other comparably situated aircraft operators. The City is not able to refuse a request by an air cargo operator to operate at the Airport solely on the basis that it is an air cargo operation, a form of air service which the City does not wish to allow to land at the Airport. The City can (and does) require air cargo operators to adhere to the same nondiscriminatory regulatory measures that affectother categories of airport users on a fair and equal basis, such as the Airport Noise Control Program.

Finally, imposition of this restriction on air cargo operations would severely limit the ability of local shippers (individuals and businesses) from taking advantage of the rapidly evolving air cargo services offered domestically and internationally. This would be particularly damaging to local businesses, such as the computer industry, which rely heavily on the availability of adequate local air cargo service to remain globally competitive.

5. <u>Eliminate Separate General Aviation Flight Paths</u>

Of the three existing runways at SJC, two are used predominately by general aviation aircraft (12L/30R and 11/29). Under visual operating conditions, there are several FAA-established departure and approach paths for these two runways available for use by general aviation aircraft, some of which fly over residential areas. Included among these general aviation flight tracks are oval-shaped "racetrack "patterns for aircraft taking off and returning for a landing onto the same runway (a form of "local" operation associated with flight training). In order to reduce the number of general aviation overflights of certain residential neighborhoods near the Airport, C.A.A.P. proposed the elimination of all separate general aviation flight tracks as a noise

mitigation measure. By eliminating the general aviation flight paths, the general aviation aircraft would be restricted to using to the commercial approach/departure paths.

Adopting this measure would significantly reduce airfield capacity at SJC for all segments of aviation due to the need to safely separate small, slow aircraft and large, fast aircraft along the one remaining approach/departure track. TRA, the consultant retained by the City to prepare the Master Plan Update, which is contained in a separate volume circulated concurrently with the circulation of this EIR, determined that restricting all general aviation operations to the commercial instrument approach/departure path would reduce both SJC's hourly capacity and annual service volume by more than one-third, thereby significantly constraining air carrier operations as well as general aviation operations.

By reducing airfield capacity by one-third, this mitigation measure would lower SJC's CNEL values by approximately 1.7 dB because there would be fewer flights by both commercial and general aviation aircraft. However, the tradeoff would be a substantial reduction in the Airport's ability to accommodate projected demand under any of the alternatives being considered.

Finally, implementation of this mitigation measure is beyond the regulatory jurisdiction of the City since it would directly affect the regulation of federal airspace, the authority of which resides exclusively in the federal government. Only the FAA has the authority to regulate air routes and aircraft in flight.

6. Modify Existing NCP Curfew Provisions to Include Restrictions on All General Aviation Aircraft

This proposed noise mitigation measure contemplates modifying SJC's existing curfew to include additional restrictions on general aviation operations. This proposed measure would modify the NCP time-of-day restrictions to prohibit these operations entirely, except in cases of an emergency or in cases where the closure of another airport necessitates a landing at SJC.

A review of SJC's monitoring data for the 3-year period ending May 31, 1996 shows that there are an average of 14 total takeoffs and landings each month by Stage 3 general aviation jet aircraft. These operations accounted for 27 percent of the total turbojet operations[6] that occurred during curfew hours during the same 3-year period.[7] Because their noise levels are essentially insignificant, the Airport does not keep track of the number of operations during curfew hours by non-turbojet aircraft. However, Airport staff indicate that those numbers are very low. Reference to the historical records of the Airport's noise monitoring system confirm that those

6 The total average number of curfew intrusions for this 3-year period is 51 per month.
7 The other 73 percent of curfew operations were primarily those by the larger turbojet aircraft utilized by the airlines. Of those airline operations, most are allowed under the terms of the existing curfew due to unforeseen factors related to mechanical, weather, and/or air traffic control problems.

aircraft generally produce noise levels substantially less than those produced by turbofan (jet) powered aircraft.

Projections have not been developed as to how many operations are expected to occur in 2010 during curfew hours by Stage 3 general aviation jet powered aircraft. However, if one assumes that future curfew operations by these aircraft would continue to occur at about the same frequency that they do today, this mitigation measure would eliminate an average of 14 Stage 3 curfew operations per month (less than one per day), plus some unknown number of operations by non-turbojet aircraft. The benefit that would result would be a corresponding small reduction in the number of single-event noise intrusions. However, there would be no decrease in the Airport's CNEL values.

Implementation of this proposed noise mitigation measure by the City would require as a precondition full compliance with ANCA, including approval from the FAA since the proposed measure would affect Stage 3 airplanes

7. <u>Allow Only "Corporate" FBOs at SJC</u>

SJC currently has five fixed-base operators (FBOs), which are commercial enterprises that provide general aviation activity or supporting services. Four of the FBOs (ACM, Air One, Aris Helicopters, and San Jose Jet Center) provide a variety of general aviation services such as aircraft storage, fueling, maintenance, and training. The other FBO (Hewlett-Packard) operates its own aircraft in support of the company's business. The expiration of the existing leases with the four "non-corporate" FBOs ranges from 2006 to 2035.

This mitigation measure would allow only companies that operate general aviation aircraft in support of their own company' operation (such as Hewlett-Packard) to be FBOs. The intent of this mitigation appears to be that a lack of conventional services would discourage general aviation activity, thereby reducing general aviation noise impacts.

It is difficult to determine how this measure would affect projected levels of general aviation activity at SJC in year 2010. However, to obtain an estimate as to the potential magnitude of the reduction in projected CNEL values that might result from adoption of this proposed noise mitigation measure, a scenario assuming a 50 percent reduction in general aviation activity was studied. That scenario found that the reduction in CNEL values would be less than 0.5 dB.

Although this mitigation measure would have the effect of reducing CNEL values around SJC, the ability of the City to adopt this restriction is highly questionable from legal and practical perspectives. The City is not able to discriminate unjustly between categories of Airport users under federal law; nor may it discriminate among a specific class of airport user based solely upon whether or not the City prefers one type (or purpose) of FBO operation over another. The "exclusive rights" provisions of the Federal Aviation Act of 1958 (Section 308(a)) also would be

applicable to this proposed noise mitigation measure. As noted earlier, this provision of federal law precludes the City from limiting the use of the Airport to specifically identified persons while excluding other similarly qualified persons from conducting substantially similar operations at the Airport based solely upon some local perception of the "relative value" of a specific existing or proposed operation.

8. Prohibit Non-Emergency Use of SJC by Helicopters

This mitigation measure would prohibit operations at SJC by helicopters, except during an emergency. The intent of this measure would be to reduce noise impacts by eliminating the component of total noise that is related to helicopters. Helicopters are projected to account for four percent of the Airport's general aviation fleet in 2010. Assuming that the average number of annual operations per helicopter would be about the same as those for non-helicopters in the general aviation fleet, this measure would reduce the general aviation component of total Airport noise by about four percent. Since total general aviation operations are not a major contributor to cumulative noise exposure around SJC, eliminating just four percent of the general aviation component would not result in a change that can be calculated or measured.

This proposed noise mitigation measure might result in a minor reduction in noise levels that can not, as a practical matter, be reliably measured.

9. Prohibit Pilot Training at SJC

This proposed noise mitigation measure would prohibit all pilot or other flight training at SJC. The intent of this measure would be to reduce noise impacts by eliminating the component of total noise that is related to flight training. Flight training presently accounts for approximately 39 percent of all general aviation activity at SJC. By 2010, that percentage is projected to drop to 21 percent of total general aviation activity. As noted earlier, the City has incorporated into the project a mitigation measure that would continue to ban jet aircraft training at SJC. The only training allowed at SJC is by smaller, piston powered (i.e., "propeller" driven) general aviation aircraft. This measure would reduce the projected number of training operations by such aircraft. However, the single event noise levels generated by these aircraft is so small compared to the general aviation and commercial turbofan (jet) powered aircraft that their overall contribution to the airport CNEL contours is insignificant.

10. Prohibit Aircraft Which Cause "Excessive" Single Event Noise Levels

C.A.A.P. has requested that the City analyze a mitigation measure that would prohibit an aircraft from using SJC if it caused single event noise levels at any residence in the vicinity of SJC to exceed 75 dBA between 7 AM and 10 PM, and 65 dBA during all other non-curfew hours.

None of the four types of Stage 3 aircraft listed in Tables 3.5.22, 3.5.29, and 3.5.35 could meet the requirements of this mitigation measure at any hour of the day. Since the aircraft listed in these tables are representative of most of the aircraft that would comprise the airlines' and air cargo companies' fleets at SJC by year 2010, adoption of this measure would, as a practical matter, preclude all commercial airline and air cargo operations at SJC. Thus, none of the existing or projected demand for air passenger or air cargo service could be accommodated at SJC.

If this measure were to be adopted, the use of SJC would be limited to small, piston-driven, general aviation aircraft. This, would result in a major reduction in the Airport's projected noise contours. In fact, the resultant noise level would be far less than either existing conditions or the No Project Alternative.

This measure eliminates all transport category aircraft operations at the Airport. Implementation of this measure by the City would require FAA approval and a Part 161 Study under ANCA, as described previously. It is highly unlikely that the FAA would approve this proposed noise mitigation measure. SJC is an important component of the national air transportation system. This measure would substantially and materially reduce available airport capacity in the Bay Area and would be inconsistent with the federal investments in airport facilities at SJC.

11. <u>Restrict Total Airport Noise Levels</u>

C.A.A.P. has requested that the City consider limiting total Airport-generated noise levels, as defined by the CNEL contours. Their proposal would require that the Airport's 70 CNEL contour never exceed, at any location, the location of that same contour as it was in the second quarter of 1982.

This proposed noise mitigation measure is not recommended for inclusion because it is no longer relevant or necessary. Specifically, even under the largest growth scenario analyzed in this EIR (i.e., the Project Case in year 2010), the projected 70 CNEL contour will not exceed the 70 CNEL contour of 1982 at any off-airport location. In fact, the area within the Project Case 2010 70 contour would be substantially smaller than that which was included within the 1982 70 contour. This substantial improvement is a direct result of the replacement of Stage 1 and Stage 2 aircraft with Stage 3 aircraft.

This proposal is a variant of a type of airport noise restriction that was occassionally considered at some airports during the 1970s and 1980s but never implemented by regulation at any domestic airport. This type of regulation was most commonly referred to as a "noise budget" restriction. The basic concept of this type of restriction is that a specific "noise budget" (measured by CNEL contours) would be established by regulation, and that individual "noise shares" would then be allocated to each of the air carriers using the airport and to the general

aviation users (as a group). Under ANCA, this would require a Part 161 study and FAA approval as a condition of implementation by the City.

12. Restrictions on Runway Usage

This proposal by C.A.A.P. would minimize noise impacts by restricting jet aircraft operations to Runway 12R/30L, and by requiring jet aircraft to follow noise abatement procedures when approaching or departing the runway. This measure is already in use at SJC, and, as modified, the abatement procedures (i.e., no intersection take-offs and FAA-approved flight tracks) have been incorporated as part of the Project Case and Project Case Alternative A.

The Project Case and Project Case Alternative A both include the extension of Runway 12L/30R such that the Runway 12L/30R will be able to accommodate the jet aircraft used by the airlines and the air cargo companies. Thus, under those alternatives, jet aircraft would use both Runway 12R/30L and Runway 12L/30R. With that modification, the existing noise control measure has already been incorporated as part of the Project Case and Project Case Alternative A.

If the current restriction on runway usage (Runway 12R/30L only for commercial jet aircraft) were to remain in place under the Project Case and Project Case Alternative A, no jet aircraft would be allowed to use the extended Runway 12L/30R that would be constructed under either Project Case or Project Case Alternative A. This restriction would provide some benefits with regard to a reduction of noise impacts because the restriction would have the effect of substantially reducing the hourly air carrier operational capacity of the airfield, as well as the airfield's annual service volume (ASV). This effect is inconsistent with the project objectives applicable to the Project Case and Project Case Alternative A. In essence, this restriction would eliminate the need to extend Runway 12L/30R. Implementation of this proposed noise mitigation measure would result in CNEL and SEL noise contours under the Project Case and Project Case Alternative A that would be similar to those projected for Project Case Alternative B.

Although this mitigation measure would have the effect of reducing CNEL values around SJC, the ability of the City to adopt this restriction is highly questionable from legal and practical perspectives. A locally-imposed restriction on runway usage, for purposes of limiting access to airports or for noise reduction, is likely to be pre-empted under federal law. Once constructed, the regulation of the use of a runway is largely under the jurisdiction of the FAA

13. Increase the Hours of the Existing Curfew

The existing curfew allows arrivals and departures by Stage 3 transport-category (i.e., aircraft weighing more than 75,000 pounds) during the hours from 6:30 AM to 11:30 PM. This proposal would increase the curfew hours for these aircraft as follows:

No arrivals would be *scheduled* for later than 11 PM, with no arrivals after 11:30 PM permitted except during an emergency or if the airport at a flight's intended destination is closed due to weather-related conditions.

No departures would occur prior to 7 AM. No departures could be *scheduled* for later than 10 PM, with an absolute ban on departures after 11:30 PM.

The intent of this measure is to reduce noise impacts by restricting the number of flights that would otherwise occur during the half-hour period of 6:30 AM to 7:00 AM and the 90-minute period of 10 PM to 11:30 PM. Using the Master Plan Update's horizon year of 2010, approximately 40 daily operations by the airlines are projected to occur during these time periods, all of which would be affected by thischange.

As explained previously, for the purpose of calculating CNEL values, each operation that occurs between the hours of 10 PM and 7 AM is analyzed as having an additional ten decibels of noise. If this measure were to eliminate all 40 projected operations during this time period but assuming they would occur during the 7 AM to 10 PM timeframe, SJC's CNEL values would be reduced by an average of 2.2 dB if this measure were to be implemented.

However, because it affects Stage 3 aircraft, implementation of this measure by the City would require FAA approval and a Part 161 Study under ANCA, as described previously. Based upon the results of the Part 161 Study conducted at SJC, it is highly unlikely that an economic analysis performed under Part 161 would provide the data necessary to support FAA approval of such an expansion of the curfew provisions required under ANCA.

This mitigation measure would directly affect SJC's ability to accommodate projected air passenger demand under all Master Plan Update scenarios. For example, a number of daily flights are scheduled to depart prior to 7 AM in order to allow for connections to be made to various East Coast destinations, as well as to allow business travelers to make morning meetings on the West Coast. Similarly, there is a demand for departures after 10 PM to allow for early morning arrivals in the Mid-West and on the East Coast. All of these categories of passengers would be among those affected by this mitigation measure. Under this mitigation measure, these passengers would be required to make alternate travel plans or to use an alternate airport such as Oakland or San Francisco.

LAND USE COMPATIBILITY MEASURES

In addition to the above-described measures that limit or reduce noise from the operation of the Airport, another class of mitigation measures reduces noise impacts at the "receiving end" of the noise. Among these measures are the following, all of which are already included as a part of the project (as described previously):

- Removal of noise-impacted land uses through land acquisition & relocations

- Insulation/soundproofing of noise-sensitive land uses within noise-impacted areas
- Acquisition of avigation easements
- Adoption of policies prohibiting or substantially discouraging development of noise-sensitive land uses within noise-impacted areas
- Construction of buildings to comply with applicable building codes, as pertains to indoor noise standards

In addition to these measures, the City has considered the adoption of a disclosure ordinance, applicable to the sale of property within areas that are now (or are projected to be) affected by noise generated by aircraft operations at SJC. Although this ordinance would not physically affect existing or projected noise levels, it would serve the purpose of fully informing persons who intend to reside or conduct noise-sensitive business that they will be subjected to aviation-generated noise.

Sellers of real property are presently legally required to disclose facts known to the seller that materially affect the value or desirability of the property to potential buyers under both case law and statute. (Civil Code § 1102 *et seq.*). To the extent that disclosure of proximity to SJC for any reason is deemed by a party to a transaction to be material, existing state law already provides a basis for disclosure to be made, or inadequate disclosure to be addressed. Any disclosure ordinance adopted by the City would not apply to any structures located in the City of Santa Clara. Finally, as noted above, this measure would not reduce the noise impacts of the Project Case Alternatives.

AIRPORT FACILITIES DEVELOPMENT LIMITATIONS

This proposed group of noise mitigation measures for noise impacts is not the type of EIR mitigation measure by which the project "avoids or reduces" an impact associated with some level of development by modifying the project. Rather, this proposed group of mitigation measures contemplates the imposition of conditional "triggers" to Airport development as a form of mitigation sometimes placed on projects by a governmental body. The concept works by imposing performance or other similar criteria to be met prior to commencing with all or a certain phase of a project. As an example, the City of San Jose could require traffic operations to operate at a certain level in an area before it allows a development company to construct its housing subdivision or shopping center.

One specific trigger suggested by C.A.A.P. is that no expansion of facilities at the airport would be permitted until the Airport's 65 CNEL contour has "collapsed" to a pre-defined size based upon a conceptual alternative developed during the early stage of the SJC Master Plan Update planning process. That conceptual alternative was referred to during the preliminary planning processes for the Master Plan Update as "Alternative 4", a rough "no project scenario" from

early in the planning process that limited SJC to continued implementation of the 1980 Airport Master Plan, adjusted to include an extension of Runway 12L/30R to 8,900 feet (rather than 7,400 feet as proposed in the 1980 Master Plan) and relocation of the south-end general aviation facilities (displaced by the runway extension) to the west side. As the specific activity levels formulated by TRA for the Alternative 4 description were constrained by the limited facility improvements, the resulting 2010 noise contour was the smallest of the four conceptual alternatives under review by the City at that early point in the master planning process.

This conceptual Alternative 4 does not match any of the alternatives (including the No Project Alternative) being considered and evaluated in this EIR. Alternative 4 had a set of activity levels and operational parameters which are different from all of the current alternatives and, therefore, it is not possible to accurately compare Alternative 4 to them. Nonetheless, it appears that the 65 dB CNEL contour for the No Project Alternative in year 2005 is roughly the same size as that shown for Alternative 4 for year 2010.

A trigger such as the above-described noise levels associated with conceptual Alternative 4 could have the effect of delaying the construction of various projects contemplated under the Project Case Alternatives and, to that extent, it would be inconsistent with the applicable project objectives. However, with the trigger proposed in this instance, it would not be possible to maintain the 65 CNEL contour at the proposed location unless some form of permanent restriction limiting operations were adopted, or some form of "noise budget" were lawfully able to be adopted. (See discussion under "11. Restrict Total Airport Noise Levels", above.) It is not possible to evaluate whether a post "trigger" CNEL contour for this alternative would be any different than the same project without a trigger.

MISCELLANEOUS MEASURES

1. Additional Enforcement Mechanisms for the Noise Control Program

C.A.A.P. has requested that the City consider modifying the Airport's existing Noise Control Program (NCP) to include fines and penalties for repeated violations of the curfew. C.A.A.P. has proposed that an aircraft operator be defined as a "repeat offender" if two or more violations of curfew restrictions occur within a 1-year period. The intent of this measure would be to reduce noise levels by reducing the number of curfew violations through the imposition of substantial fines and/or penalties upon repeat offenders.

As discussed previously in Section 3.5.1.3, there has historically been a very high compliance rate with SJC's noise control program.

If one were to assume that this mitigation would eliminate every curfew violation (a very conservative estimate because the penalties and fines would only apply to repeat offenders), it

would not be possible to calculate or measure the resultant decrease in CNEL at any location in the Airport vicinity.

The history of compliance with the 1984 NCP time-of-day restrictions has been excellent under all of the circumstances affecting the air transportation industry. Therefore, there does not appear to be a need to provide enhanced regulatory sanction capacity in order to continue to achieve successful implementation of the NCP measures adopted as mitigation earlier in this section of the EIR.

2. Limit New Leases and Operating Agreements to 3-Year Terms

C.A.A.P. has requested that the City consider limiting all new leases and operating agreements at SJC to 3-year terms. It is not possible to ascertain how this measure would affect Airport-generated noise levels. Without some accompanying restriction(s) regarding the numbers or types of aircraft operations to be conducted under the terms of a lease or operating agreement, a limit on the length of a lease or operating agreement would not affect noise levels. Therefore, it is concluded that this mitigation measure would not reduce existing or projected noise levels.

3. Adopt an Intergovernmental Agreement Which Limits Total Noise

This proposed noise mitigation measure contemplates adoption of "binding" intergovernmental agreement(s) that would, among other limitations, set maximum noise levels associated with SJC, prior to the undertaking of any capital improvement projects at the Airport. In requesting the City to adopt this measure C.A.A.P. did not specify what these maximum noise levels would be, nor did it specify exactly what was contemplated as to the other "governmental"agencies which would be parties to the proposed "agreement." This makes it somewhat difficult to analyze this proposal.

ANCA contains certain specific, statutorily defined "grandfathering" provisions for noise control programs (such as the City's) adopted and effective prior to the 1990 effective dates specified in ANCA. One of those statutory exceptions is for "intergovernmental agreements" entered into and effective prior to October 1, 1990. The proposed mitigation measure represents a prospective expansion of the existing NCP for SJC in a manner which would affect Stage 3 aircraft. Therefore, the "grandfathering" exceptions of ANCA would not be applicable to this proposed mitigation measure, and its implementation would require full compliance with ANCA, including FAA approval. To the extent this mitigation measure overlaps other proposals addressed in this section of the EIR, it does not add to the feasibility of implementing such a measure.

3.6 HYDROLOGY AND WATER QUALITY

Two types of impacts related to water resources are of particular importance with respect to current operations and future development on the Airport. First, a portion of the Airport is within the 100-year floodplain and is susceptible to flooding under present conditions. Proposed development may exacerbate this problem. Second, the Airport discharges surface runoff into the Guadalupe River. Further development would increase the potential both for onsite flooding and for discharge of degraded or contaminated surface runoff into the river and thence into San Francisco Bay. The discussion in this section is based on available City and agency reports and plans, and on independent analysis performed by the consultant. Appendix 3.6.A contains detailed calculations and assumptions, and Appendix 3.6.B contains water quality data collected at Airport storm water outfalls. Related discussions can be found in Sections 3.7, Geology and Seismicity, 3.8, Biological Resources, and 3.12, Hazardous Materials.

3.6.1 SETTING AND EXISTING CONDITIONS

3.6.1.1 Climate and Precipitation

The Airport is located within the Guadalupe River basin of the Santa Clara Valley, near the southern end of San Francisco Bay. The precipitation regime of the Santa Clara Valley is typical of the San Francisco Bay Area: summers are warm and dry, and winters are moderately wet, dominated by storms from the North Pacific that produce virtually all the rainfall in the area. Ninety percent of annual precipitation occurs during storm events in the late fall and winter months. Annual rainfall in San Jose averages about 14 inches near San Francisco Bay, although precipitation in some years has exceeded 30 inches. The normal annual precipitation of the Guadalupe River basin is about 20 inches, ranging to over 50 inches annually near the crest of the Santa Cruz Mountains.

3.6.1.2 Surface Water and Flood Control

The Guadalupe River roughly parallels the eastern boundary of the Airport. It is one of two major water conduits within the City of San Jose; the other is Coyote Creek, which the Guadalupe joins about eight miles downstream from the Airport. The Guadalupe River originates in the high, steep, heavily vegetated slopes of the Santa Cruz Mountains west and south of San Jose and flows in a northerly direction across the wide urbanized valley toward San Francisco Bay, receiving drainage waters from several tributaries in the western portion of the City of San Jose: Guadalupe Creek, Los Gatos Creek, Ross Creek, and Canoas Creek. The Guadalupe River watershed includes a total of 63 linear miles of streambed and covers about 160 square miles above its confluence with Coyote Creek (City of San Jose, 1982). Runoff from the mountainous areas is intercepted by a number of reservoirs, none of which has space allocated for flood control. The Airport adjoins the lower, relatively flat reach of the Guadalupe River. Annual peak flows in the river in the vicinity of the Airport range from 100 cubic feet per second (cfs) to over 9,000 cfs, according to the U.S. Army Corps of Engineers (1993).

According to the Santa Clara Valley Water District calculations, flows could exceed 10,000 cfs in a 25-year storm event and reach 17,000 cfs in a 100-year event. Low flows of 1 cfs or less are characteristic of the dry season.

Floodplain and Flood Management

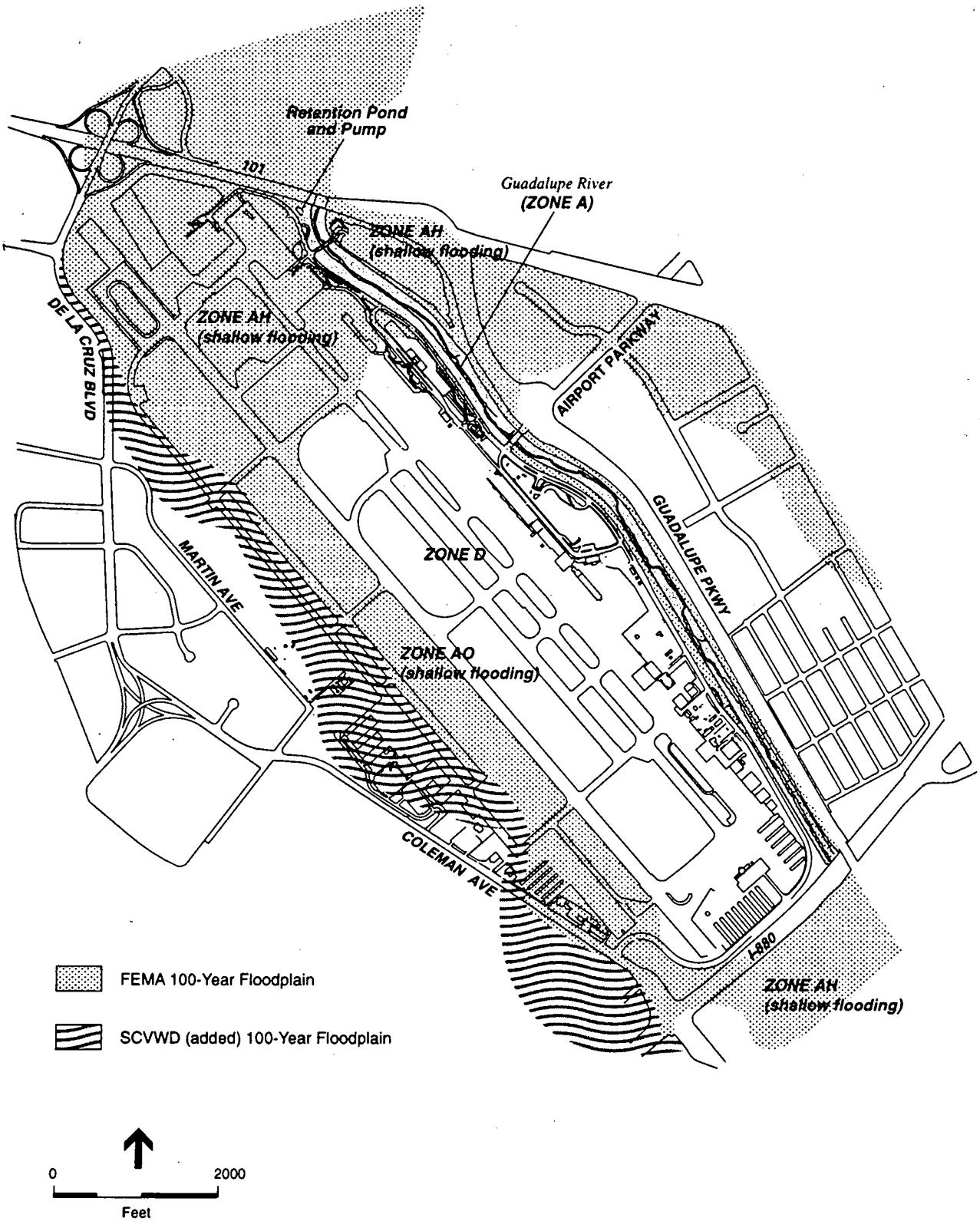
The Santa Clara Valley Water District (SCVWD) is responsible for flood control in Santa Clara County on streams and waterways that drain more than 320 acres. The SCVWD coordinates flood hazard mitigation efforts for the major creeks and waterways in the City and reviews development proposals that could impact flood control efforts. Development projects adjacent to rivers, creeks or streams are required to grant easements or dedicate portions of parcels for flood protection purposes. In addition, the City may require "flood proofing" techniques, such as raising the floor elevation of new buildings in flood hazard areas above the flood level (City of San Jose, 1994).

The Federal Emergency Management Agency (FEMA) oversees the delineation of flood zones and the provision of disaster assistance. FEMA publishes Flood Insurance Rate Maps (FIRM) that show the expected frequency and severity of flooding by area, typically for the existing land use and drainage/flood control facilities. The maps prepared by FEMA for the San Jose area indicate that during a 100-year flood event[1], sections of the City would be subject to flooding from creek overbanking or inundation from the Bay (City of San Jose, 1994).

The FEMA 100-year flood hazard zones for the Airport site and vicinity are shown in Figure 3.6.1. The floodplain delineated on FEMA maps as Zone A (Areas of 100-year flood) is contained within the Guadalupe River channel levees. Portions of the Airport property are located within FEMA Zone AO and Zone AH (areas of 100-year shallow flooding where depths are between one and three feet) (FEMA, 1986; FEMA, 1982). Floodplain mapping by the SCVWD is more inclusive, showing the 100-year floodplain to extend up to and beyond Coleman Avenue (Figure 3.6.1). The remaining portions of the Airport are delineated on FEMA maps as Zone D (areas of undetermined but possible flood hazards) (FEMA, 1986; FEMA, 1982). The potential for flooding results from two factors: the present inability of the Guadalupe River upstream of I-880 to convey the 100-year flow without overtopping its banks, and local ponding that occurs during a 100-year storm event (depending on the water level in the river).

To correct the potential for the Guadalupe River to overtop its banks, the U.S. Army Corps of Engineers (ACOE), in cooperation with the SCVWD, is currently implementing a flood control project on the Guadalupe River between I-280 on the south and I-880 on the north (City of San Jose, 1989). The project improvements are divided into three construction contracts. Construction under the first contract began in 1992 and was completed in 1994. Contract 2 is scheduled for completion in 1996. Contract 3 will be constructed in three sub-phases and is scheduled for final completion in 1998 (Talley, 1996; ACOE, 1996). The project was designed to provide flood protection upstream and is intended to protect adjacent land uses downstream

[1] The 100-year flood is the magnitude of a flood expected to occur on the average of once every 100 years, based on historical data. The 100-year flood has a one percent chance of occurring in any given year.



SOURCE: Federal Emergency Management Agency (FEMA) and Santa Clara Valley Water District (SCVWD). Adapted by Environmental Science Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.6.1
Existing 100-Year Floodplain

from flooding, including the Airport, by confining flood flows within the channel (Talley, 1996). Therefore, Figure 3.6.1 represents a pre-Guadalupe River Flood Control Project floodplain condition. All of the 100-year floodplain on and in the immediate vicinity of the Airport will be removed from the FEMA mapped designation after completion of the project (ACOE, 1985). However, as an added measure of safety a levee improvement project adjacent to the Airport is being considered by the SCVWD (Talley, 1996).

Surface Water Management

The Airport occupies approximately 1,000 acres, including a portion of the adjacent river. Airport elevations range from 56 feet above mean sea level (msl) at the southern end to 28 feet above msl at the northern end, with a roughly constant downward slope of 0.23 percent from south to north for the length of the Airport (City of San Jose, 1982). Approximately half of the Airport currently is covered with impervious surfaces. Surface drainage on the Airport proper is collected by a series of underground storm drains and pipelines that eventually discharge to the Guadalupe River through 13 outfalls. The Airport's storm drain system also serves off-Airport drainage from the west side of Coleman and Martin Avenues in the City of Santa Clara. The system is completely isolated from the Airport's sanitary sewer system. A retention basin and pump are located at the northern end of the Airport (Figure 3.6.1). The pump was originally installed to assist Airport drainage during high levels of flow in the river, and is also used to dewater the Terminal A parking garage.

The western side and northern end of the Airport are subject to ponding and occasional shallow flooding. However, these conditions have never interfered with the safe operation of runways and taxiways (Welch, 1996). Under existing conditions, the majority of the Airport's storm drainage facilities and retention basin can handle a 10-year storm without significant ponding, provided the pump functions properly. However, some minor modifications to existing outfall structures are needed to prevent backflow from the river. In addition, the drainage systems are not fully automatic, and maintenance crews must take certain actions to prioritize protection (City of San Jose, 1982). Ponding becomes more severe when, during high flows, the Guadalupe River's water elevation rises above that of the Airport's outfalls, requiring that they be shut down. Under these conditions, the only storm outlet at SJC is the retention basin pump at the north end of the Airport; the drainage outfalls are shut down and storm water is pumped from the retention basin into the Guadalupe River at a rate of 1.5 million gallons an hour (55.7 cfs). Episodes of shallow flooding have occurred on the Airport when the Guadalupe River has overtopped its banks during extreme flood events. The Guadalupe River flood control project, when completed sometime after 1998, will remove this source of flooding from the Airport and other near-by land uses adjacent to the river (ACOE, 1985).

3.6.1.3 Groundwater

As discussed in Section 3.7, Geology and Seismicity, the Airport overlies a three-layer groundwater system bounded by bedrock at a depth of about 900 feet. From the surface an unconfined aquifer extends to a depth of approximately 150 feet; below the unconfined aquifer a clay and silt aquitard is approximately 150 feet thick; and below the aquitard a confined aquifer extends at least 500 to perhaps 600 feet to impermeable bedrock (ACOE, 1993). Near-surface perched water and saturated-to-near-saturated soils are common throughout the upper portion of the unconfined aquifer and, therefore, throughout Airport property.

3.6.1.4 Surface Water Quality

Limited water quality data are available for the Guadalupe River. Just upstream of SJC, between I-280 and I-880, water quality sampling between 1979 and 1987 demonstrated that the overall quality of the stream flows generally meets drinking water standards for inorganic and radiological compounds, including dissolved metals and toxins (City of San Jose, 1989). Turbidity and coliform levels are generally high and, therefore, stream flows should not be used for drinking water purposes without treatment to remove suspended sediments and microorganisms. In addition, stream bed fine particulates show levels of arsenic, chromium, iron, lead, manganese, mercury and zinc, which could be due to both natural mineral deposits and dust washed from urban areas. These heavy metals do not exceed the U.S. Environmental Protection Agency or California Department of Health Services standards for drinking water (City of San Jose, 1989). The SCVWD, at the request of the Santa Clara Public Health Department, has posted signs that warn of mercury contamination. Previous fish samples taken in the Guadalupe River by the Health Department demonstrated high levels of mercury in the fish (City of San Jose, 1989).

Existing activities at the Airport generate varying amounts of contaminants such as oil, grease, fuel, rubber, heavy metals, solvents, and sediment that, in the absence of control measures, can enter storm water runoff. These pollutants originate on aprons, runways, and parking lots, and in aircraft maintenance and refueling areas and other developed areas. Exhaust from aircraft and motor vehicles contains lead and particulates that settle on paved surfaces and are entrained by runoff. Landscaped areas within and around SJC contribute fertilizers, herbicides, and pesticides to the runoff. In addition, runoff from properties located in the Cities of San Jose and Santa Clara west of the Airport contribute pollutants typical of urban areas to the Airport's storm water system.

The Airport discharges storm water runoff into the Guadalupe River under a National Pollutant Elimination Discharge System (NPDES) permit authorized by the San Francisco Bay Regional Water Quality Control Board (RWQCB). The Airport's permit falls under the "General Permit to Discharge Storm Water Associated with Industrial Activity in Santa Clara County to South San

Francisco Bay or Its Tributaries" (San Jose International Airport, 1992). The General Permit requires permittees to eliminate non-storm water discharges and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to limit contact of potential pollutants with storm water. The Airport's SWPPP details a series of Best Management Practices (BMPs) for Airport and tenant facilities, such as ramp sweeping, spill prevention and response, source controls, and employee training (see also Section 3.12, Hazardous Materials). The Airport is responsible for amending the SWPPP periodically and whenever there is a change in construction, operation, or maintenance which affects the quality or quantity of the industrial storm water discharge.

The General Permit also requires that the SWPPP contain provisions for monitoring storm water discharges for selected water quality indicators. In compliance with these provisions, three storm drain outfalls were sampled on the Airport from 1993 to the present. Appendix 3.6.B, Table 1, contains the results of the sampling through January, 1995. The General Permit requires that certain water quality *indicator* parameters be monitored but does not set numeric limitations or standards. "Pollutant Benchmark Levels" serve as a guide to the detection of potential pollutant levels that may raise concerns or the need for further investigation (see Appendix 3.6.B, Table 2). Water quality data from the Airport's SWPPP monitoring program indicate that, since monitoring began in 1993, potential pollutant levels, including those of pH and oil/grease, in Airport storm water discharge generally have been within acceptable benchmark levels. Two parameters in 1994 sampling episodes, i.e., total suspended solids (TSS) and specific conductance, might have warranted follow-up investigations, according to the RWQCB (see Appendix 3.6.B, Table 2). However, neither parameter revealed similarly high levels in either previous (1993) or subsequent (1995) sampling, and therefore, they appear to represent incident rather than on-going conditions. These water quality constituents often are associated with land disturbance, such as erosion of exposed soil where grading and construction occur, and/or irrigation. Numerous construction projects west of the Airport that took place within the time period in which TSS levels were elevated may have contributed sediments to the Airport storm water drainage system.

Sediment is of concern because it can damage aquatic life, and because it can transport adhered toxic chemicals and other pollutants. Specific conductance is a numerical expression of the ability of the water to carry an electric current. It can be used to assess salinity and the degree of mineralization, or as an alternative method for estimating the total dissolved solids concentration of a water sample. As a pollutant, high specific conductance levels can be harmful to aquatic organisms. Agricultural irrigation often accounts for higher than normal levels, particularly if the water source is of poor quality. Agricultural production and irrigation on Airport lands occurred during the times when high specific conductance levels were observed and may have been the cause; however, this activity ceased in December, 1995 (see Appendix 3.6.B). Therefore, agricultural runoff is no longer a component of total Airport runoff.

3.6.2 HYDROLOGY AND WATER QUALITY IMPACTS

This section identifies six types of hydrologic and water quality impacts associated with the Project Case Alternatives, evaluates their significance, and identifies mitigation measures to

reduce significant impacts to less than significant levels. These six types of impacts are as follows: 1) quantity of stormwater runoff, 2) floodplain risks to structures and people, 3) quality of stormwater runoff, 4) new fuel storage facility adjacent to Guadalupe River, 5) sediment discharge during construction, and 6) groundwater interception during construction. The primary differences in impacts among the Project Case Alternatives relate to the area of construction footprint and magnitude of proposed major structures, such as terminals, parking garages, cargo facilities, and fuel storage tanks. The size and capacity of these facilities, *in very general terms,* influence the magnitude of impacts and the level of risk of injury to public and property and the environment. Table 3.6.1 compares the project components that are most likely to cause hydrology and/or water quality impacts under the three Project Case Alternatives. The section first identifies and analyzes impacts of the Master Plan Update Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by impacts of the No Project Alternative.

3.6.2.1 Hydrology and Water Quality Impacts of the Project Case

Storm Water Runoff Impact

At the present time, approximately 475 acres, or roughly half of the Airport, are covered with impervious surfaces. During the Phase 1 construction, approximately 80 acres of existing permeable land surface would be converted into impervious surface primarily through extensions, widening, and/or strengthening of runways and taxiways. The reconstruction and extension of Runway 12L/30R would result in approximately 19 acres of new impervious surface. The construction of an interim long-term public and employee parking lot would require paving 44 acres, and about 4 acres would be covered with impervious surface for the new fuel storage facility. Phase 1 construction would lead to an approximate 12.6 percent increase in runoff over the existing condition.

During Phase 2 construction, slightly more than 4 acres of permeable land surface would be converted into impervious surface through widening (with or without strengthening) of taxiways, expansion of the fuel storage facility, and other minor projects, for a total cumulative increase in runoff of approximately 13.2 percent over the existing condition. Phase 3 would convert 22.9 acres of existing permeable land surface into impervious surface. The major project would be construction of Taxiway W, adding 20.2 acres of new impervious surface. Expansion of fuel storage facilities would add almost one acre of new impervious surface. On completion of Phase 3, cumulative runoff from all phases of development would increase by 16.9 percent over the existing condition. Table 3.6.2 compares the increase in rate of stormwater runoff between the Project Case and Project Case Alternatives A and B.

The runoff/ponding calculation completed for this EIR reveals that under existing conditions, ponded water does not reach existing runway elevations during the 100-year storm ponding

TABLE 3.6.1
MASTER PLAN PROJECTS THAT WOULD INCREASE IMPERVIOUS SURFACES AT THE AIRPORT

Project	Project Case	Project Case Alternative A	Project Case Alternative B
Storm Water Runoff Impact[1]			
Phase 1			
Extend Runway 12L-30R (A-1/1a)	X	X	
Extend Taxiway Y (A-2)	X	X	X
Extend Taxiway Z (A-3)	X	X	X
Construct Taxiway N (A-5a)			X
Extend Taxiway D (A-7/7a)	X	X	X
Extend Taxiway A (A-15)	X	X	
Extend Taxiway N (A-16)	X	X	
Extend Taxiway W (A-17)	X	X	
Extend Taxiway D (A-19)	X	X	
Construct interim long-term public and employee parking lot (T-1/1a)	X	X	X
General aviation facility (G-8)		X	X
Construct fuel storage facility (S-1)	X	X	X
Non-aviation use (N-1)	X	X	X
Phase 2			
Widen/strengthen Taxiway V (A-26)	X	X	
Construct Taxiway H (A-27)	X	X	
General Aviation Use (G-3)	X	X	
Expand fuel storage facility (S-5/5a)	X	X	X
Construct Taxiway W (A-30)	X	X	
Extend Taxiway D (A-32)	X	X	
Widen/strengthen Taxiway G (A-33)	X	X	
Widen/strengthen Taxiway J (A-34)	X	X	
General aviation use (G-5)	X	X	
Expand fuel storage facility (S-9/9a)	X	X	
Phase 3			
Construct Taxiway W (A-30)	X	X	
Strengthen Taxiway C (A-31)	X	X	
Extend Taxiway D (A-32)	X	X	
Widen/strengthen Taxiway G (A-33)	X	X	
Widen/strengthen Taxiway J (A-34)	X	X	
General aviation use (G-5)	X	X	
Expand fuel storage facility (S-9/9a)	X	X	

Other Significant Impacts

Quality of Storm Water Runoff Impacts would result from all projects for all alternatives.

New Fuel Storage Facility Impacts would result from all fuel storage facility projects for all alternatives.

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1 Projects chosen would result in the creation of new impervious surfaces at SJC.

SOURCE: Environmental Science Associates

TABLE 3.6.2
INCREASE IN RATE OF STORM WATER RUNOFF: ALL PROJECT CASE ALTERNATIVES

	Project Case (Year 2010)	Project Case Alternative A (Year 2010)	Project Case Alternative B (Years 2005 and 2010)
Increase in Airport impervious surface -- acres	107	107	57
Percent Increase in Rate of Runoff	16.9	16.9	8.7
Volume of 100-year Storm Runoff (12-hour) -- acre-feet	73.6	73.6	64.6
Capacity for ponding below 33-foot elevation -- acre-feet	49.7	51.1	56.2

SOURCE: Environmental Science Associates

levels. However, after completion of Phases 1, 2, and 3 of the Project Case, ponding would reach existing runway elevations for a rainfall event between the 20- and 50-year storm (see Appendix 3.6.A for calculations). The calculated increase in the potential for runways to flood is based on the combination of two consequences of proposed development: the projected increased runoff due to increase in impervious area, and a decrease in the area and capacity available for ponding below the lowest runway elevation.

Assuming a maximum pumping rate at the retention basin pump at the north end of the Airport, a conservative estimate of the quantity of ponded water that needs to be accommodated during a 100-year storm event under existing conditions is 55 acre-feet.[2] The available capacity for ponding below the existing lowest runway elevation at the Airport is approximately 65 acre-feet, providing a theoretical surplus in ponding capacity of 10 acre-feet. Conservative estimates of quantities of storm water that would need to be ponded on the Airport during a 100-year storm, after build-out of Phases 1, 2, and 3 of the Project Case, would be 68.9, 69.9, and 73.6 acre-feet, respectively. Capacity available for ponding below the lowest runway elevation would be reduced to 53.6 acre-feet after build-out of Phase 1, and 49.7 acre-feet after build-out of all three phases (see Appendix 3.6.A, Table 8). Therefore, in a 100-year event, with or without completion of the Guadalupe River Flood Control Project, there would be deficit ponding

[2] An acre-foot is the amount of water that would cover one acre to a depth of one foot. It is the equivalent of approximately 325,000 gallons.

capacity of from 15.3 acre feet (Phase 1) to 23.9 acre feet after buildout of all three phases. Small portions of runways (at the north end of the Airport) could experience temporary flooding during a 100-year storm.

The area north of the Airport -- U.S. 101 below the De La Cruz Boulevard overpass, which is also currently in the 100-year floodplain -- would receive increased runoff. The existing drainage system consists of a box culvert under U.S. 101 at the De La Cruz Boulevard interchange that was designed in 1958 to carry the 100-year discharge. The system, described as a "bubble-up" system, has effectively served its designed purpose to date (Jyono, 1996). Caltrans has not determined whether additional runoff from SJC would cause the drainage capacity on U.S. 101 to be exceeded during a 100-year storm and has no plans at present to conduct that analysis (Lee, 1996). Completion of the Guadalupe River Flood Control project will result in the removal of this interchange from the 100-year floodplain.

For purposes of this EIR, a hydrologic impact would be significant if a project would cause substantial flooding leading to possible interruption of Airport transportation services or would contribute runoff to an offsite location within a 100-year floodplain. Because the new or expanded facilities at the Airport would increase runoff from the site to areas that are currently, or, in the future, susceptible to flooding, the Project Case would have a significant impact.

> ***Storm Water Runoff Impact: Development of the Project Case would increase storm water runoff volumes and peak runoff flow rates by 16.9 percent by the year 2010. Increased runoff could result in temporary localized on-site flooding on runways and contribute to off-site flooding on U.S. 101 below the De La Cruz Boulevard overpass. (SIGNIFICANT)***

Floodplain Risks to Structures and People Impact

The FEMA flood hazard map, supplemented by SCVWD mapping, indicates that the 100-year floodplain (subject to shallow flooding) covers areas of the Airport west of Runway 12R-30L and north of Terminal A and Taxiway J (see Figure 3.6.1). A number of project components would be entirely or partially within the existing 100-year floodplain, including the north end runway and taxiway extensions, the interim west side parking lot, and new cargo, fuel storage, and rental car facilities. However, completion of the Guadalupe River Park flood control project in 1998 will remove the Airport from the 100-year floodplain by eliminating the hazard of flooding due to overtopping of the river banks. That project will be completed before full implementation of Phase 1 of the Project Case. Therefore, only a few project components of Phase 1 of the Project Case (e.g., Runway 30R extension and taxiways north of Taxiway J) would encroach into the existing 100-year floodplain. This condition would remain for approximately one-to two-years until the flood control project is completed.

Many project component locations currently are within the existing 100-year flood zone and are already developed. Constructing the proposed new or expanded facilities within the 100-year flood zone would lead to increased maintenance costs and emergency response requirements in the event of a major storm (100-year) prior to completion of upstream flood control measures. The size or depth of overland flood flow would remain relatively unchanged from existing conditions.

For purposes of this EIR, a hydrologic impact would be significant if a project would cause a public health or safety hazard as a consequence of flooding conditions. The Project Case Phase 1 would constitute a minor, short-term encroachment onto the 100-year floodplain of the Guadalupe River as currently mapped by FEMA and SCVWD. This encroachment would occur only for a one- to two-year period, or until the Guadalupe River Flood Control project is completed. If a 100-year storm were to occur during this period, the depth of flooding, or size of the floodplain is not expected to change significantly due to implementation of the Project Case. In the event of temporary flooding, the Airport's Emergency Plan provisions regarding facility assessment, evacuation, and notification would be implemented as necessary.

Floodplain Risks to Structures and People Impact: Until the Guadalupe River Flood Control Project is fully completed, the proposed Phase 1 development within the 100-year floodplain would contribute to existing risks to persons and structures at SJC during a 100-year storm. (LESS THAN SIGNIFICANT)

Quality of Storm Water Runoff Impacts

As discussed under the Storm Water Runoff Impact, above, the proposed projects would increase the total runoff at SJC by a total of 16.9 percent over the existing condition. In combination with increased aviation activity at the Airport, increased impervious surfaces would collect and release additional contaminants into storm water runoff over the existing condition. The general categories of contaminants resulting from the proposed project would be similar to those identified under current conditions (e.g., pollutants associated with aircraft and automobile exhaust, fluids such as oil and grease, rubber, heavy metals). During construction, these pollutants will be supplemented by sediment and waste materials from construction sites. Under Project Case development, increased vehicular and aircraft activity levels will contribute proportionally to pollutant loadings. Any attempt to extrapolate increases in specific pollutant concentrations would be speculative. In general, however, increased storm water runoff volumes would increase the total mass loading of pollutants carried off-site. This general correlation is supported by an extensive body of literature on sources of urban storm water pollution (Schueler, 1994a and 1994b). By increasing stormwater runoff volumes, the proposed development could be expected to increase the frequency and degree of contaminants.

For purposes of this EIR, a hydrologic impact would be significant if a project would substantially degrade water quality or groundwater resources. Under the Project Case, increased stormwater runoff would increase total pollutants carried off-site. Construction would add to sediment loads. Greater vehicle traffic and aircraft operation's would produce pollutants such as oil and grease, and heavy metals, generally deposited or paved surfaces. Therefore, in the absence of control measures, the Project Case would substantially degrade the quality of stormwater runoff discharged to the Guadalupe River. Thus, this impact is considered significant.

Quality of Storm Water Runoff Impact: Expansion of impervious surfaces at SJC in combination with increased aircraft and ground vehicle operations, would lead to elevated levels of contaminants in storm water discharges and in groundwater. Contaminant spills and leaks at proposed project facilities could also reach storm water discharges and groundwater. (SIGNIFICANT)

New Fuel Storage Facility Adjacent to Guadalupe River Impact

The Project Case calls for installation of a new storage facility for aviation fuel on a 13.4-acre parcel owned by the Airport northeast of and between U.S. 101 and the Guadalupe River. On completion of all three phases of the Project Case, the facility would consist of a maximum of eight tanks with storage capacity of four million gallons. The fuel facility would be set back a minimum of 100 feet from the river and, therefore, would not involve any direct encroachment into the riparian corridor of the Guadalupe River (see Section 3.8, Biological Resources). However, water quality impacts could result from a leak or spill. The proximity to the river and prevalent high groundwater levels (at times as close as several feet below the surface) would require that the proposed fuel farm be designed to ensure that contamination of above- or below-ground surface water would not occur. See also Section 3.12, Hazardous Materials, for further discussion of impacts.

No regulations or guidelines currently exist that prescribe minimum distances for placement of such facilities in relation to water bodies or waterways. In fact, distance from the river might not be a relevant criterion, in that all facilities of this type must install and maintain the same basic spill prevention, primary and secondary containment, and other design requirements. The proposed site for the fuel storage facility is not unlike any other location on the Airport with regard to the potential for encountering shallow groundwater or existing drainage patterns. The entire Airport has high groundwater levels (Cooper-Clarke Associates, 1974) and the entire area drains to the Guadalupe River (see discussion of alternative sites for the fuel storage facility in Section 4.1.2 of this EIR).

Significant impacts on water quality for most Airport actions can typically be avoided by design considerations, construction phase controls, and other mitigation measures. However, water

quality impacts would be significant if a project would substantially degrade water quality or groundwater resources. The new fuel storage facility presents the opportunity for degradation of groundwater and/or the surface water quality of Guadalupe River in the event of a leak or an accidental spill. Therefore, it is considered a significant impact.

New Fuel Storage Facility Adjacent to Guadalupe River Impact: Installation of the new fuel storage facility adjacent to the Guadalupe River would raise the potential for short-term impacts to the quality of surface water or groundwater in the event of a leak or spill. (SIGNIFICANT)

Sediment Discharge Impact (Construction Impact)

Because the Airport is flat, erosion hazard associated with construction is relatively low. However, during construction periods, large areas of the site surface would be disturbed by grading and construction. Additionally, soils found to be unsuitable for foundations and paved area may be excavated and replaced. Disturbed soils, stockpiles of excavated soil or imported soil, or other loose soil would be subjected to rainfall and erosion. Silt entrained in runoff could then be directed into storm drains, potentially clogging them, or would be discharged off-site into the Guadalupe River. Construction-related impacts such as erosion and sedimentation relate to the footprint of construction, and to the magnitude of structures (e.g., some structures would require more extensive excavation, dewatering, pile-driving, and other disturbance during construction).

The City would employ methods to protect exposed stockpiles of soil or areas of loose soil, and reduce the potential for silt to enter storm water collection systems. These methods may include diverting all runoff in construction areas into temporary siltation basins; installing catch basins with filters; performing as much foundation construction as possible during the dry season (May to October); watering soils prone to wind erosion during construction; and covering stockpiles of soil with impervious tarpaulins. These constitute best management practices (BMPs) for construction sites and would insure that adverse impacts do not occur; these BMPs could be developed either as a construction site stormwater pollution prevention plan (SWPPP) or added to the Airport's existing SWPPP (see also Section 3.6, Hydrology and Water Quality).

For purposes of this EIR, a water quality impact would be significant if a project would expose sensitive resources, such as the Guadalupe River, to substantial sedimentation. By incorporating into the project appropriate construction management practices to control erosion and sedimentation, the discharge of sediment would not be substantial and therefore would not cause significant water quality impacts.

Sediment Discharge Impact: Construction activity would disrupt and displace site soils, increasing the potential for water and wind erosion of graded soil and any imported fill. This, in turn, would increase the potential for discharge of sediments into storm drains

and the Guadalupe River. Best management practices during construction would minimize the potential sediment discharge. (LESS THAN SIGNIFICANT)

Groundwater Interception Impact (Construction Impact)

Construction of project components of the Project Case would necessitate varying amounts of excavation that could intercept shallow groundwater that is prevalent throughout the Airport. In addition to disrupting normal groundwater movement, the general effects of interception would be to temporarily inundate construction areas and create sumps, leading to potential settlement of the ground surface. Measures to counteract these effects would include pumping (dewatering) and discharge of waters. These measures, in turn, could degrade surface water quality by producing sediment and other contaminants, if the groundwater were of degraded quality.

To avoid this problem, the City would employ design and construction management techniques in constructing proposed facilities to reduce the potential for groundwater interception and the potentially water quality degrading effects of short- or long-term dewatering. For example, project design for all below-grade features should include provisions to reduce the need for groundwater pumping, such as minimizing the amount of excavation needed, as well as the amount and duration of dewatering. Measures to minimize sediment discharge also would be taken, as discussed above under Sediment Discharge Impact. Before construction begins in areas that might require short-term or long-term groundwater pumping, samples would be taken to determine the quality of groundwater likely to be affected. Under the reissued Municipal Storm Water NPDES Permit (Municipal Permit), of which both the City of San Jose and the Santa Clara Valley Water District (District) are co-permittees, discharges of uncontaminated groundwater are prohibited unless they have been identified by the co-permittees or the Regional Water Quality Control Board as not being sources of pollutants to receiving waters (the Guadalupe River, in this case). As requested by the District, construction dewatering disposal is considered an open item at this time to be resolved by the co-permittees (including the Airport) under the Municipal Permit immediately prior to construction. Some treatment might be required prior to discharge of contaminated groundwater (Bowyer, 1994).

For purpose of this EIR, a water quality impact would be significant if a project would substantially degrade water quality or groundwater resources. Implementation of design and construction management practices such as those discussed above would prevent substantial degradation of surface and groundwater quality, and therefore prevent a significant impact.

