



# Memorandum

**TO:** HONORABLE MAYOR  
AND CITY COUNCIL

**FROM:** Les White  
Harry S. Mavrogenes

**SUBJECT:** SEE BELOW

**DATE:** November 20, 2006

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**COUNCIL DISTRICT:** City-Wide

**SUBJECT: APPROVAL OF AIRPORT OBSTRUCTION STUDY RECOMMENDATIONS  
FOR FUTURE DOWNTOWN DEVELOPMENT**

## **RECOMMENDATIONS**

1. Approve the refinement of downtown development policy to set forth height restrictions on new high-rise development to protect existing and future commercial airline service at Norman Y. Mineta San Jose International Airport.
2. Direct City and Agency staff to initiate amendments to the General Plan and other key policy documents to restrict maximum building heights of new development to elevations which would not impact airline emergency procedures criteria and are otherwise acceptable to the Federal Aviation Administration (FAA).
3. Direct the Administration to consider refinements to the development review process including:
  - (a) For projects subject to an FAA airspace determination, require that applicants have their federal submittals prepared by a licensed civil engineer and that a copy of the submittal be provided to the City; and,
  - (b) For projects subject to an FAA airspace determination, require that applicants submit to the City a construction survey prepared by a licensed civil engineer verifying project elevations and location coordinates prior to issuance of an occupancy permit; and,
  - (c) For any proposed modifications or additions to existing buildings that are subject to an FAA airspace determination, such as roof-top accessory structures, require that such proposals be processed as development permit amendments; and,

- (d) Conduct outreach with the downtown development community to provide information and guidance on development height restrictions.
4. Direct the Administration to follow up with the FAA to ensure that its databases are appropriately updated and corrected.
5. Report back to the Council in three years and after evaluating FAA and airline safety procedures and determine if any changes can be made (consistent with FAA procedures) to restore or increase downtown building heights

### **OUTCOME**

Setting forth new height restrictions over certain portions of downtown and more rigorous review of proposed high-rise development projects will help protect the air service capability of the Airport. These height restrictions would be lower than the elevations that the FAA might find acceptable through its normal aeronautical review process. Other portions of downtown would not be affected. Staff can also explore options to increase development densities in and around downtown to maximize potential development without impacting the Airport's air service capability.

### **EXECUTIVE SUMMARY**

Downtown San Jose is directly under the primary aircraft approach and departure paths for the Mineta San Jose International Airport. In the review of proposed high-rise building projects, the City has historically relied upon the FAA's issuance of a project-specific "No Hazard Determination" as the finding that the development would not adversely impact airspace or Airport operations. However, airlines must satisfy other, often more-restrictive, safety criteria mandated by the FAA that may constrain their ability to economically operate due to high-rise buildings which, in turn, can impact City goals to retain or attract airline service. The City, in cooperation with the Redevelopment Agency, has undertaken an Airport Obstruction Study to determine how high-rise development in the Airport vicinity impacts airline service and how to ensure that future development would not worsen current impacts.

The technical analysis for the downtown area has been completed. Essentially, there are two corridors in downtown, one in the core east of Route 87 and one west of Route 87, within which the airline safety criteria, known as One-Engine Inoperative (OEI) surfaces, are more restrictive than the standard criteria used by the FAA to protect the airspace. Staff believes, and recommends Council concurrence, that these OEI surfaces need to be protected in order to maintain the Airport's potential to provide sufficient and expanded air service to San Jose and Silicon Valley residents and businesses. The study has also illuminated other potential City actions to protect the airspace over downtown.

## **BACKGROUND**

The City has embarked on two major economic development projects, the implementation of the Downtown Strategy and the Airport Master Plan. Considerable progress has been made towards the intensification of development to create the 24-hour downtown with the addition of numerous high-rise housing towers to the current collection of office, entertainment, and cultural facilities. The Airport meanwhile has rebuilt and lengthened two runways and commenced construction of new terminal facilities, all designed to better accommodate air passenger demand, including international and transcontinental domestic flights.

