



COMMITTEE AGENDA: 3-24-08
ITEM: 4d

Memorandum

TO: COMMUNITY AND ECONOMIC
DEVELOPMENT COMMITTEE

FROM: William F. Sherry, AAE

SUBJECT: STATUS REPORT ON AIRPORT
OBSTRUCTION STUDY

DATE: 3-7-08

Approved

Date

3/10/08

Council District: City-Wide

RECOMMENDATION

Accept this status report on the Airport Obstruction Study.

OUTCOME

To prepare Council for consideration and action on forthcoming recommendations for setting forth a refined height restriction policy for new development, particularly in downtown San Jose, in order to maximize continued high-rise development while protecting the air service capability of the Norman Y. Mineta San Jose International Airport.

EXECUTIVE SUMMARY

The Airport Obstruction Study was initiated in January 2006 to assess the compatibility of aircraft operations and high-rise building development in the downtown area. The objective has been to provide technical information leading to potential policy refinements to support the City's goals of continued downtown development along with sustainable airport growth. The firms of Jacobs Consultancy and Ricondo & Associates have been performing the specialized technical work (as subconsultants under the Airport's environmental services agreement with David J. Powers & Associates) in coordination with Airport, Planning, Economic Development, and Redevelopment Agency staff.

A set of joint Administration/Agency staff recommendations from the Airport Obstruction Study was scheduled for Council consideration in early December 2006. The key recommendation was to adopt maximum building height limits to protect existing airline emergency procedures (known as "One Engine Inoperative" or "OEI" surfaces) that in portions of downtown San Jose would be more restrictive than what the Federal Aviation Administration (FAA) and current San Jose General Plan might otherwise allow. On 12/5/06, Council deferred consideration of staff's recommendations with direction to conduct outreach to downtown development stakeholders.

In early 2007, staff reported back to Council that the San Jose Silicon Valley Chamber of Commerce and the San Jose Downtown Association planned to proceed with an independent consultant study to validate the findings of the City consultant's work and to conduct further analysis to identify potential alternatives to the pending City/Agency staff recommendations. The Airport agreed to fund 50% of the Chamber/Downtown Association study cost and assisted in the preparation of the scope of work and selection of a consultant team (Planning Technology Inc. and Williams Aviation). The independent validation/alternatives study was intended to be completed during 2007, but due to the complex technical and administrative issues involved, the study timeline has extended into 2008.

To-date, the Chamber/Downtown Association study has determined that the work completed by the City's Airport Obstruction Study consultant was generally accurate. However, some possible technical alternatives have been identified which, if determined feasible, would allow somewhat higher building heights in parts of downtown than recommended in the City study and still protect air service capability. Further analysis of these potential alternatives is currently underway. When the technical work is completed, hopefully within the next month, staff will review the results with the Chamber/Downtown Association and determine if a modified set of recommendations should be presented to Council for approval.

BACKGROUND

The primary approach and departure paths for San Jose International Airport are over portions of downtown San Jose. Historically, in the review of proposed high-rise building projects, the City has relied upon the required FAA 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 operate economically due to high-rise buildings which, in turn, can impact City goals to retain or attract airline service. Beginning in January 2006, the City initiated an Airport Obstruction Study to determine how these airline safety criteria, known as One-Engine Inoperative (OEI) surfaces, can affect, or be affected by, future high-rise projects in the Airport vicinity.

The technical analysis for the downtown area was completed in the Fall of 2006. The study found that there are two airspace corridors over downtown, one over the downtown core (east of Hwy. 87) and one over the Diridon area (west of Hwy. 87), within which the airline OEI elevations are more restrictive than the standard criteria used by the FAA to protect the airspace. The Administration and Agency then recommended Council concurrence that height limits be set to protect these OEI surfaces in order to maintain the Airport's potential to provide expanded air service to San Jose and Silicon Valley residents and businesses. Associated recommendations were also offered to strengthen the review requirements of proposed high-rise projects.