Groundwater Interception Impact (Construction Impact): Construction of proposed facilities requiring subsurface excavations could intercept shallow groundwater, potentially affecting the quality of both surface water and groundwater. Design and construction management practices would be implemented. (LESS THAN SIGNIFICANT)

3.6.2.2 Hydrology and Water Quality Impacts of the Project Case Alternative A

Storm Water Runoff Impact

This impact for Project Case Alternative A is similar to that described for the Project Case. Several project components would differ, but the acreage converted from permeable to impervious surface would be the same, and the increase in peak runoff rate would be 16.9 percent. The volume of 100-year storm water runoff (12-hour storm) also would be the same as the Project Case (i.e., 73.6 acre-feet). However, the capacity for ponding below the lowest runway elevation at build-out of three phases would be 51.1 acre-feet, a deficiency in capacity of 22.5 acre-feet, compared to 23.9 acre-foot deficiency for the Project Case. Therefore, in a 100-year event, runways would be susceptible to temporary flooding. The impact would be significant (see the discussion under Storm Water Runoff Impact under the Project Case, Section 3.6.2.1, above).

Floodplain Risks to Structures and People Impact

This less than significant impact is similar to that described for the Project Case. It is assumed that the Guadalupe River Flood Control Project will be completed by the Year 1998, thereby removing the FEMA and SCVWD 100-year floodplain hazard designations from the Airport. Although several project components would differ in Phase 1, during the two-year period prior to completion of the flood control project, they would not substantially alter the number of facilities and structures subject to flood hazard in a 100-year storm event. See the discussion under Floodplain Risks to Structures and People Impact under the Project Case, Section 3.6.2.1, above.

Quality of Storm Water Runoff Impact

This significant impact is similar to that described for the Project Case. Several project components would differ and aviation activity levels would be somewhat less, producing somewhat lower contaminant levels, but the same amount of land would be converted from permeable to impervious surface, resulting in a roughly equivalent increase in mass pollutant load into storm water runoff. In general, greater vehicle traffic and aircraft operations would increase deposition of contaminants on paved surfaces. See the discussion under Quality of Storm Water Runoff Impact under the Project Case, Section 3.6.2.1, above.

New Fuel Storage Facility Adjacent to Guadalupe River Impacts

Under Project Case Alternative A, the new fuel storage facility would consist of six rather than eight tanks (4-million-gallon capacity) by the year 2010, with a storage capacity of 3 million gallons, but the significant impact on water quality would be similar to the Project Case. See discussion under New Fuel Storage Facility Impact under the Project Case, Section 3.6.2.1,

above (and Sections 3.7, Geology and Seismicity, 3.8, Biological Resources, and 3.12, Hazardous Materials).

Sediment Discharge Impact (Construction Impact)

This less than significant impact is similar to that described for the Project Case. See the discussion under Sediment Discharge Impact (Construction Impact) under the Project Case, Section 3.6.2.1, above.

Groundwater Interception Impact (Construction Impact)

This less than significant impact is similar to that described for the Project Case. See the discussion under Groundwater Interception Impact (Construction Impact) under the Project Case, Section 3.6.2.1, above.

3.6.2.3 Hydrology and Water Quality Impacts of the Project Case Alternative B

Storm Water Runoff Impact

This significant impact is similar to that described for the Project Case, but because a smaller area of permeable land would be converted to impervious surface, the increase in runoff would be less. The total area converted to impervious surface in Phase 1 and 2 would be about 57 acres, which would increase runoff by approximately 8.7 percent. The volume of 100-year storm water runoff (12-hour storm) would be 64.6 acre feet, and the capacity for ponding below the lowest runway elevation would be 56.2 acre-feet, following build-out of Phases 1 and 2. The deficiency in ponding capacity would be 8.4 acre-feet. Therefore, in a 100-year event, runways would be susceptible to temporary flooding. No additional impervious surface would be created in Phase 3. For further discussion, see Storm Water Runoff Impacts under the Project Case, Section 3.6.2.1, above.

Floodplain Risks to Structures and People Impacts

This less than significant impact is similar to that described for the Project Case. However, fewer new or expanded facilities would be constructed within the existing 100-year flood zone during Phase 1, and prior to completion of the Guadalupe River Flood Control Project. Therefore, fewer people would be exposed to potential floodplain risks than under the Project Case. See the discussion under Floodplain Risks to Structures and People Impact under the Project Case, Section 3.6.2.1, above.

Quality of Storm Water Runoff Impact

This significant impact is similar to that described for the Project Case except that the total area converted from permeable to impervious land would be less than under the Project Case or

Project Case Alternative A. In general, greater vehicle traffic and aircraft operations would increase deposition of contaminants on paved surfaces and increased storm water runoff volumes would increase the total mass loading of pollutants carried off-site. Among the Alternatives, it can be inferred that Project Case Alternative B would result in the least potential for discharge of contaminated runoff. However, any attempt to quantify this relationship would be speculative. See the discussion under Quality of Storm Water Runoff Impact under the Project Case, Section 3.6.2.1, above.

New Fuel Storage Facility Impact

Project Case Alternative B's new fuel storage facility would consist of five rather than eight tanks under the Project Case (4 million gallon capacity) or 6 tanks under Alternative A (3 million gallon capacity) by the year 2010, with a total capacity of 2.5 million gallons, but the significant impact on water quality would be similar to the Project Case. See the discussion under New Fuel Storage Facility Adjacent to Guadalupe River Impact under the Project Case, Section 3.6.2.1, above (and Section 3.8, Biological Resources, and Section 3.12, Hazardous Materials).

Sediment Discharge Impact (Construction Impact)

This less than significant impact is similar to but of lesser magnitude than that described for the Project Case. Fewer projects would be constructed under this alternative, but the difference in potential impact from sedimentation on surface water quality cannot be quantified. See the discussion under Sediment Discharge Impact (Construction Impact) under the Project Case, Section 3.6.2.1, above.

Groundwater Interception Impact (Construction Impact)

This less than significant impact is similar to but of lesser magnitude than that described for the Project Case. See the discussion under Groundwater Interception Impact (Construction Impact) under the Project Case, Section 3.6.2.1, above.

3.6.2.4 Hydrology and Water Quality Impacts of the No Project Alternative

The No Project Alternative would not change any of the existing conditions related to storm water runoff, floodplain risks, or quality of storm water runoff. Increased aviation activity at the Airport would increase the potential for discharge of contaminants in surface runoff, although the Airport's SWPPP will continue to be implemented. The potential for leakage and consequent contamination of soils from the existing underground fuel storage facility would continue.

3.6.3 MITIGATION MEASURES FOR SIGNIFICANT HYDROLOGY AND WATER QUALITY IMPACTS

Mitigation Measures for Storm Water Runoff Impacts

Two mitigation measures identified below address two facets of this impact. Mitigation Measure 1 would be implemented to avoid or reduce the impact of flooding on the Airport. Mitigation Measure 2 would be implemented to avoid or reduce the impact of runoff onto U.S. 101. Design solutions should be based on detailed calculations and analysis completed by a licensed Civil Engineer.

Total ponding capacity volume below the lowest runway elevation at the Airport should be increased to meet projected increases in runoff quantities during major storm events. This could be achieved by constructing runway and taxiway improvements at an elevation equal to or higher than the existing lowest runway elevation, and/or by excavating the infield areas between runways and taxiways eight to twelve inches to increase the ponding capacity. This would require maintaining a slope between runways and taxiways in accordance with FAA standards. Alternatively, the City would consult with the SCVWD to permit an additional pump at the existing retention basin located at the northern end of the Airport, to increase pumping capacity during major storm events.

> ***Mitigation 1 for Storm Water Runoff Impact: Ponding capacity at the north end of the Airport and/or pumping capacity will be increased to meet the additional runoff quantities during major storm events. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

A retention barrier less than two feet in height at the north end of the Airport would impede the flow of ponded water from entering onto U.S. 101 without causing local flooding on Airport runways and taxiways. The length, height, and other specifications of the retention wall would be determined by a licensed civil engineer.

> ***Mitigation 2 for Storm Water Runoff Impact: As part of the Phase 1 runway/taxiway extensions, the Airport will include a retention wall around the north end of SJC to prevent runoff onto U.S. 101. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)***

Impact Significance Conclusion: Implementation of Mitigation Measures 1 and 2 will insure that no significant impact would result from increased runoff. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

Mitigation Measure for Quality of Storm Water Runoff Impact

The SWPPP represents a detailed plan that addresses typical activities at airports and typical pollutants. These activities include airplane maintenance, vehicle and equipment maintenance and cleaning, fuel storage and transfer areas, airplane servicing, airplane deicing, among others.

Pollution management controls fall into seven categories: preventive maintenance, good housekeeping, spill prevention and response, source controls, stormwater management practices, sediment and erosion prevention, and employee training. Specific practices include eliminating or reducing the use of toxic pollutants, covering and appropriately containing storage areas for potential pollutants, and cleaning (sweeping) paved areas where equipment and vehicles are maintained. The City should continue to implement the SWPPP, updating the plan to reflect new projects as they are constructed. The plan will have to be amended from time to time, and a construction General Storm Water Permit will be submitted for major elements of construction.

Mitigation of Quality of Storm Water Runoff Impact: The Airport's Storm Water Pollution Prevention Plan (SWPPP) will continue to be implemented and updated, and its effectiveness monitored, to reduce the potential for contamination of storm water and groundwater both on and off-site. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of this mitigation measure will insure that storm water runoff quality is not significantly affected. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

Mitigation Measure for New Fuel Storage Facility Impact

The fuel storage tanks would be above-ground, so the potential for leakage to soils and groundwater would be minimal. Design of the fuel storage facility would be required to include stringent measures to prevent an accidental spill from leaving the site. These include secondary containment positive drainage to an oil/water separator, and an automatic shutoff device to control spills. Requirements for secondary containment are: (1) maximum capacity of one tank or 10% of total fuel farm capacity; (2) water discharged from the fire suppression system in a 20-minute period; and (3) maximum amount of rainfall on the site within a 24-hour period during the last 25 years. This would require a secondary containment that accommodates approximately 650,000 gallons. The designed secondary containment would be a five-foot-high concrete wall that results in a one-million-gallon secondary system and an impervious membrane to prevent any spills from escaping. In addition, the facility would require monitoring systems for detection of leaks from any below-ground infrastructure, including the pipeline extending from the site, under U.S. 101, to the fuel dispensing site on the airfield. The new fuel storage facility also would require developing a new Spill Prevention, Control, and Countermeasure Plan, amending the existing SWPPP, and reviewing, and updating as necessary, the Airport's Emergency Response Plan. The Airport's SWPPP currently refers to the site as vacant. The Plan would be amended to reflect the change in use, and would describe a new storm drain system to be designed and installed as part of site development; it would update the section of the SWPPP concerning above-ground storage tanks, focusing on Fuel Storage and Transfer Areas (e.g., daily inspections of pipes, hoses, pumps, valves, seals, and fittings for evidence of deterioration; availability of absorbent materials and other spill control equipment; and good housekeeping

practices such as cleaning of fuel transfer areas with mechanical sweepers, vacuums or other equipment [hosing off these areas into storm drains is not permitted]). The Emergency Response Plan is discussed in Section 3.12.3, Hazardous Materials: Mitigation Measures. For further analysis and mitigations, see Section 3.12, Hazardous Materials.

Mitigation of New Fuel Storage Facility Adjacent to Guadalupe River Impact: The facility will be designed to meet current requirements for storage of fuel in above-ground tanks, and the SJC Storm Water Pollution Prevention Plan (SWPPP) and other applicable plans will be amended to cover the new site. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of this mitigation measure will insure that the storage facility is designed to minimize the risk of failure and accidental release and that, under normal operation, no pollutants would be discharged with stormwater. Therefore, storm water runoff quality would not be significantly affected. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.7 GEOLOGY AND SEISMICITY

Geologic and soils conditions on the Airport, and seismic activity in the San Francisco Bay region, pose a number of hazards and, therefore, impose significant constraints on the design and construction of new or expanded facilities on the Airport. These hazards and constraints (impacts) are common to urban development on the San Francisco Bay Plain. However, the Airport Master Plan includes new and/or expanded terminals (i.e., places of public assembly), for which engineering design requires special consideration, and development of a new aviation fuel storage facility. In general, mitigation measures discussed in this section take the form of adherence to applicable policies, codes and standards, and use of engineering design and construction methods that are sensitive to site constraints. This section is based on information developed from published sources as well as reports on file at SJC and communications with SJC staff and other knowledgeable persons. No physical tests were carried out for this investigation.

3.7.1 SETTING AND EXISTING CONDITIONS

3.7.1.1 Geology and Topography

The Airport is located southeast of San Francisco Bay in the Santa Clara Valley, a relatively flat plain that slopes gently toward the Bay from the base of the foothills of the Hamilton-Diablo Mountain Range and Santa Cruz Mountains. The Santa Clara Valley is a structural trough formed between two and three million years ago. Bedrock in this area is the Franciscan Complex, located at a depth of up to 900 feet below the surface. Both the Valley and the Bay were formed by continued down-faulting and down-warping, accompanied by erosion of the adjacent uplands and deposition of alluvial (stream-deposited) sediments to form the gently sloping alluvial plain. Alluvial sediments are interfingered with estuarine deposits adjacent to San Francisco Bay. The entire near-surface material underlying the Airport and vicinity consists of Holocene (the past 10,000 years) deposited silt and clay.

The Airport occupies a relatively flat site on the northern portion of the Valley floor, adjacent to the Guadalupe River. Elevation varies between 56 feet above mean sea level (msl) at the southern end of the Airport and 28 feet msl at the northern end. North of the Airport proper, across U.S. 101, the parcel proposed for a new fuel storage facility has an elevation of 25 to 35 feet msl except for the adjacent Guadalupe River levees, which vary from 33 to 35 feet msl.

Groundwater and Subsidence

In general, the Airport overlies a three-layer groundwater system: from the surface an upper unconfined aquifer consisting of sand and gravel lenses interbedded with local clay layers extends to a depth of approximately 150 feet; below the unconfined aquifer, a clay and silt aquitard is approximately 150 feet thick; and below the aquitard a confined aquifer at least 500 to perhaps 600 feet thick is bounded on the bottom by bedrock (U.S. Army Corps of Engineers, 1993). Near-surface perched water is common throughout the upper portion of the

unconfined aquifer and, therefore, throughout Airport property, including the parcel proposed for fuel storage.

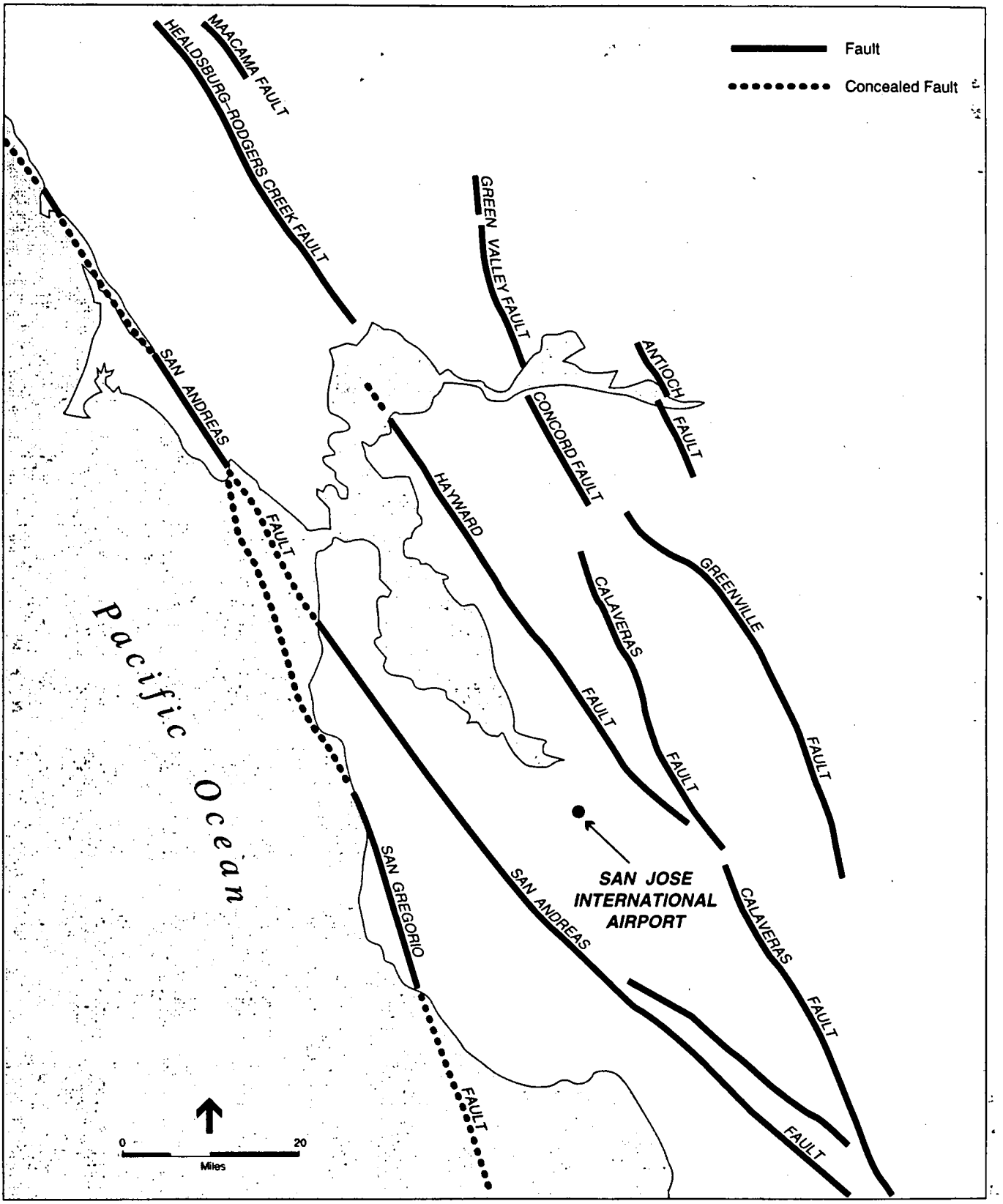
Subsidence can occur when groundwater is withdrawn at a rate faster than it is recharged. In the past, some areas of Santa Clara County subsided up to 14 feet (County of Santa Clara, 1990). Between 1938 and 1967, subsidence at the Airport was between seven and eight feet (City of San Jose, 1974). The high levels of subsidence that occurred earlier this century have been halted, in part by regional conversion from agricultural to urban land uses with consequent reduction in groundwater withdrawal, and in part by a system of reservoirs and groundwater recharge facilities operated by the Santa Clara Valley Water District.

Soils

Airport lands, including the fuel storage parcel, are dominated by very deep, poorly drained soils developed in mottled alluvium (SCS, 1968). The native surface soils at the Airport consist of medium to high plasticity clays, silty clays, and sandy clays that extend to depths of about 5 to 15 feet. The clays generally are stiff to very stiff in consistency. Test borings reveal that the native surface soil layer is covered by a variable thickness of silty and sandy clay fill (2.5 to 3.5 feet thick) or other low to non-plastic soils (City of San Jose, 1987). Clay soils also are present at depth in the soil profile. Throughout the project area, common soil features include dense sands and gravels at depths of 60 to 80 feet, and thick layers of moderately compressible clays between those depths and the surface; weak soil layers and lenses occur at random locations and depths (City of San Jose, 1974).

Seismic Features

As shown in Figure 3.7.1, the Santa Clara Valley is located between the San Andreas fault zone (to the south and west) and the Hayward and Calaveras fault zones (to the east). The San Andreas fault is about 11 miles west of the Airport, and the Hayward and Calaveras faults are about 5.5 and 8 miles east of the Airport, respectively (Jennings, 1994). These are considered to be the most significant regional fault zones in the southern Bay Area. The San Andreas fault was the source of the 1906 San Francisco Earthquake (Magnitude 8.3) and the 1989 Loma Prieta Earthquake (Magnitude 7.1). Both these and other earthquakes resulted in injuries and substantial damages to buildings and other structures in San Jose. Local faults also may generate damaging earthquakes. Local active and potentially active faults include the Silver Creek, Evergreen, Quimby, Crosley, Berryessa, Arroyo Aguague, Clayton, Animas, Coyote Creek, Piercy, Sergeant, Shannon, and Coyote Peak faults (City of San Jose, 1974). Additionally, other regional faults relatively distant from the site could generate damaging earthquakes at the site.



San Jose International Airport Master Plan Update / 940404

SOURCE: Environmental Science Associates

Figure 3.7.1
Regional Fault Map

3.7.1.2 Soils Constraints and Seismic Hazards

Soils

The compressible clay soils throughout the Airport and vicinity are susceptible to settlement and high shrink-swell behavior (SCS, 1968). This is especially true in areas on and adjacent to the Airport where soils have not been previously filled or engineered. Although most of the fills and mud on or underlying the Airport proper have already undergone compaction and compression since being placed, damage to structures could result from settlement induced by placement of new or additional loads on compressible and expansive soils. Airport lands that have not undergone previous filling or development, such as the parcel north of U.S. 101, can expect more settlement but not in an amount that would preclude development with appropriate site engineering and foundation design. Three types of settlement could affect structures on the Airport: immediate settlement, consolidation settlement, and differential settlement.

Immediate settlement primarily affects structures with shallow foundations and fill. Settlement can begin as soon as a new or increased load is placed on compressible soils and occurs rapidly during the placement of fill and during construction of a new structure with a shallow foundation. Consolidation settlement begins when a load is placed on a soil subject to compression (and compaction), and continues indefinitely over time but declines in severity. Consolidation settlement occurs in the saturated or near-saturated soil present on much of the Airport proper as well as on the parcel north of U.S. 101. The rate of consolidation settlement largely depends on the soil moisture content and permeability. Differential settlement is caused by differences in soil compressibility (e.g., composition and density), thickness of soil layers, soil properties, and the loads placed on the soil. Any new load applied to these soils might induce a variable and unpredictable amount of settlement. This is as much a problem for road and airfield surfaces as it is for buildings, especially where roads, runways and taxiways cross soils that settle differentially.

Other potential constraints related to soils include construction-induced subsidence and settlement. Construction requiring extensive dewatering can induce local subsidence with similar settlement affecting adjacent buildings, roads, infrastructure and other features. Vibration from pile driving also can induce settlement of adjacent soils and cause damage to nearby structures and infrastructure.

Seismic Hazards

The Uniform Building Code (UBC) designates San Jose and the entire South Bay in Seismic Activity Zone IV, the most seismically active region in the United States (UBC, 1994). The Airport could be affected by strong ground shaking due to movement along any one of approximately 30 capable faults in the region (Perkins, 1987). It is estimated that there is a 67 percent probability that there will be one or more earthquakes of magnitude 7.0 or greater in

the Bay Area by the year 2020 (U.S. Geological Survey, 1990). Although statistical probabilities may be argued, all evidence indicates that a major earthquake may be expected during the design life of facilities at the SJC.

The City of San Jose identifies Geologic Hazard Zones that are based on geotechnical constraints including faults, earthquake hazards, landslides, etc. City policy requires that developments in these zones must obtain a Certificate of Geologic Hazard Clearance prior to construction. No part of the Airport is located in a City Geologic Hazard Zone. However, the Airport Terminals constitute places of public assembly and, therefore, are designated by the City as "essential facilities," meriting special design for seismic hazards. Three major hazards associated with earthquakes, all of which could occur on the Airport, are discussed below: fault surface rupture, ground shaking, and ground failure.

Fault surface rupture results from displacement along a fault, either suddenly during an earthquake or slowly as "fault creep" over a period of time. This is normally associated with active faults that are mapped by the Department of Conservation Division of Mines and Geology (DMG) under the direction of the Alquist-Priolo Earthquake Fault Zoning Act (formerly called the Alquist-Priolo Special Studies Zones Act). No part of the Airport is within an Alquist-Priolo Earthquake Fault Zone. The Airport could be affected by an earthquake generated on one of the blind faults (a bedrock fault concealed by overlying material) in the region, similar to the Northridge earthquake in January 1994. Seismologic and geomorphologic conditions of the Santa Clara Valley appear similar to those of the San Fernando Valley (the epicenter of the Northridge earthquake), and undiscovered blind thrust faults may exist in the Santa Clara Valley that could produce a major earthquake. However, the rate of occurrence of earthquakes on these types of sources is much lower than in the San Fernando Valley, and is an order of magnitude less than the occurrence of large magnitude earthquakes on the San Andreas fault.

Ground shaking affects a broad area and causes the most damage during earthquakes, depending on the size (magnitude) of the earthquake, the distance and depth of the epicenter on the fault that generated the earthquake, and the response of the geologic materials that underlie the Airport. Magnitude can be estimated as either the maximum probable earthquake (MPE) or the maximum credible earthquake (MCE). The MPE is an estimate of the largest earthquake capable of occurring on a fault or a segment of a fault for a specified design period (e.g., 30 years). The MCE is defined as the largest magnitude event that can reasonably be postulated to occur on a given fault independent of time. The MCE is a much more severe event than the MPE, but the probability of its occurrence is substantially less.

"Essential facilities," or "critical structures," such as hospitals, fire stations, water supply facilities, and airport terminals, are designed to remain operational during and after the MCE. Most other buildings are normally designed to meet the anticipated earthquake forces of the

MPE. Terminal A is a critical structure, designed to meet current seismic code requirements plus a 25 percent safety factor. It is pile-supported and would be expected to demonstrate a high degree of resistance to earthquake motions and, therefore, perform well in an earthquake. Terminal C, an older building with a slab foundation, and the older hangar structures on the southeast and southwest sides of the Airport were designed to meet less stringent seismic load design requirements. The foundations are not supported by footings or piles, so the risk of collapse is greater than that at Terminal A, especially if liquefaction or lateral spreading were to occur.

The Airport is built on approximately 900 feet of soils that tend to amplify and prolong ground shaking. The Airport vicinity's susceptibility to ground shaking is described as "Very High," the next-to-highest rating (Association of Bay Area Governments, 1995). The maximum expected ground shaking intensity is described as "C - Very Strong" (where A -- Very Violent -- is the highest rating) (Borcherdt, et al., 1975). The 1989 Loma Prieta Earthquake (considered a moderate earthquake) was felt at intensity VII[1] at SJC (McNutt and Toppozada, 1990). Peak horizontal accelerations (for structures) in the vicinity were recorded at 0.11g to 0.13g (Shakal et al., 1990). Strong ground shaking lasted for about ten seconds and damage at SJC was minor. No cracks occurred in the buildings or runways as a result of this earthquake, and there was no apparent ground movement (Welch, 1994).

Secondary ground failure (i.e., loss of structural integrity of soils) can result from the ground motion induced by earthquakes or aftershocks. Typical seismically-induced ground failures at sites similar to SJC are *liquefaction*, *lateral spreading*, and *ground lurching*. The potential for liquefaction is moderately high for most of the Airport. The northern end and southeast corner of the Airport have high liquefaction potential (City of San Jose, 1974). Most of the site has low potential for lateral spreading. The northern end of the site has moderately low lateral spreading hazard and the southeast corner has moderately high lateral spreading potential (City of San Jose, 1974). The potential for lurching is moderately low for most of the site. The northern end of the site, including the noncontiguous new fuel farm site, has moderately high lurching potential and the southeast corner has high lurching potential (City of San Jose, 1974).

3.7.2 GEOLOGY AND SEISMICITY IMPACTS

This section identifies two types of soils and geologic impacts associated with the Project Case Alternatives, evaluates their significance, and identifies mitigation measures to reduce significant impacts to less than significant levels. These impacts are related to soils constraints and seismic hazards. A third, related impact, *viz.* erosion and discharge of sediment from construction activities and sites, is discussed in Section 3.6, Hydrology and Water Quality. The

[1] VII Modified Mercalli Intensity Scale. The Modified Mercalli scale relates average peak velocity and average peak acceleration of an earthquake to an intensity value. Intensity is ranked and described in terms of human response and level of damage to structures. The highest intensity value is XII.

TABLE 3.7.1
COMPARISON OF MAJOR FACILITIES AND ACTIVITY LEVELS SUBJECT TO SIGNIFICANT GEOLOGIC IMPACTS

FACILITIES AND PHASES	PROJECT CASE	PROJECT CASE ALTERNATIVE A	PROJECT CASE ALTERNATIVE B	IMPACT TYPE
Major Structures: Terminals, Parking Garages, Cargo				
2000	(Rental Garage) 8-level, 10,000 spaces	(Rental Garage) 8-level, 8,000 spaces	(Rental Garage) 5-level, 7,500 spaces	Soils Seismic Hazards
2005	Terminal B: 300,000 sq.ft. (Public Garage) 8-level, 9,400 spaces; (Empl. Garage) 4-level, 2,600 spaces	Terminal B: 250,000 sq.ft. (Public Garage) 8-level, 8,800 spaces	Terminal B: 525,000 sq.ft. (Public Garage) 8-level, 8,500 spaces	
2010	Term.C:Expand 550,000 sq.ft (Public Garage) 8-level, 4,600 spaces	Term.C:Expand 300,000 sq.ft (Public Garage) 8-level, 3,500 spaces	Term.C: demolish (Public Garage) 4-level, 1,400 spaces	
Fuel Storage				
2000	4 Tanks/2.0 million gallons	4 Tanks/2.0 million gallons	4 Tanks/2.0 million gallons	Soils, Seismic Hazards
2005	2 Tanks/1.0 million gallons	1 Tank/0.5 million gallons	1 Tank/0.5 million gallons	
2010	2 Tanks/1.0 million gallons	1 Tank/0.5 million gallons		
Passenger Activity				
2000	3,600	3,600	3,600	Seismic Hazards
2005	5,200	4,200	4,100	
2010	6,300	4,700	4,400	

primary differences in impacts among the Project Case Alternatives relate to the area of construction footprint and magnitude of proposed major structures, such as terminals, parking garages, cargo facilities, and fuel storage tanks. The size and capacity of these facilities, *in very general terms,* influence the magnitude of impacts and the level of risk of injury to public and property and the environment. Table 3.7.1 compares the project components that are most likely to be affected by impacts under the three Project Case Alternatives. The section first identifies and analyzes impacts of the Master Plan Update Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by impacts of the No Project Alternative.

3.7.2.1 Geologic and Soils Impacts of the Project Case

Geologic and soils impacts for the Project Case are generally more substantial than those of the other alternatives, because the Project Case would accommodate the greatest increase in aviation activity. As shown in Table 3.7.1, on completion of *Phase 1* of the Project Case, the number of people exposed to the earthquake hazards on the Airport during a peak period (i.e., the peak hour on a Friday in August, as defined in the Master Plan Update) would be approximately 3,600, not including on-site personnel. As with the other Project Case Alternatives, no new terminals would be constructed in the first Phase, but a new rental car garage would be constructed, and old fuel storage tanks would be removed, replaced by four new above-ground fuel storage tanks subject to potential seismic-induced failure.

Footprint and hazard differences between the Project Case and Project Case Alternatives A and B also occur in the second and third phases. On completion of *Phase 2*, the number of people exposed to the earthquake hazards on the Airport would increase to 5,200. New facilities would include Terminal B, both public and employee parking garages, and new and expanded cargo facilities, designed to meet current earthquake codes and standards. Two tanks would be added to the fuel storage facility. On completion of *Phase 3,* the number of people exposed to the earthquake hazards on the Airport would increase to 6,300, Terminal C would be remodeled and expanded, and the fuel storage tanks would total eight, with 4.0 million gallon capacity. As under Project Case Alternatives A and B, another public parking garage would be added.

Soils Impacts

The Project Case proposes construction of major new or expanded facilities, including runway extensions, terminals, parking garages, a bridge, and above-ground aviation fuel storage tanks, as well as numerous lesser structures. Although they differ in scope under each of the Project Case Alternatives, these facilities would be susceptible to the soil constraints discussed above, which are general throughout the Airport proper and the parcel north of U.S. 101. Any facility development that includes new or expanded foundation designs and/or imposes loads on compressible and expansive soils could be susceptible to damage. In general, immediate

settlement can be estimated by project engineers and accommodated in design. Without adequate surcharging (a temporary load, such as earth, placed on a site to induce settlement), consolidation settlement could occur in saturated or near-saturated soil, as is present on much of the Airport as well as on the parcel north of U.S. 101. Any new load applied to soils with differing thickness, compressibility, and other properties might induce a variable and unpredictable amount and rate of differential settlement. This applies to road surfaces, runways, and taxiways as well as to buildings and above-ground fuel storage facilities. Differential settlement could result in significant damages to structures and infrastructures that would impair their effective operation, necessitate expensive repair or result in a weakening of their components that may have serious results during large earthquakes.

Excavation for foundations and sub-grade levels of new buildings in the saturated soil on the Airport may involve temporary dewatering, which, if extensive, could induce local subsidence and damage to nearby structures and infrastructure. Substantial pile driving might be required for a new Terminal B, expansion of and improvement to Terminal C, parking garage structures, and the new fuel storage facility. Pile driving vibration could cause local, generally minor settlement of adjacent ground surfaces. Most of the fills and mud on or underlying the Airport have already undergone compaction and compression since being placed. However, in areas where adjacent buildings are located very near the pile driving site, potential settlement could result in some damage to those structures, particularly if they are not pile-supported and are old. Buried pipelines, some of which are probably old, also could be damaged by the vibration and soil settlement.

For purposes of this EIR, this impact is considered significant because new or expanded facilities would be constructed in areas known to contain weak and/or expansive soil; they would require engineering design and construction methods that are appropriate for these conditions.

> ***Soils Impact: New or expanded major structures at SJC, including terminals, parking garages, and fuel storage tanks would be susceptible to potential damage resulting from settlement of weak and/or expansive soils or local subsidence, posing a substantial hazard to property and/or human life. (SIGNIFICANT)***

Seismic Hazards Impacts

The primary seismic hazards at SJC are related to potential damage to existing and proposed structures from earthquake-induced ground-shaking, with consequent injuries to people and/or damage to the environment. New, expanded, and existing structures at SJC, would be subject to amplified ground accelerations and possible ground failure due to liquefaction, lateral spreading, or lurching, as discussed above. The resulting damage to foundations and structures, in turn, could generate substantial injury. Among the project components proposed, those with the greatest potential to involve injuries to concentrations of people would be the terminals

primarily, and secondarily the parking garages. The project component with the greatest potential to involve damage to the environment would be the fuel storage facility, although failure of one or more tanks in an earthquake could also cause injury to people. Damage to other structures, infrastructure (e.g., water and fuel lines), equipment, and airfield facilities (runways, taxiways, lighting system, etc.) also has the potential to constrain normal Airport functions, temporarily stop them altogether, or interfere with emergency response.

Injury to people, as well as widespread damage to Airport facilities, would result primarily from earthquake-induced nonstructural damage, such as to ceilings, windows, office and mechanical equipment, computers, water, gas, and fuel lines, lighting and heating, ventilation, and air-conditioning (HVAC) systems, files, electrical equipment, storage facilities, and furnishings.

For purposes of this analysis, increase in the hazards associated with an earthquake would be correlated with increased risk of exposure of people to those hazards. Airport terminals are places of public assembly and, as such, are designated by the City as essential facilities. In general terms, the Airport represents an intense use area, and that intensity of use, hence risk of exposure of people to injury from structural and non-structural damage, would increase with the growth in aviation activity on which the Project Case Alternatives are premised. The increase in risk of exposure would result from the presence of increased numbers of passengers, employees, and general public at SJC during an earthquake, measured in terms of increase in the number of passengers likely to be present on a peak day during a peak hour (see Table 3.7.1). However, the risk of damage or human injury is inversely correlated with the integrity of structures, which would improve with application of current, more stringent seismic code requirements in the design and construction of new and expanded terminals and parking garages.

The construction of new fuel storage tanks on the vacant Airport parcel north of U.S. 101 and connecting pipeline would introduce a new, primarily environmental hazard at that location, in view of their proximity to the Guadalupe River. Although it is assumed that the tanks and pipeline to the airfield would be constructed in accordance with current codes and standards, the potential exists for severe damage impairing operation of the tanks and fuel lines and possibly even tank failure in the event of an earthquake. Explosion would be unlikely in that aviation fuels are a form of kerosene, a nonexplosive substance. However, if an ignition source were present, tank failure could expose drivers along U.S. 101 and occupants of nearby light industrial and commercial buildings to fire. A more likely hazard would be posed by partial failure of the tanks or pipeline, resulting in an accidental release of fuel to the environment. In that event, fuel, if not properly contained, could reach the Guadalupe River, damaging significant biological resources, and/or contaminating groundwater (see Sections 3.6, Hydrology and Water Quality; 3.8, Biological Resources; and 3.12 Hazardous Materials, for further discussion).

On completion of three phases of development under the Project Case, the number of people exposed to the earthquake hazards on the Airport would increase due to increases in aviation activity. No new terminal or terminal replacement is proposed in *Phase 1* under any Project Case Alternative, so the increased concentrations of people during a peak hour would be exposed, as they are at present, to the lesser structural integrity of existing Terminal C and the greater integrity of Terminal A. New and replacement terminals would be designed to meet City Code for essential facilities. Other new structures potentially occupied by numbers of people during an earthquake, such as parking garages, also would be designed to meet City Code requirements. As part of the Project Case, removal of older structures (e.g., General Aviation Terminal, general aviation shelters, southeast T-hangers, 94th Aero Squadron restaurant, San Jose State University facilities, and the Air Freight Building) that are not expected to perform well in a major earthquake, would reduce the structural hazards at those portions of the Airport as well as the number of people exposed to the hazards that older structures pose in response to earthquake vibrations. Existing single-wall underground fuel storage tanks that now serve the Airport's primary fueling needs would be removed, with a commensurate reduction in hazards associated with the older facility, to be replaced, however, with new above-ground tanks (under all Project Case Alternatives), subject to potential seismic-induced failure.

For purposes of this EIR, a geologic impact would be significant if a project were located on a site with geologic features that pose a substantial hazard to property and/or human life, such as soils susceptible to earthquake-induced severe ground shaking resulting in ground failure, including liquefaction, lateral spreading or lurching. These seismic hazards are all present on the Airport site. Therefore, this impact would be significant.

> ***Seismic Hazard Impact: Growth in aviation activity and new development would increase the number of people and facilities that could be exposed to seismically-induced structural and nonstructural damage hazards. The presence of a new above-ground fuel storage facility would pose hazards to the environment in the event of earthquake-induced failure. (SIGNIFICANT)***

3.7.2.2 Geologic and Seismic Impacts of Project Case Alternative A

Geologic and soils impacts and mitigation measures for the Project Case Alternative A are essentially the same as those of the Project Case. The primary differences in impacts that distinguish Project Case Alternative A from the Project Case relate to differences in the construction footprint and magnitude of proposed projects, the level of risk of injury to public and property, and the level of risk to the environment.

Soils Impact

In the case of all major construction in areas of potentially weak and/or expansive soils, the project components under the Project Case and Project Case Alternative A cover similar

footprints but are of slightly lesser magnitude (e.g., fewer parking spaces; smaller Terminal B and Terminal C floor area; no employee parking garage; fuel storage facility occupying 0.5 less acres than under the Project Case). Therefore, the impact is slightly less than that described for the Project Case, but remains significant. See the discussion of Soils Impact under the Project Case, Section 3.7.2.1, above.

Seismic Hazard Impact

Terminal facilities proposed under the Project Case Alternative A are similar to those under the Project Case but would be designed to accommodate less aviation activity and therefore fewer passengers, employees, and general public. The number of passengers potentially present at the Airport during a peak hour would be 4,700 following completion of all three phases of Project Case Alternative A. It follows that, under Project Case Alternative A, fewer people than under the Project Case would be exposed to injury as a consequence of structural and nonstructural damage hazards resulting from seismic ground shaking and earthquake-induced ground failure. The new fuel storage facility would contain six rather than eight tanks, with proportionately less risk to the environment resulting from tank or pipeline failure in a seismic event. Therefore, the impact would be slightly less than that described for the Project Case, but would be significant. See the discussion of Seismic Hazards Impact under the Project Case, Section 3.7.2.1, above.

3.7.2.3 Geologic and Seismic Impacts of Project Case Alternative B

Project Case Alternative B is designed to serve fewer passengers, so some of the proposed facilities would be smaller in size or not constructed at all. Therefore, although geologic and soils impacts of the Project Case Alternative B would be similar to those of the Project Case, they would be of lesser magnitude. As with Project Case Alternative A, the primary differences in impacts relate to the construction footprint and magnitude of proposed projects, the level of risk of injury to public and property, and the level of risk to the environment.

Soils Impact

In areas of potentially weak and/or expansive soils, the project components under Project Case Alternative B would cover footprints of lesser magnitude (e.g., Terminal B would replace Terminal C, with smaller total terminal floor area; fewer parking spaces; smaller cargo facilities; fuel storage facility occupying 0.5 less acre than under the Project Case). Therefore, the impact is less than that described for the Project Case, but remains significant. See the discussion of Soils Impact under the Project Case, Section 3.7.2.1, above.

Seismic Hazard Impact

Terminal facilities proposed under the Project Case Alternative B would be designed to accommodate less aviation activity and therefore fewer passengers, employees, and general public. The number of passengers potentially present at the Airport during peak hour would be 4,400 following completion of all three phases of the Project Case Alternative B. Thus, fewer people than under either the Project Case or Alternative A would be exposed to injury as a consequence of structural and nonstructural damage hazards resulting from seismic ground shaking and earthquake-induced ground failure. The new fuel storage facility would contain five rather than eight tanks, with proportionately less risk to the environment resulting from tank or pipeline failure in a seismic event. Therefore, the impact would be less than that described for the Project Case, but would be significant. See the discussion of Seismic Hazards Impact under the Project Case, Section 3.7.2.1, above.

3.7.2.4 Geologic and Seismic Impacts of the No Project Alternative

The No Project Alternative would not result in physical changes at the Airport. However, use of the facilities by passengers, employees, and others would continue to increase. SJC would still be subject to adverse seismic effects, including exposure of facility users to Terminal C, which was constructed according to less stringent seismic code provisions than are currently required. Other old and aging facilities would not be expected to perform as well as new structures in an earthquake. However, no additional sources of hazards would be created (as would occur with development). Hazards of settlement and expansive soils would continue but without further effects from new construction.

Under the No Project Alternative certain benefits of the Project Case Alternatives would not be realized. For example, another alternative for replacing the existing underground fuel storage tanks with required new double-walled underground tanks would have to be sought. In the absence of improvements, emergency staging in the event of a catastrophic seismic event would not be as readily accommodated in existing Airport facilities.

3.7.3 MITIGATION MEASURES FOR SIGNIFICANT GEOLOGY AND SEISMICITY IMPACTS

Mitigation for Soils Impacts

Mitigation for this significant impact would be provided through a variety of means. These include compliance with *General Plan* policies concerning soils and geologic conditions, whose goal is to protect the community from the hazards of soil erosion, weak and expansive soils, and geologic instability; adherence to current codes and design standards; and application of appropriate engineering design and construction measures.

Building codes establish minimum legal requirements governing the design and construction of buildings and are directed to achieving satisfactory performance under the loadings inherent in the particular intended uses or imposed by the forces of nature. Strict adherence to code requirements cannot ensure that the earthquake damage will be precluded. For most structures at SJC, code requirements generally ensure survival of a structure without damage from minor earthquakes, from moderate earthquakes without significant damage, and from major earthquakes without collapse. The exceptions are specially designated structures, such as passenger terminals, for which higher performance standards are established. These are determined in the Uniform Building Code (UBC) according to an "importance factor (*I*)," which in effect increases the design requirement to prevent failure from natural disasters like earthquakes (or severe weather). Most structures have an *I* value of 1.00 (UBC, Vol. 2, Table 16-K, 1994). Any building where the primary occupancy is for assembly use for more than 300 persons in one room, however, receives an *I* value of 1.25; that is, it must be designed to 125 percent of standard design requirements. This would apply to any of the terminals. Hazardous facilities, including the proposed fuel tanks, also receive an *I* value of 1.25. So-called "essential facilities" receive an *I* factor of 1.25, which ensures that greater design forces are employed to reduce life safety hazards.

In addition to the importance factor, the UBC includes a soil profile coefficient or "site coefficient (*S* factor)." The *S* factor is increased for deep and soft soils. The site coefficient at SJC has not been determined for the proposed structures, but is at least a type S_2, with a coefficient of 1.2, or greater (UBC, Vol. 2, Table 16-J, 1994) across all of the site and including the proposed fuel tanks site. That is, structures built on such soils must be designed to 120 percent of standard requirements.

The application of the higher design standards, along with other design components of the UBC (Chapter 16 Division III), ensures that an acceptable level of risk is established in the design. At a minimum, collapse of any of the proposed structures would be unlikely. Further protection would be possible by applying even more conservative design requirements than those of the UBC; these would add substantially to the cost of construction.

The recommendations of a licensed geotechnical engineer would be included in all design and implementation plans. All feasible engineering design and methods would be employed to reduce the potential for damage due to the various types of geologic hazards, including seismic-induced ground failure, as well as to anticipated settlement and shrink-swell behavior of soils. These methods include, but are not limited to:

- anchoring structures with pre-stressed concrete pilings to deeper firm soil strata;
- densifying all loose foundation materials at each construction site;
- surcharging areas prior to construction with engineered fill;
- replacing liquefiable materials with engineered soils, placement of engineered fill; and
- flexible pavement designs and flexible utilities.

Mitigation of Soils Impact: Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to fuel storage tanks, and be consistent with the most current engineering practice. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of this Mitigation Measure will insure that engineering design and construction methods appropriate for the soils and geologic conditions found at the Airport are followed. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

Mitigation for Seismic Hazards

The potential for earthquake damage to proposed new or reconstructed structures and facilities at the Airport, and for injury to persons present on the site as a result of the proposed projects, cannot be completely avoided. Facilities would be designed and built in conformance with the City of San Jose Building Code and other applicable codes and standards, and follow standard engineering practices as required by law.

As discussed above under Mitigation for Soils Impacts, all construction would conform to the seismic design standards of the most current edition of the UBC (with a design factor of 1.25), recently updated (1994); the City of San Jose Building Code; standards for above-ground (petroleum) storage tanks as contained in the Above-Ground Petroleum Storage Act (SB 1050); National Fire Protection Association standards; standards for transport of flammable liquids in pipelines, as contained in the California Pipeline Safety Act of 1981; and others.

Special attention also would be given in the design of building interiors and exteriors to reduce nonstructural hazards from earthquakes. Building designs would contain as many measures as are practical and economically feasible to eliminate nonstructural hazards.

The application of these measures would ensure that the risk of structural and nonstructural damage in the event of an earthquake, with consequent injury to people, would be minimized.

Mitigation of Seismic Hazard Impact: Engineering design and construction of all facilities at the Airport will adhere to applicable City building codes and other standards applicable to places of public assembly (essential facilities) and potentially hazardous facilities, and be consistent with standard engineering practice to achieve an acceptable level of risk. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of this Mitigation Measure will insure that design and construction will meet current seismic code and also incorporate an appropriate design factor. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.8 BIOLOGICAL RESOURCES

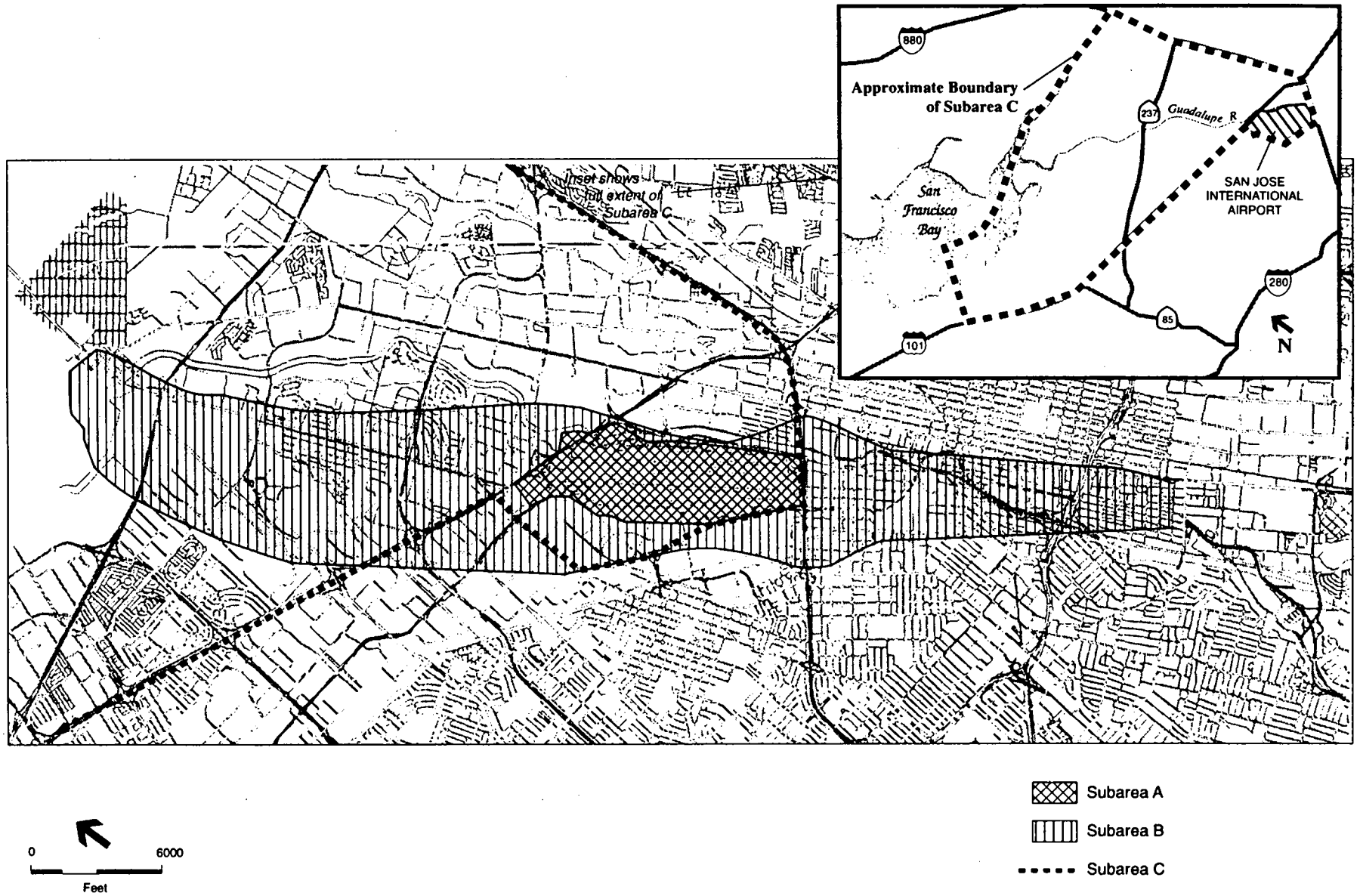
This section describes the existing biological resources that would be affected by this project, as well as project-related impacts upon those resources. Biological resources on the Airport and in its surroundings fall into three general categories: 1) landscaped urban lands on and adjacent to the Airport; 2) wildlife habitat associated with expanses of infield and other undeveloped areas of grassland on and in the vicinity of the Airport; and 3) the riparian, wetland, and aquatic habitats along the Guadalupe River and in downstream areas of the river, including San Francisco Bay shorelands. Of these three areas, the Guadalupe River, including wetland and downstream Bay habitats, is biologically the most productive and richest in wildlife. The proposed Airport project components would affect primarily infield and other open space habitats on the Airport; however, one project component would also encroach into Guadalupe River riparian and wetland habitat and one would be located near the river and have possible impacts on downstream resources. In this section, discussion of these biological resources and analysis of impacts is based on available environmental impact reports, studies of regional biological resources, long-term and recent biological surveys, including monthly bird monitoring at five locations on the Airport from 1981 to the present and studies related to the Guadalupe River and downstream resources, and on field reconnaissance to corroborate results of previous surveys. Chapter 8 of this EIR provides a detailed list of the references used to prepare this analysis. Further information may be found in Appendices 3.8.A (Special Status Species - Regulatory Framework), 3.8.B (Burrowing Owl Management Plan), and 3.8.C (Wetland Regulation and Protection).

3.8.1 SETTING AND EXISTING CONDITIONS

For purposes of this analysis, a study area was defined to serve as a basis for describing existing biological resources that might be affected by the Master Plan Update. The overall study area encompasses three subareas (see Figure 3.8.1). Subarea A includes areas where impacts on biological resources would occur primarily within the boundaries of the Airport, as well as on a noncontiguous site proposed for new fuel storage facilities. Subarea B includes adjacent land falling generally within the 60 CNEL contour (see Section 3.5, Noise). This roughly ten-mile-long area extends from approximately one-and-one-half miles south of I-280, to Alviso. It is about one-and-a-half miles in width from the Airport northward, and tapers to less than one mile wide south of the Airport. This subarea encompasses the "Coleman Loop," habitat areas in the adjacent reach of the Guadalupe River, urban habitats in developed portions of the Cities of Santa Clara and San Jose, and a small area of diked San Francisco Bay salt-ponds. Subarea C encompasses downstream habitats of the Guadalupe River. This includes areas where the river becomes a tidal slough and other San Francisco Bay habitats, generally northwest of State Route 237 and the town of Alviso, some seven miles downstream from the Airport.

3.8.1.1 Vegetation

Vegetation in Subarea A consists largely of disturbed non-native grassland with limited areas of landscaping. For reasons of aviation safety, unpaved infield areas of SJC are regularly mowed.



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404

Figure 3.8.1
Study Areas for Biological Resources

The vegetation that survives this disturbance regime includes yellow star thistle, intermixed with non-native grasses and herbaceous species such as wild oats, hare barley, soft chess, perennial ryegrass, rip-gut brome, black mustard, Russian thistle, wild radish, and sweet fennel, as well as native coyote brush. Open areas along the west side of the airfield support similar vegetation. A small grove of planted trees in the western portion of the Airport includes fig, pepper tree, poplar, and English walnut. Around buildings, landscaping includes blue gum, poplar, and pines, intermixed with various ornamental groundcovers such as periwinkle and ice plant. Non-native ruderal ("weedy") species are also found on the Airport's vacant parcel proposed for fuel storage, north of U.S. 101 between the freeway and the Guadalupe River. None of the above species are considered to have special status, as defined in Section 3.8.1.4, below.

Similar vegetation is found in parts of Subarea B known as "Coleman Loop. " This former residential neighborhood south of the Airport that was purchased and razed by the Airport for noise abatement and safety considerations contains remnants of past landscaping now intermixed with ruderal species. Apart from the Coleman Loop, vegetation in Subarea B is limited primarily to installed landscaping around developed lands including residences, commercial and industrial buildings, with some interspersed ruderal fields. Subarea B also encompasses a small portion of Alviso as well as a corner of the extensive salt-ponds that occupy the majority of historic tidelands of the South Bay. These latter resources are discussed below, in connection with Subarea C.

Along the Airport's eastern boundary, within Subarea B, the Guadalupe River provides a notable contrast to the otherwise limited vegetational context of the Airport and urban environs. The riparian vegetation along the Guadalupe River forms one of the last remaining riparian corridors in the Santa Clara Valley. Between I-880 and U.S. 101, the riparian corridor has been disturbed frequently by channel-clearing activities. Tree densities are low, and the canopy has an open aspect. Riparian vegetation along this segment of the Guadalupe River is dominated by plants that characterize an early successional stage. Coyote brush is common on the levee banks, along with California blackberry. Native trees occur as scattered groups of cottonwood and arroyo willow along the channel banks and near the water's edge. Holly oak that was planted near the riparian corridor is now widespread within the corridor (U.S. Department of Transportation/ Caltrans, 1993).