The FAA sets forth criteria for the protection of airspace around airports, essentially through the definition and application of various “imaginary surfaces” or slopes which radiate out from an airport’s runways. Under Part 77 of the Federal Aviation Regulations (FAR), proposed structures that would exceed any of the defined imaginary surfaces, or which would stand a certain height above ground, are considered “obstructions” and must be reviewed by the FAA to determine if the obstructions would also constitute “hazards” to aviation. Generally, a potential obstruction that does not exceed any of the instrument flight procedures known as TERPS would not be found to be a hazard. As FAA does not have land use jurisdiction over non-airport property, it is incumbent upon local jurisdictions to incorporate the FAA determinations during the project review process. The San Jose General Plan has an explicit policy (Aviation Policy #47) requiring that projects that must be submitted to the FAA for review receive a no-hazard determination.

The review by the FAA under FAR Part 77 of its regulations was previously thought to be the only issue of aviation concern to the City for high-rise development projects. However, such evaluations protect only the ability to safely operate the Airport, not the air service that can be provided at the Airport. Under Part 25 of the Federal Aviation Regulations, airlines must design emergency flight procedures in the event of a total power loss in one engine during takeoff. These One-Engine Inoperative procedures are designed such that the aircraft would gain some altitude and follow a simple flight path over the lowest terrain and any obstacles that would eventually allow a return to the Airport. Exhibit 1 (attached) presents a simple depiction of FAR Part 77 and Part 25 imaginary surfaces.

The airspace protection surfaces considered for OEI procedures under FAR Part 25 are, in many cases, more restrictive than the airspace protection surfaces used by the FAA in its evaluations of tall structures under FAR Part 77. In the FAA’s view, airlines can mitigate for OEI airspace obstructions by either revising their designated flight path procedures or reducing takeoff weight to improve climb performance such that they would clear the obstacles. In reality, the feasibility of revising OEI flight procedures is limited, and implementing takeoff weight restrictions through reductions in the load of fuel, passengers, or cargo carried impacts the economic viability of that flight. Even small weight penalties can mean the difference between an operating profit and loss on a flight, so obstructions within the surrounding airspace can be a factor for an airport’s ability to retain or attract airline service.

Southerly departures from the Airport's runways occur approximately 15% of the time. Recognition of the importance of accommodating airline OEI procedures at the Airport has arisen over the last year as the number of high-rise building proposals in the downtown have increased. In January 2006, Council approved an amendment to the Airport Department's consultant agreement for environmental services to include, in part, an Airport Obstruction Study to identify potential maximum building heights in the Airport vicinity based on existing high-rise buildings and FAA/airline imaginary surfaces.

## **ANALYSIS**

Technical work on the Airport Obstruction Study was prepared by specialized sub consultants (Leigh Fisher Associates and Ricondo & Associates) to the Airport environmental services consultant (David J. Powers & Associates) and reviewed with the staff of the Airport Department, Planning, Building & Code Enforcement Department, and Redevelopment Agency. The consultants have prepared a parcel-specific database overlaid with the FAA and airline imaginary surfaces. For downtown San Jose, there are two corridors in which airline OEI surfaces are more restrictive than the FAA imaginary surfaces, one in the core east of Route 87 and one west of Route 87, as shown in Exhibit 2 (attached).

The corridor east of Route 87 represents the OEI surfaces used by the majority of the airlines operating at the Airport. The critical existing obstructions which those OEI procedures are intended to clear consist of the Adobe Phase 1 Tower, the Adobe Phase 2 Tower 2, the Bank of America building, and the Knight Ridder building. The corridor west of Route 87 represents the OEI surfaces used by those airlines (currently American and Hawaiian) that must turn away from the downtown core in order to clear those critical buildings for their long-haul flights. The area west of Route 87 is relatively unobstructed by high-rise development, with the HP Pavilion serving as the only critical obstruction.