The staff recommendations that were agendized for Council consideration/action on 12/5/06 were as follows:

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 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 or surveyor using specified data standards, and that a copy of the submittal is provided to the City;
 - b. For projects subject to an FAA airspace determination, require prior to issuance of an occupancy permit that applicants submit to the City a construction survey prepared by a licensed civil engineer or surveyor verifying project elevations and location coordinates;
 - 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;
 - d. Conduct outreach with the downtown development community to provide information and guidance on development height restrictions.
 - e. Evaluate opportunities to increase development densities in areas in and around downtown.
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.

At the time the above recommendations were agendaized for Council, downtown stakeholders raised concerns that additional public outreach and input were needed prior to Council deliberation, and the item was deferred. The subsequent outreach consisted of three public meetings held in December 2006, which led to the cooperative effort with the San Jose Silicon Valley Chamber and Downtown Association to validate the City study's findings and examine alternative policy options.

Status reports on public outreach and progress on the Chamber/Downtown Association study have been presented to Council via information memoranda distributed 2/22/07 and 10/31/07. The staff memorandum pending from 12/5/06, plus the City consultant's draft technical report, remain publicly available on the Airport's website (www.sjc.org, "Newsroom" page).

ANALYSIS

Two of the City's most important economic development efforts are the implementation of the Downtown Strategy Plan and the Airport Master Plan. Considerable progress has been made towards the intensification of development to create a 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 airline service.

The FAA sets forth criteria for the protection of airspace around airports, essentially through the application of various "imaginary surfaces" or slopes which radiate out from an airport's runways. Under Part 77 of the Federal Aviation Regulations ("FAR Part 77"), 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 subject to FAA review must receive a no-hazard determination.

One Engine Inoperative (OEI) Surfaces

The review by the FAA under FAR Part 77 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 ("FAR Part 25"), airlines must design emergency flight procedures in the event of a total power loss in one engine during takeoff. These One-Engine Inoperative (OEI) procedures are designed such that the aircraft would gain some altitude and follow a simple flight path over the lowest terrain and any obstacles to eventually allow a return to the Airport. Southerly departures toward downtown occur approximately 15% of the time.

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 proposed structure heights under FAR Part 77. In the FAA's view, airlines can mitigate for OEI airspace obstructions by revising their flight path procedures or, more commonly, by reducing takeoff weight to improve climb performance such that they would clear the obstacles. 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 in an airport's ability to retain or attract airline service.

Airport Obstruction Study Findings/Recommendations

Technical work on the Airport Obstruction Study has included preparation of 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 Hwy. 87 and one west of Hwy. 87. The OEI corridor over the downtown core is a straight-out procedure used by the majority of the airlines operating at the Airport, with the critical existing obstructions being the Adobe towers, the Bank of America building, and the Knight Ridder building. The OEI corridor west of Hwy. 87 is used by those airlines with long-haul flights (including American and Hawaiian) that cannot use the straight-out procedure over the downtown core due to the existing structures and so must turn toward the west in order to clear those critical buildings. The Diridon area is relatively unobstructed by high-rise development, with the HP Pavilion serving as the only critical obstruction. Within the downtown core, the differences between the most restrictive OEI surface and FAA obstruction criteria range up to 30 feet. In the Diridon area, however, the differences between the most restrictive OEI surface and FAA obstruction criteria range from 20-90 feet. In other words, the heights of buildings would be further restricted by imposition of the OEI limits by up to 90 feet, depending upon specific location within this corridor.

Given the City's investment in the Airport, its fixed location, and its role of an economic development catalyst, 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. Since views are an important amenity in San Jose, building heights add strength to the downtown residential market. It is for this reason that expanding locations available for high-density housing to areas outside airspace corridors need to be explored.

Aircraft technology is not expected to resolve these height concerns over time. While aircraft performance has improved over the years, the 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 include the newest aircraft (such as the Boeing 777, Airbus A320 and A330) as well as the older two-engine aircraft (such as the MD-80). Thus, this issue is anticipated to remain with the City for the long term.