Understory plants on the upper channel banks include non-native annual grasses such as ripgut grass and Italian thistle and common California aster. Herbaceous plants growing adjacent to water in the low-flow channel are also characteristic of frequent disturbance. They include broad-fruited burreed, common bulrush, speedwell, and smartweed. Growing in the gravelly area near the low-flow channel are cocklebur and perennial peppergrass (U.S. Department of Transportation/Caltrans, 1993). At one time brackish wetlands supporting bulrush, tules, common reed, and cattails were extensive in both the Guadalupe River and Coyote Creek, the

other primary drainage in the Santa Clara Valley. Levees along reaches of the river just upstream of the Airport support cypress, elm, coast live oak, western sycamore, California black walnut, and blue elderberry in addition to the species cited above. None of the above species are considered to have special status.[1]

Vegetation in Subarea C (i.e., downstream in the lower reaches of the river and in adjacent sloughs and wetlands) is characteristic of tidal sloughs and diked salt ponds. At one time the Alviso tidal marshes ranged from a quarter mile to seven miles wide. A large percentage of these former tidal wetlands in the South Bay (28,000 acres, or roughly 40 percent) are now salt evaporator ponds. Salt production, begun in the 1870s, continues to be a viable industry. The ponds demonstrate a specialized wetland habitat character and support a distinctive wildlife habitat, but they are largely devoid of obvious vegetation except on levees (Dennis and Marcus, 1984). They have been leveed purposely to exclude both upland runoff and uncontrolled tidal access. The two primary sloughs that drain into the Bay (Guadalupe and Coyote) have been extensively routed and leveed. Some saltmarsh vegetation such as cord grass and pickleweed occurs inside the slough levees and remains in several areas of undiked marsh, and a mix of brackish species occur in the low-flow channels of Guadalupe River upstream, as discussed above.

3.8.1.2 Wildlife and Fish Habitats

Although the disturbed vegetation and other conditions in Subarea A afford only limited habitat for wildlife, the open lands of the Airport do support a number of common wildlife, even on infield and developed areas (e.g., runways, terminals, parking lots). Birds common in these areas include mourning dove, European starling, red-winged blackbird, mockingbird, house finch, house sparrow, and western meadowlark. Small mammals such as red fox, black-tailed jackrabbit, deer mouse, and California meadow mouse, and reptiles, including western fence lizard and gopher snake, also use these habitats. Several species of raptor have been observed foraging on the site; these include American kestrel, burrowing owl, loggerhead shrike, red-tailed hawk, rough-legged hawk, ferruginous hawk, northern harrier, prairie falcon, and golden eagle (Biosystems, 1989-present). The raptors are afforded various levels of protection (see Section 3.8.1.4, below).

With the notable exception of habitats associated with the Guadalupe River, habitats in Subarea B, that is, the immediate environs of the Airport, including the Coleman Loop and portions of the Cities of San Jose and Santa Clara, are similar to open lands of the Airport. Except for occasional disking, the Coleman Loop is relatively undisturbed by human activities.

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[1] California black walnut (Juglans californica var. hindsii), listed by California Native Plant Society as 1B, is afforded protection only when it occurs in native stands, two of which are located in other sites in Northern California.

Therefore, while not providing high value habitat, the area does serve as ancillary habitat for many of the same animals present on the Airport.

In comparison with the prevalent low-profile vegetation of the Airport, the canopy layers of vegetation along the Guadalupe River are structurally and biologically more complex, creating a diversity of wildlife habitats. The relative lack of human disturbance (except for periodic flood control) along the Guadalupe River allows high-quality wildlife habitat for a variety of species to exist in this corridor, which connects the San Francisco Bay to interior freshwater habitats. Species reported by Harvey and Stanley (City of San Jose, 1989) include, among others, Bewick's wren, northern oriole, bushtit, black-headed grosbeak, downy woodpecker, Nuttall's woodpecker and western wood pewee, as well as the common scrub jay and European starling. Also reported using the river corridor are waterbirds, including great blue heron, common egret, snowy egret, common gallinule, and Forster's tern. Gadwall, mallard, and pied-billed grebe use the channel, and red-winged blackbird, scrub jay and house finch are common in the trees and shrubs along the upper bank of the river (U.S. Department of Transportation/Caltrans, 1993).

Although insects are the primary food source for most species in this riparian habitat, ground-dwelling species, such as California quail and brown towhee, are also present, feeding primarily on seeds. Within the riparian corridor, native mammals include raccoon, broad-footed mole, Audubon's cottontail, and California ground squirrel. Non-native mammals such as opossum, fox squirrel and muskrat are also present in the riparian corridor. Developed areas support rodents adapted to urban environments, such as the Norway rat. Reptiles and amphibians found within the riparian corridor include bullfrog, southwestern pond turtle, and western fence lizard (U.S. Department of Transportation/Caltrans, 1993). The small mammals provide prey for red-tailed hawks and red-shouldered hawks. Omnivores, such as raccoons and striped skunk, forage in the leaf litter and the stream. None of the above species are considered to have special status, with the exception of the southwestern pond turtle, which is classified as a California Species of Concern, warranting discretionary protection (see Section 3.8.1.4, below).

The Guadalupe River supports one of the last steelhead runs in the South Bay. Chinook and king salmon also inhabit the river. At least ten adult chinook salmon were observed in the Guadalupe River during the winter of 1993-94 (H.T. Harvey & Associates, 1995). The winter run of the Chinook salmon is listed as endangered by both federal and State governments. Several factors serve to limit the populations of these fish in Guadalupe River. Spawning gravels in areas above Canoas Creek (i.e., approximately five miles upstream from the Airport) are adequate, but summer stream temperatures are too warm for successful rearing except far upstream. Below Canoas Creek spawning gravels are scattered and silted but are probably adequate for small spawning populations of salmon and steelhead. Present high streamflows provide deep, fast-water riffles for feeding, but high turbidities, high water temperatures and generally low abundance of invertebrates probably limit successful summer rearing to relatively low numbers

of steelhead. Salmon can migrate out of the river in spring before water temperatures become a problem.

Twelve other fish species and one hybrid (none of which are considered to be special status species) also have been observed in the lower Guadalupe River. These include Sacramento sucker, California roach, goldfish, carp, mosquito fish, green sunfish, inland silverside, largemouth bass, Redear sunfish, Redear x green sunfish (hybrid), yellowfin goby, and prickly sculpin (City of San Jose, 1989; H.T. Harvey & Associates, 1995). Threadfin shad and largemouth bass also have been recorded from the Guadalupe River (H.T. Harvey & Associates, 1995). Resident rainbow trout have been reported in upstream tributaries (i.e., Guadalupe and Alamitos Creeks) but downstream movement is restricted due to barriers, intermittent dewatering of the channel between ponds, and high water temperatures (H.T. Harvey & Associates, 1995).

A variety of habitats occur in Subarea C, that is, the downstream river and slough, and adjacent wetlands and salt ponds of southern San Francisco Bay. Because tidal salt marshes have been drastically reduced, several species associated with these habitats are now endangered. This is particularly true in the South Bay. Both the California clapper rail and the saltmarsh harvest mouse are listed by both federal and State governments as endangered due to loss of habitat (see Section 3.8.1.4, below). The habitats of the southern bay provide important habitat for resident and migratory waterfowl, shorebirds, and species edemic to saline marsh environments. Portions of the San Francisco Bay National Wildlife Refuge, which supports populations of California clapper rail, California black rail, saltmarsh harvest mouse, as well as several other special status species, are represented in Subarea C (see Figure 3.8.1).

3.8.1.3 Wetlands

Wetlands are ecologically productive habitats that support a rich variety of both plant and animal life. The importance and sensitivity of wetlands has increased as a result of their widespread filling and destruction to enable urban and agricultural development. Wetlands have been defined by the U.S. Army Corps of Engineers (ACOE) and the U.S. Environmental Protection Agency (EPA), pursuant to Section 404 of the Clean Water Act (see section regarding United States Army Corps of Engineers in Appendix 3.8.C).

No wetlands exist within Subarea A except within the banks of the Guadalupe River, generally within or adjacent to the low-flow channel. Vegetation characteristic of these low-flow channel wetlands has been listed above. Similar wetlands occur in the river downstream, in Subarea B, forming a gradual transition to a variety of wetland types (fresh water, tidal brackish and saltmarsh, and nontidal salt ponds) prevalent in and adjacent to the river in Subarea C (see Figure 3.8.1).

Regulation of Activities in Wetlands

The regulations and policies of various federal agencies (e.g., ACOE, EPA, U.S. Fish and Wildlife Service [USFWS], National Marine Fisheries Service [NMFS]) mandate that the filling of wetlands be avoided unless it can be demonstrated that no practicable alternatives (to filling wetlands) exist. The ACOE has primary federal responsibility for administering regulations that concern waters and wetlands of the Guadalupe River. In this regard, the ACOE acts under two statutory authorities, the Rivers and Harbors Act (Sections 9 and 10), which governs specified activities in "navigable waters," and the Clean Water Act (Section 404), which governs specified activities in "waters of the United States," including wetlands. The ACOE requires that a permit be obtained if a project proposes placing structures within navigable waters and/or placing fill or dredged material in waters of the U.S. below the ordinary high water mark in nontidal waters. EPA, USFWS, NMFS, and several other agencies provide comment on ACOE permit applications. EPA has provided the primary criteria for evaluating the biological impacts of ACOE permit actions in wetlands.

The State's authority in regulating activities in wetlands and waters of the Guadalupe River resides primarily with the California Department of Fish and Game (DFG) and the State Water Resources Control Board (SWRCB). The DFG provides comment on ACOE permit actions under the Fish and Wildlife Coordination Act. DFG is also authorized under the State Fish and Game Code Section 1601 to develop mitigation measures and enter into a Stream Alteration Agreement (SSA) with a state or local government agency that proposes a project that would obstruct the flow or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource. The SWRCB, acting through the Regional Water Quality Control Board (RWQCB), must certify that an ACOE permit action meets State water quality objectives (Section 401, Clean Water Act).

The authorities and policies of various governmental agencies that regulate activities in the Guadalupe River are discussed further in Section 3.8.2, Biological Resources Impacts, and in Appendix 3.8.C, Wetland Regulation and Protection. With the exception of the proposed new two-lane bridge to the rental car parking garage, none of the project components would require an SSA or a Section 404 permit.

3.8.1.4 "Special Status" Species

As discussed below, several animal species known to occur on or in the vicinity of SJC are accorded "special status" because of their recognized rarity or vulnerability to various causes of habitat loss or population decline. Some of these receive specific protection defined in federal or State endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of State resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies such as counties, cities, and special

districts to meet local conservation objectives. These species are referred to collectively as "special status species" in this EIR, following a convention that has developed in practice but has no official sanction. The various categories encompassed by the term, and the legal status of each, are summarized below, and are described in detail in Appendix 3.8.A. No special status plants are known to inhabit SJC.

Regulation of Special Status Species

Federal Endangered Species Act. Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce, jointly have the authority to list a species as threatened or endangered (16 USC 1533(c)). Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally listed threatened or endangered species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536(3), (4)). Therefore, project-related impacts to these species or their habitats would be considered "significant" in this EIR.

The USFWS also publishes a list of candidate species. Species on this list receive "special attention" from federal agencies during environmental review, although they are not protected otherwise under the FESA. The candidate species are taxa for which the USFWS has sufficient biological information to support a proposal to list as Endangered or Threatened. Project impacts to such species would be considered "significant" in this EIR.

California Endangered Species Act. Under the California Endangered Species Act (CESA), DFG has the responsibility for maintaining a list of threatened species and endangered species (Cal. Fish and Game Code 2070). The DFG also maintains a list of "candidate species" which are species that the DFG has formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. The DFG also maintains lists of "species of special concern" which serve as "watch lists." Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State listed endangered or threatened species may be present in the project area and determine whether the proposed project will have a potentially significant impact on such species. In addition, the Department encourages informal consultation on any proposed project which may impact a candidate species. Project-related impacts to species on the CESA endangered list and threatened list would be considered "significant" in this EIR. Impacts to "species of concern" would be considered "significant" under certain circumstances, discussed below.

CEQA Guidelines Section 15380. Although threatened and endangered species are protected by specific federal and State statutes, CEQA Guidelines section 15380(b) provides that a species not listed on the federal or State list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the California Fish and Game Code dealing with rare or endangered plants or animals. This section was included in the Guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a "candidate species" that has not yet been listed by either the USFWS or DFG. Thus, CEQA provides an agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

Other Statutes, Codes, and Policies Affording Limited Species Protection. The federal Migratory Bird Treaty Act (16 U.S.C., Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Birds of Prey are protected in California under the State Fish and Game Code, Section 3503.5, 1992). Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the DFG. Any loss of fertile eggs, nesting raptors, or any activities resulting in nest abandonment would constitute a significant impact. This approach would apply to red-tailed hawks, American kestrels, burrowing owls, and other birds of prey. With the exception of the burrowing owl, project impacts to these species would not be considered "significant" in this EIR because they do not nest on the Airport nor rely on it for primary foraging.

The federal Bald Eagle Protection Act prohibits persons within the United States (or places subject to U.S. jurisdiction) from "possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof." Impacts to the golden eagle would not be considered "significant" in this EIR because the eagle does not nest on the Airport.

Vascular plants listed as rare or endangered by the California Native Plant Society (CNPS) (1988, 1993), but which have no designated status or protection under federal or State endangered species legislation, are defined as follows:

List 1B Plants Rare, Threatened, or Endangered in California and elsewhere.

List 2 Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.

List 3 Plants About Which We Need More Information - A Review List.

List 4 Plants of Limited Distribution - A Watch List.

Special Status Species at the Airport

General wildlife surveys of the Airport, including for the burrowing owl, have been conducted since 1981 to comply with Section 139.337 of the FAA regulations (1988) for wildlife hazard management at airport facilities (Biosystems, 1996). Eight special status bird species have been observed using SJC infield areas (Subarea A) as well as adjacent open lands in both Subarea A and undeveloped portions of Subarea B for foraging (see Table 3.8.1 for classifications). These include the prairie falcon, northern harrier, loggerhead shrike, burrowing owl, bank swallow, ferruginous hawk, golden eagle, and long-billed curlew (Biosystems, 1981-present). Of these, only the burrowing owl occurs on the Airport year-round and also nests on-site (see Figures 3.8.2 and 3.8.3). Although the aforementioned species warrant special consideration and are in varying degree "rare, threatened or endangered" according to *CEQA Guidelines* Section 15380 criteria, none is formally listed by the State or federal governments or receives protection under the State or federal Endangered Species Acts.

All of the eight special status bird species that have been observed on the Airport receive limited protection under the Migratory Bird Treaty Act. The golden eagle also is protected under the Bald Eagle Protection Act. No federal regulation protects all raptors. However, the California Fish and Game Code protects birds of prey, their nests and eggs, and the nests and eggs of all birds. The specific status of and protections for burrowing owl at the Airport are discussed below.

Golden eagle, prairie falcon, and bank swallow are infrequent visitors to SJC. Golden eagles were observed foraging within the infields in 1991 and 1994 (Biosystems, 1991-present). Prairie falcons were recorded foraging at SJC on two occasions: January 23, 1993 and November 30, 1994 (Biosystems, 1991-present). Three bank swallows were recorded as resting within the infield in July 1994 (Biosystems, 1991-present).

Northern harrier, ferruginous hawk, and large-billed curlew have been regularly recorded as winter migrants to the area, foraging throughout the infield at SJC from 1989 to the present (Biosystems, 1991-present).

TABLE 3.8.1
SPECIAL STATUS SPECIES THAT OCCUR WITHIN THE AIRPORT VICINITY

Common Name	*Scientific Name*	Status Federal/State/CNPS	General Habitat	Assessment
		FEDERAL AND STATE LISTED SPECIES		
Mammals				
Saltmarsh harvest mouse	*Reithrodontomys raviventris*	FE/CE	Occurs in saline emergent wetlands of San Francisco Bay and tributaries. Pickleweed is the primary habitat.	This species is not known within the vicinity of the Airport. Nearest reported occurrences include salt marshes of southern San Francisco Bay.
Birds				
California black rail	*Laterallus jamaicensis coturniculus*	FSC/CT	Nests and forages in salt water marshes transversed by tidal sloughs.	This species is not known within the vicinity of the Airport. Nearest reported occurrences include marshes of southern San Francisco Bay.
California clapper rail	*Rallus longirostris obsoletus*	FE/CE	Nests and forages in salt water marshes transversed by tidal sloughs.	This species is not known within the vicinity of the Airport. Nearest reported occurrences include marshes of Alviso Slough and Guadalupe Slough.
Bank swallow	*Riparia riparia*	SS/CT	Nests on steep stream, river, or lake banks and cliffs near water with friable soils.	Three bank swallows were observed in July, 1994. This species does not nest on-site.
California least tern	*Sterna antillarum browni*	FE/CE	Nests and forages in sandy beaches and coastal wetlands.	This species is not known within the vicinity of the Airport. Nearest reported occurrences include salt ponds of southern San Francisco Bay.
Fish				
Chinook salmon	*Oncorhynchus tshawytscha*	FE/CE	Spawns in gravels in rivers with fast flowing water.	Known to occur in the Guadalupe River.

TABLE 3.8.1 (continued)
SPECIAL STATUS SPECIES THAT OCCUR WITHIN THE AIRPORT VICINITY

Common Name	*Scientific Name*	Status Federal/State/CNPS	General Habitat	Assessment
		FEDERAL AND STATE LISTED SPECIES (continued)		
Amphibians				
California red-legged frog	*Rana aurora draytonii*	FE/CSC	Freshwater ponds and streams with emergent vegetation.	Potential breeding habitat along and within the Guadalupe River.
Plants				
California sea blite	*Sueda californica*	FE/ - /List 1B	Margins of coastal salt marshes under 5 meters.	This species is known within salt flats of the Palo Alto Yacht Harbor.
		SPECIES THAT ARE CANDIDATES FOR LISTING AS ENDANGERED OR THREATENED		
Amphibians				
California tiger salamander	*Ambystoma tigrinum californica*	FC/CSC	Breeds in vernal pools, seasonal wetlands, and streams in association with upland areas with small mammal burrows.	Marginal habitat occurs along the Guadalupe River.
		FEDERAL SENSITIVE SPECIES AND CALIFORNIA SPECIES OF SPECIAL CONCERN		
Mammals				
Greater western mastiff bat	*Eumops perotis californicus*	SS/CSC	Crevices and openings in woodlands, buildings, caves and cliffs.	This species is expected to occur along the Guadalupe River, associated with mature cottonwoods.
Pacific western big-earred bat	*Plecotus townsendii townsendii*	SS/CSC	Crevices and openings in woodlands, buildings, caves and cliffs.	This species is not expected to occur within the project area.
Birds				
Sharp-shinned hawk	*Accipiter striatus*	- /CSC	Nests in hardwoods and conifers or coastal scrub habitats.	The Guadalupe River corridor provides marginal nesting habitat.
Cooper's hawk	*Accipiter cooperi*	- /CSC	Nests in hardwood and conifer habitats.	The Guadalupe River corridor provides marginal nesting habitat.

TABLE 3.8.1 (Continued)
SPECIAL STATUS SPECIES THAT OCCUR WITHIN THE AIRPORT VICINITY

Common Name	*Scientific Name*	Status Federal/State/ CNPS	General Habitat	Assessment
FEDERAL SENSITIVE SPECIES AND CALIFORNIA SPECIES OF SPECIAL CONCERN (cont.)				
Birds (continued).				
Tricolored blackbird	*Agelaius tricolor*	SS/CSC	Nests in emergent plants or thickets adjacent to freshwater source.	Potential nesting habitat occurs within the Guadalupe River.
Golden eagle	*Aquila chrysaetos*	BEPA/CSC	Occurs west of the Sierra, and east of the narrow humid coast belt. Requires large, open grassland foraging habitats near hilly or windy areas.	Golden eagles have been observed foraging at SJC in 1991 and 1994. This species does not nest on-site.
Ferruginous hawk	*Buteo regalis*	SS/CSC	Winters in grasslands. Does not breed in California.	Winter foraging habitat present on-site. This species was observed foraging at SJC from 1989 through 1995. This species does not nest on-site.
Northern harrier	*Circus cyaneus*	- /CSC	Nests in scrubby vegetation on edges of marshes.	Northern harriers have been observed foraging at SJC from 1989 through 1995. This species does not nest on-site.
Yellow warbler	*Dendroica petechia brewsteri*	- /CSC	Nests in riparian woodlands.	Guadalupe River potential nesting.
Black-shouldered kite	*Elanus caeruleus*	- /CSC	Nests in dense topped trees in vicinity of marshes and grasslands.	The Guadalupe River corridor provides marginal nesting habitat.
White-tailed kite	*Elanus leucurus*	- /CSC	Nests in dense topped trees in vicinity of marshes and grasslands.	The nearest recorded occurrence is at Bair Island in Redwood City.
Prairie falcon	*Falco mexicanus*	- /CSC	Nests in cliffs and forages over grasslands.	Prairie falcons have been observed foraging at SJC on November 30, 1994 and on January 23, 1993. This species does not nest on-site.

TABLE 3.8.1 (Continued)
SPECIAL STATUS SPECIES THAT OCCUR WITHIN THE AIRPORT VICINITY

Common Name	*Scientific Name*	Status Federal/State/CNPS	General Habitat	Assessment
FEDERAL SENSITIVE SPECIES AND CALIFORNIA SPECIES OF SPECIAL CONCERN (cont.)				
Birds (Continued)				
Saltmarsh common yellowthroat	*Geothlypis trichas sinuosa*	SS/CSC	Nests in fresh and salt water marshes with thick, continuous cover down to water.	One breeding pair was reported from Alviso Slough (downstream of SJC) in 1985.
Loggerhead shrike	*Lanius ludovicianus*	SS/CSC	Nests in shrubs and trees associated with open fields and woodlands.	Loggerhead shrikes have been observed foraging at SJC from 1989 through 1995. This species does not nest on-site.
Long-billed curlew	*Numenius americanus*	- /CSC	Nests near water in prairies and grassy meadows.	Long-billed curlews have been observed foraging at SJC from 1989 through 1995 (October through April). This species does not nest on-site.
Double crested cormorant	*Phalacrocorax auritus*	- /CSC (rookery sites)	Colonial nester along the coast on sequestered islets or other areas.	The nearest reported rookerey site is on the Dumbarton Bridge.
Burrowing owl	*Speotyto cunicularia*	SS/CSC	Nests in burrows of fossorial mammals in low-growing grassland with perch sites.	Burrowing owls have been located nesting throughout the in-field at SJC from 1989 through 1995.
Reptiles				
Southwestern pond turtle	*Clemmys marmorata marmorata*	SS/CSC	Freshwater ponds and streams.	Known to occur within the Guadalupe River (City of San Jose, 1986).
Invertebrates				
San Francisco forktailed damselfly	*Ischnura gemina*	SS/ -	Freshwater and brackishwater ditches and drainages supporting emergent vegetation.	Potentially occurring along the Guadalupe River.

TABLE 3.8.1 (Continued)
SPECIAL STATUS SPECIES THAT OCCUR WITHIN THE AIRPORT VICINITY

Common Name	*Scientific Name*	Status Federal/State/CNPS	General Habitat	Assessment
FEDERAL SENSITIVE SPECIES AND CALIFORNIA SPECIES OF SPECIAL CONCERN (cont.)				
Mimic tryonia	*Tryonia imitator*	SS/ -	Inhabits coastal lagoons and salt marshes from Sonoma County south to San Diego County.	The nearest reported occurrence is at salt evaporation pond A9 on the east side of Alviso Slough.
Plants				
Point Reyes bird's-beak	*Cordylanthus maritimus ssp. palustris*	SS/ - /List 1B	Coastal salt marshes.	This species is known from Cooley Landing, Palo Alto.

STATUS CODES:

Federal Status

FE = Species in danger of extinction throughout all or significant portion of its range (Mandatory).
FT = Species likely to become endangered within foreseeable future throughout all or significant portion of its range (Mandatory).
PE = Species proposed endangered (Mandatory)
FC = Candidate information now available indicates that listing may be appropriate with supporting data currently on file (Discretionary).
SS = Former category 2 candidates for listing as threatened or endangered. Now unofficially considered federal sensitive species (Discretionary).
BEPA = Bald Eagle Protection Act (1940) (50 CFR 22) (Mandatory, with limitations).

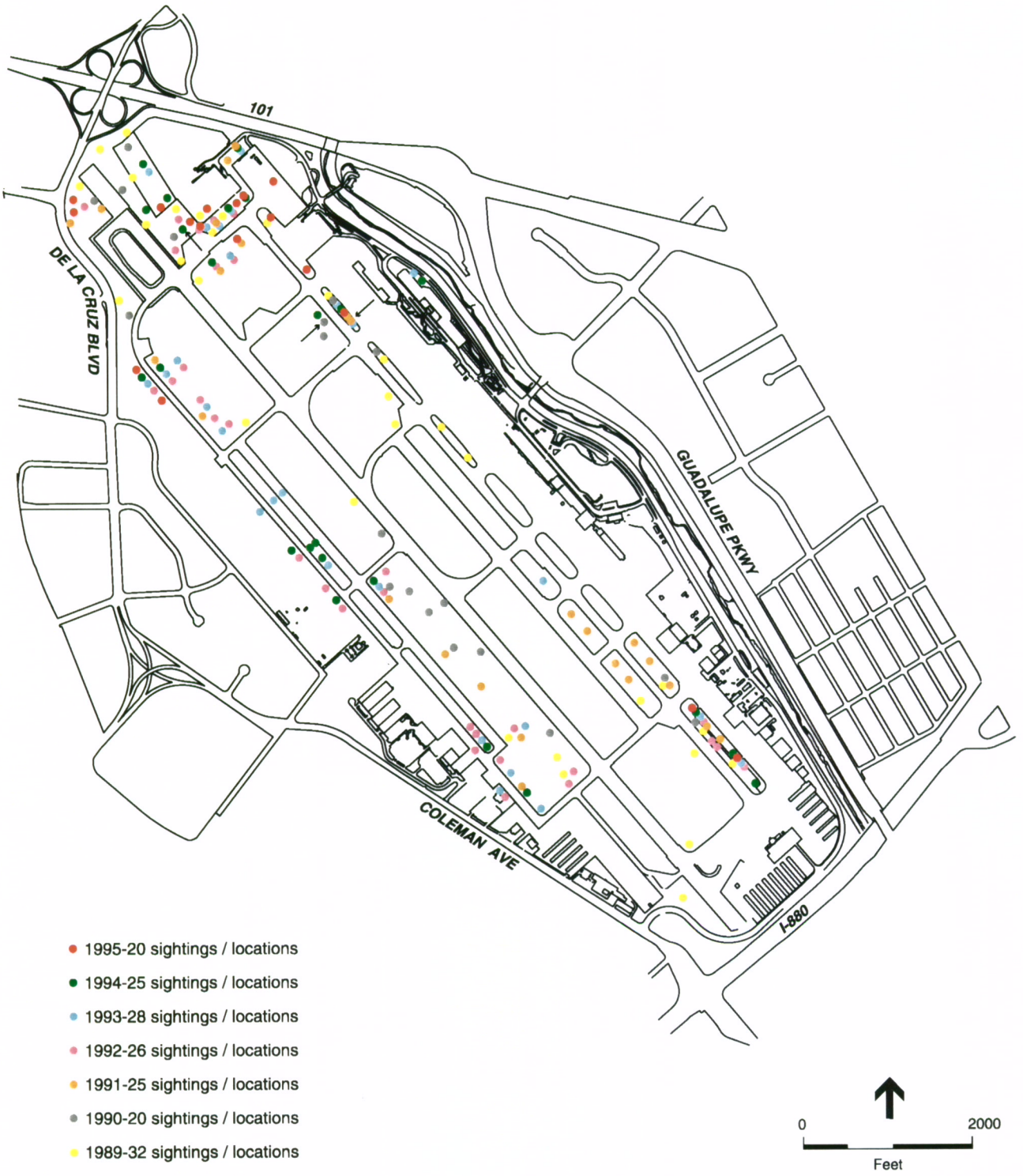
California State Status

CE = State listed as endangered. Species whose continued existence in California is jeopardized (Mandatory).
CT = State listed as threatened. Species, although not presently threatened with extinction, is likely to become endangered in the foreseeable future (Mandatory).
CR = State listed as rare. Plant species, although not presently threatened with extinction, may become endangered in the foreseeable future (Mandatory, with limitations).
CSC = California species of special concern. This is a management designation used to track animal species with declining breeding populations in California (Discretionary).
CP = Fully Protected by the State of California under Sections 3511 and 4700 of the Fish and Game Code (Mandatory, with limitations).

California Native Plant Society (CNPS) (All Discretionary, unless also listed as CR or FE or FT)

List 1 A= Plants presumed extinct in California.
List 1 B = Plants are rare or endangered in California and elsewhere.
List 2 = Plants are endangered in California, but more common elsewhere.
List 3 = Plants about which more information is needed.
List 4 = Plants of limited distribution ("watch list").

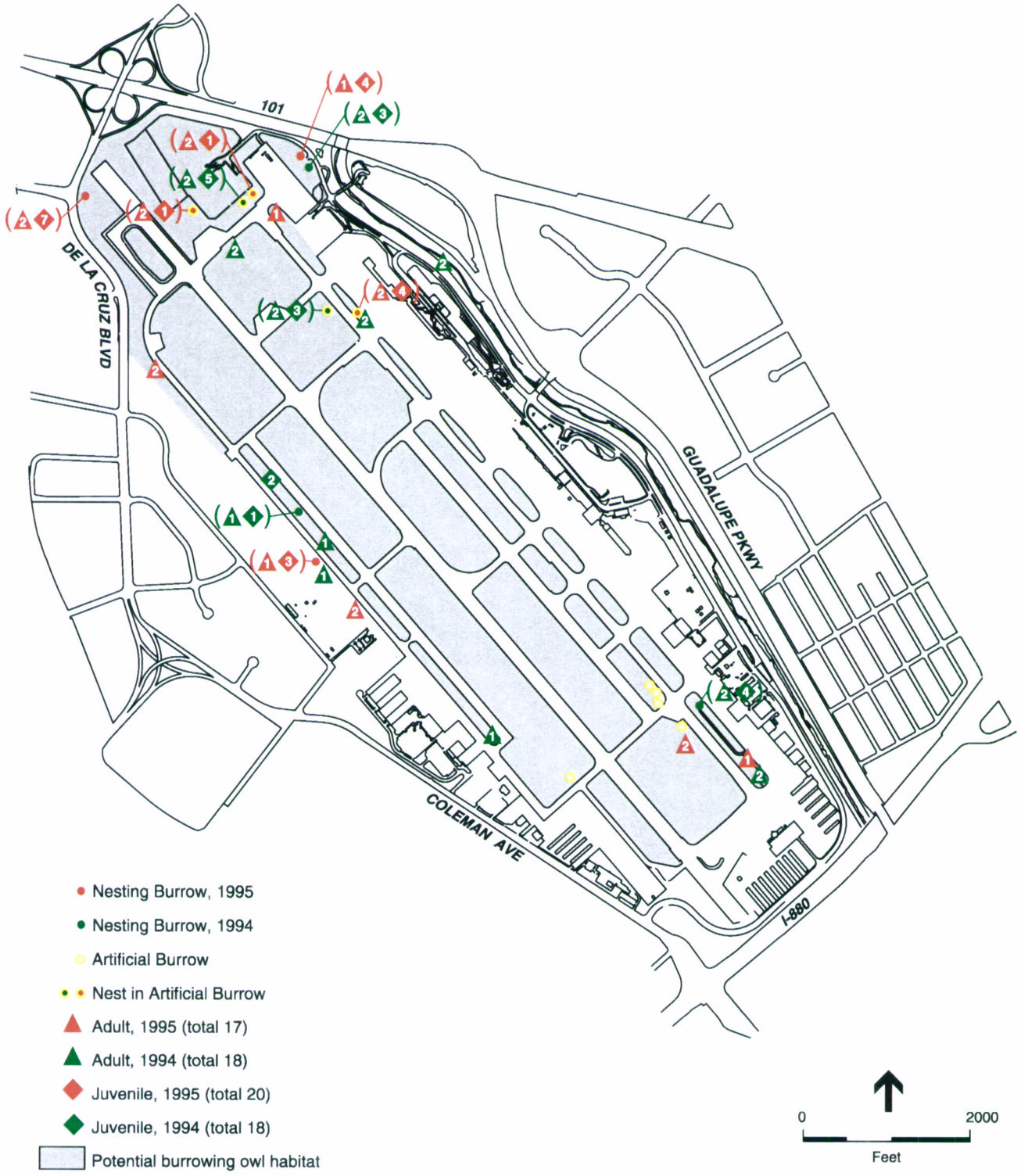
SOURCES: CNDDB, 1996; USFWS, 1993; Biosystems, 1981-present; Environmental Science Associates, 1996.



San Jose International Airport Master Plan Update / 940404 ■

SOURCE: BioSystems, 1995

Figure 3.8.2
Locations of Burrowing Owls
at San Jose International Airport



SOURCE: BioSystems Analysis, Inc., 1996; Environmental Science Associates, 1996

San Jose International Airport Master Plan Update / 940404 ■

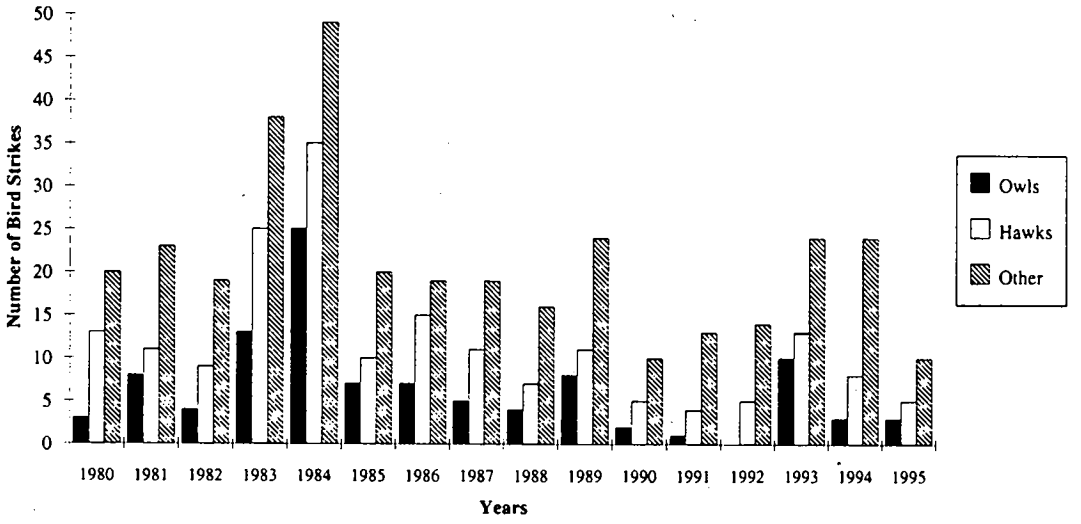
Figure 3.8.3
Burrowing Owl Distribution and Potential Habitat at SJC During 1994 and 1995 Breeding Censuses

Burrowing owl (*Speotyto cunicularia*) is a California species of special concern and is unofficially classified as a federal sensitive species.[2] Although the burrowing owl is not formally designated as threatened or endangered by either State or federal governments, it is considered a species of concern because populations have been declining due to loss of habitat from development; the species could potentially become extinct if some measures are not taken to protect populations. A survey in 1994 by H.T. Harvey & Associates estimated approximately 400 burrowing owls in the north and central San Jose area (County of Santa Clara, 1996). Like other raptors, this species is protected under California Fish and Game Code Section 3503 and Section 3503.5.

Airports provide "ideal" habitat for the burrowing owl, and SJC is no exception: flat, open lands characterized by low-growing vegetation and limited tree cover. This kind of habitat is also favored by ground squirrels, whose burrows frequently are used by the owl. An average of 18 adult and 18 juvenile burrowing owls in five separate family groups currently inhabit SJC (Biosystems, 1996) (see Figures 3.8.2, 3.8.3 and 3.8.4 and Table 3.8.2). Burrowing owl population numbers increase in summer and early fall due to emergence and dispersal of young in mid-summer, and therefore owl sightings increase between May and October. The Airport holds USFWS and DFG permits for the relocation of burrowing owls. The permits were originally issued to allow burrows to be excavated and owls to be relocated in the vicinity of Terminal C construction. In total, 12 artificial burrows have been installed at SJC since 1990 as mitigation for impacts to natural burrows that were occupied by burrowing owls. Specific information concerning the circumstances under which each artificial burrow was installed is included in Appendix 3.8.B. Bi-weekly monitoring at SJC reveals that the artificial burrows have been readily occupied by burrowing owls at SJC (Biosystems, 1996). Other researches have reported similar results where burrowing owls have used artificial burrows in areas where there previously were no natural burrows (Collins and Landry, 1977; Olenick, 1987).

To manage conflicts between the operational and safety requirements of the Airport and the habitat needs of the burrowing owl in a consistent manner, SJC has developed a Burrowing Owl Management Plan (see Appendix 3.8.B) (Biosystems, 1996). The objectives of the plan are to: (1) reduce the potential for aircraft strike hazards from burrowing owls (see below); (2) implement a plan of action to mitigate construction impacts to burrowing owls and their burrows; and (3) provide for long-term maintenance of a stable burrowing owl population. To date, mitigation for owls has been conducted on a case-by-case basis at SJC, involving both passive relocation of birds and the construction of artificial burrows.

[2] Burrowing owl was formerly classified by the federal government as a category 2 candidate for listing as endangered or threatened. The USFWS recently eliminated the candidate categories, leaving only federal candidate species or non-designated species. USFWS currently considers former category 2 candidates as federal sensitive species (SS in this EIR). This is an unofficial designation, however, and does not provide any protection for these species under the federal Endangered Species Act.



San Jose International Airport Master Plan Update/940404

SOURCE: Biosystems, 1996

FIGURE 3.8.4
Reported Bird Strikes at SJC, 1980 to 1995

TABLE 3.8.2
ACRES OF BURROWING OWL HABITAT CALCULATIONS AT SJC

	Existing Conditions (acres)	Project Case (acres)	Alternative A (acres)	Alternative B (acres)	No Project (acres)
Inside Runway Safety Areas	146	157 (+11)[a]	157 (+11)	157 (+11)	146
Outside Runway Safety Areas	209	160 (-49)[b]	160 (-49)	163 (-46)	209
Total Available Habitat	355	317 (-38)	317 (-38)	320 (-35)	355

a (+) indicates acres of habitat added by project.
b (-) indicates acres of habitat removed by project.

SOURCE: Biosystems, 1996; Environmental Science Associates, 1996.

A number of special status species are known to occur along the Guadalupe River corridor and downstream slough (Subarea B and C) (see Table 3.8.1). The Guadalupe River supports a limited amount of suitable habitat for juvenile anadromous fish in the form of several shallow, partially shaded pools, riffles, and runs, suitable spawning substrate, and a perennial flow of water through the area. Eight chinook salmon redds were observed in January 1994 and at least ten adult salmon were observed during the winter of 1993 and 1994 (H.T. Harvey and Associates, 1995). As discussed above, high turbidities, high water temperatures, and low abundance of invertebrates limit successful rearing habitat. Juvenile chinook salmon most likely migrate out of the drainage in spring prior to the increase in water temperature during the summer months (H.T. Harvey and Associates, 1995).

Southwestern pond turtle likely migrate up and downstream. The Guadalupe River corridor provides suitable habitat for five additional special status species: California red-legged frog, greater western mastif bat, tri-colored blackbird, yellow warbler, and the San Francisco forktail damselfly. However, these species were not reported in recent surveys of the Guadalupe River corridor. Several special status species occur downstream in Subarea C encompassing Guadalupe Slough and adjacent salt marshes and salt ponds. California clapper rail, saltmarsh common yellow throat, and mimic tryonia occur at Alviso Slough and Guadalupe Slough. Saltmarsh harvest mouse and California black rail are associated with salt marshes of southern San Francisco Bay. Other special status species that occur in marsh and salt pond habitats of southern San Francisco Bay are California least tern, white-tailed kit, double-crested cormorant, and two plants, Point Reyes bird's-beak and California sea blite.

3.8.1.5 Bird Strikes

SJC has collected bird strike data submitted by aircraft operators since 1980. Aircraft personnel who experience a bird strike record the date, time, aircraft damage, and species and numbers (if known) of birds involved. Bird strikes are discussed in this section because mortality of birds, especially those considered sensitive by either the USFWS or DFG, is a biological resource concern. Refer to Chapter 3.13, Air Safety, for a discussion of bird strikes and aircraft hazard.

Reported bird strikes at SJC have ranged from 10 to 49 per year with an average of 21.6 per year (Figure 3.8.4). "Owls" accounted for an average of 26.6 percent of bird strikes from 1980 to 1995. The strike records do not indicate the species of owl involved, although Airport staff report that most "owls" are barn owls. The frequency of owl strikes range from 0 to 25 per year (Figure 3.8.4). The data show a peak in total bird strikes in 1983 and 1984, a decline after 1985, and a slight rise in 1993 and 1994. None of the species involved in reported bird strikes at SJC is listed as threatened or endangered by State or federal governments.

3.8.1.6 Ground Squirrel Control

Control of ground squirrel numbers in the airport infields is an important part of aircraft strike hazard reduction at SJC. Large raptors feed on ground squirrels and burrowing owls use squirrel burrows for nesting. Therefore, these birds are attracted to SJC if ground squirrels are abundant. The Airport Department has contracted for ground squirrel control on the Airport infields since 1985. The program includes placing chemically-treated grain baits underground in Airport infield areas occupied by ground squirrels. This procedure should not adversely affect burrowing owls as long as the bait is placed underground (James et al., 1990) as required by permit stipulations.

Ground squirrels were much more abundant prior to the implementation of the control program. In the past, large raptors were more abundant and posed a greater strike hazard for aircraft. The general decline in bird strikes since 1985 (see Figure 3.8.3) is most likely attributable to the effectiveness of the ground squirrel control program coupled with the successful passive relocation of burrowing owls away from the runways into artificial burrows (see also Section 3.13, Air Safety, for further discussion of bird strikes). Continued implementation of the ground squirrel control program is required for purposes of air safety.

3.8.2 BIOLOGICAL RESOURCES IMPACTS

This section identifies five types of biological resource impacts associated with the Project Case Alternatives, evaluates their significance, and identifies mitigation measures to reduce significant impacts to less than significant levels. These impacts include disturbance to burrowing owls, impacts on the biological resources of the Guadalupe River, loss of foraging habitat for special status bird species and common wildlife, and loss of common vegetation from construction activities and Airport operation. The primary differences in impacts among the Project Case Alternatives relate to the area of construction footprint of runways and major structures, such as terminals, parking garages, cargo facilities, and fuel storage tanks. The area occupied by these facilities, in general terms, influences the loss of habitat and therefore the relative magnitude of impacts. Differences among Project Case Alternatives in impacts in Subareas B and C relate to levels of aircraft activity and consequent levels of risk (of a major fuel spill, for example) associated with each of the Project Case Alternatives. The section first identifies and analyzes impacts of the Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by impacts of the No Project Alternative.

3.8.2.1 Project Case

Biological resource impacts for the Project Case are similar but somewhat more substantial than those of Project Case Alternatives A and B, because the Project Case is premised on the greatest increase in aviation activity and maximum construction footprint.

Burrowing Owl Impact

The Project Case proposes construction of major new or expanded facilities, including runway and taxiway extensions, terminals, parking garages, a bridge, above-ground aviation fuel storage tanks, as well as numerous lesser structures. Although they differ in scope under each of the Project Case Alternatives, these facilities would affect burrowing owl habitat located in the infields. Upon completion of all proposed improvements under the Project Case, there would be approximately 317 acres of potential burrowing owl nesting habitat on the Airport resulting in a potential maximum net loss of 38 acres (see Table 3.8.2). Under the Project Case, there would be 157 acres of burrowing owl habitat inside Runway Safety Areas and 160 acres outside Runway Safety Areas (see Table 3.8.2).

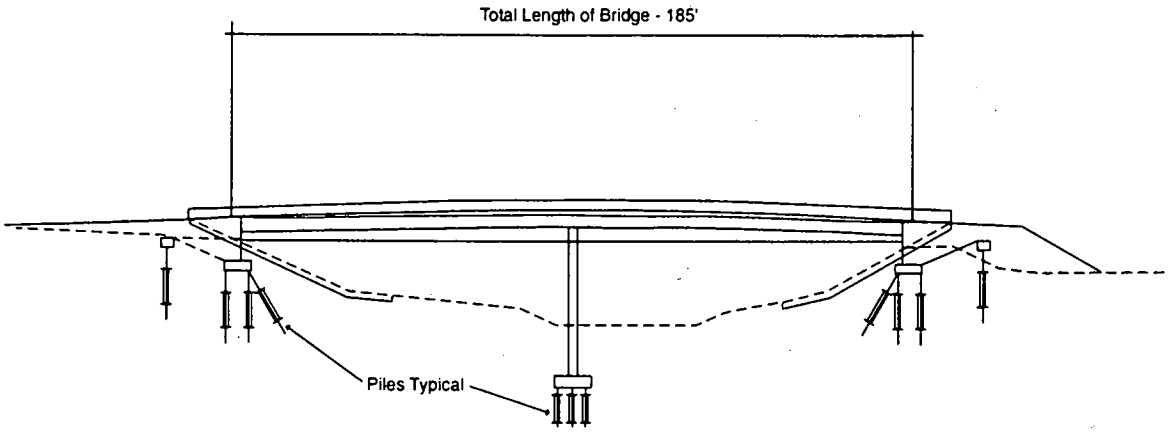
This impact is considered significant because it would directly affect the burrowing owl species, which is protected under provisions of the Migratory Bird Treaty Act, and in view of the owl's recognized vulnerability to habitat loss and population decline within the region. The elimination of burrowing owl habitat and the potential mortality of burrowing owls due to construction or operational causes are both direct effects to a California species of special concern.

> ***Burrowing Owl Impact: Replacement of 38 acres of ruderal and grassland habitat with paving or structures, together with earthmoving and construction activities, would alter and/or destroy nesting habitat for burrowing owls. If construction activities occurred during the nesting season, there also would be a significant risk of mortality for individual burrowing owls (a California species of special concern and federal sensitive species). (SIGNIFICANT)***

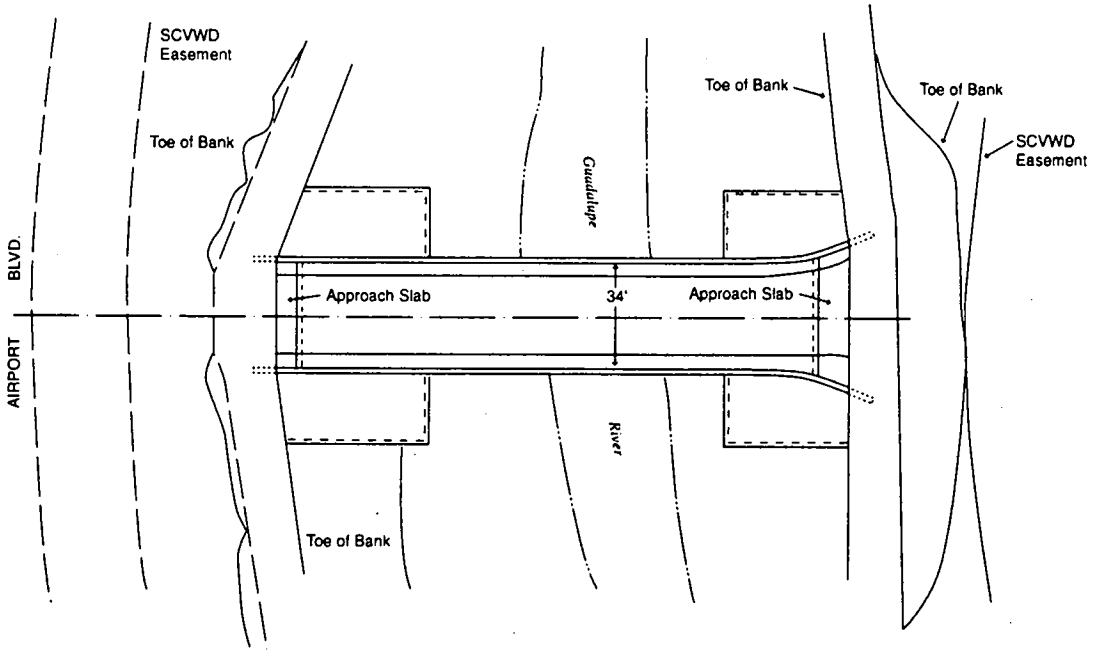
Guadalupe River Impacts

Two project components involve encroachment into or impacts on the Guadalupe River riparian corridor. Construction of a two-lane bridge over the Guadalupe River to provide access to a proposed new rental car garage (Project S-3 in Phase 1) would require placing fill in waters of the United States, including wetlands, that are subject to jurisdiction of the ACOE pursuant to Section 404 of the Clean Water Act. A new above-ground fuel storage facility would be constructed on Airport property north of U.S. 101 and adjacent to the Guadalupe River (Project S-1 in Phase 1). These two project components would have different impacts and therefore are discussed separately below.

The proposed new bridge across the Guadalupe River to the rental car garage would be located approximately 1,500 feet downstream of the existing Airport Parkway bridge (see Figure 3.8.5). The approximate width of the bridge would be 34 feet (i.e., two 13-foot vehicle lanes plus two 4-foot sidewalks). The bridge would be a 2-span, concrete structure with a center wall pier to be located adjacent to the low-flow channel of the river. It is estimated that the center pier would permanently fill approximately 525 square feet of streambed wetlands within the jurisdiction of



TYPICAL ELEVATION



SOURCE: City of San Jose

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.8.5
Conceptual Design of Proposed
Rental Car Bridge (Part of Project S-3)

the ACOE (i.e., "Waters of the United States"). The two bridge abutments would require the use of bank stabilization materials at their locations for the purpose of ensuring their integrity. This proposed new bridge would permanently shadow approximately two-tenths of an acre in the riverbed. This is preferable to placing culverts or road fill in the river and would minimize the potential impact of a river crossing. Due to its limited size, this activity would likely qualify for a Nationwide Section 404 Permit (*Nationwide Permit #14, Road Crossings*) from the ACOE (see Appendix 3.8.C, Wetland Regulation and Protection).

The bridge project would be a small one in structural terms. Furthermore, vegetation along this reach of the river has been limited by a variety of factors, including levee and channel alterations, grading along the top of banks, vegetation and sediment removal from the channel bottom for flood control, introduction of non-native vegetation, and others, and therefore, habitat values at this location are not high. However, this impact is considered significant because it would directly or indirectly affect a number of related resources: (1) waters of the United States subject to Section 404 of the Clean Water Act; (2) a watercourse subject to Sections 1600 et seq. of the Fish and Game Code; (3) special status species, including two federally listed species; (4) species protected under provisions of the Migratory Bird Treaty Act and Sections of the Fish and Game Code; and (5) it could temporarily disrupt the movement of any resident or migratory fish or wildlife species.

Guadalupe River Impact - Bridge Construction and Loss of Habitat: The loss of 0.2 acres of riparian habitat due to construction of the bridge over Guadalupe River would not result in any significant long-term adverse effects on any special status species or habitat. The construction of the bridge would result in temporary significant adverse impacts to the spawning/breeding habitat of certain special status species that inhabit the Guadalupe River corridor. (SIGNIFICANT)

The second project component potentially affecting the Guadalupe River corridor is a proposed new fuel storage facility. This project component would entail placing a total of eight fuel storage tanks (Phases 1, 2, and 3) with total capacity of 4.0 million gallons adjacent to the Guadalupe River but would not involve any direct encroachment into the riparian corridor. The project would be designed to comply with or exceed the minimum 100-foot setback recommended in the City's adopted Riparian Corridor Policy Study and would incorporate other safety and containment design features discussed in detail in Sections 3.6, Hydrology and Water Quality, 3.7, Geology and Seismicity, and 3.12, Hazardous Materials. The setback and the design features would eliminate any direct impacts to wildlife habitats along the riparian corridor. However, the potential exists for a leak or spill to occur. In the unlikely event of tank failure, a spill of substantial magnitude could reach the Guadalupe River. Such an event would have significant impacts on downstream aquatic and wetland biota. The released fuel would have to be of sufficient volume to breach the containment structures and reach and over top the river levee. Fuel reaching the river would be confined to areas within the banks. Vegetation and aquatic organisms in the near vicinity of the fuel storage facility would be fouled. Depending on the quantity of flow of both river and fuel, wetland and aquatic habitats downstream would be

contaminated for an indeterminate period of time. Given sufficient volume, the spill could reach and damage habitats of both common and special status species contained within the San Francisco Bay National Wildlife Refuge. This impact is discussed further, along with appropriate mitigation, in Section 3.6, Hydrology and Water Quality, Section 3.7, Geology and Soils, and Section 3.12, Hazardous Materials. The impact is considered significant because the accidental release of fuel due to failure of the tanks and containment features at the proposed fuel storage facility would result in degradation of biological resources of the Guadalupe River and San Francisco Bay, including several endangered species.

Guadalupe River Impact - Fuel Storage Facility Construction: Construction of a new fuel storage facility on lands adjacent to the Guadalupe River would result in impacts to water quality and therefore to aquatic and wetland biota of the river, in the unlikely event of tank failure. (SIGNIFICANT)

Foraging Habitat of Special Status Bird Species Impact

Development proposed for Phase 1, Phase 2, and Phase 3 of the Project Case would pave approximately 80 acres, 4 acres, and 23 acres, respectively (107 acres total), eliminating foraging habitat provided by these ruderal areas for a number of special status bird species: prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew. Because none of these bird species is currently listed as endangered or threatened and none currently nests on site or is wholly dependent on the site for foraging habitat, reduction of foraging habitat on the Airport is considered to be a less-than-significant impact.

Impact to Foraging Habitat of Special Status Bird Species: Development at SJC would eliminate up to 107 acres of foraging habitat for special status avian species: prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew. These species do not nest on the Airport, nor are they wholly dependent on the Airport for foraging. (LESS THAN SIGNIFICANT)

Common Wildlife Impact

Construction and increased Airport operations could affect common wildlife species, causing both mortality -- road kills, destruction of burrows of such prey species as ground squirrels and gophers, and destruction of nests of ground-dwelling species such as western meadowlark -- and degradation of habitat due to increased noise and other disturbances. Investigators have concluded that aircraft noise has little effect on wildlife behavior or survival, and that any behavioral effects are short-term in nature. This is because wildlife species generally become habituated to non-threatening noise sources (Amendments to the John Wayne Airport Phase 2 Access Plan EIR, 1993). Direct disturbances such as ground activities may displace wildlife into the limited habitat afforded by adjacent undeveloped lands. Since none of these wildlife species

receives any special protection by the State or federal government, the potential impact to common wildlife is considered to be a less-than-significant impact.

Common Wildlife Impact: Construction and/or increases in Airport operations, including increases in surface traffic and noise, would result in disturbance to, or direct mortality of, common wildlife species. (LESS THAN SIGNIFICANT)

Common Vegetation Impact

Development proposed under buildout of the Project Case would pave a total of about 107 acres of currently unpaved land, thereby eliminating common vegetation and associated productive soils. Since none of these vegetative species is afforded any special protection by the State or federal government, the potential impact to common vegetation is considered to be a less-than-significant impact.

Common Vegetation Impact: Construction activities would result in elimination of common vegetation and associated productive soils. (LESS THAN SIGNIFICANT)

3.8.2.2 Project Case Alternative A

Biological resource impacts and mitigation measures for the Project Case Alternative A are essentially the same as those of the Project Case. The primary differences in impacts that distinguish Project Case Alternative A from the Project Case relate to differences in the construction footprint of proposed projects, and the consequent loss of habitat sensitive resources.