Compared to the surfaces used by the FAA in its airspace obstruction reviews, the OEI surfaces are significantly more restrictive in the corridor west of Route 87, as indicated in Exhibit 3 (attached). Within the downtown core (east of 87), the differences between the most restrictive OEI surface and FAA obstruction criteria range from 0-30 feet. In the corridor west of 87 (Diridon area), however, where the HP Pavilion is the only noteworthy existing obstruction, the differences between the most restrictive OEI surface and FAA obstruction criteria range from 20-90 feet or two to nine stories.

Massing analysis for potential development west of 87 under the General Plan and Downtown Strategy Plan show approximately 504,000 square feet of office or 563 housing units being lost as a result of using the more restrictive OEI elevation limits for that area, at a potential annual revenue loss estimated to be \$687,000-\$959,000. However, if development were allowed to exceed the OEI surfaces, the annual economic impact of the potential loss of just one transoceanic flight is estimated to range from \$6 million - \$24 million.

Given the City's investment in the Airport, its role of an economic development catalyst, and its fixed location, staff believes that protecting the Airport's air service capabilities is in the City's best interest. High-rise development in the downtown can continue to occur, but at lower maximum heights in certain areas. Moreover, there may be areas in or adjacent to downtown where development density can be increased to offset the density lost within the two OEI corridors.

It remains to be seen what the market impact of lowering potential building heights in Diridon will have on the development potential for this area. It may not be economical for developers to build shorter buildings (i.e. ten or twelve stories) because of the loss of view corridors that taller buildings (particularly residential high rise) provide. While Diridon will remain as a viable development area mid rise projects may not pencil out in today's market. Diridon could be faced with the prospect of development of traditional smaller scale office and lower density residential projects. Instead of high-rise development, mid-rise residential projects (e.g. Paseo Plaza, 101 San Fernando) that were built in the last decade could become the norm.

However, given that the staff feels that airport development must not be limited; this potential negative impact on the downtown can be offset by reevaluating building heights around the downtown. Potential "gateways" and other corridors may allow larger high rise developments that can be built without impacting surrounding neighborhoods. Staff will develop alternative options for the downtown environs and bring those options back to the Council as part of the General Plan Review process in 2007.

One obvious question is will new aircraft resolve or lessen this issue? While aircraft performance has improved over the years, further technology improvements may not solve this problem. Such aircraft performance improvements have enabled two-engine aircraft to serve markets previously served only by three or four-engine aircraft. Also, given increases in fuel prices, aircraft manufacturers are focusing on fuel efficiency rather than takeoff performance. The aircraft most affected by these OEI issues are among the newest aircraft (such as the Boeing 777, Airbus A320 and A330) as well as some of the oldest aircraft (such as the MD-80). Thus, this issue is anticipated to remain with the City for the long-term.

The analysis conducted for the Airport Obstruction Study has also found other problems related to airspace protection. Most notably, some existing downtown high-rise buildings are not accurately identified or are not depicted at all on the databases used by the FAA and airlines for their obstruction and procedure reviews. In some cases, development applicants did not submit accurate data to the FAA for their required airspace reviews, while in other cases the FAA did not add or correctly plot buildings, once constructed, into its databases.

Consultant work for the Airport Obstruction Study includes other tasks that remain to be completed within the next few months, including completion of the parcel-specific database for the rest of the Airport vicinity, training of City staff in airspace issues and use of the database, and assistance to the Airport Department in reviewing/updating its FAA-required airspace drawings.

## **POLICY ALTERNATIVES**

*Alternative #1 Adopt building height limitations that support the full operations of the airport under Parts 25 and 77 of FAA rules and reduce the amount of development that can be allowed Downtown.*

**Pros:** This alternative has the least cost economic impacts. It preserves investment in existing/proposed Airport facilities and air service to the community.

**Cons:** Reduces the amount of housing and job growth in greater downtown area, especially in the Diridon area.

**Reason for not recommending:** Does not address potential replacement development opportunities.

*Alternative #2 Adopt height limitations pursuant to the current Part 77 rules and retain additional development potential downtown, but lose the ability of certain aircraft and market combinations to be served from the airport.*

**Pros:** Preserves downtown growth opportunities.

**Cons:** Greatly reduces the return on airport investments and constrains airline operations.

**Reason for not recommending:** Impacts international and many transcontinental airline markets operations reducing the number of potential airlines serving the airport.