The analysis conducted in the Airport Obstruction Study also found other problems related to airspace protection. Most notably, some existing downtown high-rise buildings were not accurately identified or 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. City development review procedures also were not set up to ensure such data accuracy or compliance with FAA requirements.

Chamber/Downtown Association Study Progress

The independent Chamber/Downtown Association study has generally validated the technical work done in the City study, but has also identified three potential technical alternatives that could allow development in some parts of downtown to be higher than recommended in the City study without adversely impacting air service capability. Further analysis of these potential alternatives is necessary in order to determine their feasibility (including input from the airlines and FAA), and the Agency has agreed to assist the Chamber/Downtown Association in funding the additional work, which is currently underway. The alternatives are not mutually exclusive, so that they could result in some form of recommended composite alternative to the existing set of staff recommendations.

NEXT STEPS

Upon completion of the Chamber/Downtown Association's study, the previous technical findings and policy recommendations may be revised and agendized for Council consideration and action within the next 2-3 months. Staff's goal is to present a set of recommendations that best represents a "win-win" solution for continued growth and development of downtown and the Airport. In the meantime, City and Agency staff continue to coordinate with the Chamber and Downtown Association on their study, advise prospective high-rise developers of the OEI elevation limits as previously calculated in the City's study, and monitor developer compliance with the standard FAA requirements.


for William F. Sherry, A.A.E.
Director of Aviation
Airport Department

For questions please contact: William Sherry, Director of Aviation, at (408) 501-7669.

WFS/cg

cc: Joseph Horwedel, Planning, Building and Code Enforcement
Paul Krutko, Office of Economic Development
Harry S. Mavrogenes, Redevelopment Agency



Memorandum

TO: COMMUNITY AND ECONOMIC
DEVELOPMENT COMMITTEE

FROM: William F. Sherry, AAE

SUBJECT: SUPPLEMENT TO STATUS REPORT
ON AIRPORT OBSTRUCTION STUDY

DATE: 3-14-08

Approved Paul Kutz → Date 3-14-08

Council District: City-Wide

REASON FOR SUPPLEMENT

To provide updated information on study status as a follow-up to the San Jose Silicon Valley Chamber of Commerce and San Jose Downtown Association stakeholder meeting on 3/10/08.

SUPPLEMENTAL INFORMATION

At the 3/10/08 downtown stakeholder meeting, the Chamber/Downtown Association's consultants presented technical information on the alternatives to the City study findings and recommendations. The alternatives that could allow development in some parts of downtown to be higher than recommended in the City study, without adversely impacting air service capability, are:

1. Tweaking the airline One Engine Inoperative (OEI) surfaces over downtown to assume a continuous steeper climb where required to clear the critical existing obstruction, and also widening the OEI corridor over the largely obstruction-free Diridon area.
2. Recommending that FAA raise or terminate use of its "TERPS non-precision approach" surfaces, which are currently the most restrictive of the FAA instrument surfaces over most of downtown.
3. Recommending that the City not protect for any straight-out airline OEI surfaces over the downtown core, and instead only protect for a wider OEI corridor over the Diridon area, leaving the downtown core restrictions to FAA determinations based on its TERPS surfaces.

Airline input provided to the consultants thus far indicates general concurrence with the first two of these alternatives, with some level of concern with #3. FAA input has indicated a willingness to pursue #2, if officially requested by the City (as the Airport operator), although the timeline and likelihood of favorable action would remain to be determined.

As mentioned in the earlier staff memorandum, the alternatives are not mutually exclusive. So while consultant work continues on refining and gathering input on the alternatives, the Chamber

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and Downtown Assn. have expressed a preference for combining the alternatives in order to maximize potential development heights in the downtown core and accepting protection of a wider OEI corridor over the Diridon area. To support the objective of a "win-win" solution, the Airport has tentatively agreed to pursue such a composite alternative pending verification of potential airline concurrence and FAA consideration of the TERPS surface revisions.



for

William F. Sherry, A.A.E.

Director of Aviation

Airport Department

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