Burrowing Owl Impact

Development of Project Case Alternative A would have the same impact as described for the Project Case (removal of 38 acres of habitat). See the discussion of Burrowing Owl Impact under the Project Case, Section 3.8.2.1, above. The elimination of burrowing owl habitat and the potential mortality of burrowing owls due to construction or operational causes are both direct effects to a California species of special concern. This impact is considered significant because it would directly affect the burrowing owl, which is protected under provisions of the Migratory Bird Treaty Act, and in view of the owl's recognized vulnerability to habitat loss and population decline within the region.

Guadalupe River Impacts

As in the Project Case, construction of a two-lane bridge (Project S-3 in Phase 1) over the Guadalupe River would require placing fill in waters of the United States, including wetlands; construction of the proposed bridge would also have a short-term effect on a number of fish and

wildlife species, including some with special status, that inhabit the high-quality riparian and aquatic habitats along the Guadalupe River corridor. The impacts would be the same as described under the discussion of the Guadalupe River Impacts - Bridge Construction and Loss of Habitat under the Project Case, Section 3.8.2.1, above, and would be considered significant.

Under Project Case Alternative A, a total of six fuel storage tanks rather than eight would be installed adjacent to the Guadalupe River. However, the impacts of the fuel storage facility construction would be similar to those described under the Project Case, and would be considered significant.

Foraging Habitat of Special Status Bird Species Impact

Impacts to foraging habitat of prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew are similar to those described for the Project Case. See the discussion of Foraging Habitat of Special Status Bird Species under the Project Case, Section 3.8.2.1, above. Because none of these species is currently listed as threatened or endangered and none nests on site or is wholly dependent on the site for foraging habitat, loss of foraging habitat is considered to be a less-than-significant impact.

Common Wildlife Impact

Impacts to common wildlife are similar to those described for the Project Case. See the discussion of Common Wildlife Impact under the Project Case, Section 3.8.2.1, above. Since none of these wildlife species is afforded any special protection by the State or federal government, the potential impacts to common wildlife are considered to be a less-than-significant impact.

Common Vegetation Impact

Impacts to common vegetation are similar to those described for the Project Case. See the discussion of Common Vegetation Impact under the Project Case, Section 3.8.2.1, above. Since none of these vegetative species is a candidate species or is afforded any special protection by the State or federal government, the potential impacts to common vegetation are considered to be a less-than-significant impact.

3.8.2.3 Project Case Alternative B

Burrowing Owl Impact

Upon completion of all proposed improvements under the Project Case Alternative B, there would be approximately 320 acres of potential burrowing owl nesting habitat on the Airport resulting in a potential maximum net loss of 35 acres (see Table 3.8.2). Under the Project Case

Alternative B, there would be 157 acres of burrowing owl habitat inside Runway Safety Areas and 163 acres outside Runway Safety Areas (see Table 3.8.2). See the discussion of Burrowing Owl Impact under the Project Case, Section 3.8.2.1, above. This alternative eliminates approximately three acres less than are eliminated under the Project Case. The elimination of burrowing owl habitat and the mortality of burrowing owls are both direct effects to a California species of special concern. This impact is considered significant because it would directly affect the burrowing owl species, which is protected under provisions of the Migratory Bird Treaty Act, and in view of the owl's recognized vulnerability to habitat loss and population decline within the region.

Guadalupe River Impacts

As in the Project Case, Project Case Alternative B would also construct a two-lane bridge over the Guadalupe River, possibly requiring placing fill in waters of the United States, including wetlands; construction of the proposed bridge would also have a short-term effect on the habitat of a number of fish and wildlife species, including some with special status, that inhabit the high quality riparian habitat along the Guadalupe River corridor. The impacts would be the same as described under the discussion of the Guadalupe River Impacts - Bridge Construction and Loss of Habitat under the Project Case, Section 3.8.2.1, above, and would be considered significant.

Under Project Case Alternative B, a total of five fuel storage tanks rather than eight would be installed adjacent to the Guadalupe River. However, the impacts of the fuel storage facility construction would be similar to those described under the Project Case, and would be considered significant.

Foraging Habitat of Special Status Bird Species Impact

Development proposed under buildout of Project Case Alternative B would eliminate approximately 56.5 acres of foraging habitat for prairie falcon, northern harrier, bank swallow, ferruginous hawk, golden eagle, loggerhead shrike, and long-billed curlew. This is approximately 24.5 acres less than would be eliminated under the Project Case. The impacts would be similar to but proportionately less than those described for the Project Case. See the discussion of Foraging Habitat of Special Status Bird Species under the Project Case, Section 3.8.2.1, above. This is considered to be a less-than-significant impact.

Common Wildlife Impact

Impacts to common wildlife are similar to but proportionately less than those described under both the Project Case and Project Case Alternative A. See the discussion of Common Wildlife Impact under the Project Case, Section 3.8.2.1, above. Since none of these wildlife species is afforded any special protection by the State or federal government, this is considered to be a less-than-significant impact.

Common Vegetation Impact

Impacts to common vegetation are similar to those described for the Project Case, except that the total disturbance would affect 57 acres rather than 107 acres. Since none of these vegetative species is afforded any special protection by the State or federal government, the potential impact to common vegetation is considered to be a less-than-significant impact.

3.8.2.4 No Project Alternative

The No Project Alternative would not result in any physical changes at the Airport or on the Guadalupe River, and no earthmoving or construction activities would occur. In addition, no fuel storage facility would be constructed; therefore, no potential for tank and containment failure would exist and no impacts to habitat within the Guadalupe River would occur. The number of passenger and air cargo operations would increase, which would cause increased disturbance to wildlife. On-going implementation of the existing ground squirrel control program would continue to reduce the impact to birds from aircraft strikes and the impacts to people and aircraft from bird strikes. No other impacts to special status species, common wildlife, or the Guadalupe River are expected to occur. Since the extent of potential nesting habitat for burrowing owl and foraging habitat for other avian species would not change or be decreased, this is considered to have no impact. The current Airport policy associated with conservation of burrowing owl population would continue.

3.8.3 MITIGATION MEASURES FOR SIGNIFICANT BIOLOGICAL RESOURCES IMPACTS

Mitigation for Burrowing Owl Impacts

Empirical data demonstrate that, with careful mitigation planning, the burrowing owl population at SJC can successfully co-exist with Airport expansion and operations. Regular monitoring since 1990 shows that the SJC population of burrowing owls readily inhabitated all 12 artificial burrows, and the measures implemented have been a success.

The Airport has developed a Burrowing Owl Management Plan (Biosystems, 1996) to provide long-term conservation of a self-sustaining population of owls within undeveloped portions of the Airport by restricting owls to less sensitive areas and by maintaining and enhancing suitable habitat in those areas (see Appendix 3.8.B for a copy of the Burrowing Owl Management Plan). Implementation of this plan will mitigate for impacts to the SJC burrowing owl population caused by development of the proposed development. Goals and key elements of the Plan are summarized below.

The Management Goals of the Burrowing Owl Management Plan are:

- Reduce the potential for aircraft strikes of burrowing owls.

- Develop an approved plan of action to mitigate Airport construction impacts to burrowing owls and their burrows that is consistent with DFG policy.
- Provide for long-term maintenance of a stable burrowing owl population.

Implementing the following activities will achieve these goals:

Maintain Runway Safety Areas. In order to reduce the potential for burrowing owl strikes, the Runway Safety Areas, extending 175 feet out from the edge of runways 30L/12R and 30R/12L, along the length of each runway will be maintained free of nesting burrowing owls. Burrows that could be occupied by burrowing owls in any Runway Safety Area or on pavement shoulders will be closed and compensated by installing one artificial burrow in an adjacent burrowing owl management area.

Airport Construction Mitigation. The steps listed below will be implemented to mitigate impacts of Airport construction on burrowing owls and their habitat. The objective of this plan is to relocate burrowing owls away from planned construction areas with minimum impacts to nesting owls. This will be achieved by providing replacement artificial burrows and passively relocating owls away from construction zones outside the nesting season.

- Conduct pre-construction surveys prior to ground-disturbing activity. One of these surveys shall occur within 30 days prior to the start of construction.
- Conduct pre-construction burrow monitoring for owl occupancy.
- Provide two artificial burrows for each occupied burrow that will be impacted by construction.
- Excavate and physically close natural burrows prior to ground-disturbing activities. Use trap doors for at least 48 hours on all burrows to be closed prior to destroying the burrows.

Burrowing Owl Management Areas. Approximately 84 acres of infield will be designated specifically for burrowing owl management at the ends of the runways and between taxiways Y and Z (see Figure 7 in Appendix 3.8.B). Burrowing owls that have established nests in Runway Safety Areas or construction area will be relocated to designated management areas. Burrowing owl management areas will be mowed according to the regular mowing regime throughout the Airport infields to maintain the low, open vegetation that is an important characteristic of burrowing owl habitat.

Burrowing Owl Population Monitoring. The following activities will be implemented to monitor the burrowing owl population at SJC.

- Continue collecting data on the distribution and abundance of burrowing owls throughout the Airport.
- Monitor burrowing owl use of designated management areas.
- Conduct two censuses of the population of burrowing owls on the Airport: a breeding season census and a non-breeding season census.

- Prepare an annual survey report on the status of the burrowing owl population at the Airport including population estimates for the non-breeding (winter) and breeding (summer) seasons, and an estimate of the annual production of young.

Mitigation for Burrowing Owl Impacts: The Airport will implement the Burrowing Owl Management Plan prepared for SJC (Biosystems, 1996) (see Appendix 3.8.B). (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of the Burrowing Owl Management Plan will insure the continued maintenance of the burrowing owl population at SJC, protect habitat, and would reduce the hazard of owl strikes by aircraft. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

Mitigation for Guadalupe River Impact - Bridge Construction

Several permits would need to be obtained by the Airport from agencies that have jurisdiction by law over specified activities and/or the natural resources in the Guadalupe River. These permits would not be issued until after the EIR process has been completed, detailed engineering design of the proposed bridge project has been developed, and specific measures have been developed by the Airport in accordance with regulations of the permitting agencies (e.g., Corps, possibly U.S. Coast Guard [under Section 9, Rivers and Harbors Act, governing bridges over navigable waters], DFG). The mitigation measures listed below will be reviewed by agencies with authority to comment on the Corps' permit action (e.g., USFWS, NMFS, RWQCB, SCVWD).

As part of the project, the City will implement the following measures to protect the physical, chemical, and biological integrity of the Guadalupe River and its wetlands and aquatic habitat. The City also will enter into a SAA with the DFG, pursuant to California Fish and Game Code Section 1601.

- The Airport will consult with USFWS and DFG and determine whether spawning winter-run Chinook salmon are present in the construction area, at least 30 days prior to construction. If individuals are present, passage to upstream spawning grounds would not be blocked if construction would occur during the salmon run.

- Surveys for special status species will be conducted by a qualified biologist 30 days prior to construction. If any special status species are located within the construction area, the Airport will consult with DFG and USFWS and develop appropriate methods for relocation of specific individuals and/or modification of the construction schedule.

- Bridge construction will be limited to the late summer and early fall when water levels are lowest and nesting/spawning is least likely to occur. The most sensitive nesting and breeding periods extend from February through August (e.g., southwestern pond turtles lay eggs from April through August, and many bird species nest from February through August).

- If southwestern pond turtles are present, fences (small enough to prevent the passage of fry and small turtles) will be placed in the river - around the construction area - to prevent entrance by sensitive species.

- Prior to construction activities within the riparian corridor, the limits of the construction zone will be clearly marked and fences (under the supervision of a qualified biological monitor) to protect vegetation outside of the established construction zone. A biological monitor will make regular site inspections to ensure that the fence remains in place and that construction activities are confined to the delineated impact areas.

- All in-channel construction will take place outside of the spawning season for anadromous salmonids, which occurs from the time of the first fall storms to the end of the rainy season (generally October through late April). During in-channel activities, diversion techniques that minimize water turbidity and that prevent dewatering of the channel downstream will be used.

- Best (construction) management practices will be implemented. These will include, but not be limited to, the following:

  - limit vehicles and equipment within the levee banks to those essential for bridge construction;

  - avoid spillage or drip of oil, grease, and other vehicular fluids within the river construction area;

  - install coffer dams immediately up and down stream from the construction site as necessary, divert stream flow, and divert potential construction-related runoff away from the Guadalupe River;

  - avoid construction during periods of rain;

  - install erosion control measures, such as silt fences and straw bales, to eliminate migration of sediment-laden runoff into wetlands and waters, and to prevent accidental damage to habitat due to construction activities;

  - specify dust control measures in all relevant project contracts, which may include watering of the construction area (including areas being graded) as necessary; and

  - re-seed graded or excavated areas with grasses and appropriate species native to the Guadalupe River riparian habitat, once construction is complete.

- Work within the Guadalupe River channel shall be restricted to the period of May 15 to October 15.

In addition to the measures above, the City will compensate for habitat loss by providing substitute "in kind" resources on at least 0.2 acres to replace the habitat value of the resources lost. Substitute resources will be physically or biologically the same as, or closely approximate, to those lost. In-kind replacement likely would mean restoring or enhancing existing degraded resources, such as planting riparian trees, shrubs, and understory plants next to a river or creek as close as possible to the area affected and, to maintain required flood carrying capacity, consistent with the design parameters for channel hydraulics.

The Airport will coordinate with permitting and responsible agencies to determine the location of compensatory mitigation. No maintenance by the SCVWD will be allowed in the mitigation area unless it is required to maintain their viability as riparian habitat. Following the plant establishment, the mitigation sites will be maintained and monitored by the Airport. The maintenance and monitoring schedule will be developed by the Airport in consultation with the permitting and responsible agencies.

Mitigation for Encroachment of the Guadalupe River: The Airport will conduct pre-construction surveys to determine the presence and breeding status of special status species inhabiting the Guadalupe River corridor, and implement mitigation measures, including best construction management practices and compensatory replacement of lost habitat. (APPLIES TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of this measure will minimize and compensate for impacts to the Guadalupe River from bridge construction. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

Mitigation for Guadalupe River Encroachment Impact - Fuel Farm Construction

Mitigation measures discussed in Sections 3.6.3 (Hydrology and Water Quality), 3.7.3 (Geology and Soils), and 3.12.3 (Hazardous Materials) specify design requirements to minimize risks of tank damage or failure, or accidental release of fuel, and to prevent any released fuel from entering runoff and migrating offsite. The installation will include, among other features, a secondary containment structure sufficient to hold 1.0 million gallons of fuel in the event of major failure or major release. Two types of releases could occur from the above-ground storage tanks. Slow leaks will fall under the jurisdiction of the RWQCB and will be controlled through the Airport's existing and augmented fuel spill response mechanisms. (See Sections 3.6, Hydrology and Water Quality, and 3.12, Hazardous Materials.) Catastrophic releases will be subject to more complex oversight and response. The Airport Operations will notify the Hazardous Materials Response Team within the City Fire Department, as spelled out in the Airport's Emergency Response Plan. Depending on the circumstances, other agencies will be notified: Office of Emergency Services, CDFG (Office of Spill Prevention and Response, or OSPR), the RWQCB, and the U.S. Coast Guard. The actual clean-up will conform to specific regulatory requirements. Other measures to prevent spills from contaminating storm water runoff are detailed in Section 3.7.3 (Hydrology and Water Quality).

Mitigation for Guadalupe River - Fuel Farm Construction: The fuel tank storage facility will be designed with measures to prevent fuel or other pollutants migrating offsite and entering surface waters of the Guadalupe River. The fuel storage facility will be located 100 feet away from the top of the bank of the river, in conformance with City policy. Response to an accidental release will involve cooperation with agencies charged with the

responsibility for clean-up measures. **(APPLIES TO ALL PROJECT CASE ALTERNATIVES)**

Impact Significance Conclusion: Implementation of this measure will ensure that aquatic and riparian resources of the river do not suffer long-term impacts from the project. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.9 ENERGY SUPPLY AND NATURAL RESOURCES

This section, Energy Supply and Natural Resources, addresses issues related to consumption of non-renewable resources. Project impacts on energy supply and natural resources are evaluated in terms of net changes in energy consumption. Energy consumption refers to all energy resources consumed by activities associated with SJC, including electricity, natural gas, and liquid petroleum fuels (e.g., Jet A, AvGas, motor gasoline and diesel fuel).

3.9.1 SETTING AND EXISTING CONDITIONS

3.9.1.1 Sources of Energy

Petroleum and natural gas supply most of the power consumed in California. Petroleum provides about 50 percent of the State's energy need, and natural gas provides about 29 percent (California Energy Commission, 1994). The remaining 21 percent of the State's energy need is provided by a variety of energy resources, including coal, nuclear, geothermal, and hydropower. Transportation is the major end-use of energy and accounts for about 50 percent of the total energy consumed in California.

3.9.1.2 Existing Energy Resources and SJC Energy Consumption

Energy consumed at SJC includes liquid fuel for aircraft and ground vehicles, as well as electricity and natural gas for Airport building and airfield systems (e.g., lighting, space heating).

Transportation Energy

Aircraft and associated on-road motor vehicles and off-road ground support equipment (GSE) and maintenance vehicles consume liquid petroleum fuels at SJC. Four types of liquid petroleum fuel are used at SJC: jet fuel (Jet "A"), aviation gasoline (AvGas), gasoline, and diesel fuel. Jet "A" is used by turbine-powered aircraft. AvGas is used by piston-powered aircraft. On-road motor vehicles, GSE, and maintenance vehicles consume gasoline and diesel fuel. SJC is supplied with liquid petroleum fuels via on-road tanker trucks.

SJC activity reports indicate that annual Jet A consumption is approximately 103 million gallons, equivalent to approximately 15,100 billion Btu,[1] and existing annual AvGas consumption is approximately 0.5 million gallons, equivalent to approximately 77 billion Btu. Annual

1 The units of energy used in this analysis are British Thermal Units (Btu), kilowatt-hours (kWh), cubic feet, and gallons. A Btu is the quantity of heat required to raise the temperature of one pound of water one degree Fahrenheit at sea level. Since the other units of energy can all be converted into equivalent Btu units, the Btu is used as the basis for comparing total energy impacts among different scenarios. A kWh is a unit of electrical energy, and one kWh is equivalent to 10,238 Btu, taking into account initial conversion losses (i.e., from one type of energy [e.g. chemical] to another type of energy [e.g. mechanical]) and transmission losses. Cubic feet are used in reference to natural gas, and one cubic foot is equivalent to 1,050 Btu. One gallon of Jet A is equivalent to approximately 145,000 Btu, and one gallon of gasoline/diesel is equivalent to approximately 140,000 Btu. For the purposes of comparison, there are approximately six million Btu in a barrel of oil.

consumption of gasoline/diesel fuel by on-road motor vehicles, including passenger, employee, cargo, and general aviation-related motor vehicle trips and GSE activity is estimated to be approximately 9 million gallons, equivalent to approximately 1,300 billion Btu.

Building Energy

Pacific Gas and Electric Company (PG&E) provides electricity and natural gas to SJC. Currently, PG&E provides electrical service through three different 12-kilovolt feeders that serve various parts of the Airport as well as other surrounding development (Nevoli, 1996). Electricity is used at SJC for purposes that include lighting, ventilation, air conditioning, and computers. Existing annual electricity use at SJC is estimated to be approximately 30 million kWh, which is equivalent to approximately 300 billion Btu.

Natural gas service is provided by a 4-inch gas main under Airport Boulevard (Nevoli, 1996). Natural gas is used primarily by boilers, which provide space heating and hot water. Annual natural gas use is estimated to be approximately 48 million cubic feet, which is equivalent to approximately 50 billion Btu.

Total Energy

Total annual energy consumption is estimated to be approximately 16,700 billion Btu, including transportation (Jet A, AvGas, gasoline/diesel) and building energy (electricity and natural gas), or the equivalent of 2.8 million barrels of oil.

3.9.1.3 Energy Regulations, Plans, and Policies

Federal

Federal legislation and regulations seek to reduce energy consumed by on-road motor vehicles through implementation of Corporate Average Fuel Economy (CAFE) standards that specify minimum fuel consumption efficiency standards for manufacturers of new automobiles sold in the United States.

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) contains factors, including some energy-related factors, that Metropolitan Planning Organizations (MPOs), including the Bay Area's Metropolitan Transportation Commission, are to use in developing transportation plans and programs. MPOs are also required to consider the consistency of transportation planning with federal, State, and local energy goals. The expected result of this requirement is that energy consumption will become a decision criterion, along with cost and the other values that determine optimum transportation solutions.

State

Transportation Energy. The California Energy Commission (CEC) calls for the State to aggressively work to increase the efficiency of its transportation system and the vehicles that use it, since these vehicles consume three-fourths of the oil and half of all the energy used in the State, and are the major source of air pollution in California (CEC, 1991). Local governments are to promote energy savings by requiring cost-effective, energy-efficient integrated transportation and land use planning (CEC, 1991). The State is to encourage more passengers per vehicle through expanded use of vanpools, carpools, and shuttles. The State is also to provide cost-effective facilities that improve the availability, convenience, and acceptability of walking, biking, and public transit and to increase travel efficiency.

Building Energy. Building energy consumption is regulated under *California Code of Regulations*, Title 24, which is referred to as the Building Standards Administrative Code. The standards related to energy efficiency standards are contained in Part 6 (within Title 24), which is referred to as the California Energy Code. The efficiency standards apply to new construction of both residential and non-residential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building energy efficiency standards are enforced through the local building permit process.

Compliance with Title 24 can be achieved through either a "performance" or a "prescriptive" approach. Under the performance compliance approach, a building must be designed to consume no more energy than specified in the appropriate energy "budget." The energy budget is based on building occupancy and the climatic zone in which the building is located. Under the prescriptive approach, a building design must include specific features that have been determined to achieve an acceptable level of energy efficiency (e.g., minimum insulation values for walls, floors, and ceilings, energy-efficient heating, ventilation and air conditioning (HVAC) systems, lighting systems, and water heating systems).

Local

The City's *General Plan* contains energy conservation goals and policies (City of San Jose, 1994). Consistent with Sustainable City Strategy Goals, it is a goal of the City to foster development which, by its location and design, reduces the use of non-renewable energy resources in transportation, buildings and urban services (utilities) and expands the use of renewable energy resources. Towards that goal, the City intends to continue to pursue energy - efficiency in City operations. City policies also encourage the development of renewable energy sources and alternative fuels and cooperate with other public and quasi-public agencies in furthering this policy.

3.9.2 ENERGY SUPPLY AND NATURAL RESOURCES IMPACTS

Energy supply and natural resources impacts associated with the project can be thought of as changes in the amount of energy consumed at the Airport. In qualitative terms, an increase in the amount of energy consumed would correlate with an increase in the activities that consume energy. Potential increases in energy correlate most closely with energy consumed during construction activities and energy consumed that is related to aircraft operations and total number of air passengers. All of these activities result in the use of various types of petroleum fuels, natural gas, and electricity.

In general, impacts could result from increases in the amount of energy consumed as a result of construction activities and daily operation activities at the Airport. These impacts would result from the same components and types of activities under the Project Case and Project Case Alternatives, but would vary in magnitude. These impacts are quantified and the significance of the impact is evaluated in terms of thresholds established by the FAA and the City of San Jose.

3.9.2.1 Project Case

Energy Consumption Impacts

Under the Project Case, energy would be consumed by construction activities. In addition, energy related to transportation (aircraft and ground traffic) and building use (electricity and natural gas) would change relative to predicted changes in passenger and cargo activity and proposed changes in building space. Nearly all of the energy consumed by construction and operational activities would be derived from non-renewable resources.

Under the Project Case, substantial amounts of energy would be consumed for construction[2] purposes, and overall operational energy (i.e., associated with aircraft, ground traffic and buildings) would increase over existing conditions.

Construction-related energy estimates were made using energy factors developed for different types of new building construction (e.g., new parking garages) and energy factors developed for different types of materials (e.g., portland cement concrete and asphaltic concrete). These factors were then applied to estimates of new building construction and material use that would occur under the Project Case.

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2 Construction energy estimates made for this report take into account both direct and indirect expenditures of energy. Direct energy is directly consumed by an activity. For example, combustion of the refined petroleum products needed to operate construction equipment would be a direct energy expenditure. Indirect energy is consumed through sectors that provide inputs to an activity, rather than energy consumed by the activity itself. For example, the use of a steel beam in construction indirectly represents energy consumed in all of the industries that contributed to the production of the beam (e.g., energy consumed through mining and extraction of raw materials, manufacturing and transportation). Indirect energy typically represents approximately three-quarters of total construction energy, while direct energy represents approximately one-quarter of total construction energy (Hannon, 1978).

Operational energy estimates were developed for the Project Case by combining estimates prepared separately for aircraft, on-road motor vehicles, ground support equipment (GSE), electricity and natural gas. Aircraft energy estimates were prepared using aircraft mix and operations forecasts developed for the noise analyses for this EIR. Aircraft fuel consumption estimates were taken from the FAA Aircraft Engine Emissions Database (FAEED). On-road motor vehicle fuel consumption estimates were made using fuel efficiency factors developed by the California Department of Transportation (Caltrans, 1983) and VMT estimates developed for the air quality section of this report. GSE estimates were developed applying existing consumption rates to expected future conditions, based on estimated increases in the number of large jet operations. Electricity and natural gas estimates were developed using existing consumption rates and projected increases in building space. Appendix 3.9.A contains additional details concerning the energy consumption estimates.

Construction energy (annualized over a 30-year facility lifetime) and operational energy consumption under the Project Case have been estimated for 2000, 2005 and 2010 as shown in Table 3.9.1.

For purposes of this project, a significant impact would occur if a "large amount" of energy is consumed or if energy is used in a wasteful manner. A "large amount" of energy is defined as a net increase in energy consumption greater than 136 billion Btu per day (equivalent to 49,640 billion Btu per year). The first of these thresholds is the same as that set forth in FAA Order 1053.1 to define significant energy use for major FAA regulatory actions (FAA, 1988).

Table 3.9.1 also compares energy consumption rates under the Project Case with existing conditions, and with the No Project Alternative. Finally, Table 3.9.1 shows the net change in energy consumption under the Project Case versus existing conditions and the No Project Alternative. The increase in energy under the Project Case would be less than the criterion of 49,640 billion Btu per year. Therefore, while the increase in energy consumption would be considered adverse because of the non-renewable nature of petroleum-based fuel, the corresponding effect would not be considered significant.

The issue of whether the increase in energy consumption would be "wasteful" can be evaluated with reference to energy standards for new (and renovated) building construction and with reference to the amount of energy consumed relative to the number of air passengers served at SJC. New (and renovated) buildings would be required to meet the energy efficiency standards contained in Title 24 of the *California Code of Regulations*.

These standards would reduce the possibility of wasteful energy use with respect to building heating, cooling and lighting. In meeting or exceeding Title 24 standards, the City could consider including the following features:

TABLE 3.9.1
ENERGY CONSUMPTION ESTIMATES FOR THE PROJECT CASE ALTERNATIVES

Annual Energy Consumption Associated With SJC

			YEAR 2000				YEAR 2005				YEAR 2010			
Energy category	Units	1994	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Construction[a]:	billion Btu	0	342	266	202	0	342	266	202	0	342	266	202	0
Operations: resource-specific units														
Gasoline/Diesel	million gallons	9	9	9	9	9	12	10	10	9	13	11	10	10
Jet A	million gallons	103	121	121	119	119	167	137	129	117	190	146	132	116
AvGas	million gallons	0.54	0.39	0.47	0.47	0.60	0.30	0.41	0.52	0.65	0.27	0.42	0.50	0.66
Electricity	million kWh	30	32	32	29	30	62	60	41	30	72	63	42	30
Natural Gas	million cubic ft.	48	48	48	47	48	125	112	111	48	190	146	133	48
Operations: converted to equivalent Btu														
Gasoline/Diesel	billion Btu	1,250	1,350	1,360	1,350	1,350	1,700	1,480	1,440	1,370	1,930	1,580	1,460	1,390
Jet A	billion Btu	15,055	17,536	17,536	17,303	17,303	24,358	19,887	18,754	17,002	27,671	21,216	19,147	16,809
AvGas	billion Btu	77	56	68	68	87	43	59	75	94	39	60	72	94
Electricity	billion Btu	303	332	332	298	303	633	617	416	303	741	647	431	303
Natural Gas	billion Btu	50	50	50	49	50	131	118	117	50	200	153	139	50
Operations subtotal[b]	billion Btu	16,700	19,300	19,400	19,100	19,100	26,900	22,200	20,800	18,800	30,600	23,700	21,300	18,600
Total Annual Energy[b]	billion Btu	16,700	19,600	19,700	19,300	19,100	27,200	22,500	21,000	18,800	30,900	24,000	21,500	18,600

Energy Impact Assessment

			YEAR 2000				YEAR 2005				YEAR 2010			
Basis of Impact	Units	1994	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Change versus Existing	billion Btu	0	2,940	2,970	2,600	2,400	10,500	5,770	4,300	2,100	14,200	7,270	4,800	1,900
Change versus No Project	billion Btu	NA	542	566	202	0	8,440	3,670	2,200	0	12,300	5,370	2,900	0

[a] Construction energy annualized by dividing total construction energy by an assumed 30-year facility lifetime.
[b] Numbers may not add due to rounding.
NA = not applicable.

SOURCE: Environmental Science Associates, 1996.

- Light-colored architectural treatments of interior surfaces could be used to reflect light and reduce lighting requirements. The use of skylights can also reduce or eliminate the need for lighting. For exterior lighting, low-pressure sodium lamps require less energy than other types of outdoor lighting.

- Mechanical systems (HVAC) that use central plant equipment for heating or cooling could be computer-controlled to ensure maximum efficiency.

Thus, with compliance with Title 24, the increase in energy related to new and renovated buildings at SJC would not be "wasteful."

With respect to transportation-related energy consumption, one rough method to assess whether an increase in energy use would be "wasteful" is to compare the percentage increase in energy consumption with the predicted percentage increase in air passenger activity. Under the Project Case, total energy consumption associated with SJC would increase by approximately 18 percent, 63 percent, and 85 percent relative to existing conditions by Years 2000, 2005, and 2010, respectively. The corresponding increase in passengers would be 26 percent, 83 percent, and 118 percent. In other words, the energy consumed per air passenger would be expected to decrease in the future under the Project Case. As such, the increase in transportation-related energy would not be considered "wasteful."

Energy Consumption Impact: Increased operations of aircraft and Airport facilities, and project component construction activities would increase consumption of non-renewable energy resources. (LESS THAN SIGNIFICANT)

3.9.2.2 Project Case Alternative A

Energy Consumption Impacts

Changes in energy consumption under Project Case Alternative A would be similar in nature to those that would occur under the Project Case. Table 3.9.1 provides energy consumption rates under Project Case Alternative A and shows the net change in energy consumption under Project Case Alternative A versus existing conditions and the No Project Alternative. The increase in energy under Project Case Alternative A would be less than the criterion of 49,640 billion Btu per year for determining the consumption of large amounts of energy. Therefore, while the increase in energy consumption would be considered adverse because of the non-renewable nature of petroleum-based fuel, the corresponding effect would not be considered significant.

Like the Project Case, the energy consumed per air passenger under Project Case Alternative A would be expected to decrease in the future. Under Project Case Alternative A, total energy consumption associated with SJC would increase by approximately 18 percent, 35 percent, and 44 percent relative to existing conditions by Years 2000, 2005, and 2010, respectively. The

corresponding increase in passengers would be 26 percent, 46 percent, and 62 percent. As such, the increase in transportation-related energy would not be considered "wasteful."

3.9.2.3 Project Case Alternative B

Energy Consumption Impacts

Changes in energy consumption under Project Case Alternative B would be similar in nature to those that would occur under the Project Case. Table 3.9.1 compares energy consumption rates under Project Case Alternative B and shows the net change in energy consumption under Project Case Alternative B versus existing conditions and the No Project Alternative. The increase in energy under Project Case Alternative B would be less than the criterion of 49,640 billion Btu per year for determining the consumption of large amounts of energy. Therefore, while the increase in energy consumption would be considered adverse because of the non-renewable nature of petroleum-based fuel, the corresponding effect would not be considered significant.

Like the Project Case, the energy consumed per air passenger under Project Case Alternative B would be expected to decrease in the future. Under Project Case Alternative B, total energy consumption associated with SJC would increase by approximately 16 percent, 26 percent, and 29 percent relative to existing conditions by Years 2000, 2005, and 2010, respectively. The corresponding increase in passengers would be 26 percent, 44 percent, and 53 percent. As such, the increase in transportation-related energy would not be considered "wasteful."

3.9.2.4 No Project Alternative

Changes in energy consumption under the No Project Alternative would result only from increased operations at SJC. No energy consumption related to construction activity would occur. Table 3.9.1 compares energy consumption rates under the No Project Alternative and shows the net change in energy consumption under the No Project Alternative versus existing conditions. The increase in energy under the No Project Alternative would be less than the criterion of 49,640 billion Btu per year that is used for determining the consumption of large amounts of energy. Therefore, while the increase in energy consumption would be considered adverse because of the non-renewable nature of petroleum-based fuel, the corresponding effect would not be considered significant.

Like the Project Case, the energy consumed per air passenger under the No Project Alternative would be expected to decrease in the future. Under the No Project Alternative, total energy consumption associated with SJC would increase by approximately 14 percent, 13 percent, and 11 percent relative to existing conditions by Years 2000, 2005, and 2010, respectively. The corresponding increase in passengers would be 26 percent, 29 percent, and 33 percent. As such, the increase in transportation-related energy would not be considered "wasteful."

3.9.3 MITIGATION MEASURES FOR SIGNIFICANT ENERGY SUPPLY AND NATURAL RESOURCES IMPACTS

No significant impacts would occur as a result of any of the Project Case Alternatives. Therefore, no mitigation measures are required.

3.10 AESTHETICS

The aesthetic environment at SJC includes the overall visual character of the Airport and its surroundings, fixed views to and from the Airport, and moving views from travelers on adjacent roadways and scenic corridors such as U.S. 101. This section discusses the aesthetic environment at SJC and evaluates the effects of proposed project development on existing visual character and views to and from the site. Photographs of existing site conditions, as well as visual simulations of project components, are included.

3.10.1 SETTING AND EXISTING CONDITIONS

3.10.1.1 Visual Character

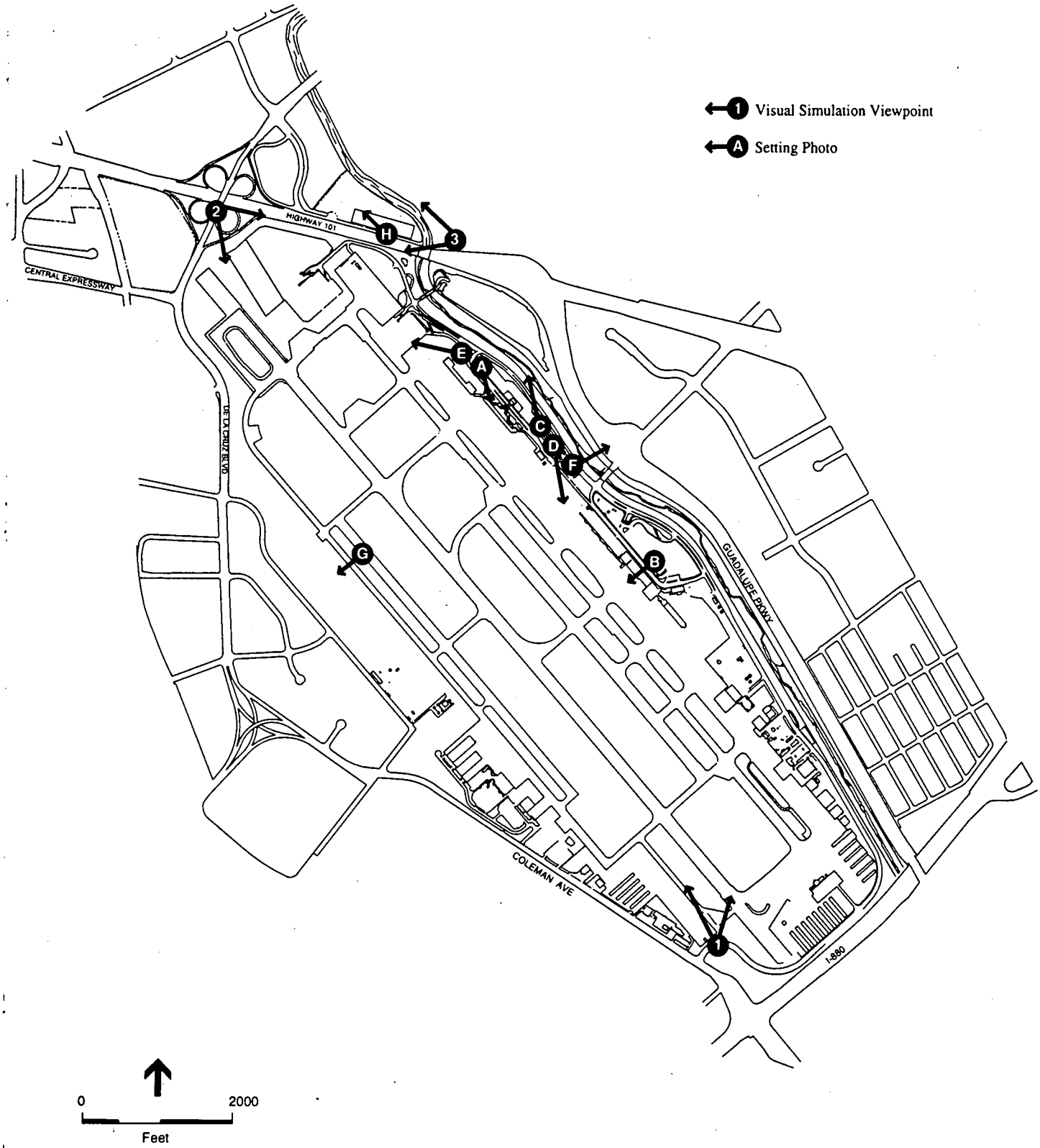
The Airport is located in an urbanized area of San Jose and Santa Clara County. The visual character of built-up portions of the Airport is typical of urbanized environments: a mix of low- to mid-rise commercial, public-use, and industrial buildings surrounded by large surface parking areas. The vicinity of SJC is characterized by low- to mid-rise office, commercial, and industrial structures to the west and north, a residential neighborhood across SR 87 and the Guadalupe River corridor to the east, and the vacant Airport Approach Zone properties to the south (often referred to as the "Coleman Loop"). U.S. 101, SR 87, and I-880 also are in close proximity to SJC.

The topography of SJC and the vicinity is generally flat, with the exception of levees that have been constructed along the Guadalupe River. The most significant features visible from SJC, and most of the Santa Clara Valley, are the surrounding mountains on three sides. The Diablo Range and Mount Hamilton lie to the east, and the Santa Cruz Mountains lie to the south and west. These mountains form an impressive backdrop to the valley, especially on clear days. The mountains are visible from most locations in and around SJC.

Figure 3.10.1 includes a key to the viewpoints shown and discussed in this section. The most notable visual features on the Airport are Terminal A and its adjacent parking garage (see Figure 3.10.2, Viewpoint A), Terminal C (see Figure 3.10.2, Viewpoint B), surface parking lots (see Figure 3.10.3, Viewpoints C and D), the 65-foot FAA Air Traffic Control Tower, the FAA's VOR navigational structure in the field adjacent to De La Cruz Boulevard, aircraft hangars, general aviation facilities, air cargo facilities (see Figure 3.10.4, Viewpoint E), and blast fences at the ends of Runway 12R-30L. Smaller support buildings are less visible, and runways and taxiways are scarcely visible from off-Airport locations. None of the existing structures at SJC have been designated by the City or other public agencies as having exceptional architectural merit.

In the vicinity of SJC, highly visible features include the ramps of the SR 87/U.S. 101 interchange, high-voltage PG&E transmission towers and lines on the east side of the Guadalupe River[1], and the multi-story buildings along Airport Parkway.

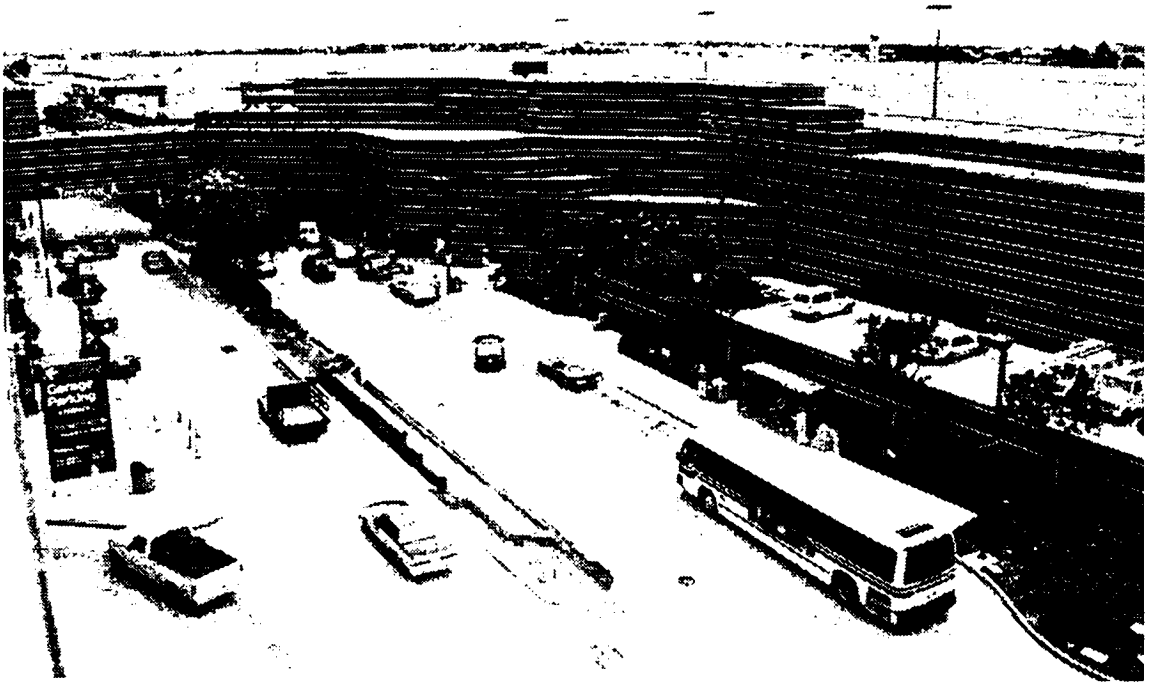
[1] The towers between I-880 and U.S. 101 are being relocated to the west side of the Guadalupe River in 1996 as part of the approved SR 87 Freeway Project.



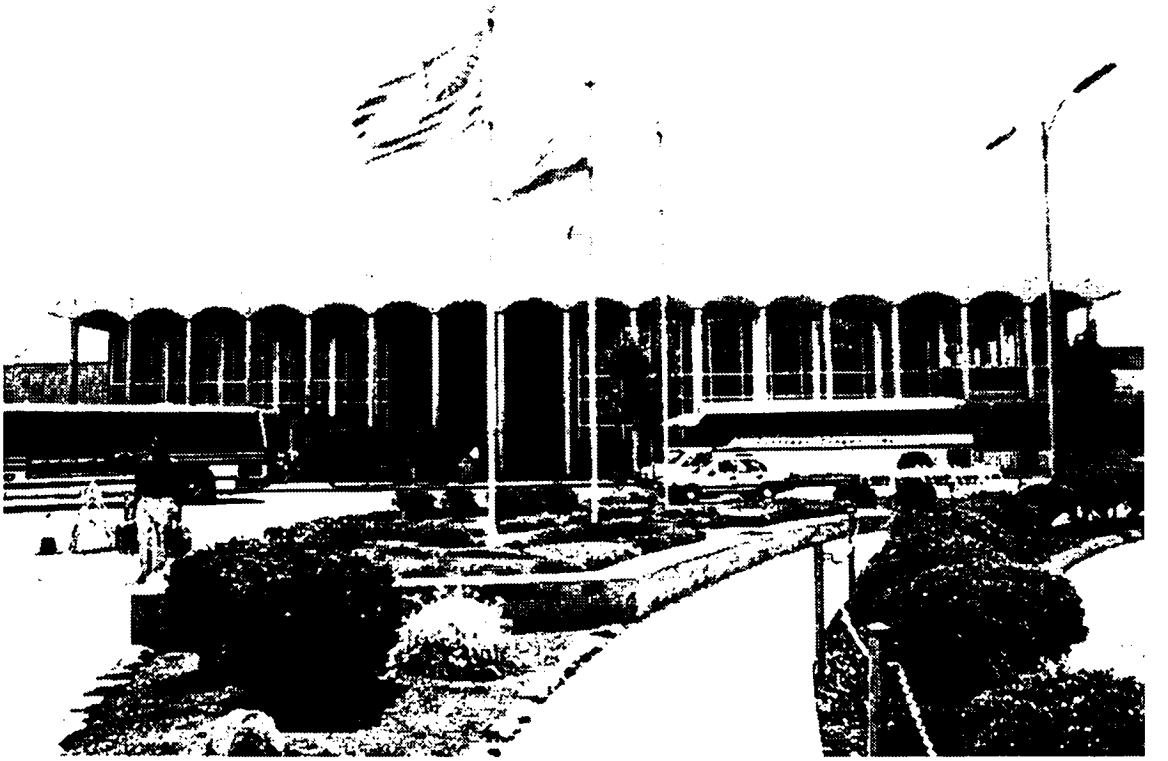
SOURCE: Environmental Science Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.10.1
Viewpoints at SJC



Viewpoint A - Terminal A and Terminal Drive from Terminal A Parking Garage

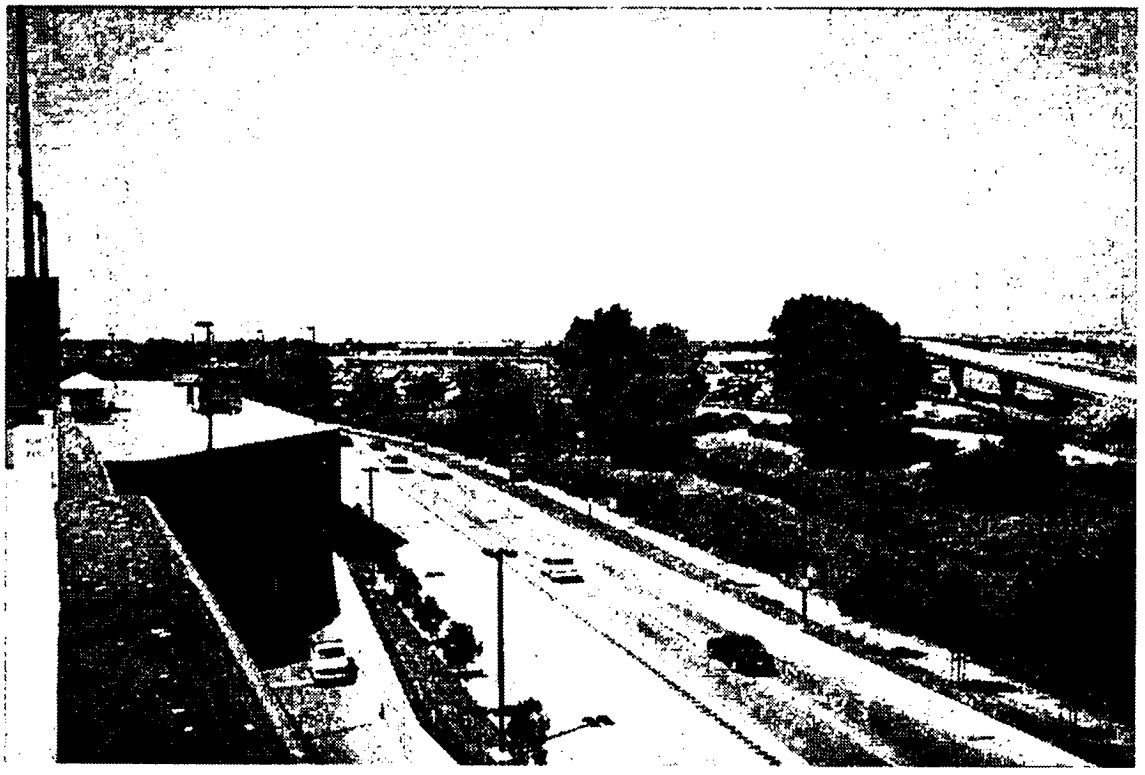


Viewpoint B - Terminal C and Terminal Drive from Terminal C Parking Lot

San Jose International Airport Master Plan Update / 940404 ■

SOURCE: Environmental Science Associates

Figure 3.10.2
Existing Visual Character of SJC



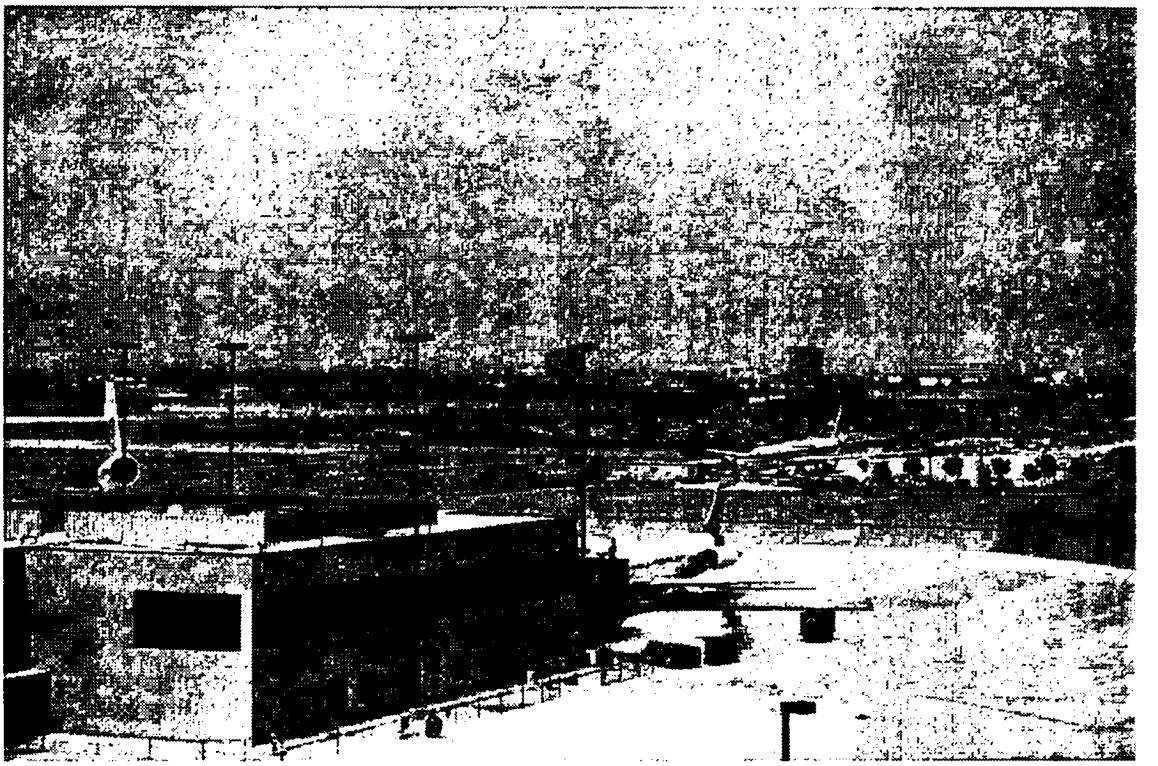
Viewpoint C - Airport Drive and Green Long-Term Parking Lot from Terminal A Parking Garage

Viewpoint D - Automobile and Aircraft Parking, Terminal Drive, and Terminal C from South End of Terminal A Parking Garage

SOURCE: Environmental Science Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.10.3
Existing Visual Character of SJC



Viewpoint E - Existing Gate Positions, Air Cargo Apron and Yellow Long-Term Parking Lot
Looking North from Terminal A Parking Garage

Viewpoint F - Guadalupe River North of Airport Parkway from Terminal A Parking Garage

San Jose International Airport Master Plan Update / 940404 ■

SOURCE: Environmental Science Associates

Figure 3.10.4
Existing Visual Character of SJC

While urban landscaping occurs in places, little natural vegetation exists on the Airport or its vicinity with the exception of the Guadalupe River corridor along the eastern boundary of the Airport (see Figure 3.10.4, Viewpoint F). Although vegetation has been removed from the corridor for flood control, the levees and banks support low riparian vegetation along both sides of the river, punctuated by occasional stands of trees. Open space on and in the vicinity of SJC is limited to the west side of the Airport north of the Control Tower (see Figure 3.10.5, Viewpoint G), the Airport parcel north of U.S. 101 (see Figure 3.10.5, Viewpoint H), the Airport Approach Zone to the south, and the Guadalupe River corridor.

3.10.1.2 Airport Views

The Airport can be seen from fixed viewpoints that are typically panoramic in scope, as well as in sequences from moving vehicles on adjacent roads. The Airport also affords views of the surrounding City and terrain of Santa Clara County. Both types of views include short-range, medium-range, and long-range views.

Short-range views of the Airport (views from a distance of one mile or less) are available from portions of Airport Boulevard, Terminal Drive, Guadalupe River, Coleman Avenue, Aviation Avenue, Martin Avenue, De La Cruz Boulevard, and U.S. 101 as follows.

- Airport Boulevard, on the east side of the Airport, affords views of landside facilities such as parking lots and structures, terminal buildings, airport support buildings and airside facilities such as runways, taxiways, hangars, aprons and aircraft. Views of structures and aircraft along Airport Boulevard and the airside facilities at the southeastern end of the Airport are partially screened by fencing, trees and shrubs, and lighting standards.

- Terminal Drive, a loop roadway off Airport Boulevard, provides views of Terminals A and C and associated parking structures and lots.

- Guadalupe River, a designated future trail corridor, provides limited foot trail access to the public. The river is parallel to and generally provides the same type of views as Airport Boulevard (described above).

- Coleman Avenue is adjacent to the southwestern portion of SJC from Airport Boulevard to Aviation Avenue. Along this part of Coleman Avenue, general aviation facilities and various leasehold buildings can be seen. Views of both landside and airside facilities along Coleman Avenue are partially screened by fencing and trees and shrubs planted along the road.

- Aviation Avenue, a small access road along a portion of the Airport's western border, provides access to and affords views of general aviation facilities including the San Jose Jet Center and Hewlett-Packard buildings.

- Martin Avenue is adjacent to the northwestern portion of the Airport and affords views of the FAA Control Tower, airfields, taxiways, and aircraft. Views of both landside and airside facilities along Martin Avenue are partially screened by fencing and trees and shrubs planted along the road.

Viewpoint G - Open Space Along Western Border of SJC

Viewpoint H - Undeveloped Parcel on the North Side of U.S. 101 South of De La Cruz Boulevard

San Jose International Airport Master Plan Update / 940404 ■

SOURCE: Environmental Science Associates

Figure 3.10.5
Existing Visual Character of SJC

- De La Cruz Boulevard provides intermittent at-grade and above-grade short-range views of the northwest end of the Airport including surface and structure parking, Terminal A, and airfield and airside facilities. Views of Airport facilities are partially screened by fencing.

- U.S. 101, which is a designated scenic highway, provides clear views (especially on elevated interchanges) of Terminal A, surface parking, and the cargo airline ramp. Airside facilities, including runways, taxiways and aircraft, can be seen intermittently.

Medium-range views of the Airport (views from a distance of one to two miles) are generally obstructed by existing buildings and other structures, except for views of arriving and departing aircraft. Because of the flat topography and the visual enclosure of the airfield by structures and landscaping, the Airport generally cannot be seen in long-range views (vantage points more than two miles distant from the site). Elevated viewpoints in the Diablo Range (points in Milpitas and San Jose) and the Santa Cruz Mountains (points in Cupertino and unincorporated Santa Clara County) are too distant (6 to 10 miles from SJC) to allow detailed views of Airport facilities.