## **PUBLIC OUTREACH/INTEREST**

The proposed policy decision has been considered by the Airport Commission. Reports have been made to property owners in downtown. The recommendation has been posted on the "Pending Ordinances" webpage of the Planning, Building and Code Enforcement Department and discussed at several community meetings conducted for proposed high-rises. This memo was e-mailed to neighborhood and business groups with potential interest in this issue. Adoption of specific General Plan Text Amendments, Zoning Code Text changes and Council Policy will include additional specific outreach.

- Criteria 1:** Requires Council action on the use of public funds equal to \$1 million or greater. **(Required: Website Posting)**
- Criteria 2:** Adoption of a new or revised policy that may have implications for public health, safety, quality of life, or financial/economic vitality of the City. **(Required: E-mail and Website Posting)**
- Criteria 3:** Consideration of proposed changes to service delivery, programs, or staffing that may have impacts to community services and have been identified by staff, the Board or Council, or a community group that requires special outreach. **(Required: E-mail, Website Posting, Community Meetings, Notice in appropriate newspapers)**

November 20, 2006

**Subject: Building Height Review**

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### **COORDINATION**

This memo has been drafted by staff from Planning, Building and Code Enforcement, Office of Economic Development, Airport, and the Redevelopment Agency. This issue has been coordinated with the City Attorney's Office.

### **FISCAL/POLICY ALIGNMENT**

The proposed policy direction will balance the Economic Development and Downtown Revitalization Major Strategies of the San Jose 2020 General Plan, the City's Economic Development Strategy Global Gateway and World's Most Livable City Strategic Initiatives and preserves the major public investment in the airport facilities.

### **CEQA**

CEQA: EIR Resolution 72767, and addenda thereto, File #PP06-186.

Handwritten signature of Les White in black ink, with the word "Fox" written in small letters below the signature.

LES WHITE  
City Manager

Handwritten signature of Harry S. MAVROGENES in black ink.

HARRY S. MAVROGENES  
Executive Director

For questions please contact Joseph Horwedel, Director, Planning, Building and Code Enforcement, at (408) 535-7900; or William Sherry, Director, Airport at (408) 501-7669.

Attachments

c: William Sherry, Airport  
Joseph Horwedel, Planning, Building and Code Enforcement  
Paul Krutko, Office of Economic Development

**ADDENDUM TO THE FINAL ENVIRONMENTAL IMPACT REPORT (E.I.R.)  
FOR THE DOWNTOWN STRATEGY 2000**

Pursuant to Section 15162 of the California Environmental Quality Act (CEQA) Guidelines, the City of San Jose has determined that the project described below is pursuant to or in furtherance of the Final Environmental Impact Report (EIR) identified below and does not involve new significant effects beyond those analyzed in this Final EIR. Therefore, the City of San Jose can take action on the project as being within the scope of the Final EIR.

**Project File Number, Description and Location: PP06-186, a public project to revise the City of San Jose's General Plan policies and development review procedures to lower the currently identified building height limitations in a portion of the downtown area. The proposed policy change would apply to areas westerly of Highway 87 in which Federal Aviation Administration (FAA) requirements determine allowable maximum building heights, as identified in the General Plan.**

The environmental impacts of this project were addressed by a Final EIR entitled "Final Environmental Impact Report on the San Jose Downtown Strategy 2000." Findings were adopted by City Council Resolution no. 72767 in June 2005. The following impacts were reviewed and found to be adequately considered by the EIR:

- Land Use
- Transportation and Circulation
- Air Quality
- Noise
- Shade and Shadow
- Aesthetics
- Biological Resources
- Geology & Seismicity
- Cultural Resources
- Hazards
- Public Facilities and Services
- Hydrology and Flooding
- Utilities and Infrastructure Systems
- Energy Resources
- Cumulative Impacts

This addendum is prepared pursuant to CEQA Guidelines section 15164, which states: "A lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred."

Under the current General Plan policies and procedures, as analyzed in the Downtown Strategy 2000 Final EIR, the provisions of Federal Aviation Regulation Part 77 (“Obstructions to Navigation”) are used to determine maximum allowable building heights. The proposed change would replace the currently in-place Part 77 provisions with more restrictive standards from Federal Aviation Regulation Part 25. Part 25 establishes emergency procedures related to “one-engine inoperative” conditions, in the event of a total loss of an aircraft’s power to one engine during takeoff.

This Part 25 procedure would result in more significant building height restrictions (i.e., lower maximum allowable building heights) west of Highway 87, relative to those of the downtown core. The proposal is a program-level policy change that would not provide project-level clearance for any specific projects or sites. Future development proposals within the area affected by the proposed policy change would remain subject to project-specific CEQA review as required by CEQA.

The proposed project would not be expected to result in: 1) significant environmental effects not identified in the Final EIR; or 2) more severe environmental effects than shown in the Final EIR, or would require mitigation measures which were previously determined not to be feasible, or mitigation measures which are considerably different from those recommended in the Final EIR.

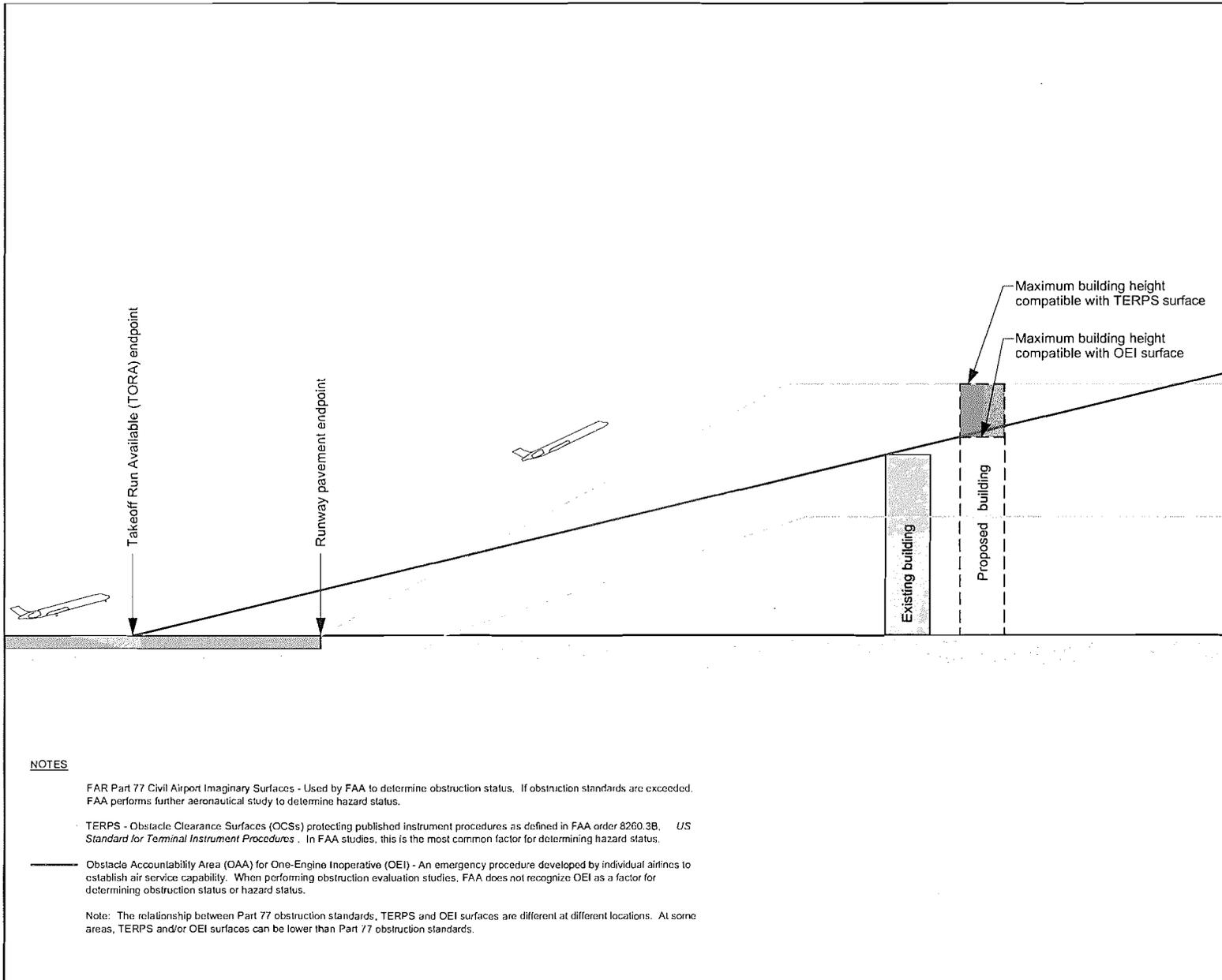
Based on the analysis in this addendum, the City concludes that the Final EIR adequately addresses the environmental effects of the currently proposed project, and that the proposal constitutes a minor refinement of the original project description. Furthermore, the City finds that this minor refinement would not result in any significant environmental effects that were not already identified in the Final EIR.