Views from the Airport also can be classified as short-, medium-, and long-range. Short-range public views from the Airport are concentrated along Airport Boulevard and Terminal Drive. Terminals A and C provide fixed public views of the surrounding areas of the Airport. Airport Boulevard provides views of the Guadalupe River corridor. Terminal Drive and Terminals A and C include detailed views of aircraft and airfield facilities and activities.

Medium-range views from the Airport typically encompass large-scale structures in the vicinity such as multi-story office buildings, utility lines, and stands of trees. Long-range views from the Terminal A six-story parking structure encompass the Diablo foothills, downtown San Jose, Santa Cruz Mountains and portions of the Cities of Santa Clara and Milpitas. The second level of both Terminals A and C provide similar but less expansive views from gate holding areas and observation decks. The most prominent landform viewable in the project vicinity is the foothills of the Diablo Range, which trend north to south across the visual field, defining the horizon in easterly views.

3.10.1.3 Visual Receptors

Sensitive visual receptors in the Airport vicinity include residential neighborhoods, recreational trails, and scenic roadways. The only residential area within viewing range is the Rosemary Gardens neighborhood, located along the east side of SR 87 across the Guadalupe River from the Airport. The levee and treeline along the river obstruct most of the views of the Airport from the primarily single-story houses. In addition, the approved SR 87 Freeway project will remove the first row of houses closest to the Airport, most of which are unoccupied and are owned by the State. As part of the freeway improvements (before year 2000), a soundwall will be constructed behind the second row of houses that will block views of SJC from the neighborhood. The

freeway also will be elevated to the north end of the neighborhood, at the planned SR 87/Skyport Drive interchange, which will further block views of SJC from the neighborhood.

The only recreational trail in the Airport vicinity is on the levee of the Guadalupe River immediately east of Airport Boulevard. This trail provides pedestrians with a view of the east side of the Airport that includes general aviation facilities, Airport maintenance and airline support buildings, and the air passenger terminals and parking areas. This recreational trail does not exist north of U.S. 101. Therefore, no views of Airport property on the north side of U.S. 101 are available from any recreational trails.

The San Jose *General Plan* identifies three major urban throughways surrounding the Airport as designated scenic routes: U.S. 101, SR 87 (Guadalupe Parkway), and I-880. Views from U.S. 101 are described above. Views of the Airport from SR 87 are limited by the riparian vegetation and levee elevations along the Guadalupe River. Similarly, views of SJC from I-880 are obscured by intervening topography and man-made structures. The City recognizes these "Landscaped Throughways" as presenting views to the roadway users, especially where they are elevated. The *General Plan* contains policies to ensure a high standard of architectural treatment and landscaping along these routes. These policies are listed in Table 2.6.1 in Section 2.6, Plans and Policies.

3.10.1.4 Light and Glare

During the day, glare at SJC is primarily limited to reflections from windows, vehicles, and metallic or painted surfaces. FAA safety requirements prohibit any major source of glare from being present at the Airport. Substantial nighttime lighting exists at SJC to facilitate evening operations, to provide passenger and employee safety, and to maintain security. Lighting includes runway approach lighting, runway and taxiway lighting, outside building and garage lighting, and high level lighting in surface vehicle and aircraft parking areas and air cargo areas. A rotating green and white beacon light on top of the Terminal A parking garage is visible from the ground. All landing and departing aircraft have exterior running lights that are visible when on the ground and at low altitudes. Because SJC is located in an urbanized area, this nighttime lighting does not substantially intrude into nearby commercial areas. The closest residential neighborhood -- Rosemary Gardens -- is screened by the river levee and tree line and will be further screened by the Guadalupe Parkway sound wall in the future.

3.10.2 AESTHETICS IMPACTS

This section identifies the aesthetic impacts associated with the proposed Project Case Alternatives. Some of the specific project components, such as terminal buildings and parking garages with substantial mass and/or height, would have the potential to create adverse aesthetic impacts in and around the project area. The remainder of the projects, such as runway and taxiway improvements or surface parking, would have a very limited aesthetic impact due to their

low profile and similarity with the existing visual environment. Therefore, this discussion focuses only on those major project components that would create the potential for significant aesthetic impacts.

3.10.2.1 Aesthetic Impacts of the Project Case

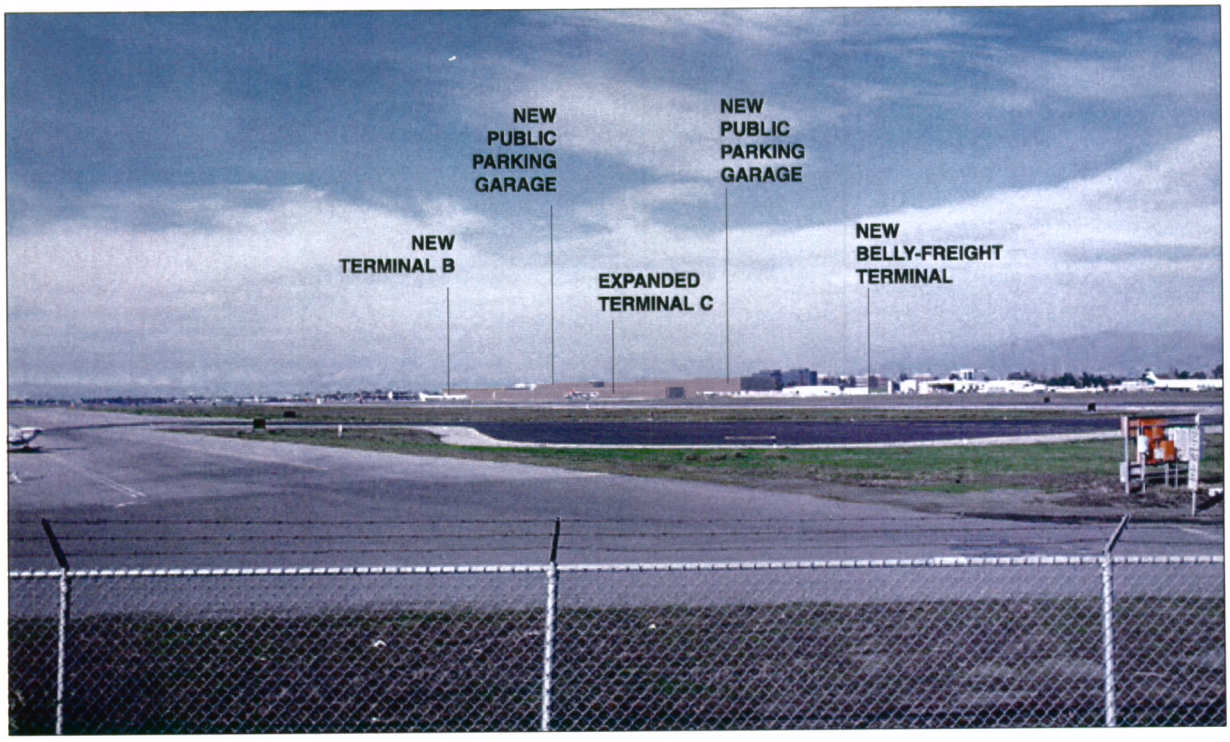
The Project Case includes approximately 70 specific project components that would occur during the three phases of development (see Section 2.3, Description of the Project Case and the Project Case Alternatives). For purposes of this impact analysis, these project components are divided into two categories: those with the potential to create significant aesthetic impacts, and those that would not create such impacts. Projects that would not create significant visual impacts at SJC include the following: 1) removal or replacement of existing pavement and/or structures to allow for replacement facilities; 2) changes to the taxiway and runway network; and 3) construction of small-scale support structures. These projects would not create significant visual impacts because they would be either maintaining or improving existing view corridors (removal projects), affecting surfaces that are currently not aesthetically significant (runway/taxiway projects), or constructing facilities with scales that are equal to or smaller than surrounding ones (support projects).

Airport South of U.S. 101 Altered Visual Character Impact

The construction or modification of large-scale structures at or in the vicinity of the Airport would have the potential to create aesthetic impacts. These structures include: 1) extension of the existing Runway 12R-30L 14-foot blast fences to accommodate the extension of the adjacent Runway 12L-30R; 2) three 8-level parking garages on the east side of the Airport (two for public parking and one for rental cars); 3) a 4-level employee parking garage on the west side of the Airport; 4) a new Terminal B; 5) a remodel and expansion of Terminal C; and 6) new air cargo buildings on the west side of the Airport. Figures 3.10.6 and 3.10.7 illustrate expected changes in views of the Airport resulting from development under the Project Case.

The overall change in views of the existing developed areas of the Airport from off-site locations would be comparable to the existing views of the urban context of the Airport. Development at the Airport would not block existing scenic views nor have demonstrable negative aesthetic effects. Views of the Guadalupe River and its riparian corridor would not be affected by development under the Project Case since vegetation associated with the river would continue to serve as a prominent visual edge for the eastern side of the Airport. Views from the recreational trail along the Guadalupe River would be altered by the development of new buildings at the Airport. Although the intensity of development at the Airport would increase due to an increase in the number and size of on-Airport structures, these structures would be similar in bulk and mass to some existing structures on the Airport and to structures that are present in the immediate vicinity.

3.10.6a. Existing View of Airport



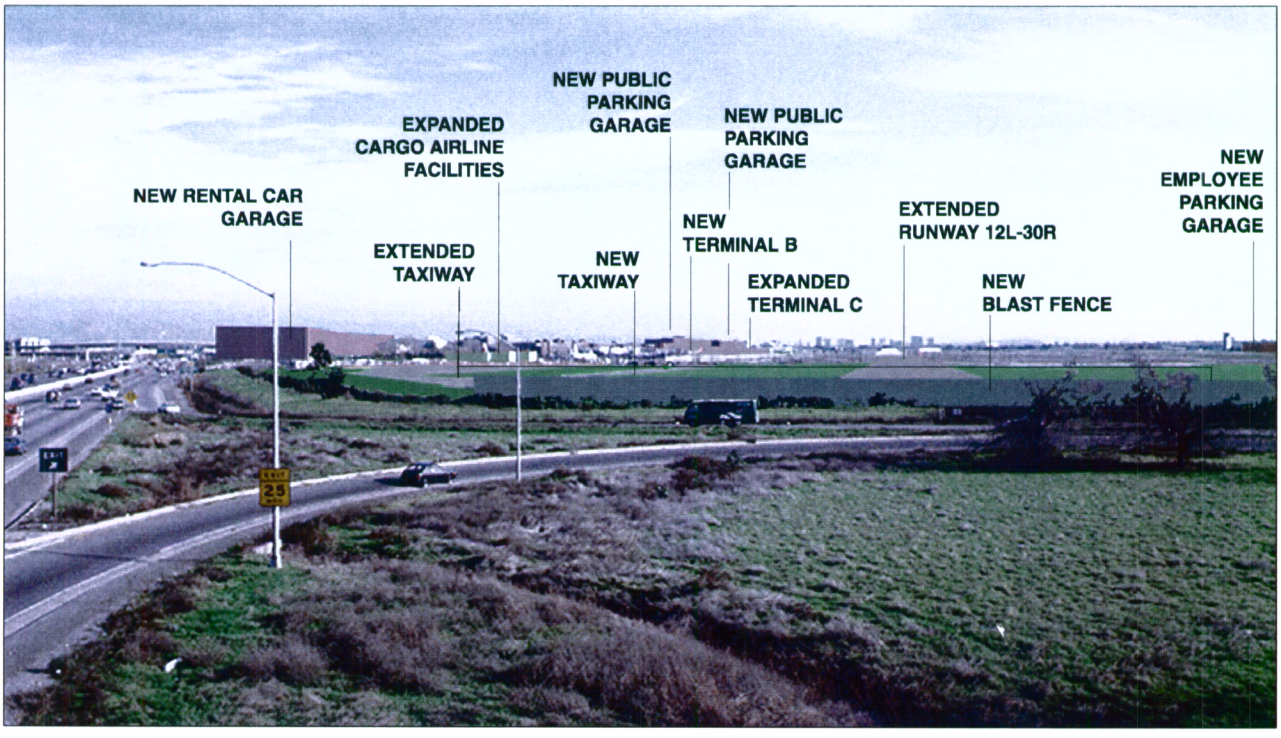
3.10.6b. Visual Simulation (1) of Airport at Full Buildout Under the Project Case

San Jose International Airport Master Plan Update / 940404 ■

SOURCE: Environmental Science Associates

Figure 3.10.6
Views of Airport Looking North from Airport Boulevard East of Coleman Avenue

3.10.7a. Existing View of Airport



3.10.7b. Visual Simulation (2) of Airport at Full Buildout Under the Project Case

SOURCE: Environmental Science Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.10.7
Views of Airport Looking Southeast from
De La Cruz Boulevard Overpass of U.S. 101

New or expanded multi-level structures would partially obstruct long-range panoramic views of the mountains surrounding the South Bay from on-Airport viewpoints. However, the extent of obstruction is not expected to be substantial, and the new and expanded structures would themselves provide viewpoints of the mountains.

For purposes of this project, a significant impact would occur if a project component would affect a scenic vista or scenic highway, or if the project component has a demonstrable negative aesthetic effect. None of the project components south of U.S. 101 would create a significant adverse aesthetic impact.

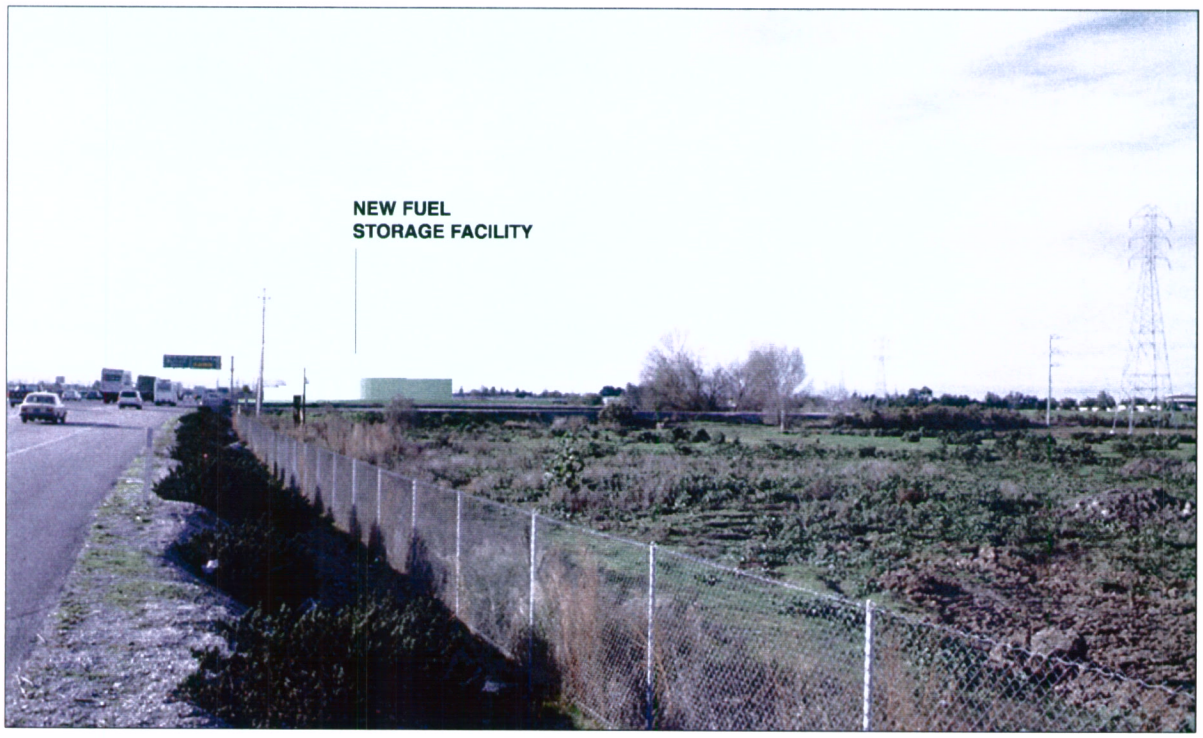
Airport South of U.S. 101 Altered Visual Character Impact: Construction of large-scale projects on the Airport would increase the intensity of development, but with limited effect on visual character. This development would be visually compatible with the existing urban character of the Airport and its vicinity. (LESS THAN SIGNIFICANT)

Fuel Storage Facility Site Altered Visual Character Impact

In addition to the project components being constructed south of U.S. 101, a new fuel storage facility would be constructed on a vacant parcel owned by the Airport on the north side of U.S. 101. Adjacent parcels include low-rise industrial development as well as undeveloped industrial land. The Guadalupe River borders one side of the parcel; however, no public views exist from the levee of the Guadalupe River at this location since no recreational trails exist along this portion of the Guadalupe River. During Phase 1, views of the site from U.S. 101 would be altered by construction of four 500,000-gallon storage tanks and associated support structures and pavement. The facility would be constructed adjacent to the highway approximately 800 feet from the end of the grade-separated structure connecting Guadalupe Parkway to U.S. 101. During Phases 2 and 3, four additional fuel storage tanks would be constructed at the facility, for a total capacity of 4.0 million gallons (see Figure 3.10.8).

Construction of the fuel storage facility would alter specific elements of views from U.S. 101, including their overall visual character and scenic resource value. Airport development has historically occurred on the south side of U.S. 101. Construction of the facility would introduce Airport-related industrial structures to the north side of the highway. The visual form of the fuel tanks (large, cylindrical metal structures up to 18 feet high and 70 feet in diameter) would contrast with the existing low-profile or undeveloped character of the site, adjacent properties, and the adjacent river. These changes could have a negative aesthetic effect on views from U.S. 101, a designated scenic highway. For purposes of this project, a significant impact would occur if a project component would affect a scenic vista or scenic highway, or if the project component has a demonstrable negative aesthetic effect.

3.10.8a. Existing View of Fuel Farm Site



3.10.8b. Visual Simulation (3) of Fuel Farm Site at Full Buildout Under the Project Case

SOURCE: Environmental Science Associates

San Jose International Airport Master Plan Update / 940404 ■

Figure 3.10.8

Views of Fuel Farm Site Storage Facility the Northbound Lanes of U.S. 101 North of the Guadalupe Parkway Interchange

Fuel Storage Facility Site Altered Visual Character Impact: Construction of the new fuel storage facility on the north side of U.S. 101 would alter the visual character of the area and affect views from a scenic highway. (SIGNIFICANT)

Light and Glare Impact

Increased ground vehicle traffic, aircraft traffic, and parking would result from additional aviation-related activity. The increase in ground vehicles and aircraft at the Airport, both moving and stationary, would generate additional glare during the day. At night, the increase in aircraft and vehicle operations would add to existing ambient illumination levels. However, the effects of light and glare on medium and long-range viewpoints would be ameliorated by distance as well as intervening structures and landscaping in the Airport vicinity. From short-range viewpoints beyond the Airport boundaries, the effects of light and glare would be reduced by existing and proposed structures, trees, and other vegetation landscape in the foreground. Sources of new stationary night lighting would include exterior and interior lighting for structures including the fuel storage facility, security lighting, parking lot lighting, and airfield lighting for runway and taxiway improvements. Runway and taxiway improvements would increase the area of the Airport illuminated at night but would not introduce new sources of high-intensity light emissions (e.g., strobe lights).

Some proposed project components would reduce existing light and glare at the Airport. The proposed parking garages would decrease light and glare currently emitted from surface parking areas along Airport Boulevard. Removal of surface parking lots also would reduce light and glare.

The levels of light and glare after project implementation would remain typical of existing commercial and industrial development in the vicinity of the Airport. All fixtures on the Airport site and at the fuel storage facility would be designed to direct light sources downward to prevent unnecessary light spillage. For purposes of this project, a significant impact would occur if a project creates new sources of light or glare. The Project Case would not create new sources of light and glare, based on the conclusions noted above.

Light and Glare Impact: Increases in aviation activity and construction of the proposed projects would result in limited changes to light and glare at SJC. Overall, the levels of light and glare would be comparable to existing conditions. (LESS THAN SIGNIFICANT)

3.10.2.2 Aesthetic Impacts of Project Case Alternative A

Aesthetic impacts associated with Project Case Alternative A would be similar to, but slightly less than, those discussed for the Project Case. See the discussion above for a detailed description of the aesthetic impacts associated with the Project Case, Section 3.10.2.1, above.

Airport South of U.S. 101 Altered Visual Character Impact

Project Case Alternative A would construct or modify several large-scale structures at the Airport. Construction of these projects would alter the visual character of the Airport somewhat less than the Project Case due to their reduced footprint or scale, as follows:

- smaller footprint for 8-level public and rental car parking garages;
- no employee parking garage; and
- smaller Terminals B and C.

As under the Project Case, these project components would not block existing scenic views or have demonstrable negative aesthetic effects. Although the intensity of development at the Airport would be greater than at present, these structures would be similar in bulk and mass. Construction of large-scale projects on existing developed areas of the Airport would increase the intensity of development, but with limited effect on visual character. This development would be compatible with the existing urban character of the Airport and its vicinity. As under the Project Case, this impact would be less than significant.

Fuel Storage Facility Site Altered Visual Character Impact

Project Case Alternative A also would construct a new fuel storage facility north of U.S. 101. A total of six tanks would be constructed in three phases rather than the eight proposed under the Project Case. However, construction of the facility could still alter specific elements in views from U.S. 101, including their overall character and scenic resource value. These changes could have a negative aesthetic effect on views from U.S. 101, a designated scenic highway, and would result in a significant aesthetic impact. See the discussion under the Fuel Storage Facility Site Altered Visual Character Impact for the Project Case, Section 3.10.2.1, above.

Light and Glare Impact

Impacts from light and glare would be similar under Project Case Alternative A to those of the Project Case and would be less than significant. The levels of light and glare after project implementation would remain typical of existing commercial and industrial development in the vicinity of the Airport. See the discussion under Light and Glare Impact under the Project Case, Section 3.10.2.1, above.

3.10.2.3 Aesthetic Impacts of Project Case Alternative B

Aesthetic impacts associated with Project Case Alternative B would be similar to, but slightly less than, those discussed for the Project Case. See the detailed discussion of the aesthetic impacts associated with the Project Case, Section 3.10.2.1, above.

Airport South of U.S. 101 Altered Visual Character Impact

Project Case Alternative B would construct or modify several large-scale structures at the Airport. A single, larger Terminal B would replace the two Terminal B and C structures proposed under the Project Case and Project Case Alternative A. Other project components would be reduced in scale, removed, or not constructed at all, as follows:

- 5-level rental car garage rather than 8-level;
- smaller footprint for 8-level public parking garage (Phase 2);
- 4-level public parking garage rather than 8-level (Phase 3);
- no employee parking garage;
- removal of portion of Terminal C;
- no development of air cargo facilities on the west side of the Airport; and
- no extension of blast fences since no extension of Runway 12L-30R would occur.

As under the Project Case, new construction would not block existing scenic views or have demonstrable negative aesthetic effects. The intensity of development at the Airport would be somewhat greater than existing, but these structures would be similar in bulk and mass. Construction of large-scale projects on existing developed areas of the Airport would increase the intensity of development, but with limited effect on visual character. This development would be compatible with the existing urban character of the Airport and its vicinity. As under the Project Case, this impact would be less than significant.

Fuel Storage Facility Site Altered Visual Character Impact

Project Case Alternative B also would construct a new fuel storage facility north of U.S. 101. A total of five tanks would be constructed in two phases rather than the eight proposed in three phases under the Project Case. However, construction of the facility could still alter the overall character and scenic resource value of views from U.S. 101, a designated scenic highway, and would result in a significant aesthetic impact. See the discussion of the Fuel Storage Facility Altered Visual Character Impact under the Project Case, Section 3.10.2.1, above.

Light and Glare Impact

Impacts from light and glare under Project Case Alternative B would be similar to but less than under the Project Case and would be less than significant. The levels of light and glare after project implementation would remain typical of existing commercial and industrial development in the vicinity of the Airport. See the discussion of Light and Glare Impact under the Project Case, Section 3.10.2.1, above.

3.10.2.4 Aesthetic Impacts of the No Project Alternative

The No Project Alternative would not result in any physical changes at the Airport. Therefore, no change in the existing visual character of the Airport or views from adjacent scenic highways would occur. However, under the No Project Alternative there would be some increase in air and

ground traffic over existing levels. This would lead to a minor increase in light and glare at SJC. In addition, construction of projects that would reduce sources of light and glare at the Airport, such as new parking garages that would eliminate exterior surface parking lot lighting and daytime reflections from vehicles along Airport Boulevard, would not occur.

3.10.3 MITIGATION MEASURES FOR SIGNIFICANT AESTHETICS IMPACTS

3.10.3.1 Mitigation for Fuel Storage Facility Site Visual Character Impacts

A visual screen will be incorporated into the final design of the fuel storage facility. The visual screen will extend around the perimeter of the fuel storage facility site as part of the Phase 1 development. With this screen, any visual contrast between the fuel storage facility site and adjacent uses will be minimized. Although the top of the storage tanks may still be visible from vehicles on U.S. 101, the view will be similar to the existing industrial and commercial development that borders the highway in this area.

Mitigation Measure: The new fuel storage facility will be designed so that the above-ground storage tanks are screened to the highest degree practicable from U.S. 101 and the adjacent uses. Screening may include the following actions: landscaping, berming, and/or construction of walls or facades. (APPLICABLE TO ALL PROJECT CASE ALTERNATIVES)

Impact Significance Conclusion: Implementation of the above mitigation will reduce the identified aesthetic impact. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.11 PUBLIC SERVICES AND UTILITIES

The increase in air passenger and air cargo operations and the related expansion of Airport facilities would result in an increased demand for public utilities and services at the Airport. The types of public utilities include water, wastewater, stormwater drainage, solid waste disposal, electricity, natural gas, and communications. The impacts to each of these utilities, except for stormwater drainage, are presented in this section of this EIR. For a discussion of stormwater drainage, please see Section 3.6.

The demand for public services, such as fire protection and police protection also could increase. Unlike public utilities, public services are provided to the community as a whole. Usually new development creates an incremental increase in the demand for these public services and the impact of a particular project is generally related to the fiscal impact of providing these public services. CEQA does not require an analysis of fiscal impacts. However, project impacts associated with the increased demand for fire protection and police protection services at the Airport are discussed in this section. The costs of providing these services to the Airport are paid by the Airport Enterprise Fund.

3.11.1 SETTING AND EXISTING CONDITIONS

3.11.1.1 Water Supply

The San Jose Water Company purchases and supplies water to the Airport. The three current water supply sources are local groundwater, water imported by the Santa Clara Valley Water District, and water from the Hetch-Hetchy system. In 1997, recycled water also will be available at SJC. Water is delivered to SJC via steel mains owned by the City of San Jose and is distributed to the Airport through branch lines (Bariteau, 1995). Current water use at SJC is approximately 91,230 gallons per day (gpd).[1] In order to reduce water usage, the Airport has implemented several water conservation programs that include landscaping with drought-tolerant plants, electronically-controlled faucets and toilets, new low-flow toilets, and water reuse systems.

3.11.1.2 Wastewater

The San Jose / Santa Clara Water Pollution Control Plant (WPCP), which is at the southern tip of San Francisco Bay, provides treatment and disposal of sanitary and industrial wastewater for San Jose and surrounding communities. The WPCP has a design capacity of 167 million gallons per day (mgd) and provides "advanced" or tertiary treatment of wastewater. Current average dry weather flow to the WPCP is approximately 120 mgd, two-thirds of which originates in the City of San Jose (Garner, 1995). The wastewater treated at the WPCP meets federal and State regulations regarding wastewater quality and disposal. The wastewater system at the Airport includes a ten-inch line that serves the east side of the Airport and a separate ten-inch line that

[1] Existing and future water demand was estimated by using 4 gpd per passenger as the generation factor. This factor was determined using industry standards and in consultation with SJC (Metcalf & Eddy, Inc., 1991; Welch, 1995).

serves the west side of the Airport. These lines, which serve only Airport users, merge north of the Airport into a twelve-inch line that feeds into a 24-inch line along Trimble Road. The capacity of these lines is 1.2 mgd (Welch, 1996). Current wastewater generated at SJC is estimated to be approximately 57,600 gallons per day.[2]

3.11.1.3 Solid Waste

The City of San Jose contracts with GreenTeam of San Jose to collect garbage and rubbish for the Airport, including the terminal buildings. The Airport contracts for the removal of recyclable materials. Certain tenants and airlines have independent solid waste disposal contracts to accommodate their special needs. Two passenger airlines with service at SJC, Southwest and American, have independent contracts for the removal of recyclable materials. The City's current solid wastestream at SJC is approximately 2,685 tons per year (Ameele, 1995). Solid waste at SJC is characterized by relatively large amounts of food waste and cardboard. Food waste includes all food-contaminated paper, drink cups and styrofoam products from the numerous vendors in the terminals and onboard food/beverage service of the airlines. Of the total wastestream, about 6 percent, or 161 tons per year, is recycled. Between 50 percent and 80 percent of recyclable materials are currently being diverted from the wastestream (Ameele, 1995).

Solid waste leaving the Airport primarily is transported to Newby Island, a landfill in north San Jose that is one of the six landfills that operate in Santa Clara County (Guadalupe Landfill, Kirby Canyon Recycling and Disposal Facility, Newby Island Landfill, Pacheco Pass Sanitary Landfill, Palo Alto Landfill, and Zanker Road Landfill). As of 1995, the total permitted capacity remaining at these landfills is approximately 91.5 million cubic yards, which is expected to last until sometime between 2025 and 2036 (depending on the specific landfill) (County of Santa Clara, 1995).

The California Integrated Waste Management Act of 1989, also known as Assembly Bill 939 (AB 939), establishes goals for all California communities to divert 25 percent of all solid waste from landfills by 1995, and 50 percent by 2000. The City of San Jose has prepared a Source Reduction and Recycling Element (SRRE) that includes a solid waste management program to meet the bill's mandated goals. The goal is to be accomplished by source reduction, expanded recycling efforts, composting, and public education.

[2] Existing and future wastewater generation was estimated by using 3 gpd per passenger as the generation factor. This factor was determined using industry standards and in consultation with SJC (Metcalf & Eddy, Inc., 1991; Welch, 1995).

3.11.1.4 Gas, Electrical, and Communications Services

Electrical and natural gas service to the Airport is supplied by Pacific Gas and Electric Company (PG&E). Currently, PG&E provides electrical service through three different 12-kilovolt feeders that serve various parts of the Airport as well as other surrounding development. Gas service is provided by a 4-inch gas main under Airport Boulevard (Nevoli, 1996). According to PG&E, the existing demand for gas and electricity at SJC is adequately met.

Pacific Bell currently provides the telephone communication infrastructure at SJC with fiber optic and copper lines. According to Pacific Bell, SJC communication needs are adequately met at this time and existing infrastructure is at 50 percent of capacity (McGrath, 1995).

3.11.1.5 Fire Protection and Emergency Medical Aid

Fire protection and emergency medical aid services for the Airport are provided by the City of San Jose. City Fire Station 20, which is on the east side of the Airport, is dedicated for Airport fire protection and other emergency services. Station 20 is currently staffed 24 hours per day, with six on-duty firefighters per shift, and houses three firefighting and rescue vehicles. The Airport is required to comply with Federal Aviation Regulations (FAR) Part 139, which sets forth requirements and performance standards for aircraft rescue and firefighting. Under FAR Part 139, air carrier airports have an Aircraft Rescue and Fire Fighting (ARFF) index rating that mandates minimum levels of firefighting foam material availability and application rates based on aircraft fleet mix and operations volume. Although the current FAR Part 139 rating for SJC is "Index C," personnel and equipment at Station 20 are currently staffed at the higher-level "Index D."[3]

Station 20 staff also provide basic emergency medical services to SJC with a response time of three minutes. Paramedic ambulance services are available from Station 1, which is at 201 North Market Street, with a response time ranging from four to nine minutes (McMillan, 1995). Since August 1996, the San Jose Fire Department has had one paramedic on duty at each of the 30 fire stations, including Station 20.

Airborne transport plays a vital role in the transport of people and material to and from areas that have been subject to disasters (e.g., earthquake, floods, etc.) and in search and rescue, damage assessment, and many other emergency response efforts. The Airport's importance as one of the primary airports in the Bay Area would be greatly heightened in the event of a major earthquake. Emergency preparedness planners have determined that San Francisco International Airport, Metropolitan Oakland International Airport, and Alameda Naval Air Station are expected to be

[3] Index D requires an airport firefighting unit to have three vehicles. One vehicle would be required to carry at least 500 pounds of sodium-based dry chemical or halon 1211 or 450 pounds of potassium-based dry chemical and water with a commensurate quantity of AFFF for foam production. Two vehicles would be required to carry an amount of water and the commensurate quantity of AFFF so that the total quantity of water for foam production carried by all three vehicles is at least 4,000 gallons.

closed for over three days in the event of a major earthquake since they are built entirely on bay fill. Only SJC and Moffett Federal Airfield are expected to remain open for limited use for major airborne relief operations (e.g., C-141 aircraft and massive logistics) (California Division of Mines and Geology, 1984).

3.11.1.6 Police Protection

Airport security needs are provided primarily by the City of San Jose Police Department (SJPD) with support services provided by private security firms contracted by the City and tenants of the Airport. The SJPD includes an Airport Division, which is based on-site, that includes approximately 35 sworn officers providing 24 hour per day coverage (Winters, 1995). The Airport is required to comply with FAR Part 107 and FAR Part 139, which set forth requirements and performance standards for airport security, including passenger and baggage screening.

3.11.2 PUBLIC SERVICES AND UTILITIES IMPACTS

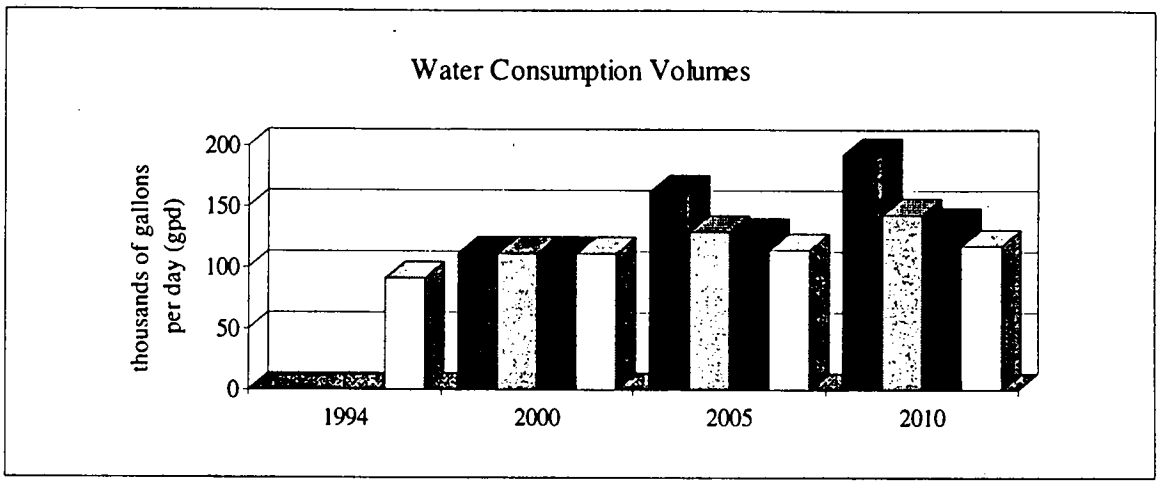
Public services and utilities impacts associated with the Master Plan Update can be thought of as changes in the demand for public services and utilities and the ability of the service providers to accommodate the changes in demand. Public services and utilities impacts under the Master Plan Update correlate most closely with expected increases in two Airport activities: (1) passenger levels; and (2) aircraft operations. In the former instance, the increase in the demand for public services and utilities is related to the increase in the number of passengers under each Project Case Alternative. In the latter instance, the increase in aircraft operations, particularly wide-bodied aircraft, would result in FAA-required changes to the fire protection and emergency response services at the Airport. This section first identifies and analyzes impacts of the Project Case. The section then identifies and compares impacts of Project Case Alternatives A and B with the Project Case, followed by impacts of the No Project Alternative.

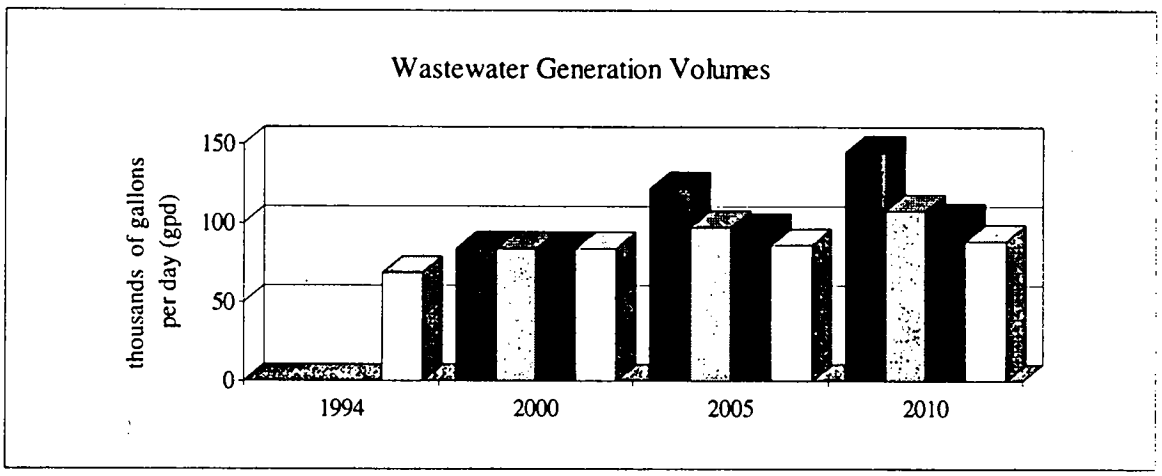
3.11.2.1 Project Case

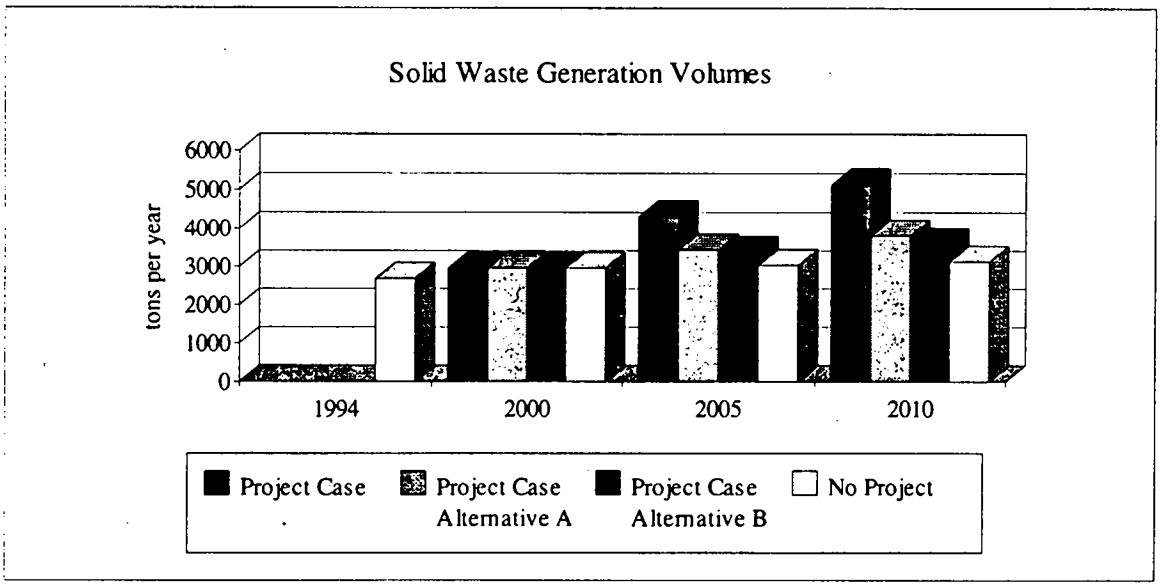
Water Service Impacts

Figure 3.11.1 illustrates existing and future water consumption levels for 2000, 2005 and 2010. Projected water demand is based on estimated future passenger volumes. The projected daily demand for water in the year 2010 at the Airport is approximately 193,100 gallons. According to the Santa Clara Valley Water District and the San Jose Water Company, water consumption at SJC under the Project Case could be accommodated by expected future water supplies and existing infrastructure assuming adequate fire flow demands (Molnar, 1995, Bariteau, 1995).

For purposes of this EIR, a significant impact would occur if the project resulted in a demand for water that could not be met by the capacity of the existing water supply system or resulted in a wasteful use of water.







San Jose International Airport Master Plan Update / 940404 ■

SOURCE: Environmental Science Associates

Figure 3.11.1
Existing (1994) and Future Water, Wastewater, and Solid Waste Volumes

For this project, the increase in water usage would be proportionate to the increase in Airport activities. The demand for water under the Project Case can be accommodated without alteration of the existing water supply, treatment or distribution systems.

Existing water conservation practices and policies would continue to be a feature of any new Airport facilities constructed as part of the Project Case. Therefore, the project would not result in the wasteful use of water at SJC.

Water Service Impact: The increase in passenger activity at SJC would result in increased water consumption at SJC. (LESS THAN SIGNIFICANT)

Wastewater Service Impacts

Figure 3.11.1 illustrates existing and future base wastewater generation volumes for 2000, 2005 and 2010. Projected wastewater volumes are based on estimated future passenger volumes. The projected daily volume of wastewater generated at the Airport in the year 2010 is approximately 144,900 gallons. For purposes of this EIR, a significant impact would occur if the project resulted in a demand for wastewater treatment that could not be met by the capacity of the existing wastewater treatment plant.

According to the San Jose / Santa Clara WPCP, wastewater generation under the Project Case would remain within the capacity of the sanitary sewer treatment plant (Garner, 1996). In addition, the existing wastewater lines at SJC, which have the capacity to accommodate 1.2 mgd, have been sized for future development and can accommodate flows generated under the Project Case (Welch, 1995). Therefore, no extension of sewer trunk lines would be required, and wastewater generation would not affect the level of service of the City's sewer lines. Thus, wastewater generation under the Project Case can be accommodated without alteration of the existing sewer system.

Wastewater Service Impact: The increase in passenger activity at SJC would result in increased wastewater generation at SJC. (LESS THAN SIGNIFICANT)

Solid Waste Service Impacts

Figure 3.11.1 illustrates existing and future solid waste generation in 2000, 2005 and 2010.[4] The projected annual and daily generation of solid waste at the Airport in the year 2010 is approximately 5,120 tons and 14 tons, respectively. This would be less than 0.5 percent of the projected Countywide solid waste stream for the year 2010 (Santa Clara County, 1995). Assuming the continuation of existing practices, recycling at the Airport would divert approximately 10 percent of its total waste stream (Ameele, 1995). For purposes of this EIR, a

[4] Future solid waste generation was determined using the percentage increase of existing versus future passenger activity minus a future 10 percent recycling rate determined by SJC staff (Ameele, 1995).

significant impact would occur if the project resulted in a demand for solid waste services that could not be met by the capacity or significantly limit the life of existing landfills. In addition, a significant impact would occur if the project does not meet State standards for solid waste diversion.

The City is required to comply with the California Integrated Waste Management Act. Currently the City is reviewing all of its departments, including the Airport, for development of a program that will satisfy State waste diversion requirements on a City-wide basis. Given the available landfill capacity and the City's overall efforts to promote recycling, any increase in solid waste generated at the Airport would not violate State standards related to solid waste diversion.

Solid Waste Service Impact: The increase in passenger activity at SJC would result in increased solid waste generation at SJC. (LESS THAN SIGNIFICANT)

Energy Transmission and Distribution Impact

Under the Project Case, electricity and natural gas demand at SJC would increase in rough proportion to the overall increase in building space. This increase in demand could potentially exceed the capacity of the local distribution infrastructure. Service to existing facilities that depend upon the electricity and natural gas from the local infrastructure could be adversely affected if demand were to approach or exceed capacity. For purposes of this EIR, a significant impact would occur if the project resulted in a demand for energy that could not be met by the capacity of the existing transmission and distribution system.

On inquiry, PG&E stated that no assessment could be made with respect to the effect of the Project Case on the local natural gas infrastructure without detailed design information (Nevoli, 1996). With respect to electricity, PG&E indicates that the increased demand would be met but that, to do so, PG&E would have to expand the capacity of either of the two substations that provide power for uses at SJC would need to be increased (Nevoli, 1996). Due to anticipated area-wide growth in demand, PG&E has plans to expand its capacity in the service area.

Energy Transmission and Distribution Impact: Because of the planned capacity improvements by PG&E, the capacity of the local distribution system would accommodate the increase in electricity and natural gas demand at SJC. (LESS THAN SIGNIFICANT)

Demand for Telephone Service Impact

The increase in passenger activity that would occur under the Project Case would result in an increase in the demand for telephone services at SJC. Pacific Bell has indicated that adequate capacity exists to accommodate any increase in the demand for telephone service at SJC (McGrath, 1995).

Demand for Telephone Service Impact: The increase in passenger activity at SJC would result in increased demand for telephone service at SJC. (LESS THAN SIGNIFICANT)

Fire Protection and Emergency Services Impacts

The projected growth in air carrier operations, particularly by wide-bodied aircraft, would elevate the Airport's FAR Part 139 ARFF requirement from "Index C" to "Index D" by the year 2000. The ARFF requirement would remain at "Index D" through the year 2010. Because the Airport had been at "Index D" for a period of time during the early 1990s (due to the American Airlines hub operation), the equipment and materials currently available at Station 20 already meet "Index D" requirements. Airport records of ARFF drills also show that Station 20 meets the response time capabilities mandated under FAR Part 139. As Station 20 would remain at its current location, and as the additional airfield facilities proposed by the Project Case would not change average response distance, the Airport's ability to comply with the response time requirements of FAR Part 139 would not be affected.

The increase in use of the Airport (aircraft operations, passenger activity, and air cargo activity) and the construction of new facilities (i.e., new and expanded terminal facilities, new cargo facilities, etc.) would affect the San Jose Fire Department's (SJFD) ability to respond to emergency medical service calls at SJC. SJFD estimates that the response time to all portions of the Airport would increase from 3.0 minutes to 3.8 minutes due to the expansion of the physical area requiring service (Fujczak, 1996). This response time, which is determined by an average of the shortest and longest distances in the mandated service area of Station 20, is 0.2 minutes under the established minimum service goal of four minutes. Therefore, no alteration in emergency medical services would result from the Project Case.

An extended Runway 12L-30R would be beneficial under emergency conditions, especially if one runway were to be damaged and unusable. Having two runways for use during emergencies would increase the likelihood that SJC would be available for use for major airborne relief operations.

Fire Protection and Emergency Services Impact: This is not considered to be an environmental or physical impact. However, new structures and growth in passenger and air cargo activity would generate additional demand for fire protection and emergency medical services at the Airport and would be met by existing services.

Police Protection Service Impacts

The development proposed by the Project Case, particularly the additional terminal building facilities, security checkpoints, and passenger activity, likely would require additional police and security service resources before the year 2010 to maintain FAR Part 107 and FAR Part 139

compliance. However, those additional on-site resources would be provided as part of the project and would not alter police protection service levels as required by federal law.

Police Protection Service Impact: This is not considered to be an environmental or physical impact. However, new structures and growth in passenger and air cargo activity would generate additional demand for police protection services at the Airport and would be met by the Airport.

Disruption of Utilities (Construction Impact)

Local deliveries of water, wastewater, gas and electricity to the Airport could be temporarily affected by the disruption and/or relocation of utility lines in the immediate vicinity of any construction requiring subsurface work. The utility lines that could be temporarily disrupted or relocated would be identified during the design of the new facilities. However, this would not require substantial alteration to existing utility lines.

Disruption of Utilities Impact (Construction Impact): Existing water, wastewater, gas and electrical utility lines could be disrupted and/or relocated during construction of proposed project components requiring subsurface work. (LESS THAN SIGNIFICANT)

3.11.2.2 Project Case Alternative A

Water Service Impacts

Figure 3.11.1 illustrates existing and future water consumption levels for 2000, 2005 and 2010 under Project Case Alternative A. The projected daily demand for water in the year 2010 at the Airport is approximately 143,600 gallons, which is about 25 percent less than the demand anticipated under the Project Case. As under the Project Case, water consumption at SJC under Project Case Alternative A could be accommodated by expected future water supplies and existing infrastructure assuming adequate fire flow demands. See the discussion under Water Service Impact under the Project Case, Section 3.11.2.1, above.

Wastewater Service Impacts

Figure 3.11.1 illustrates existing and future base wastewater volumes for 2000, 2005 and 2010 under Project Case Alternative A. The projected daily volume of wastewater generated at the Airport in the year 2010 is approximately 107,700 gallons, which is about 25 percent less than the demand anticipated under the Project Case. According to the San Jose / Santa Clara WPCP, wastewater generation under Project Case Alternative A would remain within the capacity of the sanitary sewer treatment plant and the existing wastewater lines at SJC would have the capacity to accommodate projected flows. Thus, wastewater generation under Project Case Alternative A can be accommodated without alteration of the existing sewer system. See the discussion under Wasewater Service Impact under the Project Case, Section 3.11.2.1, above.

Solid Waste Service Impacts

Figure 3.11.1 illustrates existing and future solid waste generation in 2000, 2005 and 2010 under Project Case Alternative A. The projected annual and daily generation of solid waste at the Airport in the year 2010 is approximately 3,800 tons and 10.4 tons, respectively. This is approximately 25 percent less than the amount of solid waste expected to be generated under the Project Case. As with the Project Case, this would be less than 0.5 percent of the Countywide solid waste stream in the year 2010. Given the available landfill capacity and the City's overall efforts to promote recycling, any increase in solid waste generated at the Airport would not violate State standards related to solid waste control. See the discussion under Solid Waste Service Impact under the Project Case, Section 3.11.2.1, above.

Energy Transmission and Distribution Impact

As with the Project Case, electricity and natural gas demand at SJC under Project Case Alternative A would increase in rough proportion to the overall increase in building space. This increase in demand could potentially exceed the capacity of the local distribution infrastructure. Service to existing facilities that depend upon the electricity and natural gas from the local infrastructure could be adversely affected if demand were to approach or exceed capacity.

On inquiry, PG&E stated that no assessment could be made with respect to the effect of the Project Case on the local natural gas infrastructure without detailed design information (Nevoli, 1996). With respect to electricity, PG&E indicates that the increased demand would be met but that, to do so, PG&E would have to expand the capacity of either of the two substations that provide power for uses at SJC (Nevoli, 1996). Due to anticipated area-wide growth in demand, PG&E has plans to expand its capacity in the service area.

Demand for Telephone Service Impact

As under the Project Case, the increase in passenger activity that would occur under Project Case Alternative A would result in an increase in the demand for telephone services at SJC. Pacific Bell indicated that adequate capacity exists to accommodate any increase in the demand for telephone service at SJC. See the discussion under Demand for Utilities under the Project Case, Section 3.11.2.1, above.

Fire Protection and Emergency Services Impacts

The increase in demand for fire protection services at SJC under Project Case Alternative A would be similar to that described for the Project Case. Station 20 would remain at its current location, and as the additional airfield facilities proposed by the Project Case would not change average response distance, the Airport's ability to comply with the response time requirements of

FAR Part 139 would not be affected. See the discussion under Fire Protection Service Impact under the Project Case, Section 3.11.2.1, above.

Runway 12L-30R would be extended under Project Case Alternative A. The length of the expanded runway would be 8,900 feet, which is shorter than the expanded runway proposed under the Project Case (11,050 feet). However, the extended runway under Project Case Alternative A also would be beneficial under emergency conditions especially if one runway were to be damaged and unusable. Having two runways for use during emergencies would increase the likelihood that SJC would be available for use for major airborne relief operations.

Police Protection Service Impacts

The increase in demand for police protection services at SJC under Project Case Alternative A would be similar to that described for the Project Case. The additional on-site police protection resources would be provided as part of the project and would not alter police protection service levels as required by federal law. See the discussion under Police Protection Service Impact under the Project Case, Section 3.11.2.1, above.

Disruption of Utilities (Construction Impact)

The potential for disruption of utility lines under Project Case Alternative A would be similar to that described for the Project Case. The utility lines that could be temporarily disrupted or relocated would be identified during the design of the new facilities. However, this would not require substantial alteration to existing utility lines. See the discussion under Disruption of Utilities (Construction Impact) under the Project Case, Section 3.11.2.1, above.

3.11.2.3 Project Case Alternative B

Water Service Impacts

Figure 3.11.1 illustrates existing and future water consumption levels for 2000, 2005 and 2010 under Project Case Alternative B. The projected daily demand for water in the year 2010 at the Airport is approximately 135,900 gallons, which is about 30 percent less than the demand anticipated under the Project Case. As under the Project Case, water consumption at SJC under Project Case Alternative B could be accommodated by expected future water supplies and existing infrastructure assuming adequate fire flow demands. See the discussion under Water Service Impact under the Project Case, Section 3.11.2.1, above.

Wastewater Service Impacts

Figure 3.11.1 illustrates existing and future base wastewater volumes for 2000, 2005 and 2010 under Project Case Alternative B. The projected daily volume of wastewater generated at the

Airport in the year 2010 is approximately 101,900 gallons, which is about 30 percent less than the demand anticipated under the Project Case. According to the San Jose / Santa Clara WPCP, wastewater generation under Project Case Alternative B would remain within the capacity of the sanitary sewer treatment plant and the existing wastewater lines at SJC would have the capacity to accommodate projected flows. Thus, wastewater generation under Project Case Alternative B can be accommodated without alteration of the existing sewer system. See the discussion under Wasewater Service Impact under the Project Case, Section 3.11.2.1, above.

Solid Waste Service Impacts

Figure 3.11.1 illustrates existing and future solid waste generation in 2000, 2005 and 2010 under Project Case Alternative B. The projected annual and daily generation of solid waste at the Airport in the year 2010 is approximately 3,600 tons and 9.9 tons, respectively. This is approximately 30 percent less than the amount of solid waste expected to be generated under the Project Case. As with the Project Case, this would be less than 0.5 percent of the Countywide solid waste stream in the year 2010. Given the available landfill capacity and the City's overall efforts to promote recycling, any increase in solid waste generated at the Airport would not violate State standards related to solid waste control. See the discussion under Solid Waste Service Impact under the Project Case, Section 3.11.2.1, above.

Energy Transmission and Distribution Impact

As with the Project Case, electricity and natural gas demand at SJC under Project Case Alternative B would increase in rough proportion to the overall increase in building space. This increase in demand could potentially exceed the capacity of the local distribution infrastructure. Service to existing facilities that depend upon the electricity and natural gas from the local infrastructure could be adversely affected if demand were to approach or exceed capacity.

On inquiry, PG&E stated that no assessment could be made with respect to the effect of the Project Case on the local natural gas infrastructure without detailed design information (Nevoli, 1996). With respect to electricity, PG&E indicates that the increased demand would be met but that, to do so, PG&E would have to expand the capacity of either of the two substations that provide power for uses at SJC would need to be increased (Nevoli, 1996). Due to anticipated area-wide growth in demand, PG&E has plans to expand its capacity in the service area.

Demand for Telephone Service Impact

As under the Project Case, the increase in passenger activity that would occur under Project Case Alternative B would result in an increase in the demand for telephone services at SJC. Pacific Bell has indicated that adequate capacity exists to accommodate any increase in the demand for telephone service at SJC. See the discussion under Demand for Utilities under the Project Case, Section 3.11.2.1, above.

Fire Protection and Emergency Services Impacts

The increase in demand for fire protection services at SJC under Project Case Alternative B would be similar to that described for the Project Case. Station 20 would remain at its current location, and as the additional airfield facilities proposed by the Project Case would not change average response distance, the Airport's ability to comply with the response time requirements of FAR Part 139 would not be affected. See the discussion under Fire Protection Service Impact under the Project Case, Section 3.11.2.1, above.

Runway 12L-30R under Project Case Alternative B would not be extended. Therefore, the benefits that would occur under emergency conditions under the Project Case and Project Case Alternative A would not occur under Project Case Alternative B. This alternative would not result in having two runways for major airborne relief operations during emergencies.

Police Protection Service Impacts

The increase in demand for police protection services at SJC under Project Case Alternative B would be similar to that described for the Project Case. The additional on-site police protection resources would be provided as part of the project and would not alter police protection service levels as required by federal law. See the discussion under Police Protection Service Impact under the Project Case, Section 3.11.2.1, above.

Disruption of Utilities (Construction Impact)

The potential for disruption of utility lines under Project Case Alternative B would be similar to that described for the Project Case. The utility lines that could be temporarily disrupted or relocated would be identified during the design of the new facilities. However, this would not require substantial alteration to existing utility lines. See the discussion under Disruption of Utilities (Construction Impact) under the Project Case, Section 3.11.2.1, above.

3.11.2.4 No Project

Figure 3.11.1 illustrates existing and future water consumption, wastewater generation, and solid waste generation levels for 2000, 2005 and 2010 under the No Project Alternative. The projected daily demand for water in the year 2010 at the Airport is approximately 118,000 gallons. The projected daily volume of wastewater generated at the Airport in the year 2010 is approximately 88,500 gallons. The projected annual and daily generation of solid waste at the Airport in the year 2010 is approximately 3,125 tons and 8.6 tons, respectively. These increases are approximately 40 percent less than the increases anticipated under the Project Case. The increase in Airport activity also would increase the demand for utilities and fire protection, emergency medical, and police protection services. These increases would occur under the No Project Alternative due to growth in activity at the Airport.

In addition, Runway 12L-30R under the No Project Alternative would not be extended. Therefore, the benefits that would occur under emergency conditions under the Project Case and Project Case Alternative A would not occur under the No Project Alternative. This alternative would not result in having two runways for major airborne relief operations during emergencies.

The No Project Alternative would not affect underground utilities as no construction activities would occur.

3.11.3 MITIGATION MEASURES FOR SIGNIFICANT PUBLIC SERVICES AND UTILITIES IMPACTS

No significant impact would occur as a result of any of the Project Case Alternatives. Therefore, no mitigation measures are required.

3.12 HAZARDOUS MATERIALS

The operation of the Airport involves the storage, use, and transport of hazardous materials and the generation of hazardous wastes. Hazardous materials are transported to and from the Airport by ground vehicles as well as by passenger and all-cargo aircraft. The largest quantity of hazardous material used at the Airport is aviation fuel, which is used-up in operations and therefore generates little hazardous waste. Smaller quantities of other hazardous materials are stored and used on the Airport. The most common hazardous waste generated at the Airport is used motor oil associated with the rental car facilities at the Airport. Increases in aviation activity would increase the amount of hazardous materials stored, used, and transported at the Airport and the amount of hazardous wastes generated by Airport activities. The discussion in this section is based on Airport and City records, regulatory agency files, and current and recent reference materials listed in Section 8, References. Further information can be found in Appendix 3.12.A, and in Sections 3.6, Hydrology and Water Quality, 3.7, Geology and Seismicity, and 3.8, Biological Resources.

3.12.1 SETTING AND EXISTING CONDITIONS

3.12.1.1 Hazardous Materials Use at San Jose Airport

Hazardous materials present at the Airport include aviation fuels; motor fuels; de-icing materials; substances used to operate or maintain aircraft, ground vehicles, equipment, and buildings; and various hazardous materials transported to and from the Airport via ground vehicles and aircraft. Their storage, use, and transport at SJC are controlled by a framework of federal, State, and local regulations and programs (see Appendix 3.12.A, Section A). Hazardous Materials Management Plans (HMMPs) prepared in compliance with the California Health and Safety Code, Division 20, Chapter 6.95, Article 1, include inventories of hazardous materials handled, specific locations of hazardous materials storage, emergency response plans, and provisions for employee training. HMMPs are on file at the San Jose Fire Department for the following Airport Department and tenant facilities:

- Airport Department Fuel Storage Facility (1401 Airport Blvd.)
- Chevron Fuel Storage Facility (1401 Airport Blvd.)
- Airport Department Warehouse (1239 Airport Blvd.)
- Airport Department Maintenance Building (1395 Airport Blvd.)
- Terminal C (1661 Airport Blvd.)
- Parking Contractor Building (1801 Airport Blvd.)
- Central Plant (2055 Airport Blvd.)
- Terminal A (2077 Airport Blvd.)
- SJC Retention Basin (Airport Blvd.)
- American Airlines, Terminal A (2077 Airport Blvd.)
- American Airlines, Facilities and Ground Equipment Maintenance (1253 Airport Blvd.)
- San Jose State University Department of Aviation (1120 Coleman Ave.)
- FAA Airport Traffic Control Tower (275 Martin Ave.)

3.12.1.2 Aviation Fuel Storage and Use

Fuel storage on San Jose Airport totals about 482,000 gallons. Aviation fuel accounts for about 90 percent of this total (see Appendix 3.12.A, Table 3.12.1). Bulk storage of commercial jet fuels and other fuels used at the Airport is provided at a 0.66-acre site on the east side of the Airport, part of which is operated by the City, with the other part operated by Chevron. The available capacity of the existing bulk fuel storage facility is approximately 368,000 gallons of jet fuel and 24,000 gallons of Avgas. Ten thousand (10,000) gallons of unleaded gas are also stored at this site (see Appendix 3.12.A, Table 3.12.A.1). Most fuel is stored in underground storage tanks (USTs); a new Chevron 160,000-gallon tank is above-ground. Approximately 30-40 tanker truck deliveries are made per day at the fuel storage facility.

The City-operated portion of the fuel storage facility contains eight underground storage tanks. Six tanks dedicated to jet fuel have a total capacity of 88,000 gallons, and two tanks dedicated to Avgas hold a total of 24,000 gallons. All tanks at the fuel farm are of single-walled construction. Fuel is delivered by tanker truck from various aviation fuel distributors and serves several airlines operating at the Airport (SJC, 1990).

The Chevron-operated portion of the fuel storage facility contains one (new) above-ground tank with secondary containment and four underground storage tanks; four tanks are dedicated to jet fuel and have a combined capacity of 280,000 gallons, and the fifth is a 10,000-gallon tank for unleaded gas (SJC, 1990). All fuel is delivered to the Chevron storage facility by tanker truck and is supplied by the Chevron refinery. The Chevron facility serves most of the airlines operating at the Airport. Chevron owns the tanks and equipment, but leases the land from the City.

Two fuel dispensing pumps, one for the City tanks and one for the Chevron tanks, are situated on the airfield apron adjacent to the fuel storage facility and connected to the tanks with a short pipeline. Fuel is picked up at the pumps by a fleet of fuel trucks operated mostly by two fueling contractors (Atlantic Aviation and San Jose Jet Center) and delivered to aircraft. Actual fueling of aircraft takes place on the ramps or at the loading gates. The fueling sequence is as follows: (1) incoming tanker trucks fill the bulk fuel storage tanks; (2) fuel is transmitted to the dispensing pumps through the short pipeline; (3) fuel delivery trucks fill up at the pumps; and (4) the fuel delivery trucks carry the fuel to individual aircraft for fueling.

In addition to the bulk fuel storage facility, the San Jose Jet Center maintains three 20,000-gallon underground fuel storage tanks on its leasehold on the west side of the Airport. Two of them store jet fuel for a total of 40,000 gallons, and one (10,000 gallon) stores aviation gas. The San Jose Jet Center tanks are of double-walled fiberglass construction, and the storage facility is equipped with a vapor and liquid spill detection system. Fuel for this storage facility is obtained from the Texaco refinery. The Jet Center tanks are used to service corporate and light general aviation aircraft.

Fuel spills can occur during fueling operations, generally due to human error. Since 1990, the Airport has averaged about 25-30 fuel spills per year (see Appendix 3.12.A, Table 3.12.A.4). The largest recorded spill (1993) released 1,200 gallons of jet fuel. Most fuel spills are small (the median size is about 10 gallons) and are contained and cleaned up with absorbent material in accordance with specific procedures set forth in the San Jose Airport Ramp Traffic Regulations that are provided to all ramp employees (see Appendix 3.12.A, Section D). Spills greater than 10 gallons or spreading more than six feet across must be reported to Airport Police, who then report the incident to the Airport fire station. Immediate actions are taken, including such measures as shutting off fueling equipment and controlling the spread of the fuel. These measures of protection against possible fuel spills are reinforced through implementation of the Airport's Stormwater Pollution Prevention Plan (SWPPP), discussed in Appendix 3.12.A, Section H, and in Section 3.6, Hydrology and Water Quality. The Airport Department does not permit fuel spills to be flushed or washed away, or to enter the storm drain system.

Leaks from underground storage tanks at the Airport may have occurred and are discussed below under Environmental Contamination and Remediation. The San Jose Fire Department periodically conducts pressure testing of underground tanks on the premise that tanks that cannot maintain constant pressure probably leak. Leaks are less likely to occur from newer double-walled fiberglass tanks equipped with a vapor and liquid spill detection systems, such as those at the San Jose Jet Center, than from older single-walled tanks. Leaks will be more readily detectable at the new Chevron above-ground steel tank, and controlled more easily within the secondary containment of that tank. When leaks are detected, the resultant contamination is monitored under the supervision of the Santa Clara Valley Water District (SCVWD) or the San Francisco Bay Regional Water Quality Control Board (RWQCB), as discussed below.

3.12.1.3 Other Hazardous Materials and Waste

Hazardous Materials Use

In addition to aviation fuels, smaller quantities of other hazardous materials are stored and used at the Airport for various purposes. The Airport Department and rental car maintenance facilities, for example, have underground gasoline storage tanks and facilities for storage of associated solvents, cleaners, and motor oil. Airline and other tenant facilities store and use various hazardous materials such as solvents, degreasers, cleaners, de-icers, paints, paint thinners, diesel, welding gases, and pesticides in support of aircraft, ground vehicle, and buildings and grounds maintenance and operations (see Appendix 3.12.A, Table 3.12.A.5). Airport records document spills of materials such as oil, diesel, hydraulic fluid, transmission fluid, etc. In addition, some of the older buildings at the Airport, including Terminal C, contain asbestos. Hazardous materials users at SJC are inspected annually by the City of San Jose Fire Department.

Hazardous Waste

Airport operations generate hazardous waste; however, the vast majority of the hazardous material stored and used at the Airport is fuel that is consumed by aircraft and motor vehicles. Hazardous wastes generated at SJC are accumulated at six on-site, paved hazardous waste storage areas. Two are located at the south-end general aviation terminal building, one each at the southeast and southwest general aviation T-hangar areas, one at the Airport maintenance facilities, and one at the Central Plant building. Hazardous wastes accumulated in the storage areas include waste oils, solvents, and thinners; used antifreeze, oil filters, and batteries; contaminated absorbent; fluorescent light tubes; and mercury-containing lamps (see Appendix 3.12.A, Tables 3.12.A.6 and 3.12.A.7). Wastes are held in storage bins that provide secondary containment. Hazardous waste generators are inspected by the Santa Clara County Hazardous Materials Compliance Division. The hazardous wastes generated at the Airport are transported by waste disposal contractors to a variety of regional transfer facilities and out-of-state disposal facilities (SJC, 1994).

Environmental Contamination and Remediation

The Airport has experienced several hazardous material releases that have resulted in localized contamination, as documented in agency files (see Appendix 3.12.A, Tables 3.12.A.8 and 3.12.A.9). All of these cases involved fuel spills or leaks. All are either cleaned up, under remediation, or being monitored. Site investigations and remediation activities are under the jurisdiction of the RWQCB.

At two locations -- the general aviation terminal building apron and the Airport Department maintenance area -- the underground storage tanks that caused leaks have been removed, and the sites are now clean (Brown and Caldwell, 1991). Remediation is ongoing at the Avis rental car service site and at the Chevron fuel storage facility and city fuel storage facility (McCulley, Frick & Gilman, 1994; Pacific Environmental Group, 1994). In accordance with federal, State, and local regulations, all tanks at the fuel storage facility undergo monthly inventory testing and have been tested for leaks. No evidence of tank leakage has been found at the fuel storage facility. However, soil samples collected at the fuel storage facility tested positive for traces of fuel in various stages of decomposition. This contamination is considered by City staff to be the result of surface spills and overfills that have occurred over time. Interim remediation action approved by the RWQCB is underway; a final plan will be completed after City adoption of the Airport Master Plan (Pacific Environmental Group, 1994).

Health and Safety Programs and Regulatory Compliance

Effective health and safety programs are the principal means of ensuring the health and safety of airport workers, the public, and the environment. The primary health and safety plans and policies in place at the Airport include an Injury and Illness Prevention Plan, a Hazard

Communication Plan, Hazardous Materials Management Plans, a Storm Water Pollution Prevention Plan, and an Emergency Response Plan. These plans are on file in the Airport Development Department, City Fire Department, and the City Office of Emergency Services (see Appendix 3.12.A, Section H).

Regulatory compliance is one measure of program performance, and active regulatory oversight is an important mechanism for maintaining a healthy and safe environment. Inspections by the City of San Jose Fire Department, the Santa Clara County Hazardous Materials Compliance Division, and the California Division of Occupational Safety and Health are summarized below (see Appendix 3.12.A, Section H).

- The City of San Jose Fire Department conducts numerous inspections of Airport facilities. These inspections usually focus on fire safety, hazardous materials storage, or both. Inspections are sufficiently rigorous to note, more often than not, violations at both Airport and tenant facilities. The Fire Department reinspects facilities to ensure that problems are corrected. Fire Department inspections ensure that Airport facilities are operated in compliance with fire codes and hazardous materials and waste management requirements (City of San Jose, 1996).

- The Santa Clara County Hazardous Materials Compliance Division occasionally inspects hazardous waste generators. Two inspections of the Airport have occurred within the last five years. In 1993, no violations were identified. In 1994, violations were related to container labeling, training records, and the availability of the Hazardous Materials Management Plan. All violations were corrected (Santa Clara County, 1995).

- California Division of Occupational Safety and Health inspections focus on safety or health. The agency reports that it has inspected the Airport three times in recent years. No violations were identified during any of these inspections (Uganiza, 1995).

3.12.1.4 Hazardous Materials Air Transport

Certain hazardous materials, termed "dangerous goods" by the airline industry, are transported by air, primarily by all-cargo carriers. An estimated two to three times a year the Airport is notified by an airline, as required by law, that a hazardous materials shipment is scheduled to occur (for example, spent rocket motors for United Technology Corporation). On those occasions, in coordination with the FAA Air Traffic Control Tower, the aircraft is parked in a remote area, usually at the Taxiway V hold apron on the northwest side of the airfield, with trucks or other surface vehicles escorted directly to and from the aircraft. Such flights are usually conducted by an all-cargo or cargo charter airline.

The transportation of hazardous materials by air, including packaging, labeling, and reporting, is regulated under Section 172.101 of the Hazardous Materials Transportation Act in the Code of Federal Regulations (CFR) Title 49. The regulation specifies restrictions on the type of hazardous materials that may be carried on aircraft and requires notification of airports where a

transfer of the materials is planned. In addition to complying with federal regulations, air carriers operating at the Airport also comply with the guidelines of the International Air Transport Association (IATA), which are consistent with CFR Title 49 and are based on the Chicago Convention on International Civil Aviation. IATA has developed and issued detailed transport guidelines for association members worldwide that categorically prohibit air transport of certain hazardous materials that are considered too dangerous to be transported by air and that provide detailed instructions for transporting those materials that are allowed on aircraft. Restrictions on the type of hazardous materials that may be carried on aircraft vary somewhat between passenger and cargo flights. Prohibited goods include most explosives, any substance that could evolve heat or gas under conditions of normal transport, inhalation poisons, many flammable materials, and a long list of other chemicals (IATA, 1995). The IATA guidelines are recognized worldwide and are reviewed and updated annually (IATA, 1995).

Individual air cargo carriers also have health and safety guidelines that cover handling of hazardous materials, employee health and safety, and specific in-flight storage for each make and model of aircraft.

3.12.2 HAZARDOUS MATERIALS IMPACTS

Hazardous materials and waste impacts can be thought of as changes in the level of risk associated with potential health and safety effects resulting from implementing a proposed project, such as the Airport Master Plan. Risk, in this sense, takes into account the probability of an event (accident or incident), along with its possible consequences.

In qualitative terms, an increase in the level of risk would correlate with an increase in the nature and relative quantities of hazardous materials and wastes handled and/or stored at the Airport, in turn a function of operations involving hazardous material use. Potential increases in operations under the Project Case Alternatives correlate most closely with expected increases in two Airport activities: (1) passenger levels; and (2) aircraft operations. In the former instance, hazardous materials use is related primarily to rental car maintenance, which would increase at about the same rate as the number of passengers under each Project Case Alternative. In the latter instance, aircraft fuel use (transport and handling) would increase at about the same rate as the number of airline flights. A third type of operation is the occasional air cargo shipment of hazardous cargo; this would be expected to increase in rough proportion to the projected increase in all-cargo tonnage under each Alternative.

It is not possible to predict exact quantities of hazardous materials that will be used on the Airport under future Project Case scenarios. However, it is possible to approximate and compare the relative quantities under each Project Case Alternative. On the assumption that the quantities of hazardous material used on the Airport correlate generally with total annual passengers, with the number of annual aircraft operations involving major airlines, and with annual cargo tonnage,

Table 3.12.1 approximates and compares the potential increase in use of hazardous materials, including waste, under each phase of each Project Case Alternative. The approximations take the form of scaling factors. That is, if present conditions represent "one" (1), then an increase of one-and-a-half in the use of hazardous materials is represented by "1.5," or one-and-a-half times the existing condition.

TABLE 3.12.1
SCALING FACTORS USED TO ESTIMATE INCREASES IN HAZARDOUS MATERIALS USE UNDER EACH PROJECT CASE ALTERNATIVE[a]

	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
ALL PASSENGERS				
Actual Conditions (1993)	1	1	1	1
Phase 1 (2000)	1.5	1.5	1.5	1.5
Phase 2 (2005)	2.1	1.7	1.7	1.5
Phase 3 (2010)	2.5	1.9	1.8	1.5
MAJOR AIRLINE FLIGHTS				
Actual Conditions (1993)	1	1	1	1
Phase 1 (2000)	1.4	1.4	1.4	1.4
Phase 2 (2005)	1.9	1.5	1.5	1.3
Phase 3 (2010)	2.1	1.6	1.5	1.3
ALL-CARGO TONNAGE				
Actual Conditions (1993)	1	1	1	1
Phase 1 (2000)	1.5	1.5	1.1	1.1
Phase 2 (2005)	2.6	2.6	1.2	1.2
Phase 3 (2010)	3.2	3.2	1.3	1.3

[a] Scaling factors are all based on 1993 conditions represented as "1"; scaling factors are derived from forecasts developed for Project Case Alternatives and No Project for the Master Plan (see Chapter 2, Project Case Alternatives).

Three general sources of potential hazardous materials and waste impacts (risks) could occur with implementation of the Project Case Alternatives: impacts could result from increases in the transport, handling, and storage of hazardous materials on the Airport, notably aircraft fuel but also including materials used in rental car and other equipment maintenance as well as cargo throughput; from increases in generation and disposal of hazardous wastes from Airport and tenant operations; and from exposure of additional workers and more members of the public to hazardous materials during remediation of contaminated sites or disturbance of potentially contaminated sites.

Among these broad groups of impacts, a total of seven hazardous materials and waste impacts are identified, below. These are (1) Fuel storage and pipeline; (2) Fuel spills; (3) Transportation of hazardous materials; (4) Other non-fuel hazardous materials; (5) Removal of existing underground fuel storage tanks; (6) Hazardous waste; and (7) Exposure of workers and public during remediation of contaminated sites.

These would result from the same components and types of activities under the Project Case and Project Case Alternatives, but would vary in magnitude, as discussed above. These impacts are discussed in qualitative fashion, first for the Project Case and then for each of the Project Case Alternatives and the No Project Alternative, below, and their significance level is identified. The significance of impacts is evaluated in light of existing measures in force at the Airport -- i.e., plans and programs that are designed to comply with regulations and thus serve as a "mitigative framework" for managing the risks associated with the storage, use, and handling of hazardous materials and wastes.

For purposes of this EIR, hazardous materials impacts would be significant if the project involves the use, production, or disposal of materials in a manner that poses a hazard to people, or to animal or plant populations in the area affected. A significant impact would also occur if a project were to present an undue potential risk for health or safety-related accidents.

3.12.2.1 Project Case

Fuel Storage Facility and Pipeline Impacts

A major component of the Project Case and Project Case Alternatives would be the replacement of the existing 208,000-gallon-capacity underground bulk fuel storage tanks and Chevron's new 160,000-gallon above-ground tank with an above-ground facility with an ultimate storage capacity of 4.0 million gallons. This facility would be located on a noncontiguous, undeveloped Airport site, north of U.S. 101 and west of the Guadalupe River. This significantly enlarged fuel storage facility would provide sufficient storage capacity to accommodate projected increases in aviation activity; enable a more efficient and secure fuel delivery system by creating a five-day reserve storage capacity; and replace the existing underground fuel storage facility with above-ground tanks (see Removal of Underground Storage Tanks Impact, below). Under the Project Case Phase 1, four tanks with a storage capacity of 2.0 million gallons, plus associated operational and access facilities, would be installed on the site. A pipeline would be constructed under U.S. 101 to transfer fuel from the storage tanks to a new fuel dispensing facility on the airfield apron at the northeast side of the Airport. The pipeline would consist of a casing holding two containment pipes, which, in turn, would hold two 10-inch diameter fuel pipes. Two additional above-ground tanks would be installed by 2005 (Phase 2), and another two tanks by 2010 (Phase 3), for a total capacity of 4.0 million gallons -- roughly ten times greater than the existing storage tank facility on the Airport proper. This project component would represent the

most substantial change in the presence of hazardous materials at the Airport. Table 3.12.2 compares the number of tanks, their capacity, and acres covered for the Project Case Alternatives.

TABLE 3.12.2
PROPOSED ABOVE-GROUND FUEL STORAGE FACILITIES[a]

	Project Case	Project Case Alternative A	Project Case Alternative B
TOTAL VOLUME OF TANKS (millions of gallons)			
Phase 1 (2000)	2.0	2.0	2.0
Phase 2 (2005)	3.0	2.5	2.5
Phase 3 (2010)	4.0	3.0	2.5
NUMBER OF TANKS			
Phase 1 (2000)	4	4	4
Phase 2 (2005)	6	5	5
Phase 3 (2010)	8	6	5
AREA COVERED (acres)			
Phase 1 (2000)	2.5	2.5	2.5
Phase 2 (2005)	3.0	3.0	3.0
Phase 3 (2010)	3.5	3.0	3.0

[a] Numbers are cumulative for Phases 2 and 3.

The new bulk fuel storage facility, including the transfer pipeline, on a site adjacent to U.S. 101 and the Guadalupe River could expose the public and the environment to hazardous materials in the event of inadvertent release to storm water, leaks to soil or groundwater, fire, or secondary containment failure (see also discussion in Section 3.6, Hydrology and Water Quality, Section 3.7, Geology and Seismicity, and Section 3.8, Biological Resources). The pipeline from the storage tanks to the dispensing site on the airfield would be subject to leakage from the pipeline itself, or failure of joints or valves, with the potential for contamination of soil or groundwater. A tank could fail during severe seismic-induced groundshaking, and/or spills could occur during fuel storage operations, resulting in substantial adverse effects off-site, unless contained and controlled. The above-ground tanks would be more exposed to oxygen and the consequent risk of fire or explosion than the existing underground facility. Various factors

would limit this risk, however: first, most of the fuel would be jet fuel, which is essentially kerosene and is not explosive, although it is flammable; second, the tanks would be equipped with pressure relief valves to prevent vapor from building up within the tanks; third, the tanks would be equipped with a fire suppression system; and finally, access to the tanks would be limited to authorized personnel and operation would be governed by safety plans and procedures (see Appendix 3.12.A, Section H).

As a project component of Phase 1 of all Project Case Alternatives, the development of the new fuel storage facility would allow for removal of the existing underground storage tanks, which do not meet all current design standards and reveal some soil contamination. The new fuel storage facility site would not be within any designated aviation safety zone and would provide a productive use of a site that otherwise has limited potential for Airport-related development.

The hazardous materials impact of the new fuel storage facility would be considered significant on the basis of the criteria identified in Section 3.12.2, above, and for reasons stated as follows: Although a catastrophic event resulting in a substantial spill or fire from the new storage facility or pipeline would be highly unlikely in view of the stringent regulations that govern the facility design, installation, operation, and incident response, the relatively high volume of hazardous material that would be stored at the new tank farm and the introduction of tanks and pipelines into a new site would represent a significant impact.

> ***Fuel Storage Facility Impact: Placement of a new bulk fuel storage facility on an undeveloped site and transfer piping under a public highway would create the potential for accidental release of a hazardous material and exposure of the public traveling on U.S. 101, biota inhabiting the Guadalupe River, and persons occupying adjacent properties to hazardous materials, in the event of a catastrophic event. (SIGNIFICANT)***

Fuel Spills Impact

Most aviation fuel spills occur during fueling operations on the airfield. Given the projected increases in large aircraft operations under the Project Case, it is reasonable to expect that the number of spills during refueling operations also could increase. Based on the Airport's historical record, most spills would be of a size that is readily controlled through existing response mechanisms, discussed in the Setting, above, and detailed in the Airport Ramp Traffic Regulations and the Airport's SWPPP (see also Appendix 3.12.A, Section J, and Section 3.6, Hydrology and Water Quality, of this EIR).

This impact is considered less than significant. The continuing implementation at the Airport of existing fuel handling procedures, which are preventive, and spill response procedures, which are designed to clean-up on-site and prevent off-site migration of spills, would ensure that this impact involving use of hazardous materials would not poses a hazard to people, or to animal or plant populations and, therefore, would be less than significant.

Fuel Spill Impact: Growth in aviation activity would increase the frequency and volume of aircraft refueling operations at the Airport, thereby increasing the opportunity for spills and consequent impacts to public health and safety. Existing spill prevention and response procedures would continue to be implemented and updated as necessary. (LESS THAN SIGNIFICANT)

Hazardous Materials Transportation Impacts

Two aspects of transportation can be considered as sources of impacts of the Project Case: ground transport of fuels and other hazardous materials to (and wastes from) the Airport; and air cargo transport, including trans-shipment, of hazardous cargo. Hazardous materials transported on the ground can be further subdivided into fuels and other hazardous materials/wastes.

Fuels are delivered to various Airport facilities in tanker trucks. Approximately 30 to 40 tanker deliveries are made per day. This would double by the year 2010 under the Project Case. The probability of an accident can be estimated by reviewing State highway accident rates, consolidated by the California Department of Transportation (Caltrans, 1994). The upper bound for potential accidents is about 3.6 accidents per million miles traveled by tanker trucks. Appendix 3.12.A, Table 3.12.A.10, presents estimated annual occurrence of tanker truck accidents under the Project Case Alternatives. These estimates are based on the total number of vehicle miles traveled by tanker trucks, and are not intended to imply that any particular accident would necessarily involve a spill, release, or other relatively severe consequence. The probability of an accident occurring would actually decrease under most Project Case Alternatives. This result arises from the decrease in the distance that the tanker trucks would have to travel to reach the new fuel farm versus the existing fuel farm. This decrease in distance would largely off-set the increased accident risk anticipated as a result of increasing the number of truck trips associated with the Project Case. In addition, having a five-day reserve storage capacity would enable better control over the timing of tanker deliveries, which would be restricted to off-peak hours through lease and vendor agreements. The accident probability along Guadalupe Parkway and Airport Boulevard would be nearly eliminated, while the accident probability along the proposed haul route (primarily Trimble Road) would increase. The overall increase in accident probability in any particular year would be, at most, about four per cent, which is less than the five per cent increase anticipated under the No Project Alternative (see Appendix 3.12.A, Table 3.12.A.10).

Even at relatively low probabilities, a tanker truck could be involved in an accident. In that event, specific Department of Transportation safety requirements applicable to tanker trucks would limit the potential consequences of the accident. The California Highway Patrol annually subjects tanker trucks to tests that involve pressure testing, structural integrity testing, inspection of pressure relief devices, and inspection of accident damage protection (particularly against vehicle impact and rollover incidents). Health and safety programs would also minimize the hazards associated with transporting fuel, and emergency response teams would be available to respond to fuel-related accidents that occur on public roads. An accident involving a tanker

truck, however unlikely, could pose a substantial inconvenience to the public and could expend valuable emergency response resources.

In light of the relatively low increase in the probability of a serious transportation accident, implementing any of the Project Case Alternatives would not be expected to substantially exacerbate a potential health or safety hazard or create an undue risk for health-related accidents. Therefore, the impact of increasing the transportation of fuels to the Airport would be less than significant.

Hazardous materials (non-fuel), which are estimated to increase under the Project Case by a factor of two to two-and-a half (see Table 3.12.1), would be delivered to various Airport facilities in small containers, in drums, or, as described for fuels, in tanker trucks. Hazardous wastes would be shipped to various locations throughout the country, but most local trips would go to a transfer facility located somewhere in the San Francisco Bay Area. Upon implementing one of the Project Case Alternatives, hazardous materials transport would likely increase as a result of increased Airport operations. The result would be more hazardous materials trips, but the typical load would probably carry the same types of materials and the same amounts of materials as at present.

Because suppliers and transporters are required to follow Department of Transportation regulations for packaging and handling, only a fraction of the potential accidents that could involve vehicles carrying hazardous materials would be expected to actually affect the integrity of the containers of hazardous materials on board. The regulatory requirements for hazardous materials containers are such that containers would be unlikely to release their contents in the event of an accident. Requirements for waste containers are more stringent than requirements for incoming non-waste materials containers.

Wastes would also be transported by licensed hazardous chemical waste haulers. Licensed hazardous waste drivers receive training in how to respond if a release were to occur. The California Department of Transportation also operates hazardous materials emergency response teams across the State. These measures would serve to minimize the consequences of an accident involving hazardous materials in transport. (Most accidents would simply be nuisances.) Because the consequences of accidents involving hazardous materials and waste would probably not be severe, the risk to the public posed by the transport of hazardous materials to and from the Airport would be expected to be relatively low, and therefore the impact would be less than significant.

Regulations and other rules that govern transport of hazardous materials by air are discussed in Section 3.12.1.4, above. After build-out of Phase 3, the handling of hazardous air cargo by the Airport would be expected to increase from current two to three events per year, to six to ten episodes per year (an estimate only) in which the Airport would be notified of enplanement,

deplanement, or trans-shipment of hazardous materials by all-cargo carriers. FAA regulations and IATA guidelines clearly define allowable materials for air shipment and place restrictions on other materials. Furthermore, guidelines cover container and handling requirements. These are supplemented by the health and safety guidelines of individual air cargo carriers. With these regulations and guidelines in force, an increase at the Airport in all-cargo transport of (permitted) hazardous materials due to expansion of cargo facilities, would not expose the public or workers to undue health or safety hazards, and therefore would be a less-than-significant impact.

Ground and Air Transport of Hazardous Materials Impact: Increase in ground transport of fuels and other hazardous materials and wastes to and from the Airport, and increases in transport by all-cargo aircraft of permitted hazardous materials would be subject to regulations and response procedures by transportation and other agencies and, therefore, would not constitute a significant risk to public health or safety. (LESS THAN SIGNIFICANT)

Storage and Use of Other Hazardous Materials Impact

The hazardous material stream associated with non-fueling activities at the Airport is relatively small. However, several project components would increase use and storage of hazardous materials other than aviation fuels. Among these are the new, expanded rental car facilities by the year 2000 and the relocation and expansion of Airport and airline maintenance facilities between 2000 and 2010. The majority of hazardous materials used in these activities are typical of vehicle and equipment maintenance: diesel fuel, unleaded gas, paints, solvents, oils and other automotive fluids, ethylene glycol (deicer), and others.

With continuing enforcement of existing regulations that govern hazardous materials use and storage, the projected increase associated with increases in aviation activity under the Project Case would not necessarily pose significant health and safety hazards to Airport workers or the general public. Existing regulations and health and safety programs serve to control the storage and handling of hazardous materials at the Airport and the potential effects in the event of accidents. Airport tenants are inspected periodically by designated City and County authorities (see Section 3.12.1.3, above). Furthermore, a new Airport staff position to monitor health and safety programs has been authorized by the City. None of the project components of the Project Case are expected to cause an increase in quantities of hazardous material that would require substantial changes to existing plans and programs, or that would compromise existing emergency response plans or emergency evacuation plans governing accidental release of hazardous materials. Therefore, this impact is considered less than significant.

Other Hazardous Materials Use Impacts: Growth in aviation activity, along with the proposed facility improvements, would increase the use, storage, and transport of hazardous materials other than aviation fuels at the Airport. (LESS THAN SIGNIFICANT)

Removal of Existing Underground Tanks Impact

The 12 underground fuel tanks on the existing bulk fuel storage facility site, as well as the various underground gasoline tanks within the rental car service areas, would be removed during Phase 1 of the Project Case. Partial remediation of known contaminated soil at these sites is underway. The removal of these tanks would enable full clean-up of the known contamination and would eliminate potential future sources of soil and groundwater contamination. Implementation of these project components may also reveal evidence of additional (currently unknown) soil or groundwater contamination that would require appropriate remediation (see Exposure of Workers to Hazardous Materials, below). The net effect of removing the tanks and cleaning-up the site would be a beneficial impact of the Project Case.

> ***Underground Tank Removal Impact: Removal of existing underground fuel tanks would eliminate a potential source of future contamination and enable remediation of the site. (BENEFICIAL)***

Hazardous Waste Generation Impact

The growth in passenger and air cargo activity under the Project Case would result in an indirect increase in the amount of hazardous wastes generated at the Airport. These hazardous wastes, such as waste motor oil, paint thinner, solvents, crushed oil filters, contaminated absorbent anti-freeze wastes, and auto batteries, are primarily associated with the rental car operations and equipment maintenance at the Airport. They would continue to be handled and disposed of by licensed hazardous waste contractors. The methods of handling and disposing of these hazardous wastes would be the same as the methods currently used at the Airport: that is, hazardous wastes are collected in approved storage bins with secondary containment, and are transported off site for recycling, treatment such as incineration, and/or disposal by contractors. These activities are subject to regulations, enforced locally by the Santa Clara County Hazardous Materials Compliance Division and the City of San Jose Fire Department.

The Airport currently handles hazardous waste in a manner that does not pose a substantial health or safety hazard. An increase in the quantity of waste generated under the Project Case would not alter this condition and therefore would not be significant.

> ***Hazardous Waste Generation Impact: The increase in aviation activity levels at the Airport would indirectly increase the generation of hazardous wastes that would have to be handled and disposed in accordance with regulations. (LESS THAN SIGNIFICANT)***

Exposure of Workers to Hazardous Materials (Construction Impact)

Construction activity associated with the project components of the Project Case could potentially expose workers to hazardous materials. Project components include sites known to be contaminated (existing fuel storage and rental car service facilities). Other project

components involving earth-moving activities could encounter hazardous materials at sites not yet identified. Asbestos would be encountered and require disposal during structural renovation of buildings.

The City has developed a set of procedures to be used on every construction project involving the movement of soils. These procedures dictate the steps to be taken where contaminated soils or contaminated groundwater may be encountered. If contaminated soils have been identified through physical testing, the City would prepare a site remediation plan, prior to excavation or grading, that specifies the measures to be taken to protect workers and the public from exposure to hazards and provides for the clean up of the contaminants in accordance with rules and regulations that govern such activities. If appropriate, the City would obtain regulatory guidance from the Santa Clara County Department of Environmental Health and the Regional Water Quality Control Board. In accordance with Occupational Safety and Health Administration (OSHA) requirements, the City would prepare a Site Safety Plan prior to commencing work on any contaminated sites. The legally mandated safety regulations found in the OSHA requirements would protect construction workers from exposure to soil and groundwater contaminants.

Asbestos-containing material is regulated both as a hazardous air pollutant under the Clean Air Act and as a potential worker safety hazard under the authority of the Cal-OSHA. The renovation or demolition of buildings containing asbestos would require retaining contractors who are licensed to conduct asbestos abatement work and notifying the BAAQMD ten days prior to initiating construction and demolition activities.

Implementation of established procedures and legal requirements would minimize the risk of health- and safety-related impacts of known contamination, and therefore limit the potential exposure of workers to hazardous contaminants. However, because workers may be unknowingly exposed if some contamination were not identified, this impact would be significant.

Exposure of Workers to Hazardous Materials Impact (Construction Impact): Construction workers may be exposed to hazardous materials at contaminated locations (both known and unknown), and would follow remediation procedures prescribed by the City, County, and/or RWQCB. (SIGNIFICANT)

3.12.2.2 Project Case Alternative A

Hazardous materials and waste impacts for the Project Case Alternative A are similar to those of the Project Case. The primary differences in impacts that distinguish Project Case Alternative A from the Project Case relate to differences in Airport activity levels, measured in terms of passenger volume, operations of major airlines, and cargo volume. In all cases, the estimated quantities of hazardous materials used in Airport activities would be somewhat less and therefore the level of

risk associated with their use would be less than under the Project Case (see Table 3.12.1). The capacity of fuel storage at the new facility would also be less than under the Project Case.

New Fuel Storage Facility and Pipeline Impact

The size and capacity of the new aviation bulk storage facility proposed under Project Case Alternative A would be smaller than that described for the Project Case by the year 2010 (six tanks rather than eight, with 3 million gallon capacity rather than 4 million). The impacts associated with introducing such a facility with inherent hazards at the proposed location would be essentially the same as those described for the Project Case. The impact would be significant. See the discussion under the New Fuel Storage Facility and Pipeline Impact under Project Case, Section 3.12.2.1, above.

Fuel Spills Impact

Similar to the Project Case, the projected increase in aircraft operations under Project Case Alternative A would increase the potential for fuel spills to occur during fueling operations on the airfield, but to a lesser degree than the Project Case. With existing preventive measures and spill controls in place, the impact would be less than significant. See the discussion under Fuel Spills Impact under Project Case, Section 3.12.2.1, above.

Hazardous Materials Transportation Impacts

Risks associated with ground transport of fuels and other hazardous materials and from air cargo transport of permitted hazardous materials under the Project Case Alternative A would be similar to those under the Project Case, except that fewer tanker deliveries would be made and there would be fewer episodes of transport of permitted hazardous materials by air cargo. The risk of accident in transport of fuels and other hazardous materials would be proportionately less. With existing regulations in place and enforced, the impact would be less than significant. See discussion under Hazardous Materials Transportation Impacts, Section 3.12.2.1, above.

Other Hazardous Materials Impacts

Under Project Case Alternative A, the quantity of hazardous materials that would be stored and used in operation and maintenance of rental cars, aircraft, ground service equipment, buildings, and grounds would increase, although to a lesser degree than under the Project Case. As with the Project Case, the impact would be less than significant. See the discussion under Other Hazardous Materials Impacts under Project Case, Section 3.12.2.1, above.

Removal of Existing Underground Tanks

The impacts of removal of the existing underground fuel tanks at the bulk fuel storage facility and the rental car service area sites under Project Case Alternative A would be identical to those

discussed for the Project Case. The same benefits associated with removing the existing underground tanks and cleaning-up that site would also accrue. The impact would be beneficial. See the discussion of Underground Tank Removal Impacts under Project Case, Section 3.12.2.1, above.

Hazardous Waste Generation

As under the Project Case, growth in passenger and air cargo activity under Project Case Alternative A would indirectly increase the amount of hazardous wastes generated at the Airport. The impact would be less than significant. See the discussion of Hazardous Waste Impact under Project Case, Section 3.12.2.1, above.

Exposure of Workers to Hazardous Materials (Construction Impact)

The potential exposure of construction workers to hazardous contaminants during construction under Project Case Alternative A would be similar to that described for the Project Case. The underground fuel tanks would be removed in Phase 1 and the site would be cleaned-up, requiring specific procedures to protect both workers and the public from exposure to contaminated soils. Removal, remodeling or expanding buildings that contain asbestos would require specific procedures to protect workers and the public from exposure to asbestos fibers. This impact would be significant. See the discussion of Exposure to Hazardous Materials Impact under Project Case, Section 3.12.2.1, above.

3.12.2.3 Project Case Alternative B

Hazardous materials and waste impacts for the Project Case Alternative B are similar to those of the Project Case and Project Case Alternative A. The primary differences in impacts that distinguish Project Case Alternative B from the other Project Case Alternatives relate to differences in Airport activity levels, measured in terms of passenger volume, operations of major airlines, and cargo volume. In all cases, the estimated quantities of hazardous materials used in Airport activities would be somewhat less and therefore the level of risk associated with their use would be less than under either the Project Case or Alternative A (see Table 3.12.1). The capacity of fuel storage at the new facility would also be less than under the other Project Case Alternatives.

New Fuel Storage Facility and Pipeline Impact

The size and capacity of the new aviation bulk storage facility proposed under Project Case Alternative B would be smaller than that described for the Project Case by the year 2010 (five tanks rather than eight, 2.5 million gallon capacity rather than 4 million). The impacts associated with the facility at the proposed location would be essentially the same as those described for the Project Case and Project Case Alternative A. The impact would remain significant. See the

discussion under the New Fuel Storage Facility and Pipeline Impact under Project Case, Section 3.12.2.1, above.

Fuel Spills Impact

Similar to the Project Case and Alternative A, the projected increase in aircraft operations under Project Case Alternative B would increase the potential for fuel spills to occur during fueling operations on the airfield, but to a lesser degree than the other Project Case Alternatives. With existing preventive measures and spill controls in place, the impact would be less than significant. See the discussion under Fuel Spills Impact under Project Case, Section 3.12.2.1, above.

Hazardous Materials Transportation Impacts

Risks associated with ground transport of fuels and other hazardous materials and from air cargo transport of permitted hazardous materials under the Project Case Alternative B would be similar to those under the Project Case and Project Case Alternative A, except that fewer tanker deliveries would be made and there would be fewer episodes of transport of permitted hazardous materials by air cargo. The risk of accident in transport of fuels and other hazardous materials would be proportionately less. With existing regulations in place and enforced, the impact would be less than significant. See discussion under Hazardous Materials Transportation Impacts, Section 3.12.2.1, above.

Other Hazardous Materials Impacts

Under Project Case Alternative B, the quantity of hazardous materials that would be stored and used in operation and maintenance of rental cars, aircraft, ground service equipment, buildings, and grounds would increase, although to a lesser degree than under the Project Case. As with the Project Case and Alternative A, this impact would be less than significant. See the discussion under Other Hazardous Materials Impacts under Project Case, Section 3.12.2.1, above.

Removal of Existing Underground Tanks

The impacts of removal of the existing underground fuel tanks at the bulk fuel storage facility and the rental car service area sites under Project Case Alternative B would be identical to those discussed for the other Project Case Alternatives. The same benefits associated with removing the existing underground tanks and cleaning-up that site would also accrue. The impact would be beneficial. See the discussion of Underground Tank Removal Impacts under Project Case, Section 3.12.2.1, above.

Hazardous Waste Generation

As under the Project Case, growth in passenger and air cargo activity under Project Case Alternative B would indirectly increase the amount of hazardous wastes generated at the Airport. The impact would be less than significant. See the discussion of Hazardous Waste Impact under Project Case, Section 3.12.2.1, above.

Exposure of Workers to Hazardous Materials (Construction Impact)

The potential exposure of construction workers to hazardous contaminants during construction under Project Case Alternative B would be similar to that described for the Project Case, but would differ somewhat in phasing. Under all Project Case Alternatives, the underground fuel tanks would be removed in Phase 1 and the site would be cleaned-up, requiring specific procedures to protect both workers and the public from exposure to contaminated soils. Under Project Case Alternative B, Terminal C would be demolished and rebuilt as a larger terminal in Phase 2 rather than being remodeled in Phase 3 as is the case under the other Project Case Alternatives. The impact would be significant. See the discussion of Exposure to Hazardous Materials Impact under Project Case, Section 3.12.2.1, above.

3.12.2.4 No Project Alternative

As indicated in Table 3.12.1, hazardous material storage, use, and transport would increase by a factor of approximately 1.5 under the No Project Alternative. This increase would be due to anticipated growth in aviation activity but not to installation of new facilities or facility improvements. The existing bulk fuel storage facility would not be replaced, but would still have to undergo on-site remediation, the scope of which would differ from a clean-up plan implemented under any of the Project Case Alternatives. Tanker delivery trucks transporting fuel along Airport Boulevard would increase commensurate with the increased demand for aviation and jet fuel at the Airport. However, the risk of accident in transport would be greater under the No Project Alternative because of longer haul route and limited ability to restrict deliveries to off-peak hours. Bulk storage capacity would continue to be severely limited. Fuel spill events and hazardous waste generation would also increase commensurate with growth in aviation activity. Air transport of hazardous materials could increase by a factor of about 1.3, based on anticipated increase in overall cargo tonnage under the No Project Alternative (see Table 3.12.1).

The No Project Alternative would not result in any earth-moving activities associated with construction of new facilities at the Airport, or in demolition, renovation, or expansion of buildings that contain asbestos. No potential for exposure of construction workers to hazardous contaminants would occur beyond that involved in current clean-up of known contaminated sites. However, the potential for additional soil or groundwater contamination from existing underground tanks would continue.

3.12.3 MITIGATION MEASURES FOR SIGNIFICANT HAZARDOUS MATERIALS IMPACTS

Significant hazardous materials and waste impacts resulting from the Project Case Alternatives would be mitigated in part by design measures in the project and/or through continuing enforcement of the framework of existing laws, regulations, and policies that circumscribe the transport, handling, and storage of hazardous materials and waste. These and additional mitigation measures are discussed below.

Mitigation for Impacts of New Fuel Storage Facility

The new fuel storage facility would be required to meet current code requirements and specific standards for above-ground fuel storage tanks (see also Section 3.6, Hydrology and Water Quality, and Section 3.7, Geology and Seismicity). Design requirements include leak and spill detection systems and call for a secondary containment structure. The surfaces surrounding the tanks would be sloped toward drains and directed to an oil/water separator (designed for slow leaks or incidental spills) to prevent spills from contaminating storm water runoff. The tank area would be surrounded by a secondary containment consisting of a solid wall or berm and an impervious membrane, and would be equipped with an automatic shut-off device to prevent spills from escaping. The on-site containment area would be of sufficient size to contain a volume of fuel equivalent to the contents of two tanks (1.0 million gallons). The Above-Ground Petroleum Storage Act (SB 1050) requires owners of above-ground storage tanks to prepare Spill Prevention, Control, and Countermeasure Plans (SPCCP) and prepare monitoring programs. Spill response measures are also set forth in the Airport's Storm Water Pollution Prevention Plan (SWPPP). To prevent the potential for fire or explosion, the storage of hazardous materials in above-ground tanks would also comply with National Fire Protection Association Standards. The City of San Jose Fire Department also would require that the facility be protected by a fire suppression system. Procedures for incident response in the event of a catastrophic spill, such as into the Guadalupe River, are described in Section 3.8, Biological Resources. The 100-foot setback from the Guadalupe River would comply with the City's Riparian Corridor Policy. (See also Section 3.6, Hydrology and Water Quality, and Section 3.8, Biological Resources.)

Before commencing operations at the new fuel facility and pipeline, the Airport would amend and implement existing programs to minimize all types of accident risks at the facility, including, but not necessarily limited to, those posed by the potential for human errors, earthquakes, arson or terrorism, vehicle or aircraft accidents, fires, or floods. This program would mirror the requirements for a Risk Management and Prevention Program such as those implemented under California's Hazardous Release Response Plans and Inventory Law, although no "acutely hazardous material" would be handled at the facility.

The transport of flammable liquids in pipelines is regulated by the California Pipeline Safety Act of 1981 (Government Code Sections 40600 to 52999), enforced by the State Fire Marshal. These

requirements cover new pipeline design and construction, pipeline testing, easements, maps and diagrams, and notification of incidents and contingency plans. Cathodic protection and leak detection systems would be required for the new pipeline.

> ***Mitigation Measure: The new fuel storage facility and pipeline will be designed, constructed, and maintained in compliance with all applicable regulatory standards and policies, including provisions for full on-site containment, leak detection systems, and cathodic protection. In addition, a 100-foot setback from the Guadalupe River will be maintained. The Airport will prepare and implement a program to minimize accident risks at the fuel handling and storage facilities. (APPLICABLE TO ALL PROJECT CASE ALTERNATIVES)***

Impact Significance Conclusion: Implementation of this mitigation measure will ensure that the new fuel storage facility and connecting pipeline will not pose a substantial potential health or safety risk or present an undue potential risk for health- and safety-related accidents. (REDUCED TO LESS THAN SIGNIFICANT)

Mitigation for Impacts of Exposure of Workers to Hazardous Materials

The Airport should conduct "due diligence" or screening investigations of each potentially contaminated site where demolition, renovation, or earth-moving activities are to be conducted. These investigations should determine the potential for workers to encounter hazardous materials contamination, identify the likely presence of contamination, and determine the need to notify regulatory agencies and take further precautions as prescribed by law, regulation, and local procedures to protect the health and safety of site workers.

> ***Mitigation Measure: The Airport will investigate potentially contaminated sites prior to beginning construction. If the potential for workers to encounter hazardous materials is identified, the Airport will take necessary precautions to protect the health and safety of site workers. (APPLICABLE TO ALL PROJECT CASE ALTERNATIVES)***

Impact Significance Conclusion: If implemented, this measure will ensure that this impact would be less than significant. (IMPACT IS REDUCED TO LESS THAN SIGNIFICANT)

3.13 AIR SAFETY

This section discusses the following two issues associated with air safety and the potential risk associated with implementation of any of the Project Case Alternatives: (1) the design of airport facilities and the requirements of various authorities to eliminate or reduce air safety issues associated with airport design; and (2) the correlation between aviation activity and air safety. Information used in this analysis is from the Federal Aviation Administration, the City of San Jose Airport Department, and the National Transportation Safety Board.

3.13.1 SETTING AND EXISTING CONDITIONS

3.13.1.1 Safety Design Criteria for Airports

The Role of the Federal Aviation Administration

The Federal Aviation Administration (FAA) is the agency of the U.S. Department of Transportation that is charged with (1) regulating air commerce to promote its safety and development; (2) achieving the efficient use of navigable airspace of the United States; (3) promoting, encouraging, and developing civil aviation; (4) developing and operating a common system of air traffic control and air navigation for both civilian and military aircraft; and (5) promoting the development of a national system of airports. As part of this mission, the FAA continuously assesses the safety of the national aviation system and reviews the current state of technology to identify advances that may improve the safety of the system. As part of that effort, the FAA has published Advisory Circular 150/5300-00, which identifies the criteria for airport design. This Advisory Circular provides guidance on the layout of an airport and airport geometry, runway and taxiway design and specifications, runway protection zones (RPZs), object free areas (OFA), air traffic control facilities, navigation aid facilities, and surface gradients and lines of sight. These standards are intended to guide airport planners and designers in incorporating air safety into the overall design. As part of the Master Plan Update, SJC would comply with specific FAA design guidelines and standards.

The FAA has established runway protection zones, object free areas, and FAR Part 77 obstruction clearance criteria. The runway protection zone (RPZ) is a ground-level trapezoidal-shaped area where the placement of obstacles or hazards in the path of landing aircraft is prohibited. The object free area (OFA) is a rectangular-shaped area at the physical end of each runway designed to ensure that stationary objects are not placed within proximity of the runway for safety purposes. See Section 3.1, Land Use, for a map that illustrates the RPZ and OFA at the Airport.

The FAR Part 77 obstruction clearance criteria are imaginary surfaces that extend outward from the end of the runway and define maximum heights of structures that could be erected in the airport vicinity without creating a hazard to aircraft navigation. The existing FAR Part 77

surfaces extend from the landing thresholds of the runways at SJC at 50:1, which means the height of the imaginary surface rises one foot for every 50 feet from the end of the runway.

The Role of SJC

SJC is responsible for implementing FAR Part 139, which prescribes rules governing the certification and operation of land airports that serve any scheduled or unscheduled air carrier having a seating capacity of more than 30 passengers. For example, SJC conducts elaborate daily safety checks within the air operations area, including daily inspections of runways and taxiways; maintains and properly repairs all runways, taxiways, and ramp areas; maintains infield areas to prevent uneven surfaces; maintains runway markings and lighting; maintains rescue and firefighting equipment to the Index D standard (see Section 3.11, Public Services and Utilities, for a discussion of Index D standards).

The existing design criteria for the airfield and the maintenance obligations under FAR Part 139 ensure that the Airport is designed and operated safely and efficiently. The FAA and the City both implement their respective roles to address the safe operation of the Airport.

3.13.1.2 Aviation Accident Statistics

National Transportation Safety Board Accident Statistics

The National Transportation Safety Board (NTSB) compiles aviation accident statistics for U.S. aircraft. One common accident statistic that is compiled for both commercial and general aviation is expressed as the number of accidents per aircraft miles flown. Table 3.13.1 lists national accident rates for the past 14 years in terms of accidents per aircraft hour flown for commercial and general aviation aircraft. Scheduled carriers and charter airlines subject to Federal Aviation Regulation (FAR) Part 121 are airlines that operate aircraft carrying over 30 passengers or more than 6,000 pounds of air cargo (e.g., major airlines). Part 121 scheduled carriers suffered a total of 1,642 fatalities in 142,324,116 aircraft hours flown, or about 0.036 fatalities for every 100,000 aircraft hours flown. Airlines subject to FAR Part 135 (scheduled carriers operating aircraft that carry less than 30 passengers or less than 6,000 pounds of air cargo) had a fatal accident rate of 0.238 per 100,000 aircraft hours flown. General aviation aircraft had a fatal accident rate of 1.767 per 100,000 aircraft hours flown.

The other common accident statistic that has been compiled only for commercial aviation is expressed as the number of accidents per aircraft departure. Table 3.13.2 lists national accident rates for the past 14 years in terms of accidents per aircraft departure. Part 121 scheduled carriers had a total of 1,642 fatalities for over 98 million aircraft departures, or about 0.052 fatalities for every 100,000 aircraft departures. Part 135 scheduled carriers had a total of 410 fatalities for over 40 million aircraft departures, or about 0.170 fatalities for every 100,000 aircraft departures.

TABLE 3.13.1
NATIONAL ACCIDENT STATISTICS ASSOCIATED WITH AVIATION ACTIVITY BASED ON AIRCRAFT HOURS FLOWN

Part 121 - Scheduled U.S. Air Carriers

	Accidents		Fatalities			Aircraft	Accident Rates per 100,000 Aircraft Hours Flown	
Year	Total	Fatal	Total	Aboard	Other	Hours Flown	Total	Fatal
1982	16	4	234	222	12	6,697,770	0.239	0.060
1983	22	4	15	14	1	6,914,969	0.318	0.058
1984	13	1	4	4	0	7,736,037	0.168	0.013
1985	17	4	197	196	1	8,265,232	0.206	0.048
1986	21	2	5	4	1	9,495,158	0.221	0.021
1987	32	4	231	229	2	10,115,407	0.316	0.040
1988	28	3	285	274	11	10,521,052	0.266	0.029
1989	24	8	131	130	1	10,597,922	0.226	0.075
1990	22	6	39	12	27	11,524,726	0.191	0.052
1991	25	4	62	49	13	11,258,579	0.222	0.036
1992	16	4	33	31	2	11,886,929	0.135	0.034
1993	22	1	1	0	1	12,189,525	0.180	0.008
1994	19	4	239	237	2	12,472,810	0.152	0.032
1995	33	2	166	160	6	12,648,000	0.261	0.016
Total	310	51	1,642	1,562	80	142,324,116	0.218	0.036

SOURCE: National Transportation Safety Board, 1996a.