Joseph Horwedel, Acting Director  
Planning, Building and Code Enforcement

Akoni Daniels  
Deputy

11/2/06

Date



**LEGEND**

- ..... FAR Part 77 obstruction surface
- - - - TERPS surfaces
- OEI surfaces
- See below for further explanation

**NOTES**

FAR Part 77 Civil Airport Imaginary Surfaces - Used by FAA to determine obstruction status. If obstruction standards are exceeded, FAA performs further aeronautical study to determine hazard status.

TERPS - Obstacle Clearance Surfaces (OCSs) protecting published instrument procedures as defined in FAA order 8260.3B, *US Standard for Terminal Instrument Procedures*. In FAA studies, this is the most common factor for determining hazard status.

Obstacle Accountability Area (OAA) for One-Engine Inoperative (OEI) - An emergency procedure developed by individual airlines to establish air service capability. When performing obstruction evaluation studies, FAA does not recognize OEI as a factor for determining obstruction status or hazard status.

Note: The relationship between Part 77 obstruction standards, TERPS and OEI surfaces are different at different locations. At some areas, TERPS and/or OEI surfaces can be lower than Part 77 obstruction standards.

DRAFT  
October 5, 2006

Figure 1  
CONCEPTUAL DIAGRAM OF  
DIFFERENT TYPES OF AERONAUTICAL FACTORS  
RELATED TO BUILDING HEIGHTS  
Airspace Analysis - Composite OCS model  
Norman Y. Mineta - San Jose Int'l Airport  
October 2006



**LEIGH FISHER ASSOCIATES**  
A Division of Jacobs Consultancy Inc.

**LEGEND**

Building heights limited by TERPS

Building heights limited by One-Engine Inoperative (OEI)

65 dB CNEL contour for 2010 Master Plan



DRAFT  
October 5, 2006

NORTH  
↑



Figure 4  
**COMPARISON OF TERPS VS. OEI  
AREAS OF INFLUENCE  
WITH NOISE CONTOURS**  
Airspace Analysis - Composite OCS model  
Norman Y. Mineta - San Jose Int'l Airport  
October 2006

11/10/06



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LEGEND

-  Elevation difference (feet) between TERPS vs. OEI surfaces
-  Elevation (feet AMSL) of TERPS surfaces

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October 5, 2006



Figure 3  
ELEVATION DIFFERENCES BETWEEN  
TERPS VS. OEI SURFACES  
WITH 25 FOOT TERPS SURFACE INTERVALS  
Airspace Analysis - Composite CCS model  
Norman Y. Mineta - San Jose Intl Airport  
October 2006