TABLE 3.13.1 (Continued)
NATIONAL ACCIDENT STATISTICS ASSOCIATED WITH AVIATION ACTIVITY BASED ON AIRCRAFT HOURS FLOWN

Part 135 - Scheduled Commuter Air Carriers

	Accidents		Fatalities			Aircraft	Accident Rates per 100,000 Aircraft Hours Flown	
Year	Total	Fatal	Total	Aboard	Other	Hours Flown	Total	Fatal
1982	26	5	14	14	0	1,299,748	2.000	0.385
1983	17	2	11	10	1	1,510,908	1.125	0.132
1984	22	7	48	46	2	1,745,762	1.260	0.401
1985	21	7	37	36	1	1,737,106	1.209	0.403
1986	15	2	4	4	0	1,724,586	0.870	0.116
1987	33	10	59	57	2	1,946,349	1.695	0.514
1988	19	2	21	21	0	2,092,689	0.908	0.096
1989	18	5	31	31	0	2,240,555	0.803	0.223
1990	15	4	7	5	2	2,336,952	0.642	0.171
1991	22	8	99	77	22	2,171,829	1.013	0.368
1992	23	7	21	21	0	2,210,576	1.040	0.317
1993	16	4	24	23	1	2,428,102	0.659	0.165
1994	10	3	25	25	0	2,601,823	0.384	0.115
1995	12	2	9	9	0	2,580,000	0.465	0.078
Total	269	68	410	379	31	28,626,985	0.940	0.238

SOURCE: National Transportation Safety Board, 1996a.

TABLE 3.13.1 (Continued)
NATIONAL ACCIDENT STATISTICS ASSOCIATED WITH AVIATION ACTIVITY BASED ON AIRCRAFT HOURS FLOWN

General Aviation

Year	Accidents		Fatalities			Aircraft Hours Flown	Accident Rates per 100,000 Aircraft Hours Flown	
	Total	Fatal	Total	Aboard	Other		Total	Fatal
1982	3,233	591	1,187	1,170	17	29,640,000	10.908	1.994
1983	3,078	556	1,069	1,062	7	28,673,000	10.735	1.939
1984	3,017	545	1,042	1,021	21	29,099,000	10.368	1.873
1985	2,739	498	955	944	11	28,322,000	9.671	1.758
1986	2,582	474	967	878	89	27,073,000	9.537	1.751
1987	2,495	447	838	823	15	26,972,000	9.250	1.657
1988	2,385	450	800	792	8	27,445,000	8.690	1.640
1989	2,232	431	768	765	3	27,920,000	7.994	1.544
1990	2,215	442	768	761	7	28,510,000	7.769	1.550
1991	2,175	432	786	772	14	27,226,000	7.989	1.587
1992	2,073	446	857	855	2	23,792,000	8.713	1.875
1993	2,039	398	736	732	4	22,531,000	9.050	1.766
1994	1,990	402	723	716	7	21,873,000	9.098	1.838
1995	2,066	408	732	725	7	20,000,000	10.330	2.040
Total	34,319	6,520	12,228	12,016	212	369,076,000	9.299	1.767

SOURCE: National Transportation Safety Board, 1996a.

TABLE 3.13.2
NATIONAL ACCIDENT STATISTICS ASSOCIATED WITH AVIATION ACTIVITY BASED ON AIRCRAFT DEPARTURES

Part 121 - Scheduled U.S. Air Carriers

	Accidents		Fatalities			Aircraft	Accident Rates per 100,000 Aircraft Departures	
Year	Total	Fatal	Total	Aboard	Other	Departures	Total	Fatal
1982	16	4	234	222	12	5,162,346	0.310	0.077
1983	22	4	15	14	1	5,235,262	0.420	0.076
1984	13	1	4	4	0	5,666,076	0.229	0.018
1985	17	4	197	196	1	6,068,893	0.280	0.066
1986	21	2	5	4	1	6,928,103	0.303	0.029
1987	32	4	231	229	2	7,293,025	0.439	0.055
1988	28	3	285	274	11	7,347,575	0.381	0.041
1989	24	8	131	130	1	7,267,341	0.330	0.110
1990	22	6	39	12	27	7,928,357	0.277	0.076
1991	25	4	62	49	13	7,672,367	0.326	0.052
1992	16	4	33	31	2	7,717,408	0.207	0.052
1993	22	1	1	0	1	7,935,743	0.277	0.013
1994	19	4	239	237	2	8,041,799	0.236	0.050
1995	33	2	166	160	6	8,220,000	0.401	0.024
Total	310	51	1,642	1,562	80	98,484,295	0.315	0.052

SOURCE: National Transportation Safety Board, 1996a.

TABLE 3.13.2 (Continued)
NATIONAL ACCIDENT STATISTICS ASSOCIATED WITH AVIATION ACTIVITY BASED ON AIRCRAFT DEPARTURES

Part 135 - Scheduled Commuter Air Carriers

Year	Accidents		Fatalities			Aircraft Departures	Accident Rates per 100,000 Aircraft Departures	
	Total	Fatal	Total	Aboard	Other		Total	Fatal
1982	26	5	14	14	0	2,026,691	1.283	0.247
1983	17	2	11	10	1	2,328,430	0.730	0.086
1984	22	7	48	46	2	2,676,590	0.822	0.262
1985	21	7	37	36	1	2,561,463	0.820	0.273
1986	15	2	4	4	0	2,798,811	0.536	0.071
1987	33	10	59	57	2	2,809,918	1.174	0.356
1988	19	2	21	21	0	2,909,005	0.653	0.069
1989	18	5	31	31	0	2,818,520	0.639	0.177
1990	15	4	7	5	2	3,159,763	0.475	0.127
1991	22	8	99	77	22	2,647,876	0.831	0.302
1992	23	7	21	21	0	2,911,168	0.790	0.240
1993	16	4	24	23	1	3,322,041	0.482	0.120
1994	10	3	25	25	0	3,615,888	0.277	0.083
1995	12	2	9	9	0	3,506,000	0.342	0.057
Total	269	68	410	379	31	40,092,164	0.671	0.170

SOURCE: National Transportation Safety Board, 1996a.

Tables 3.13.1 and 3.13.2 show that the number of aircraft hours flown for both FAR Part 121 and FAR Part 135 aircraft has increased over time but that the accident rate per 100,000 aircraft hours flown or per 100,000 departures has fluctuated in a manner that bears no relationship to the number of aircraft hours flown or the number of aircraft departures. Additionally, while the number of aircraft hours flown for general aviation aircraft has generally decreased over time, the accident rate per 100,000 aircraft hours flown has fluctuated and not shown a similar general decrease that can be correlated to the number of aircraft hours flown. A graphical representation of the comparison of the accident rates by year for each of the three types of aviation activity shows that no correlation exists between accident rates and number of hours flown (see Figures 3.13.1 through 3.13.3).

3.13.1.3 SJC Accident History and Procedures

The NTSB has investigated 16 accidents[1] associated with SJC since 1982. All of these 16 accidents involved general aviation aircraft. Three of these accidents involved fatalities (NTSB, 1996b). Table 3.13.3 presents specific data associated with each of these 16 accidents.

Figure 3.13.4 presents the number of operations at SJC from 1982 through 1995. Although the total number of operations by all classes of Airport users at SJC fluctuates from year to year, there has been a general decline in the total number of operations over the past 14 years. This decline in overall operations at the Airport is due to the decline in general aviation operations. Figure 3.13.4 also shows that no relationship exists between the number of operations and the number of accidents in a given year.

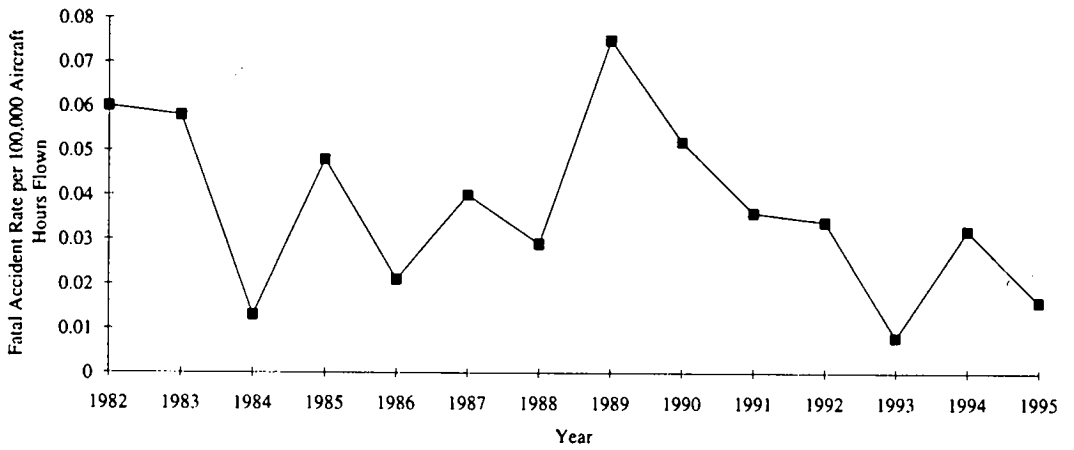
As shown on a national scale in Tables 3.13.1 and 3.13.2, and Figures 3.13.1 through 3.13.3 and on a local scale in Figure 3.13.4, there does not appear to be a meaningful relationship between aviation activity and air safety.

3.13.1.4 Bird Hazards

Aircrafts striking birds can cause accidents. Concentrations of birds in the approach and departure patterns and landing areas at an airport or in the immediate vicinity of an airport can represent a high-risk condition. The FAA has proposed restrictions on wetland restoration or enhancement near airports in a draft advisory circular (150/5200). The FAA also has established regulations for certification criteria for commercial aircraft which address their designed ability to withstand bird strikes.

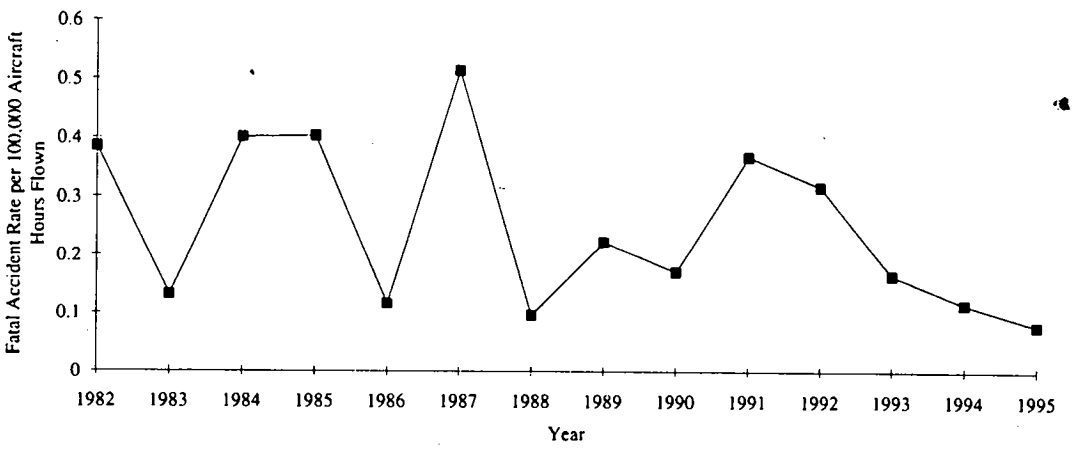
[1] Accident is defined by NTSB to mean an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage.

Figure 3.13.1
Comparison of Fatal Accident Rates over Time:
Part 121 Scheduled U.S. Air Carriers



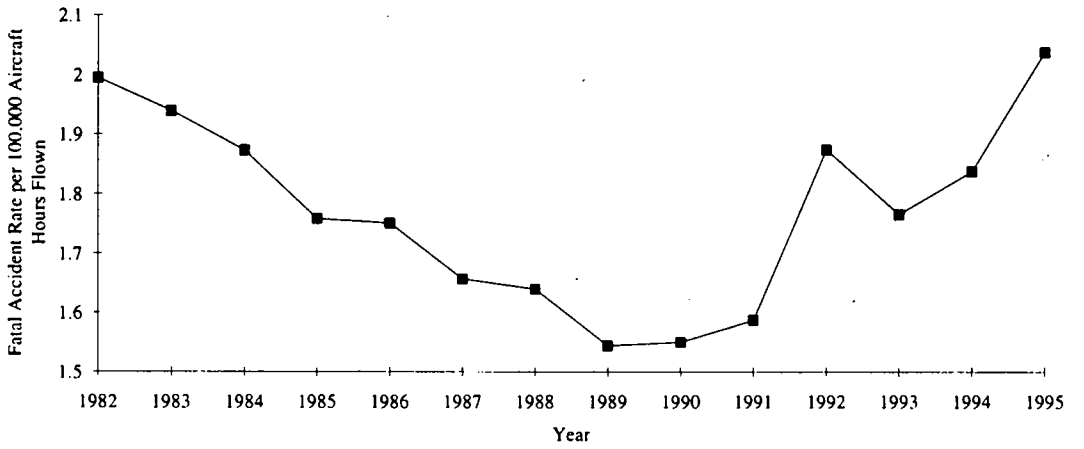
SOURCE: San Jose International Airport Master Plan Update / 940404

Figure 3.13.2
Comparison of Fatal Accident Rates over Time:
Part 135 Scheduled Commuter Air Carriers



SOURCE: San Jose International Airport Master Plan Update / 940404

Figure 3.13.3
Comparison of Fatal Accident Rates over Time:
General Aviation



SOURCE: San Jose International Airport Master Plan Update / 940404

There have been between 10 and 49 reported bird strikes at SJC on an annual basis since 1980 with an average of 22 strikes per year (please see Section 3.8.1.5, Biological Resources, which has more detailed information on bird strikes at SJC). None of these bird strikes has resulted in an accident. Records maintained by the Airport Department indicate that none of the bird strikes at the Airport are associated with the species known to inhabit the Guadalupe River. In addition, as described in Section 3.8, Biological Resources, and in Appendix 3.8.B, the Airport has a wildlife management program that minimizes bird hazards at SJC.

3.13.2 AIR SAFETY IMPACTS

3.13.2.1 Project Case

Air Safety Impacts

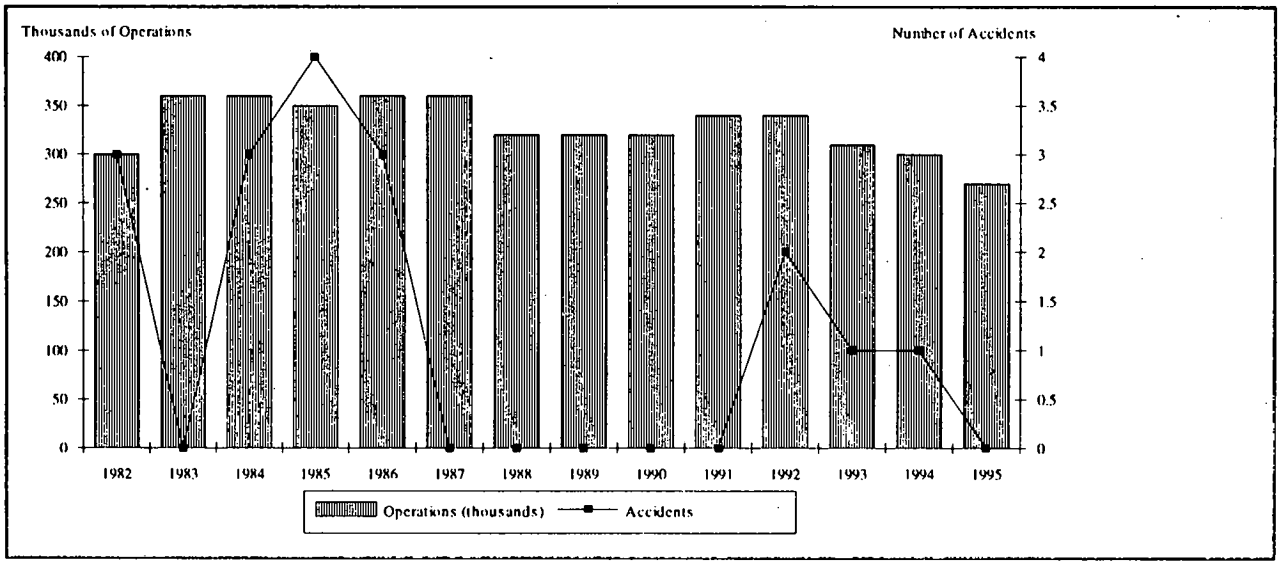
The Airport would be designed to comply with FAA guidelines and standards associated with maintaining air safety. The adopted FAA guidelines set the standards for new airports and recognize that modifications to existing facilities can include variations from the guidelines without compromising safety. Guideline variations are frequently necessary at airports due to geographical or terrain conditions. As part of the Master Plan Update, the Airport proposes to maintain two existing waivers and would seek a third waiver (see Table 3.13.4). None of these modifications would change existing flight tracks. No new safety issues would result from approval of these waivers.

TABLE 3.13.3
SUMMARY OF ACCIDENTS AT SJC FROM 1982-1995

Date	Type of Aircraft	Type of Accident	Fatalities
On-Airport			
August 31, 1982	Cessna 172 M	Landing Gear Collapsed During Landing	0
February 28, 1984	Cessna 172A	Nosed Over as a Result of DC-9 Jet Blast	0
May 20, 1984	Piper PA-32-301	Nose Gear Collapsed During Landing	0
August 29, 1984	Mooney M-20G	Aircraft Wing Hit Construction Barricade During Landing	0
January 11, 1985	Cessna T210L	Aircraft Landed Without Extended Landing Gear	0
May 30, 1985	Beech 65-A90	Failure of Aircraft Landing Gear	0
June 24, 1985	Luscombe 8A	Pilot Error During Touch and Go	0
December 4, 1985	Piper PA-32-301	Pilot Error During Landing	0
February 7, 1986	Cessna 152	Nose Gear Collapsed During Landing	0
July 22, 1986	Taylorcraft 19	Pilot Error During Landing	0
August 26, 1986	Cessna TR182G	Aircraft Landed Without Extended Landing Gear	0
February 29, 1992	Cessna 195A	Pilot Error During Landing	0
September 1, 1992	Maule M5-180C	Pilot Error During Landing	0
Off-Airport			
June 26, 1982	Cessna 320B and Cessna 172M	Midair Collision	3
October 27, 1993	Wittman Tailwind W8L	Loss of Engine Power, Collision with Trees and Parked Vehicles on Nearby Residential Street	2
January 28, 1994	Sikorsky Helicopter	Loss of Engine Power, Collision with Building	1

SOURCE: National Transportation Safety Board, 1996b

TABLE 3.13.4
SJC ANNUAL OPERATIONS AND ACCIDENTS



Year	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Operations (thousands)	300	360	360	350	360	360	320	320	320	340	340	310	300	270
Accidents	3	0	3	4	3	0	0	0	0	0	2	1	1	0

SOURCE: FAA, 1982 to 1993; Trembley, 1996; NTSB, 1996b.

TABLE 3.13.5
EXISTING AND PROPOSED WAIVERS FROM EXISTING FAA AIRFIELD DESIGN GUIDELINES

Item	General FAA Design Guidelines	Description of Existing and Proposed Waivers
Separation between Runway 12L-30R and Taxiway Y (under all Project Case Alternatives).	400-foot centerline separation for Group IV aircraft (e.g., jumbo aircraft).[a]	Existing 350-foot separation approved by FAA on August 7, 1989. Request to continue waiver under all Project Case Alternatives (Project A-1 and A-1a)
Runway Object Free Area (OFA) for Runway 12R-30L (under all Project Case Alternatives) and for Runway 12L (under the Project Case Alternative).	800-foot wide at end of runway for Group IV aircraft.	Existing 500-foot OFA width approved by FAA on March 9, 1992 for 12R-30L. Request to continue waiver for 12R-30L (Project A-14) and apply to extended 12L (Project A-1).
Separation between Runway 11-29 and Taxiway V (under Project Case and Project Case Alternative A).	300-foot to 400-foot centerline to centerline separation for Group III and IV aircraft and 250-foot holdline for Approach Category C aircraft.	Request for 285-foot separation with D-IV aircraft operational restrictions when Approach Category C aircraft using 11-29 (Project A-26).

[a] For detailed descriptions of aircraft types, please see AC 150/5300.

SOURCE: City of San Jose, 1996

Since there is no meaningful relationship between aviation activity and accident rates and since the Airport would follow the guidance, standards, and design criteria set forth by the FAA, the Project Case would not result in an increase in air safety risk or any other public health hazard associated with aircraft operations.

Air Safety Impact: Implementation of the Project Case would not result in an increase in air safety risks. (LESS THAN SIGNIFICANT)

3.13.2.2 Project Case Alternative A

Air Safety Impacts

Project Case Alternative A would be designed in accordance with FAA guidelines, standards, and design criteria. As under the Project Case, the RPZs and OFAs associated with the runway 12L-30R would be changed to account for the proposed runway extension. This would maintain air safety at SJC. See the discussion of Air Safety Impacts for the Project Case, Section 3.13.2.1, above.

3.13.2.3 Project Case Alternative B

Air Safety Impacts

Project Case Alternative B would be designed in accordance with FAA guidelines, standards, and design criteria. No changes in the RPZs or OFAs would occur under this alternative. Air safety at SJC would be maintained. See the discussion of Air Safety Impacts for the Project Case, Section 3.13.2.1, above.

3.13.2.4 No Project

Under the No Project Alternative, no change in the airfield or any other Airport facilities would occur. Therefore, no change in the risk to air safety would occur.

3.13.3 MITIGATION MEASURES FOR SIGNIFICANT AIR SAFETY IMPACTS

Since no significant air safety impacts would occur, no mitigation measures are required.

ANALYSIS AND COMPARISON OF ALTERNATIVES

CHAPTER 4

CHAPTER 4

ANALYSIS AND COMPARISON OF ALTERNATIVES

As required under Section 15126(d) of the *CEQA Guidelines*, an EIR must discuss a range of reasonable alternatives to a proposed project that would feasibly attain most of the basic objectives of the project while avoiding or lessening significant environmental effects. An evaluation of the comparative merits of the project alternatives also is required. This EIR evaluates three Project Case Alternatives in an equal level of detail: Project Case Alternative A, Project Case Alternative B, and the No Project Alternative. Each of the three Project Case Alternatives functions as an alternative to each of the other two in conformance with Section 15126(d) of the CEQA *Guidelines*. The discussion of the impacts associated with each of these alternatives occurs in Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, and summarized in Section 1.3.

This chapter also describes additional on-site and off-site alternatives to the three Project Case Alternatives. In addition, this chapter summarizes the No Project Alternative, which is discussed in Chapter 3. The Project Case Alternatives discussed in Chapter 3, the No Project Alternative discussed in Chapter 3, and the variants identified in this chapter encompass a range of reasonable alternatives that would feasibly attain most of the basic objectives of the project while avoiding or lessening significant environmental effects. The environmentally superior alternative is identified at the conclusion of this chapter.

4.1 ON-SITE VARIANTS

The variants discussed in this section would change aspects of the proposed Master Plan Update project that occur on the Airport site. The variants include both facility components, such as relocation of structures and support equipment, and operational components such as emphasis on different types of aircraft activities.

4.1.1 C.A.A.P. "ALTERNATIVE 8"

4.1.1.1 Description

As described in Section 1.1 of this EIR (Background and Project History), the three Project Case Alternatives were derived from an extensive technical and public review process to identify and formulate a set of distinct airport facility development scenarios for consideration. In early 1991, a community group called Citizens Against Airport Pollution (C.A.A.P.), concerned with the future development of SJC and with aircraft noise issues in particular, submitted to the City a

proposed development scenario it had devised, which came to be referred to as "alternative 8" in the range of possible development alternatives under review by the City at that time. In May 1991, the San Jose City Council directed that "alternative 8" be formally developed and considered in the Master Plan Update process.

C.A.A.P. submitted its final document describing "alternative 8" in January 1992. This proposed alternative, as presented by C.A.A.P., did not contain a specific set of facility improvements or activity levels upon which to formulate a project description comparable to the other Project Case Alternatives and suitable for environmental analysis. Rather, "alternative 8" contained a number of regulatory and operational constraints on development in the form of "environmental benchmarks" and "service directives". The City and its Master Plan Update consultant (TRA) undertook considerable work in attempting to formulate a project description (i.e., a specific set of facility improvements designed to accommodate a specified set of aviation activity levels) assuming that the numerous limitations could be practically and lawfully implemented. The "environmental benchmarks" and "service directives" included: elimination of general aviation flight tracks, reducing the Airport's CNEL noise contours to a desired magnitude as a condition of facility development, restricting air cargo activity to levels occurring in 1988, disallowing airline "hubbing", and prohibiting pilot training, non-emergency helicopters, and non-corporate fixed-based operators.

4.1.1.2 Environmental Impacts

This variant does not constitute a physical development project. The "environmental benchmarks" included in this variant are associated with noise, air quality, and transportation impacts. These effects of implementing these "environmental benchmarks" are discussed in the appropriate technical sections in Chapter 3.

4.1.1.3 Ability to Meet Project Objectives

In August 1993, the City rejected "alternative 8" on the basis that the proposal was in reality a series of environmental objectives and not a physical development project; moreover, that it was not certain that the parameters constraining aircraft operations were achievable, creating significant problems with the stability of the project description, and that the limitations in the proposal made it very similar to the required No Project Alternative. The various "environmental benchmarks" and "service directives" proposed by C.A.A.P. in "alternative 8", however, were referred for analysis in this EIR as potential mitigation measures (most of which are discussed in Section 3.5 of this EIR).

4.1.2 ALTERNATE FUEL STORAGE FACILITY LOCATION

4.1.2.1 Description

This variant would result in locating the fuel storage facility at another location at the Airport. Given the constraints of the Airport and the existing locations of other air passenger operations

and air cargo operations, two potential alternate locations have been identified: (1) the existing fuel tank site on the east side of the Airport south of Terminal C; and (2) the vacant property on the west side of the Airport.

Existing Fuel Tank Site

It is assumed that a fuel storage facility at this location, which is currently planned for aviation support facilities, would accommodate three 500,000-gallon fuel tanks. All other components of the Project Case Alternatives, as outlined in Chapter 2, would be developed.

Vacant Property on the West Side of the Airport

Development of a fuel storage facility at this location, which is currently planned for air cargo operations, would accommodate the proposed number of fuel tanks under any of the Project Case Alternatives. Except for Project C-3, all other components of the Project Case Alternatives, as outlined in Chapter 2, would be developed.

4.1.2.2 Environmental Impacts

Land Use

Development of a fuel storage facility at either alternate location would not result in the conversion of the vacant Airport land on the north side of U.S. 101 as described for the Project Case Alternatives.

Cultural Resources

Development of a fuel storage facility at the existing fuel storage location would eliminate the potential for the disturbance of subsurface cultural resources that could occur at the fuel storage location proposed under the Project Case Alternatives. Impacts to cultural resources under the alternate location for a fuel storage facility on the vacant property on the west side of the Airport would be the same as that described for the fuel storage location proposed under the Project Case Alternatives.

Traffic and Transportation

The development of a fuel storage facility at the aviation support area would not result in any change in the number of trips generated at the Airport since the aviation support facility is not considered to be a trip generator in the traffic analysis. Therefore, the level of service at intersections in the Airport vicinity would be the same as that described for the Project Case Alternatives.

The development of a fuel storage facility on the west side of the Airport could slightly reduce the number of trips generated at the Airport if a reduction in air cargo activity were to occur as a

result of the reduction in the amount of space devoted to air cargo operations. The reduction in trips would not be considered significant and no change in the level of service at intersections in the Airport vicinity from that identified for the Project Case Alternatives would occur.

For the alternate fuel storage facility location at the existing fuel storage area, tanker trips would occur on Airport Boulevard, Skyport Boulevard, and Guadalupe Parkway that would not occur under the Project Case Alternatives. These tanker trips would occur during the AM and PM peak hours since the amount of fuel stored at this alternate location would be less than that provided for in the Project Case Alternatives. Similarly, the alternate fuel storage facility location on the west side of the Airport would result in tanker trips on Martin Avenue, De La Cruz Boulevard, and Coleman Avenue that would not occur under the Project Case Alternatives. These tanker trips could be scheduled to take place during off-peak travel times.

Air Quality

Given that the number of trips that would not be significantly different from that described for the Project Case Alternatives, the air quality impacts associated with these alternate fuel storage facility locations would be similar to those described for the Project Case Alternatives.

Noise

The noise associated with aircraft operations would be the same under either alternate fuel storage facility location as that described for the Project Case Alternatives.

Hydrology and Water Quality

The amount of impervious surface that would occur under either alternate fuel storage facility location would be slightly less than that described for the Project Case Alternatives. This is because the development of the vacant parcel on the north side of U.S. 101 would not occur under either alternate fuel storage facility location. Therefore, the amount of runoff into the Guadalupe River would be slightly less than that described for the Project Case Alternatives. The measures described for the Project Case Alternatives to contain any fuel spills and mitigate any water quality impacts also would be applicable for either alternate fuel storage facility location.

Geology and Seismicity

Since the soils and geological conditions at both alternate fuel storage facility locations are the same as those described for the Project Case Alternatives, development of either alternate fuel storage facility location would result in the same impacts as that described for the Project Case Alternatives.

Biological Resources

Since the biological resource impacts associated with development of a fuel storage facility are associated with changes in water quality and the affects on the Guadalupe River, the development of a fuel storage facility at either alternate location would result in the same impacts as those described for the Project Case Alternatives. Although either alternate fuel storage facility location would be farther from the Guadalupe River, the impacts associated with fuel spills reaching the watercourse would be the same.

Energy Supply and Natural Resources

The development of an alternate fuel storage facility location would not alter the demand for energy at the Airport. Therefore, the energy impacts of either alternate fuel storage facility would be the same as those described for the Project Case Alternatives.

Aesthetics

The impacts associated with negative aesthetic effects to motorists on U.S. 101 would not occur under either alternate fuel storage facility location. Development of a fuel storage facility at either alternate location would be visible from internal roadways at the Airport and, depending on how these facilities would be sited, may be visible from external roadways.

Public Services and Utilities

The demand for public services and utilities under either alternate fuel storage facility location would be similar to that described for the Project Case Alternatives.

Hazardous Materials

Although each of the alternate fuel storage facility locations are farther from the Guadalupe River than the fuel storage facility described for the Project Case Alternatives, the impacts associated with containment of hazardous materials and the potential effects on the Guadalupe River would be similar since both alternate fuel storage facility locations would drain to the river.

Air Safety

The air safety impacts associated with this variant would be similar to those described for the Project Case Alternatives.

Conclusion

Significant impacts that would occur under the Project Case Alternatives associated with the fuel storage facility (e.g., biological resources, geology and seismicity, and hazardous materials)

would be similar under either alternate fuel storage facility location. The development of an alternate fuel storage facility at the existing fuel storage facility location would reduce environmental impacts associated with land use, cultural resources, hydrology and water quality, and aesthetics. The development of an alternate fuel storage facility on the west side of the Airport would reduce environmental impacts associated with land use, hydrology and water quality, and aesthetics.

4.1.2.3 Ability to Meet Project Objectives

The existing fuel storage facility site was rejected for the following reasons: (1) the capacity constraints of this alternate site (i.e., only 1.5 million gallons of fuel could be stored at this alternate location); (2) the difficulty of effectively remediating contaminated soil underlying this site (see Section 3.12 of this EIR for further discussion) while constructing operating fuel facilities; and (3) the substantial impact on air carrier and air cargo fuel service operations while remediating the soil and constructing a new fuel facility on the same site. Vacant Airport property on the west side, while technically feasible, was rejected for the following reasons: (1) the remoteness from the air carrier aircraft parking apron on the east side where most fueling operations would occur; (2) the location of this property adjacent to taxiways and runways which makes it suitable for uses requiring airfield access; and (3) the need to meet the forecasted demand for air cargo facilities. The vacant Airport parcel across U.S. 101 was determined to be the best site due to the following reasons: (1) its proximity to the air carrier apron, the new fuel dispensing site near the air carrier apron, and the Southern Pacific pipeline bulk distribution facility; and (2) the limited suitability for other aviation-related uses.

4.1.3 ACCOMMODATE MORE GENERAL AVIATION

4.1.3.1 Description

This variant would accommodate more of the general aviation demand at the Airport than under each of the Project Case Alternatives by not developing the proposed interim parking lot on the west side of the Airport (Project T-1) in Phase 1 of the Project Case Alternatives and not developing the air cargo facilities (Project C-3) and the four-level employee parking garage (Project T-7) on the west side of the Airport in Phase 2 of the Project Case. Not developing these facilities would enable the existing tie-downs and shelters at the south end of the Airport to be relocated to the 55-acre parcel on the west side of the Airport. For analysis purposes, it is assumed that this variant would accommodate the demand for general aviation based aircraft. The effect of accommodating the general aviation demand would reduce the airfield capacity available for air carrier and air cargo activity, which would affect the ability of the Airport to accommodate the air passenger demand projected for each of the Project Case Alternatives. It is assumed that the parking lots would occur somewhere in close proximity to the Airport. Since the operation of the all-cargo airline facilities are dependent on being adjacent to taxiways for the arrival and departure of aircraft, no off-site location in the Airport vicinity would be feasible.

It is assumed that under this variant that all-cargo airline projected demand would be met at another airport in the Bay Area (e.g., Metropolitan Oakland International Airport, San Francisco International Airport, or Moffett Field). Except for Projects T-1, C-3, and T-7, all other components of the Project Case Alternatives, as outlined in Chapter 2, would be developed.

4.1.3.2 Environmental Impacts

Land Use

The conversion of the vacant Airport land on the west side of the Airport would be similar to that described for the Project Case Alternatives. This variant would result in development of an off-site location to accommodate the parking demand and the demand for all-cargo airline facilities. This could result in increased urban development in the Airport vicinity. The land use impacts of accommodating the all-cargo airline projected demand at another airport would be dependent on the specific area where the demand would be met. However, this would result in the intensification of uses at any airport where it occurs.

Cultural Resources

Impacts to cultural resources on the vacant property on the west side of the Airport would be the same under this variant as those described for the Project Case Alternatives.

Traffic and Transportation

The number of trips generated at the Airport would be less under this variant than that described for the Project Case Alternatives. This reduction is due to the reduced number of air passengers and the development of near-term parking spaces at an off-Airport location. Depending on the location for the parking spaces, the level of service at intersections in the Airport vicinity could be significantly affected. If the parking area were to be developed on off-Airport property west of the Airport, the traffic patterns in the Airport vicinity would be similar to those described for the Project Case Alternatives. If the parking area were to be developed on off-Airport property east of the Airport, additional trips would be generated at intersections that are forecast to operate at congested levels under the No Project Alternative.

The accommodation of all-cargo airline facilities would reduce the number of trips that would occur on roadways within the vicinity of the Airport. However, this reduction likely would be offset by the increase in the number of trips that would be generated by an increase in general aviation facilities at the Airport.

Overall vehicular traffic would be reduced under this variant because the number of air passengers would be less. Therefore, the level of service impacts at intersections in the Airport vicinity would be less under this variant compared to that described for the Project Case Alternatives.

Air Quality

Given that the number of trips within the Airport vicinity would be less than that described for the Project Case Alternatives, the air quality impacts associated with this variant would be less than those described for the Project Case Alternatives. If the parking area were to be developed on off-Airport property east of the Airport, this could result in increased congestion and localized carbon monoxide hotspot concentrations at intersections on the east side of the Airport. In addition, the unaccommodated air carrier and air cargo demand would occur at another airport in the Bay Area and would result in air pollutant emissions increases at the other airport.

Noise

The number of air carrier and all-cargo aircraft would be reduced under this variant and the noise associated with aircraft operations would be less than that described for the Project Case Alternatives. However, the unaccommodated air carrier and air cargo demand would occur at another airport in the Bay Area and would result in noise increases at the other airport.

Hydrology and Water Quality

The amount of impervious surface under this variant would be the same as that described for the Project Case Alternatives. This is because the vacant parcel on the west side of the Airport would be developed, which would result in the same increase in the amount of impervious surfaces at the Airport.

Geology and Seismicity

Since the soils and geological conditions are the same under this variant as compared to the Project Case Alternatives, the same soils and seismic impacts described for the Project Case Alternatives would occur.

Biological Resources

Since the biological resource impacts are associated with development of a fuel storage facility, the development of general aviation facilities on the west side of the Airport would be the same as those described for the Project Case Alternatives.

Energy Supply and Natural Resources

The energy demand at the Airport would be less under this variant as a result of a decrease in air carrier and all-cargo airline activity at the Airport. However, the overall demand for energy, when considered on a regional basis, would be the same under this variant as that described for the Project Case Alternatives.

Aesthetics

Under this variant, the parking and the all-cargo airline facilities would be replaced with general aviation facilities on the west side of the Airport. This change would not alter the visual resource impacts described for the Project Case Alternatives.

Public Services and Utilities

The demand for public services and utilities would be less under this variant since the air carrier and all-cargo airline activity would be less compared to that described for the Project Case Alternatives.

Hazardous Materials

Since this variant does not change the location of the fuel storage facility, the impacts associated with hazardous materials would be the same as that described for the Project Case Alternatives.

Air Safety

The air safety impacts associated with this variant would be similar to those described for the Project Case Alternatives.

Conclusion

No significant impacts are associated with the development of the vacant property on the west side of the Airport. A change in use at this property would reduce the impacts associated with traffic and transportation, noise, air quality, energy supply and natural resources, and public services and utilities.

4.1.3.3 Ability to Meet Project Objectives

The Master Plan Update analysis demonstrates that the Airport cannot fully accommodate all the projected aviation demand (air carrier, air cargo, and general aviation given the physical constraints of the Airport site). The three Project Case Alternatives present distinct levels of general aviation demand accommodation (50 percent in the Project Case, 70 percent in Project Case Alternative A, and 80 percent in Project Case Alternative B). Two of the three Project Case Alternatives (Project Case Alternatives A and B) include general aviation development on the vacant west side parcel between the San Jose Jet Center and the FAA Air Traffic Control Tower as a Phase 1 project component, and Project Case Alternative B calls for additional general aviation development north of the FAA Air Traffic Control Tower as a Phase 2 project component. This variant would constrain the City's ability to expand air carrier facilities to serve passenger growth and air cargo.

4.1.4 ACCOMMODATE MID-POINT AIR CARGO DEMAND WITH ONE COMMERCIAL RUNWAY

4.1.4.1 Description

This variant (proposed by the City of Santa Clara), that would have one commercial runway and accommodate air cargo tonnage, is midway between the air cargo tonnage accommodated by Project Case Alternative A and the air cargo tonnage accommodated by Project Case Alternative B (assumed to be approximately 225,200 tons in the year 2010). For purposes of this discussion, it is assumed that the development of Airport facilities under this variant would be similar to that described for Project Case Alternative B except that all-cargo airline facilities would be developed on the west side of the Airport in place of a portion of the general aviation facilities. It is assumed that under this variant that the unmet demand for all-cargo airline facilities would be accommodated at another airport in the Bay Area (e.g., Metropolitan Oakland International Airport, San Francisco International Airport, or Moffett Field).

4.1.4.2 Environmental Impacts

Land Use

Development of an all-cargo airline facility on the west side of the Airport would convert the vacant land on the west side of the Airport. This variant would reduce the amount of land proposed for general aviation facilities under Project Case Alternative B. The land use impacts would be similar to those described under the Project Case Alternatives.

Cultural Resources

Impacts to cultural resources under this variant that would develop the vacant property on the west side of the Airport would be the same as that described for the Project Case Alternatives.

Traffic and Transportation

The number of trips generated at the Airport under this variant would be less than that described for Project Case Alternative A but more than that described for Project Case Alternative B. This number of vehicle trips would not result in any change in the level of service impacts at intersections from those described for Project Case Alternative B.

Air Quality

The air pollutant emissions in the Airport vicinity would be less than that described for Project Case Alternative A, but more than that described for Project Case Alternative B.

Noise

The noise generated by aircraft and vehicular traffic in the Airport vicinity would be less than that described for Project Case Alternative A, but more than that described for Project Case Alternative B.

Hydrology and Water Quality

The amount of impervious surface under this variant would be the same as that described for the Project Case Alternatives. This is because the vacant parcel on the west side of the Airport would be developed, which would result in the same increase in the amount of impervious surfaces at the Airport.

Geology and Seismicity

Since the soils and geological conditions are the same under this variant as compared to the Project Case Alternatives, the same soils and seismic impacts described for the Project Case Alternatives would occur.

Biological Resources

Since the vacant land on the west side of the Airport is not considered to be habitat for special status species, the biological resource impacts associated with this variant would be the same as that described for the Project Case Alternatives.

Energy Supply and Natural Resources

The energy demand under this variant would be less than that described for Project Case Alternative A but more than that described for Project Case Alternative B.

Aesthetics

The development of all-cargo airline facilities on the west side of the Airport would not alter the visual resource impacts described for the Project Case Alternatives.

Public Services and Utilities

The demand for public services and utilities under this variant would be less than that described for Project Case Alternative A but more than that described for Project Case Alternative B.

Hazardous Materials

Since this variant does not change the location of the fuel storage facility, the impacts associated with hazardous materials would be the same as that described for the Project Case Alternatives.

Air Safety

The air safety impacts associated with this variant would be similar to those described for the Project Case Alternatives.

Conclusion

No significant impacts are associated with the development of the vacant property on the west side of the Airport. A reduction in the amount of air cargo tonnage would reduce impacts associated with traffic and transportation, air quality, noise, energy supply and natural resources, and public services and utilities as compared to Project Case Alternative A.

4.1.4.3 Ability to Meet Project Objectives

This variant was submitted without a physical project description or a technical analysis necessary to determine whether it meets the project objectives. However, this variant most closely resembles Project Case Alternative B. As described above, this variant would have impacts somewhat greater than those identified for Project Case Alternative B.

4.2 OFF-SITE VARIANTS

The variants discussed in this section include scenarios that would occur off the Airport site, within the San Francisco Bay Area. The variants would relocate operations and facilities to other facilities in the Airport vicinity or to either a new airport facility or other existing airports in the region.

4.2.1 USE OF MOFFETT FIELD

4.2.1.1 Description

This alternative would result in the relocation of all SJC operations to Moffett Field, which is adjacent to the Cities of Mountain View and Sunnyvale. Formerly operated by the U.S. Navy as Moffett Naval Air Station, the airport was transferred to the National Aeronautics and Space Administration (NASA) in 1994 and remains closed to civil aviation use. The City of San Jose, as well as the Metropolitan Transportation Commission, supports the utilization of Moffett for civil aviation when restricted federal agency use is no longer required.

For purposes of analysis, it is assumed that Moffett Field could accommodate the air passenger demand and air cargo demand of the Project Case Alternatives for the year 2010. Therefore, this variant could be characterized as being the same as the Project Case Alternatives but in a different location.

4.2.1.2 Environmental Impacts

The operational environmental impacts associated with the development of an airport at Moffett Field that would accommodate air passenger demand and air cargo demand would be similar to those identified for the Project Case Alternatives. The primary difference between this variant and the Project Case Alternatives is the location in which these impacts would occur. For example, the number of trips that would be generated under this variant would be the same as the number of trips generated under the Project Case Alternatives. The difference is that the roadway network in the vicinity of Moffett Field is different from that in the SJC vicinity. Therefore, it is possible that the transportation impacts at intersections in the SJC vicinity that would occur under the Project Case Alternatives could be transferred to intersections in the Moffett Field vicinity under this variant. Similarly, the 65 CNEL noise contour would be eliminated in the SJC vicinity; however, noise impacts from the aircraft activity at Moffett Field could affect residential land uses in Mountain View and Sunnyvale. Again, this is a transference of the impact from one location to another.

The abandonment of SJC as an airport serving the greater San Jose area would have significant economic and land use implications. Many of the businesses that exist in the vicinity of SJC are located there to take advantage of doing business near the Airport. Relocation of the airport to Moffett Field could affect the viability of many of these businesses and could result in the relocation of many businesses to Mountain View or Sunnyvale. In addition, decisions regarding the future land uses of SJC would be required and the environmental impacts of such land use decisions could be significant.

4.2.1.3 Ability to Meet Project Objectives

Within the last year, NASA has been considering the possibility of limited cargo airline use of Moffett. The implications for the Project Case Alternatives of Moffett Field becoming available for cargo airline use are analyzed in Appendix 4.2.A. However, as the City has no jurisdiction over the use of Moffett Field, and as Moffett remains a restricted federal facility, it would be too speculative for the City to formulate an additional (or modified) alternative that includes accommodating a portion of SJC demand at Moffett.

The relocation of airport operations to Moffett Field would not meet the objective of accommodating current and future demand for commercial air carrier services at SJC. In addition, this alternative would eliminate significant environmental impacts that have been identified for the Project Case Alternatives at SJC and would result in transferring significant impacts to Moffett Field.

4.2.2 PLACEMENT OF AVIATION FACILITIES OFF-AIRPORT

4.2.2.1 Description

This variant would result in modifying the Project Case Alternatives to place various project components at off-Airport locations. These components, which have been identified in comment letters on the NOP, affect the operation of the Airport. Examples of such project components that have been identified for placement at off-Airport locations are:

- development of a new FIS facility for international passengers, which is part of Project T-5;
- expansion of flight kitchen facilities, which is Project S-11; and
- construction of a helipad on the west side of the Airport, which is Project G-7.

4.2.2.2 Environmental Impacts

This variant would not result in a change in the determination of significant environmental impacts identified in Chapter 3. Any impacts associated with air passenger, air cargo, or general aviation activity would be similar to that described for the Project Case Alternatives. Except for Projects T-5, S-11, and G-7, all other components of the Project Case, as outlined in Chapter 2, would be developed.

4.2.2.3 Ability to Meet Project Objectives

There is currently no vacant City property in proximity to the Airport to allow for a variant that locates facilities off-Airport. Relocation of the FIS facility would not accommodate international air passengers at the Airport. The Project Case Alternatives, which are designed to meet project objectives on site, would accommodate aviation activity within the present Airport boundaries.

4.2.3 RELOCATE SJC OR CONSTRUCT NEW AIRPORT

4.2.3.1 Description

This alternative would result in the development of a new airport at another location in the greater San Jose area. Such a location is speculative since no location has been identified by the Metropolitan Transportation Commission as part of their preparation of the *Regional Air System Plan (RASP)*. The *RASP* does identify the development of a new commercial aviation airport in the Bay Area; this facility likely would be at Travis Air Force Base near Fairfield. The *RASP* also assumes that SJC would continue to function as a commercial aviation airport for the greater San Jose area.

A new airport in the greater San Jose area would require at least 1,000 acres of property (i.e., at least the same size as SJC) and likely would require more property to ensure that land use

compatibility and noise impacts are adequately addressed. No such large parcels have been identified in the greater San Jose area that would accommodate such a facility.

For purposes of analysis, it is assumed that a new airport in the greater San Jose area could accommodate the air passenger demand and air cargo demand of the Project Case Alternatives for the year 2010. Therefore, this alternative could be characterized as being the same as the Project Case Alternatives but in a different location.

4.2.3.2 Environmental Impacts

The operational environmental impacts associated with the development of a new airport that would accommodate air passenger demand and air cargo demand would be similar to those identified for the Project Case Alternatives. The primary difference between this variant and the Project Case Alternatives is the location in which these impacts would occur. For example, the number of trips that would be generated under this variant would be the same as the number of trips generated under the Project Case Alternatives. The difference is that the roadway network in the vicinity of the new airport would be different from that in the SJC vicinity. Therefore, it is possible that the transportation impacts in the SJC vicinity that would occur under the Project Case Alternatives would be transferred to intersections in the vicinity of the new airport. Similarly, the 65 CNEL noise contour would be eliminated in the SJC vicinity; however, noise impacts from the aircraft activity at a new airport could affect residential land uses and other sensitive receptors in the area surrounding the new airport. Again, this is a transference of the impact from one location to another.

As with the variant of using Moffett Field, the abandonment of SJC as an airport serving the greater San Jose area would have significant economic and land use implications. Many of the businesses that exist in the vicinity of SJC are located there to take advantage of doing business near the Airport. Relocation to a new airport could affect the viability of many of these businesses and could result in the relocation of many businesses. In addition, decisions regarding the future land uses of SJC would be required.

4.2.3.3 Ability to Meet Project Objectives

This variant is inconsistent with the project objective of continuing to provide aviation services at SJC. The facility represents a substantial public investment. No planning activity is underway or proposed by any federal, state, regional, or local agency regarding development of a replacement airport for SJC. Selection of an alternate airport location would require extensive design and environmental study well beyond the scope of this Master Plan Update and would take years to implement even if a suitable site was ultimately selected and secured. Further, the environmental impacts of developing a major airport at a new location would be significantly greater than the impacts of any of the Project Case Alternatives under consideration in this Master Plan Update.

4.2.4 EXPAND METROPOLITAN OAKLAND INTERNATIONAL AIRPORT OR SAN FRANCISCO INTERNATIONAL AIRPORT IN LIEU OF SJC

4.2.4.1 Description

This variant would result in the relocation of all SJC operations to either Metropolitan Oakland International Airport (MOIA) or San Francisco International Airport (SFO). For purposes of analysis, it is assumed that MOIA or SFO or a combination of the two airports could accommodate the air passenger demand and air cargo demand for the year 2010 as described for the Project Case. This variant does not acknowledge whether the airfield or landside capacity at either airport could accommodate the operations that currently exist and are projected to exist at SJC.

4.2.4.2 Environmental Impacts

The operational environmental impacts associated with the redistribution of air passengers and air cargo to MOIA or SFO would further increase the environmental impacts associated with the operation of these two airports. The increase in vehicle trips at either airport could result in increased congestion and unacceptable levels of service on roadways in the vicinity of MOIA or SFO. The 65 CNEL noise contour would be eliminated in the SJC vicinity; however, noise impacts from the increased aircraft activity at MOIA or SFO would increase. In addition, the number of vehicle miles traveled in the Bay Area would increase as a result of this variant since air passengers in the greater San Jose area would be required to travel further to use an airport. This would translate into increased air pollutant emissions within the air basin.

The abandonment of SJC as an airport serving the greater San Jose area would have significant economic and land use implications. Many of the businesses that exist in the vicinity of SJC are located there to take advantage of doing business near the Airport. Redistribution of air passengers and air cargo to either MOIA or SFO could affect the viability of many of these businesses and could result in the relocation of many businesses to areas around MOIA or SFO. In addition, decisions regarding the future land uses of SJC would be required.

4.2.4.3 Ability to Meet Project Objectives

The redistribution of air passenger and air cargo activities to either MOIA or SFO would not meet the objective of accommodating current and future demand for commercial air carrier services at SJC. In addition, this alternative would eliminate significant environmental impacts that have been identified for the Project Case Alternatives at SJC and would result in transferring significant impacts to either MOIA or SFO.

4.3 NO PROJECT ALTERNATIVE

4.3.1 DESCRIPTION

Under the No Project Alternative, no physical changes would be made at the Airport. Specifically, no runway or taxiway system improvements would occur, and no new air carrier gates, new air cargo, or general aviation facilities would be constructed.

Although existing facilities would not change under the No Project Alternative, activity levels at SJC would increase given the forecast growth in demand. Within existing airport design standards, the No Project Alternative would be expected to accommodate a total of approximately 370,800 annual aircraft operations and an annual passenger service level of approximately 10.8 million passengers in 2010.

4.3.2 ENVIRONMENTAL IMPACTS

The environmental impacts associated with the No Project Alternative are presented in Chapter 3.

4.3.2.1 Land Use

The No Project Alternative would not result in any land use changes on the Airport and no fuel storage facility would be developed on the vacant land north of U.S. 101. No changes in the land use relationships between on-Airport property and adjacent land uses would occur. However, it is possible that some land use conflicts could result from off-Airport development of aviation support facilities, a consequence of not accommodating future air passenger and air cargo demand at the Airport. The nature and extent impact would be dependent on the location of this development and the existing adjacent land uses. Runways would not be extended under the No Project Alternative. Therefore, the OFAs, RPZs, or ALUC safety zones would not be shifted.

4.3.2.2 Cultural Resources

The No Project Alternative would not result in any physical changes at the Airport and no earthmoving or construction activities would occur. The number of historic properties within the 65 CNEL noise contour would be less than that described for the Project Case Alternatives or for the existing conditions.

4.3.2.3 Traffic and Transportation

The No Project Alternative would not result in the development of any new facilities or structures at the Airport. However, the number of air passengers and the amount of air cargo tonnage would increase over existing conditions. Eighteen of the thirty-one intersections would have an unacceptable level of service for the AM peak hour in the year 2000 and twenty of the thirty-one intersections would have an unacceptable level of service for the PM peak hour in the

year 2000 (see Table 3.3.5). Eight of the thirty intersections would have an unacceptable level of service for the AM peak hour in the year 2005 and sixteen of the thirty-two intersections would have an unacceptable level of service for the PM peak hour in the year 2005 (see Table 3.3.6). Eight of the thirty intersections would have an unacceptable level of service for the AM peak hour in the year 2010 and seventeen of the thirty intersections would have an unacceptable level of service for the PM peak hour in the year 2010 (see Table 3.3.7). Table 3.3.5 provides the levels of service at intersections in the Airport vicinity that would occur under the No Project Alternative in the Year 2000.

4.3.2.4 Air Quality

Under the No Project Alternative, GSE emissions would not decrease relative to existing conditions because no specific action would be taken by the City to convert GSE to alternative fuels. Table 3.4.6 contains emissions inventories for SJC under the No Project Alternative in Analysis Years 2000, 2005, and 2010 and shows the net change of these emissions versus Existing conditions. Table 3.4.14 provides additional detail on the emissions inventories by showing how much each of the various emissions categories contribute to the overall total. Under the No Project Alternative, SJC-related NO_x and PM_{10} would increase significantly relative to existing conditions. The increase in NO_x would be primarily due to newer jet engine technology and increased jet operations at SJC. The increase in PM_{10} would be primarily due to increases in vehicle-miles-traveled (VMT) by passengers. For the possible impacts associated with the activity levels in excess of those assumed for the year 2010 under the No Project Alternative, see Table 3.4.11.

Exceedances of the state one-hour average NO_2 concentrations would be expected to continue to occur under the No Project Alternative in the residential area south of the Airport.

For most toxic air contaminant compounds, emissions in the future would be less than under existing conditions due to decreases in motor vehicle ROG emissions and introduction of Phase 2 Reformulated fuels.

4.3.3.5 Noise

Under the No Project Alternative, the population within the 65 CNEL would be 2,271, 1,943, and 2,631 for the years 2000, 2005 and 2010, respectively.

The surface traffic noise levels under the No Project Alternative would exceed the City of San Jose's 60 dB Ldn residential land use compatibility standard at 100 feet from the center of the roadway along all the studied roadways.

4.3.3.6 Hydrology and Water Quality

The No Project Alternative would not change any of the existing conditions related to storm water runoff, floodplain risks, or quality of storm water runoff. Increased aviation activity at the Airport would increase the potential for discharge of contaminants in surface runoff, although the Airport's SWPPP will continue to be implemented. The potential for leakage and consequent contamination of soils from the existing underground fuel storage facility would continue.

4.3.3.7 Geology and Seismicity

The No Project Alternative would not result in physical changes at the Airport. However, use of the facilities by passengers, employees, and others would continue to increase. SJC would still be subject to adverse seismic effects, including exposure of facility users to Terminal C, which was constructed according to less stringent seismic code provisions than are currently required. Other old and aging facilities would not be expected to perform as well as new structures in an earthquake. However, no additional sources of hazards would be created (as would occur with development). Hazards of settlement and expansive soils would continue but without further effects from new construction.

Under the No Project Alternative certain benefits of the Project Case Alternatives would not be realized. For example, another alternative for replacing the existing underground fuel storage tanks with required new double-walled underground tanks would have to be sought. In the absence of improvements, emergency staging in the event of a catastrophic seismic event would not be as readily accommodated in existing Airport facilities.

4.3.3.8 Biological Resources

The No Project Alternative would not result in any physical changes at the Airport or on the Guadalupe River, and no earthmoving or construction activities would occur. In addition, no fuel storage facility would be constructed; therefore, no potential for tank and containment failure would exist and no impacts to habitat within the Guadalupe River would occur. The number of passenger and air cargo operations would increase, which would cause increased disturbance to wildlife. On-going implementation of the existing ground squirrel control program would continue to reduce the impact to birds from aircraft strikes and the impacts to people and aircraft from bird strikes. No other impacts to special status species, common wildlife, or the Guadalupe River are expected to occur. Since the extent of potential nesting habitat for burrowing owl and foraging habitat for other avian species would not change or be decreased, this is considered to be no impact. The current Airport policy associated with conservation of burrowing owl population would continue.

4.3.3.9 Energy Supply and Natural Resources

Changes in energy consumption under the No Project Alternative would result only from increased operations at SJC. No energy consumption related to construction activity would occur. Table 3.9.1 compares energy consumption rates under the No Project Alternative and shows the net change in energy consumption under the No Project Alternative versus existing conditions. The increase in energy under the No Project Alternative would be less than the criterion of 49,640 billion Btu per year that is used for determining the consumption of large amounts of energy. Therefore, while the increase in energy consumption would be considered adverse because of the non-renewable nature of petroleum-based fuel, the corresponding effect would not be considered significant.

Like the Project Case, the energy consumed per air passenger under the No Project Alternative would be expected to decrease in the future. Under the No Project Alternative, total energy consumption associated with SJC would increase by approximately 14 percent, 12 percent, and 11 percent relative to existing conditions by Years 2000, 2005, and 2010, respectively. The corresponding increase in passengers would be 26 percent, 29 percent, and 33 percent. As such, the increase in transportation-related energy would not be considered "wasteful."

4.3.3.10 Aesthetics

The No Project Alternative would not result in any physical changes at the Airport. Therefore, no change in the existing visual character of the Airport or views from adjacent scenic highways would occur. However, under the No Project Alternative there would be some increase in air and ground traffic over existing levels. This would lead to a minor increase in light and glare at SJC. In addition, construction of projects that would reduce sources of light and glare at the Airport, such as new parking garages that would eliminate exterior surface parking lot lighting and daytime reflections from vehicles along Airport Boulevard, would not occur.

4.3.3.11 Public Services and Utilities

Figure 3.11.1 illustrates existing and future water consumption, wastewater generation, and solid waste generation levels for 2000, 2005 and 2010 under the No Project Alternative. The projected daily demand for water in the year 2010 at the Airport is approximately 118,000 gallons. The projected daily volume of wastewater generated at the Airport in the year 2010 is approximately 88,500 gallons. The projected annual and daily generation of solid waste at the Airport in the year 2010 is approximately 3,125 tons and 8.6 tons, respectively. These increases are approximately 40 percent less than the increases anticipated under the Project Case. The increase in Airport activity also would increase the demand for utilities and fire protection, emergency medical, and police protection services. These increases would occur under the No Project Alternative due to growth in activity at the Airport.

In addition, Runway 12L-30R under the No Project Alternative would not be extended. Therefore, the benefits that would occur under emergency conditions under the Project Case and Project Case Alternative A would not occur under the No Project Alternative. This alternative would not result in having two runways for major airborne relief operations during emergencies.

The No Project Alternative would not affect underground utilities as no construction activities would occur.

4.3.3.12 Hazardous Materials

As indicated in Table 3.12.1, hazardous material storage, use, and transport would increase by a factor of approximately 1.5 under the No Project Alternative. This increase would be due to anticipated growth in aviation activity but not to installation of new facilities or facility improvements. The existing bulk fuel storage facility would not be replaced, but would still have to undergo on-site remediation, the scope of which would differ from a clean-up plan implemented under any of the Project Case Alternatives. Tanker delivery trucks transporting fuel along Airport Boulevard would increase commensurate with the increased demand for aviation and jet fuel at the Airport. However, the risk of accident in transport would be greater under the No Project Alternative because of longer haul route and limited ability to restrict deliveries to off-peak hours. Bulk storage capacity would continue to be severely limited. Fuel spill events and hazardous waste generation would also increase commensurate with growth in aviation activity. Air transport of hazardous materials could increase by a factor of about 1.3, based on anticipated increase in overall cargo tonnage under the No Project Alternative (Table 3.12.1).

The No Project Alternative would not result in any earth-moving activities associated with construction of new facilities at the Airport, or in demolition, renovation, or expansion of buildings that contain asbestos. No potential for exposure of construction workers to hazardous contaminants would occur beyond that involved in current clean-up of known contaminated sites. However, the potential for additional soil or groundwater contamination from existing underground tanks would continue.

4.3.3.13 Air Safety

Under the No Project Alternative, no change in the airfield or any other Airport facilities would occur. Therefore, no change in the risk to air safety would occur.

4.3.3.14 Conclusion

The impacts identified for the Project Case Alternatives would not occur under the No Project Alternative. However, even under the No Project Alternative, significant issues with regard to traffic, air quality, noise, and hazardous materials would be present.

4.3.4 ABILITY TO MEET PROJECT OBJECTIVES

The No Project Alternative would not provide facilities that meet the present and future air transportation needs of local residents and the business community.

4.4 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The CEQA *Guidelines* require that an EIR identify an "environmentally superior alternative"; if the No Project Alternative is considered environmentally superior, then the EIR must identify any alternative among the others that is environmentally superior (*Guidelines* Section 15120(c); *Guidelines* Section 15126(d)(4)). Based on the analysis contained in this EIR, the No Project Alternative is considered to be the environmentally superior alternative. Of the three Project Case Alternatives, Project Case Alternative B is considered to be environmentally superior because the magnitude of impacts under Project Case Alternative B is less than that described for the Project Case or Project Case Alternative A. This conclusion is based upon the assumption that the activity levels projected for Project Case Alternative B would not be exceeded.

CUMULATIVE IMPACTS

CHAPTER 5

CUMULATIVE IMPACTS

5.1 PAST, PRESENT, AND REASONABLY ANTICIPATED FUTURE RELATED PROJECTS

CEQA defines cumulative impacts as "two or more individual effects which, when considered together, are considerable, or which can compound or increase other environmental impacts." Section 15130 of the CEQA Guidelines requires consideration in an EIR of potential environmental impacts that are individually limited but cumulatively significant. These impacts can result from the proposed project alone or together with other projects: "The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects" (Governor's Office of Planning and Research, 1992).

In considering cumulative impacts, CEQA allows the use of either a list of past, present, or reasonably anticipated relevant projects, future projects, including projects outside the control of the (lead) agency, or a summary of projections in an adopted planning document. For the purposes of this EIR, future related projects as defined in adopted planning documents were used. In particular, the projections for the San Jose *General Plan*, the Santa Clara *General Plan,* and the *Alviso Master Plan* were considered in the cumulative analysis for this document.

5.1.1 SAN JOSE GENERAL PLAN

The San Jose *General Plan* is an adopted statement of policy for the physical development of the City of San Jose. It represents the official policy regarding the future character and quality of development. Key concepts of the plan include modest development beyond the 1993 Urban Service Area boundary (only the South Almaden Urban Reserve is developed); capture of 52 percent of Countywide job growth; modest land use intensification along major transportation facilities; and improvement of 1993 jobs/housing balance significantly. Implementation of the *General Plan* would create 126,000 new jobs, 52,900 new housing units, and a population increase by approximately 163,000 persons in San Jose by 2020.

5.1.2 SANTA CLARA GENERAL PLAN

The Santa Clara *General Plan* identifies development goals and policies from 1990 to 2005. Although most of Santa Clara is essentially built out, significant potential remains for

development and expansion by increasing development density through redevelopment of underutilized properties. With implementation of the *General Plan* in 2005, the City estimates that there would be 4,643 acres of residential uses, 847 acres of commercial uses, 2,777 acres of industrial uses, and 3,865 acres of public facilities.

5.1.3 ALVISO MASTER PLAN

The City of San Jose is the process of preparing the Alviso Master Plan, which would provide specific goals and policies for the Alviso area of San Jose (north of the Airport). Once completed, this Master Plan would amend the existing *General Plan*. The proposed Alviso planned community land use designations would allow the development of 774 dwelling units, one more unit above existing *General Plan* land use designations. In addition, the proposed planned community would provide for new development of approximately 184 dwelling units, 21,291 square feet of General Commercial building space, 572,72 square feet of Combined Industrial/Commercial buildings, 868,557 square feet of Light Industrial buildings, 117,042 square feet of Mixed Use structures, and 40,661 square feet of River Commercial buildings. The new projected development could yield a total of approximately 2.4 million square feet compared with 2.3 million square feet under existing *General Plan* designations.

5.2. SUMMARY OF ENVIRONMENTAL EFFECTS OF RELATED PROJECTS

5.2.1 SAN JOSE GENERAL PLAN

A Final Environmental Impact Report (FEIR) was completed in July of 1994 for the San Jose *General Plan*. The FEIR found the following significant, unavoidable impacts from buildout of the *General Plan*: loss of open space, in particular prime agricultural land; increased emissions of carbon monoxide; degraded regional air quality; decreased level of service on some roadway segments; and negative aesthetic effects. The FEIR also identified the following significant but mitigable impacts: land use compatibility; effects of toxic air contaminants on nearby sensitive land uses; construction-related air quality impacts; increased noise from future light rail lines; increased noise from traffic, trains and aircraft; construction-related noise impacts; increased exposure to seismic activity, weak and expansive soils, and erosion; increased stormwater runoff and related drainage problems; degradation of riparian habitat, special status species and significant trees; view obstruction; degradation of known cultural resources; hazardous materials use and site remediation; increased demand for water; decreased water quality from increased wastewater discharges and nonpoint source pollution; increased wastewater generation; and increased demand for public services and utilities.

5.2.2 SANTA CLARA GENERAL PLAN

A FEIR was completed in 1992 for the Santa Clara *General Plan Update* (1990 to 2005). The FEIR found the following significant, unavoidable impacts from buildout of the *General Plan*: degradation of traffic operations on several roadways; increased emissions of criteria air pollutants; exceedance of ABAG population projections for 2005; increased demand for schools; and increased exposure to flooding. The FEIR also identified the following significant but mitigable impacts: construction-related dust emissions; construction-related noise impacts; increased ambient noise levels; increased demand for public services including police protection, fire protection, libraries, parkland and solid waste; conversion of open land to urban uses, thereby reducing scenic and recreational resources; disturbance or alteration of cultural resources; removal of habitat for special status species; removal or damage of heritage trees; loss of riparian vegetation; increased hazardous materials spills resulting in degradation of water quality; increased potential for contamination of the deep groundwater aquifer; increased exposure to seismic hazards and soils with high shrink-swell potential; increased surface runoff; and land use incompatibility within or near SJC safety zones.

5.2.3 ALVISO MASTER PLAN

Environmental documentation for the Alviso Master Plan has not yet been prepared. However, based on the amount and type of development proposed, the following environmental effects would be expected to occur above the effects disclosed in the FEIR for the San Jose *General Plan*: increased emissions of carbon monoxide; degraded regional air quality; decreased level of service on some roadway segments; construction-related air quality impacts; increased noise from traffic, trains and aircraft; construction-related noise impacts; and increased exposure to seismic activity, weak and expansive soils, and erosion.

5.2.4 SKYPORT DRIVE EXTENSION

The project is a proposed *General Plan* Amendment to add a Minor Arterial (80-106 feet) designation to the land use/transportation diagram for a new segment of Skyport Drive between North First Street and the U.S. 101/North Fourth Street/Zanker Road intersection. This project has been deferred from the 1996 Annual Review of the *General Plan* to 1997.

5.2.5 REID-HILLVIEW AIRPORT CLOSURE PROJECT

In 1990, the Santa Clara County Board of Supervisors declared their intent to close Reid-Hillview Airport and directed County staff to prepare the necessary environmental reports to allow the closure of the airport. In August of 1996, the Board certified the Final EIR on that project and scheduled a public hearing on whether to proceed with closure for November 19, 1996. Since Reid-Hillview is the largest general aviation facility in Santa Clara County and is an

FAA-designated reliever airport for SJC, its closure has implications with regard to where general aviation demand would be accommodated in the future.

5.3. SUMMARY OF CUMULATIVE IMPACTS OF RELATED PROJECTS

5.3.1 LAND USE

With the buildout of both San Jose and Santa Clara under their respective *General Plans*, the development at the Airport would contribute to an increased intensification of urban land uses in the Airport vicinity. This is not considered to be a significant impact because the intensification of land uses would not result in any land use conflicts.

5.3.2 CULTURAL RESOURCES

Cultural resource impacts identified in Section 3.2, Cultural Resources, would be less-than-significant after mitigation under all Project Case Alternatives and would not cause any cumulative impacts. If disturbance to previously unknown cultural resources were to occur, the Master Plan Update could contribute to the incremental loss of archaeological resources in the Airport vicinity.

5.3.3 TRAFFIC AND TRANSPORTATION

5.3.3.1 Vehicular Traffic

Impacts presented in the Section 3.3, Traffic and Transportation, include impacts of approved and planned projects. The traffic model used to analyze 2010 (full buildout of the Master Plan Update and cumulative analysis year) incorporates assumptions of the City of San Jose *General Plan* (including recent general plan amendments) and ABAG Projections '94 (which in turn includes assumptions of the City of Santa Clara *General Plan*). Thus, the traffic analysis includes the cumulative development scenario for the year 2010.

Alviso Master Plan

The traffic-related environmental effects of the Alviso Master Plan, which are not included in the traffic model, would include increased traffic along certain roadways in north San Jose. It is possible that some roadway intersections in the northern portion of the study area could be affected by cumulative traffic from the Airport and from development that would occur under the Alviso Master Plan. The significant traffic impacts identified in this EIR for the year 2010 also are considered to be significant cumulative impacts.

Skyport Drive Extension

For purposes of this study, the year 2010 PM peak hour Project Case was selected for this cumulative analysis. This allows for a comparison between two future year conditions, one with Skyport Drive extended past North First Street, and one without (as analyzed in Section 3.3).

The 11 study intersections located east of SJC that potentially would be affected by an extension of Skyport Drive are listed below:

- I-880 southbound ramps/Brokaw Road
- I-880 northbound ramps/Brokaw Road
- North First Street/Brokaw Road
- North First Street/Old Bayshore Highway
- North First Street/Skyport Drive
- Airport Parkway/Old Bayshore Highway
- Airport Parkway/Technology Drive/Gateway Place
- Airport Parkway/Airport Boulevard
- Airport Boulevard/Terminal Drive South
- Guadalupe Parkway/Skyport Drive
- Technology Drive/Skyport Drive

In general, the potential impact of the Skyport Drive extension would be to lower traffic on Brokaw Road and Airport Parkway west of U.S. 101, while redistributing some of the traffic on North First Street and Old Bayshore Highway and adding traffic to Skyport Drive between Airport Boulevard and North Fourth Street/Zanker Road (see Table 5.1).

The most pronounced impacts would occur at the following intersections:

> North First Street/Brokaw Road. Section 3.3 of this EIR identifies a significant impact at this intersection under the Project Case for PM peak hour conditions in the year 2010. With the Skyport Drive extension, the impact would be less than significant under the Project Case.
>
> North First Street/Old Bayshore Highway. Section 3.3 of this EIR identifies a significant impact at this intersection under the Project Case for PM peak hour conditions in the year 2010. With the Skyport Drive extension, the impact would be less than significant under the Project Case.

TABLE 5.1
LEVEL OF SERVICE COMPARISON WITH AND WITHOUT SKYPORT DRIVE EXTENDED, PROJECT CASE - 2010 PM PEAK HOUR

Intersection	Without Skyport Drive Extended		With Skyport Drive Extended		Difference
	V/C	LOS	V/C	LOS	
1. I-880 SB Ramps/O'Toole/Brodaw Rd	1.02	F	1.00	F	-0.02
2. I-880 NB Ramps/Brokaw Rd	1.09	F	1.08	F	-0.01
5. First/Brokaw Rd	1.19	F	1.16	F	-0.03
6. First/Old Bayshore Hwy	0.95	E	0.86	D	-0.09
7. First/Skyport Dr	0.90	E	1.28	F	0.38
12. Airport Pkwy/Old Bayshore Hwy	0.86	D	0.79	C	-0.07
13. Airport Pkwy/Technology Dr/Gateway Pl	0.70	B	0.67	B	-0.03
16. Airport Blvd/Airport Pkwy	2.47	F	2.47	F	0.00
17. Airport Blvd/Terminal Dr (South, Near Terminal C)	0.77	C	0.77	C	0.00
18. Guadalupe Pkwy and Skyport Dr	0.76	C	0.80	D	0.04
19. Technology Dr/Skyport Dr	0.36	A	0.39	A	0.03

SOURCE: DKS Associates

North First Street/Skyport Drive. Section 3.3 of this EIR identifies a significant impact at this intersection under the Project Case for PM peak hour conditions in the year 2010. With the Skyport Drive extension, the impact would remain significant under the Project Case and would require a different mitigation measure than was developed for the Project Case.

The mitigation required for the Skyport Drive extension scenario would be to add a second eastbound through lane. This would require roadway widening and relocation of landscaping, sidewalk, and utilities on Skyport Drive west of North First Street.

5.3.3.2 General Aviation Displacement

Section 3.3.2 of this EIR described the transportation impacts of the Project Case with regard to unmet general aviation demand at SJC. This discussion describes the cumulative aspects of that impact because Santa Clara County, the owner and operator of nearby Reid-Hillview Airport (RHV), is proposing to close that facility. Since RHV is only five miles from SJC, and since RHV is the largest general aviation facility in the County, its closure would have a substantial effect on where unmet general aviation demand is accommodated. This cumulative analysis uses the same methodology for determining future general aviation demand and capacity as was described in Section 3.3.2. Unmet general aviation demand at SJC and/or RHV was reallocated

to the other airports in the study area where there is projected to be excess based aircraft capacity. The reallocation was based upon the following steps:

- No aircraft were reallocated to Palo Alto, San Carlos, Frazier Lake, or Half Moon Bay Airports because those airports are projected to be at capacity in 2000, 2005, and 2010.

- Due to its proximity to San Jose, South County Airport was assumed to be the facility of choice for pilots who would otherwise base their aircraft at SJC or RHV.

- Unmet demand from SJC and/or RHV that could not be accommodated at South County Airport was reallocated to the following airports as follows: 30 percent to Hayward, 30 percent to Livermore, 5 percent to Oakland, 20 percent to Watsonville, and 15 percent to Hollister. These percentages were based upon approximate driving times to those airports from San Jose.

- Although Salinas Airport is projected to have excess capacity for based aircraft, no aircraft from SJC and/or RHV were reallocated to that facility because of the projected availability of capacity at closer facilities (i.e., Watsonville and Hollister) to San Jose.

Table 5.2 presents the results of the cumulative general aviation analysis for the year 2000. If RHV is closed, there would be a cumulative unmet demand of 784 based aircraft (160 at SJC plus 624 at RHV) in year 2000. These 784 aircraft could be accommodated at South County, Hayward, Livermore, Oakland, Hollister, and Watsonville Airports, as shown in Table 5.2. The percentage increase in based aircraft at each of these airports is also shown in Table 5.2. The largest increase would be 300 percent at South County Airport, followed by a 56 percent increase at Hollister Airport.

Table 5.2 presents the results of the cumulative general aviation analysis for the year 2005. If RHV is closed, there would be a cumulative unmet demand of 919 based aircraft (260 at SJC plus 659 at RHV) in year 2005. These 919 aircraft could be accommodated at South County, Hayward, Livermore, Oakland, Hollister, and Watsonville Airports, as shown in Table 5.2. The percentage increase in based aircraft at each of these airports is also shown in Table 5.2. The largest increase would be 275 percent at South County Airport, followed by a 66 percent increase at Hollister Airport.

Table 5.2 presents the results of the cumulative general aviation analysis for the year 2010. If RHV is closed, there would be a cumulative unmet demand of 1,004 based aircraft (310 at SJC plus 694 at RHV) in year 2010. These 1,004 aircraft could be accommodated at South County, Hayward, Livermore, Oakland, Hollister, and Watsonville Airports, as shown in Table 5.2. The percentage increase in based aircraft/operations at each of these airports is also shown in Table 5.2. The largest increase would be 257 percent at South County Airport, followed by an 83 percent increase at Hollister Airport.

TABLE 5.2
CUMULATIVE CONDITIONS: REALLOCATION OF GENERAL AVIATION BASED AIRCRAFT

Airport	No Project Alternative		Project Case		Project Case Alternative A		Project Case Alternative B	
	# of Aircraft	% Change	# of Aircraft	% Change	# of Aircraft	% Change	# of Aircraft	% Change
Year 2000								
San Jose	60	11%	-160	-30%	-100	-19%	-100	-19%
Reid-Hillview	-624	-100%	-624	-100%	-624	-100%	-624	-100%
South County	225	300%	225	300%	225	300%	225	300%
Hayward	102	21%	153	38%	149	31%	149	31%
Livermore	102	16%	153	23%	149	123%	149	23%
Oakland	17	4%	27	7%	25	6%	25	6%
Hollister	51	34%	84	56%	75	50%	75	50%
Watsonville	67	22%	112	36%	101	33%	101	33%
Year 2005								
San Jose	15	3%	-260	-44%	-175	-30%	-95	-16%
Reid-Hillview	-659	-100%	-659	-100%	-659	-100%	-659	-100%
South County	220	275%	220	275%	220	275%	220	275%
Hayward	137	27%	303	60%	251	50%	203	40%
Livermore	117	17%	117	17%	117	17%	117	17%
Oakland	21	5%	35	8%	31	7%	27	6%
Hollister	64	41%	105	66%	92	58%	80	51%
Watsonville	85	27%	139	45%	123	40%	107	35%
Year 2010								
San Jose	-30	-5%	-310	-49%	-200	-32%	-140	-22%
Reid-Hillview	-694	-100%	-694	-100%	-694	-100%	-694	-100%
South County	216	257%	216	275%	216	275%	216	275%
Hayward	224	42%	392	74%	326	61%	290	55%
Livermore	80	11%	80	11%	80	11%	80	11%
Oakland	25	5%	40	9%	34	7%	31	7%
Hollister	76	46%	137	83%	101	61%	93	56%
Watsonville	103	31%	139	43%	137	42%	124	38%

[Note: The analysis in this EIR assessed the potential impact of not fully accommodating general aviation demand at SJC in the context of the 13 airports in proximity to San Jose where general aviation facilities are available. This EIR, using the methodology described in Section 3.3.2, analyzed the impacts of the Project Case Alternatives - both individually and cumulatively - within this 13-airport general aviation system. Because the City's *General Plan* does not have policies which require that general aviation demand be accommodated within a specified area, this EIR analysis was not policy-constrained to a narrow study area such as Santa Clara County. In contrast, the Santa Clara County *General Plan* has a policy which states that all general aviation demand generated within Santa Clara County should be accommodated within the County. Because of this policy, the 1996 EIR prepared by the County on the RHV Closure Project concluded that this impact was significant. However, because the County's policy is not applicable to the City, the conclusion of less than significant reached in this EIR is different from - and not inconsistent with - that which was reached in the County's RHV EIR.]

5.3.4 AIR QUALITY

The discussion of Criteria Air Pollutant Emission Impacts in Section 3.4, Air Quality, concludes that the project would result in significant emissions increases of ozone precursors (ROG and NO_x) and PM_{10}. The significant effects of the Master Plan Update on criteria pollutant emissions also are considered to be significant cumulative effects.

Table 5.3 shows the trend in emissions of the various criteria pollutants (or their precursors) between existing conditions and 2010. Table 5.3 also puts the net increase in emissions under the Project Case Alternatives in regional perspective by showing the net increase as a percentage of total region-wide emissions. (It should be noted that the percentages shown in Table 5.3 do not reflect total SJC-related emissions but only the net change in emissions relative to the No Project Alternative).

Table 5.3 indicates that the Master Plan Update would contribute a small, but not negligible, fraction to the total of region-wide emissions from all sources in the Bay Area. The cumulative effect from all sources in the region would be significant because the Bay Area is expected to remain "nonattainment" for state ozone and PM_{10} standards into the foreseeable future. While emissions reductions are still expected to occur in many source categories, the benefit from source reductions are expected to be offset by the overall increase in development (and related emissions sources) in the Bay Area, including increased operations at SJC. In contrast, the proposed project's incremental increase in CO and SO_x emissions would not be significant cumulatively because the region as a whole is expected to remain in attainment of CO and SO_2 standards.

5.3.5 NOISE

As discussed in detail in Section 3.5, Noise, cumulative aircraft noise under the Project Case Alternatives in 2010 would result in significant increases in the Community Noise Equivalent Level (CNEL) at one location inside the 65 CNEL contour and at seven locations between the

TABLE 5.3
NET CHANGE IN CRITERIA POLLUTANT EMISSIONS AS PERCENT OF REGION

Bay Area Region-wide Emissions (tons per day)[a]:

Pollutant	1995	2000	2005	2010
Carbon Monoxide	2,425	1,963	1,782	1,600
Reactive Organic Gases	535	464	435	406
Nitrogen Oxides	454	441	445	449
Sulfur Oxides	102	107	111	115
Particulate Matter	462	501	542	582

Net Change Versus the No Project Alternative as Percent of Region:

Pollutant	YEAR 2000				YEAR 2005				YEAR 2010			
	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative	Project Case	Project Case Alternative A	Project Case Alternative B	No Project Alternative
Carbon Monoxide	-0.01	0.00	-0.01	0	0.09	0.03	0.02	0	0.14	0.05	0.02	0
Reactive Organic Gases	0.01	0.01	0.01	0	0.06	0.03	0.02	0	0.08	0.04	0.02	0
Nitrogen Oxides	0.07	0.05	0.03	0	0.26	0.13	0.07	0	0.35	0.15	0.07	0
Sulfur Oxides	0.02	0.02	0.01	0	0.07	0.03	0.02	0	0.09	0.04	0.02	0
Particulate Matter	0.09	0.06	0.03	0	0.11	0.07	0.03	0	0.11	0.05	0.01	0

[a] From BAAQMD's CEQA Guidelines (April 1996).

SOURCE: Environmental Science Associates, 1996.

60 and 65 CNEL contours. This would be considered a significant cumulative impact. The surface traffic noise impact identified in Section 3.5, Noise, includes effects of other approved and planned projects to estimate future project-related impacts. As discussed in that section, the cumulative surface traffic noise impact is considered to be less than significant.

5.3.6 HYDROLOGY AND WATER QUALITY

Section 3.6, Hydrology and Water Quality, identifies impacts to water quality from increased storm water runoff as a significant impact of the Master Plan Update. This impact also would contribute cumulatively to the degradation of water quality in regional groundwater and San Francisco Bay when buildout of other approved and planned projects are considered. Mitigation identified in the Section 3.6 would reduce these cumulative impacts to a less-than-significant level.

5.3.7 GEOLOGY AND SEISMICITY

Geologic impacts are site-specific and not generally cumulative in concept. Thus, no cumulative geologic or seismic impacts from the Project Case Alternatives would occur.

5.3.8 BIOLOGICAL RESOURCES

Implementation of the Project Case in conjunction with planned development in the San Jose *General Plan*, the Santa Clara *General Plan,* and the Alviso Master Plan would reduce the amount of existing burrowing owl habitat left in the South Bay area and could contribute cumulatively to impacts on the burrowing owl, a State species of special concern. Similarly, implementation of the Project Case Alternatives and buildouts projected in the *General Plans* would contribute cumulatively to the reduction of raptor foraging habitat, undeveloped open spaces, common wildlife and effects to the Guadalupe River and associated resources. These would be cumulative significant effects. Mitigation proposed in Section 3.8, Biological Resources, as well as mitigation policies in the *General Plans*, would reduce these cumulative impacts to a less-than-significant level.

5.3.9 ENERGY SUPPLY AND NATURAL RESOURCES

The energy policies included in the San Jose *General Plan* would mitigate the demand for energy. Energy consumption impacts identified in Section 3.9, Energy Supply and Natural Resources, would be less-than-significant under all Project Case Alternatives. No contribution to significant cumulative impacts would occur as a result of the Master Plan Update.

5.3.10 AESTHETICS

Since development at the Airport would be visible from a limited number of vantage points, and since most other potential development in the cities of San Jose and Santa Clara would not be visible from these same vantage points, no cumulative visual effects would occur. The light and glare and alteration to existing visual character impacts identified in Section 3.10, Aesthetics, would be less-than-significant after mitigation under all Project Case Alternatives; thus no significant cumulative impacts would occur.

5.3.11 PUBLIC SERVICES AND UTILITIES

Development of the Master Plan Update could result in the contribution to an increased demand for public services and utilities. Since the public service and utilities impacts identified in Section 3.11, Public Services and Utilities, would be less-than-significant after mitigation under all Project Case Alternatives, this would not result in any cumulative impacts.

5.3.12 HAZARDOUS MATERIALS

Cumulative health and safety effects could occur if Airport operations and those of other proposed development, together, were to substantially increase health and safety risks in the area. Most routine Airport-related activities involving hazardous materials would be located on site. Any routine on-site health or safety effects of hazardous materials use would be limited to the specific individuals using the materials (e.g., airport workers) and anyone in the immediate vicinity of such use. No interaction would occur between the use of hazardous materials at the Airport and similar activities located at other development sites.

The Project Case Alternatives, in conjunction with other approved and planned development in the Airport vicinity, would not cumulatively involve the use, production, or disposal of materials in a manner that poses a hazard to people, or to animal or plant populations. Cumulative development would not create a substantial potential health or safety hazard, or present an undue potential risk for health-related accidents, and it would not interfere with emergency response plans or emergency evacuation plans. Therefore, the cumulative use of hazardous materials would be a less-than-significant impact.

5.3.13 AIR SAFETY

Since SJC is the only commercial aviation facility in greater San Jose, no cumulative air safety impacts would occur.

GROWTH INDUCING IMPACTS AND SECONDARY EFFECTS

CHAPTER 6

GROWTH INDUCING IMPACTS AND SECONDARY EFFECTS

6.1 CEQA DEFINITION OF GROWTH INDUCEMENT

The CEQA *Guidelines* (Section 15126(g)) require that an EIR evaluate the growth-inducing impact of a proposed action. The Guidelines define a growth-inducing impact as "the way in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are [public works] projects which would remove obstacles to population growth. Growth is not assumed to be necessarily beneficial, detrimental, or of little significance to the environment."

The environmental effects of a proposed project's induced growth are secondary or indirect impacts. Secondary effects of growth can result in significant increased demand on community and public service infrastructures, increased traffic, noise, degradation of air and water quality, and agricultural land conversion to urbanized uses.

6.2 GROWTH INDUCEMENT POTENTIAL

A variety of factors influence business and residential or population growth in a specific project area, such as the general plans and policies of the cities and counties and/or the availability of water, public schools, and transportation services. Airport operations at SJC are not a direct constraint to development in the urbanized Bay Area; rather, airport development is designed to accommodate demand forecast of air passengers and air cargo operations. The demand forecast is based on population and employment projections for an airport's service area and on nationwide air traffic demand projections (for a detailed discussion on these projections, see Section 3.2 of the Airport Master Plan). The development that is projected to occur in greater San Jose has been included in the demand forecast for the Airport.

The *1994 Regional Airport System Plan Update* (RASP) estimates a maximum total passenger demand for the nine-county Bay Area of 90 million for the year 2010. SJC has never approached its "natural" regional market share, which has been estimated in the RASP at 25 percent. Based on this forecast, SJC's regional share will grow from 15 percent in 1993 to approximately 21 percent by the year 2010. The 17.6 million passenger demand forecast in the draft Master Plan Update for SJC is consistent with Bay Area regional air passenger market trends. Although the SJC regional market share has fluctuated from year to year, it has increased from 9 percent in 1970, to 11 percent in 1980, and to 16 percent in 1990. SJC has been constrained by lack of

facilities and airline service that would accommodate the estimated RASP demand (or SJC's natural market share).

Based on the CEQA definition above, assessing the growth-inducement potential of the Master Plan Update involves answering the following question: Will increases in air passengers, air cargo, and based aircraft directly or indirectly encourage or support more economic or population growth or residential construction?

Since SJC is located in an urbanized area that is zoned primarily for commercial, office and industrial uses, Airport expansion would not directly induce growth into a previously undeveloped area or an area where growth has been restricted by lack of infrastructure. However, growth in jobs related to Airport activities could indirectly increase the demand for housing, goods and services in the project vicinity.

Growth-inducement may constitute an adverse impact if the growth is not consistent with the land use and growth management plans and policies for the affected area. Thus, it is important to determine the degree to which the growth accommodated by a project would or would not be consistent with applicable land use plans. Operation of the Airport at its current location is consistent with applicable land use plans and lands surrounding the Airport are planned for Airport-compatible uses (see Section 2.6).

6.3 PROPOSED SERVICES RELATIVE TO FORECAST DEMAND

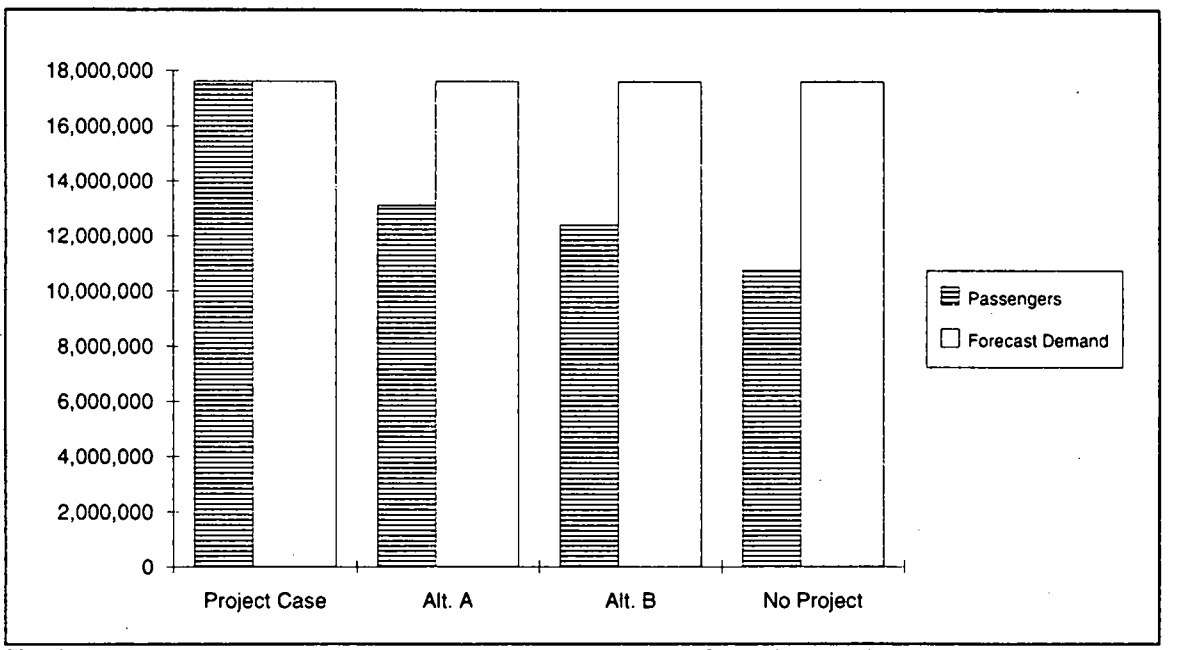
This section presents an analysis of the proposed expansion in airport services relative to projected demand based on the Metropolitan Transportation Commission's forecasts. The MTC's forecasts are in turn based on population and employment growth within the Airport service area. This analysis is followed by a review of the potential secondary effects that could result from planned growth that would be supported by implementation of the SJC Master Plan Update.

As part of its long-range Regional Transportation Plan, the Metropolitan Transportation Commission prepared a RASP, updated in November 1994. The purpose of the RASP is to assess the future aviation requirements and to suggest improvements for the nine-county San Francisco Bay Area. The RASP forecast demand for SJC aviation services relative to demand accommodated by the Project Case Alternatives is shown in Table 2.3.1 of this EIR. Figures 6.1 through 6.3 display the relationship between the forecast demand and the activity levels for the Project Case Alternatives and the No Project Alternative. The relationship between forecast demand and the demand accommodated is further discussed below.

AIR PASSENGERS

Forecast demand for air passengers, including origin/destination and connecting services, would be fully accommodated by the Project Case. As shown in Figure 6.1, Project Case Alternative A would accommodate 74 percent of the demand, Project Case Alternative B would accommodate 70 percent of the demand, and the No Project Alternative would accommodate 62 percent of the demand by the year 2010. Under the No Project Alternative, the number of air passengers would increase by 54 percent over 1993 levels, which is equivalent to an approximate rate of 3 percent per year over the 17-year period. Under the Project Case, the number of air passengers would increase by 151 percent over 1993 levels, while Project Case Alternative A would increase by 87 percent, and Project Case Alternative B would increase by 77 percent over 1993 levels.

FIGURE 6.1
2010 AIR PASSENGER LEVELS VS. FORECAST DEMAND FOR THE PROJECT CASE ALTERNATIVES

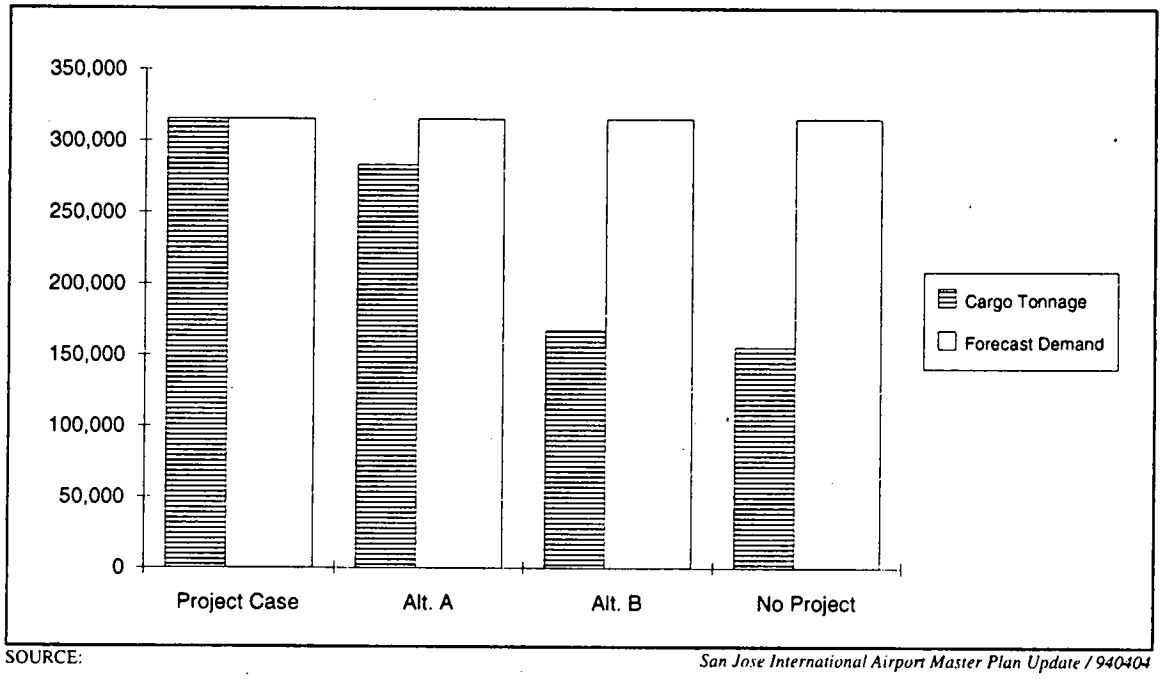


SOURCE: *San Jose International Airport Master Plan Update / 940404*

AIR CARGO TONNAGE

Forecast demand for air cargo tonnage, including all-cargo and airline belly cargo, would be fully accommodated by the Project Case. As shown in Figure 6.2, Project Case Alternative A would accommodate 90 percent of the demand, Project Case Alternative B would accommodate 53 percent of the demand, and the No Project Alternative would accommodate 49 percent of the

FIGURE 6.2
2010 AIR CARGO TONNAGE VS. FORECAST DEMAND FOR THE PROJECT CASE ALTERNATIVES



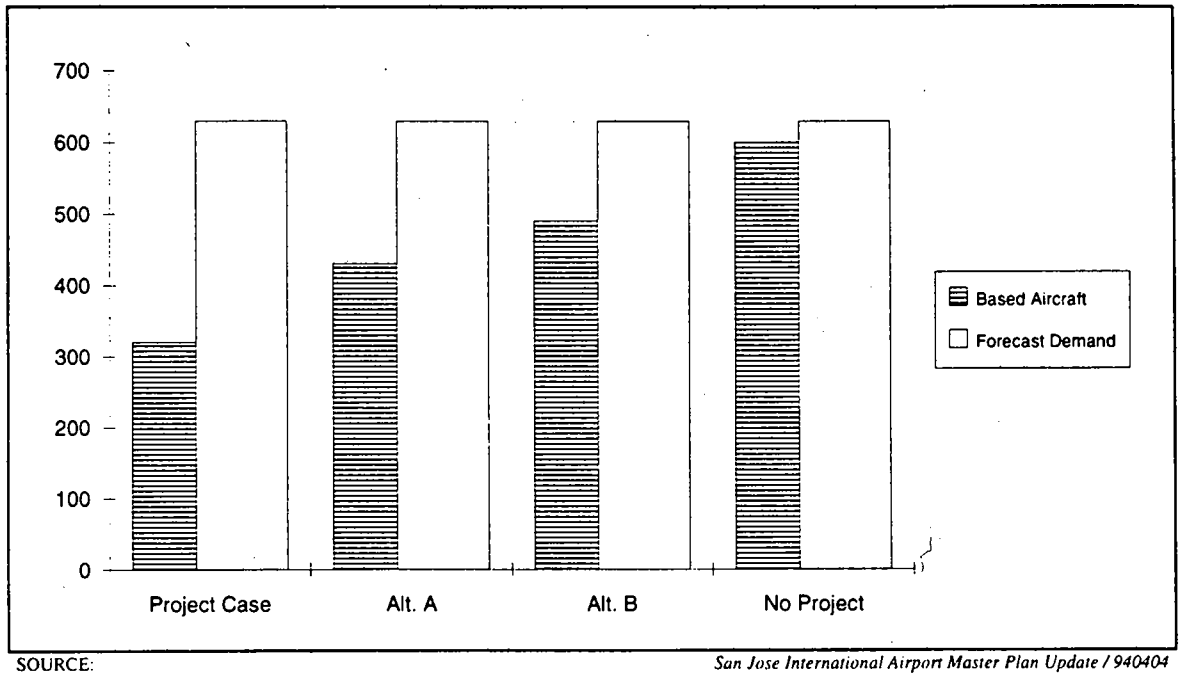
SOURCE: *San Jose International Airport Master Plan Update / 940404*

demand by the year 2010. Under the No Project Alternative, air cargo tonnage would increase by 91 percent over 1993 levels, which is equivalent to an approximate rate of 5.4 percent per year over the 17-year period. Under the Project Case, air cargo operation would increase by 288 percent over 1993 levels by 2010, while Project Case Alternative A would increase by 249 percent, and Project Case Alternative B would increase by 106 percent over 1993 levels.

GENERAL AVIATION BASED AIRCRAFT

Forecast demand for general aviation based aircraft would be not be fully accommodated by any of the Project Case Alternatives or the No Project Alternative. As shown in Figure 6.3, the Project Case would accommodate 51 percent of the demand, Project Case Alternative A would accommodate 68 percent of the demand, Project Case Alternative B would accommodate 78 percent of the demand, and the No Project Alternative would accommodate 95 percent of the demand by the year 2010. Under the No Project Alternative, based aircraft would increase by 22 percent over 1993 levels, which is equivalent to an approximate rate of 1.3 percent per year over the 17-year period. Under the Project Case, based aircraft would decrease 35 percent relative to 1993 levels, while Project Case Alternative A would decrease 12 percent, and Project Case Alternative B would remain the same as 1993 levels.

FIGURE 6.3
2010 GENERAL AVIATION BASED AIRCRAFT VS. FORECAST DEMAND FOR THE PROJECT CASE ALTERNATIVES



SOURCE: *San Jose International Airport Master Plan Update / 940404*

SUMMARY

The Project Case fully accommodates the air passenger and air cargo demand and partially accommodates the general aviation demand, but in no case exceeds the forecast demand. Project Case Alternative A and Project Case Alternative B, with generally lower levels of service than the Project Case (except for based aircraft), do not accommodate forecast demands. The No Project Alternative does not accommodate forecast demand; however, it is expected to accommodate 95 percent of the based aircraft demand.

The Master Plan Update would be consistent with the MTC's RASP projections and would accommodate rather than foster growth in the greater San Jose area. The indirect growth-inducement effects and potential secondary effects of expanded aviation services would be consistent with the effects of projected growth planned by local jurisdictions in the Airport vicinity.

6.4 GROWTH INDUCEMENT EFFECTS

Based on the CEQA definition of growth inducement given in Section 6.1 above, the increase in air passenger and air cargo tonnage operations under the Project Case, Project Case

Alternative A, and, to a lesser extent (for cargo tonnage), Project Case Alternative B, could result in additional economic growth and jobs within the Airport service area. This could result in increased demand for jobs, housing, goods, and services. This indirect effect on business and residential growth would be consistent with land use plans of San Jose and Santa Clara. The particular indirect effect on growth by each activity sector is discussed below.

The number of general aviation based aircraft would be 34 percent higher under Alternative A, 53 percent higher under Alternative B, and 88 percent higher under the No Project Alternative compared to the Project Case. However, under all Project Case Alternatives, the number of general aviation based aircraft would decrease. Thus, it is likely that some of the existing businesses in the Airport vicinity that cater to the general aviation industry may be attracted to other general aviation airports. This would allow other businesses that cater to air passengers or air cargo operations to locate in the Airport vicinity. These businesses are consistent with the land use plans of San Jose and Santa Clara.

The increase in the number of air passengers could increase the demand for commercial visitor services in the Airport vicinity, such as taxi and shuttle services, overnight accommodations, and restaurants. This could result in urban development projects to accommodate the demand for these services. It is likely that hotels, motels, and other visitor-related services could be established on proximity to the Airport to provide such services. These businesses are consistent with the land use plans of San Jose and Santa Clara.

Similarly, the increase in air cargo operations could result in the development of ancillary or related warehouse, office, and support space in the Airport vicinity. This increase in air passenger and air cargo services also could increase the number of spin-off businesses that are related to the travel or shipping business. Since the increase in air passengers and air cargo tonnage is greatest for the Project Case, the growth-inducing effect could be greatest for Project Case compared to Project Case Alternative A and Project Case Alternative B.

Increases in air passengers also could increase off-site parking demand. To accommodate the demand for parking at the Airport, it is possible that private parking lots may be developed in the Airport vicinity. Compared to the Project Case, the number of public parking spaces that would be available on-Airport is 21 percent lower for Project Case Alternative A, 25 percent lower for Project Case Alternative B, and 55 percent lower for the No Project Alternative. Therefore, Project Case Alternative A, Project Case Alternative B, and the No Project Alternative could have greater growth-inducing effect on off-site private parking facilities and taxi/shuttle services than the Project Case. These off-site parking facilities are consistent with the land use plans of San Jose and Santa Clara.

Secondary environmental impacts that could occur as a result of development in the Airport vicinity to provide space for business that cater to air passengers and air cargo operations would

include increased traffic congestion, increased emissions of air pollutants, and intensification of existing urban lands. The San Jose *General Plan* and the Santa Clara *General Plan* plan for urbanized development for all lands within the Airport vicinity (City of San Jose, 1994; City of Santa Clara, 1992). Any secondary growth that may occur as a result of an increase in air passenger activity and air cargo operations has been analyzed and would only affect type of land use not whether the area would be developed. Projected development for the year 2010 analyzed in this EIR is predicated on the buildout of these General Plans. Therefore, the effects of growth inducement are addressed in this EIR.

OTHER REQUIRED CEQA ANALYSES

CHAPTER 7

OTHER REQUIRED CEQA ANALYSES

7.1 SIGNIFICANT UNAVOIDABLE IMPACTS IF MASTER PLAN UPDATE IS IMPLEMENTED

According to Section 15126 (b) of the CEQA Guidelines, the purpose of this section is to "describe any significant impacts, including those which can be mitigated but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described."

The significant effects of the proposed Project Case, the Project Case Alternative A, Project Case Alternative B, and the No Project Alternative are identified in Sections 3.1 through 3.13 of this EIR. Mitigation measures are identified in those sections that would reduce many of the significant impacts of the project to a level of insignificance. No mitigation would be required for impacts of the No Project Alternative. The remaining, significant unavoidable impacts of the Project Case Alternatives are:

- Traffic
- Air Quality
- Noise

7.2 SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

Section 15126 of the CEQA Guidelines requires that an EIR identify any significant irreversible changes associated with a proposed project. Such changes typically include use of non-renewable resources or land use changes that would preclude other types of development in the future.

- Utilization of non-renewable resources. Development of any of the Project Case Alternatives would irretrievably commit building materials and energy to the construction and maintenance of buildings and infrastructure proposed under the project. The Project Case Alternatives would generate an increased commitment to the local use of fuels to meet increased transportation demand in the Airport vicinity. Indirectly, this increase in traffic would have an irreversible effect on the air quality of the immediate vicinity and in the region.

- Fixed development pattern of the Airport vicinity. Commitment to construction of any of the Project Case Alternatives would result in an irreversible land use and development pattern. While it is possible that changes to the development of the land could be made over time, it is unlikely that this would occur once developed.

- Commitment to services. The Project Case Alternatives would require the provision of water, wastewater, solid waste, energy, and other public services to meet the increased demand for services at the Airport. The commitment to dedicate additional public services to the Airport would be a long-term, irreversible use of those services and required resources.

7.3 ENVIRONMENTAL EFFECTS FOUND NOT TO BE SIGNIFICANT

Based on the Notice of Preparation and Initial Study submitted on July 7, 1995, the following potential environmental effects of the Master Plan Update are found to have no impact:

- Conflict with general plan designation or zoning;
- Potentially cause a physical change which would affect unique ethnic cultural values;
- Displace existing housing, especially affordable housing;
- Subject the development to potential fault rupture;
- Subject the development to landslides or mudflows;
- Damage or destroy unique geologic or physical features;
- Alter the direction or rate of flow of groundwater;
- Cause a substantial reduction in the amount of groundwater otherwise available for public water supplies;
- Damage or destroy locally designated natural communities;
- Increase the fire hazard in areas with flammable brush, grass, or trees.

REFERENCES

CHAPTER 8
REFERENCES

8.1 ORGANIZATIONS AND PERSONS CONSULTED

This section provides a list of organizations and persons consulted during preparation of this EIR. The list is organized by agency and/or organization.

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Novak, Elisha, Ph.D., Senior Environmental Planner, Federal Aviation Administration

Pallarino, Robert S., Environmental Protection Specialist, U.S. Environmental Protection Agency

Pfeifer, John, Manager, Airports District Office, Federal Aviation Administration

Trembley, Nancy, Management Analyst, Federal Aviation Administration

STATE AGENCIES

Guerra, Suzanne, California Register of Historical Resources

Jyono, Harry, Caltrans Hydraulic Branch

Lee, William, Caltrans Hydraulic Branch

Uganiza, Dori, California Division of Occupational Safety and Health

REGIONAL AGENCIES

Bowyer, Dale, Associated Water Resources Control Engineer, San Francisco Bay Regional Water Quality Control Board (RWQCB)

Duazo, Rico, Regional Water Quality Control Board (RWQCB)

Garner, Ron, Plant Manager, San Jose / Santa Clara Wastewater Pollution Control Plant

Molnar, Bill, Supervising Engineer, Santa Clara Valley Water District

Talley, Randall, Santa Clara Valley Water District (SCVWD)

CITY AGENCIES

City of San Jose

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Fujczak, Walter, Fire Protection Engineer, San Jose Fire Department

Greene, Cary, Airport Planner, Airport Department

Maas, David, Airport Engineer, Airport Department

McMillan, John A., Director, Bureau of Support Services, San Jose Fire Department

Tanner, Jim, Department of Public Works

Welch, Orval, Deputy Director of Aviation, Airport Department

Winters, Preston, Sergeant, San Jose Police Department

City of Santa Clara

Schwilk, Jeff, City Planner, City of Santa Clara

BUSINESSES AND ORGANIZATIONS

Barclay, J., Biologist, BioSystems Analysis, Inc.

McGrath, Jeff, Design Engineer, Pacific Bell

Nevoli, Gary, Major Projects Manager, Pacific Gas and Electric Company

Plafker and Galloway, Oakland Airport

Renier, Wendy, TRA-BV Airport Consulting

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CHAPTER 9

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AGENCIES, ORGANIZATIONS, AND PERSONS THAT RECEIVED THE DRAFT EIR

CHAPTER 10

AGENCIES, ORGANIZATIONS, AND PERSONS THAT RECEIVED THE DRAFT EIR

A. DRAFT EIR DISTRIBUTION BY THE CITY OF SAN JOSE

FEDERAL AGENCIES

Army Corps of Engineers
Environmental Protection Agency -- w/Appendices
Federal Aviation Administration -- w/Appendices
Fish and Wildlife Service -- w/Appendices
Moffett Federal Airfield

STATE AGENCIES

Clearinghouse -- w/Appendices
Department of Fish and Game -- w/Appendices
Department of Transportation (District 4) -- w/Appendices

REGIONAL AGENCIES

Association of Bay Area Governments
Bay Area Air Quality Management District -- w/Appendices
Metropolitan Transportation Commission -- w/Appendices
Regional Water Quality Control Board -- w/Appendices

LOCAL AGENCIES

City of Mountain View -- w/Appendices
City of Palo Alto -- w/Appendices
City of Santa Clara -- w/Appendices
City of Sunnyvale -- w/Appendices
County of Santa Clara Airport Land Use Commission
County of Santa Clara Board of Supervisors
County of Santa Clara Executive
County of Santa Clara Parks and Recreation Department
County of Santa Clara Planning Department
County of Santa Clara Roads and Airports Department -- w/Appendices
County of Santa Clara Transportation Agency -- w/Appendices
Evergreen Resource Conservation District

San Jose Unified School District
Santa Clara Unified School District
Santa Clara Valley Water District -- w/Appendix Vol. 2

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Air Freight Association
Air One Helicopters
Air Transport Association
Aircraft Owners and Pilots Association -- w/Appendices
Airline Pilots Association
Aris Helicopters
Audobon Society
Berliner-Cohen
Chevron Corporation
Citizens Against Airport Pollution -- w/Appendices
Coalition for Responsible Airport Management and Policy -- w/Appendices
Emery Worldwide
Gibson-Speno Company
League of Women Voters
"The Public"
San Jose Jet Center
San Jose Mercury News
San Jose Metropolitan Chamber of Commerce
San Jose Sharks
San Jose Water Company
Santa Clara County Medical Association
Sierra Club
Squadron 2 Flying Club

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