# APPENDIX G-4

# AVIATION MEMORANDUM

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# Memorandum

Date: January 31, 2008

To: Larry Lazar

From: Andrew Scanlon

Subject: Beach and Orangethorpe

Distribution:

DMJM Aviation was retained by 6940 Beach, LLC to provide professional advice and support, for aviation related components of the Draft EIR for the Beach and Orangethorpe Mixed-Use Development, herein referred to as the Project. The Project includes up to 1,000 multi-family residential units, 355,000 square feet of retail development, a 300-room hotel with banquet and conference facilities, and approximately 4,800 above and below ground parking spaces. The Project is located approximately one mile southwest of the airport, and is bordered by Melrose Street to the north, Beach Boulevard (State Route 39) to the west, Orangethorpe Avenue to the south, and Brenner Avenue to the east. Specifically, DMJM Aviation is tasked to analyze the Project against existing and future noise generated at Fullerton Municipal Airport and Federal Aviation Regulation Part 77 requirements and constraints. This memorandum documents the results of the analysis performed.

The following references were utilized during the preparation of this memorandum:

- Fullerton Municipal Airport Master Plan Update, July 2004
- Fullerton Municipal Airport, Airport Layout Plan, May 2004
- Conversations with the Fullerton Municipal Airport Manager, Rod Propst
- Conversations with Federal Aviation Administration LAX Airports District Office Staff, including the Fullerton Municipal Airport Engineer and Program Manager, Eric Vermeeren
- Federal Aviation Regulation Part 77
- Airport Environs Land Use Plan for Fullerton Municipal Airport

## TASK 1 – DESKTOP NOISE ANALYSIS

### Airport Information

Fullerton Municipal Airport is the only general aviation airport in Orange County. It is centrally located in the Los Angeles basin, and is adjacent to Interstate 5 and Highway 91. The airport is three miles from Knott's Berry Farm and six miles from Disneyland.[1] The airport has one runway, Runway 6/24, that is 3,121 feet long by 75 feet wide.

[1] Fullerton Municipal Airport's website - http://www.ci.fullerton.ca.us/depts/airport/default.asp

Approximately 75 percent of aircraft operations (arrivals and departures) occur on Runway 24 and 25 percent on Runway 6.

According to the Airport Master Plan, in 2002 the airport had 106,781 aircraft operations. This consisted of 83 percent single engine aircraft, 5 percent multi-engine aircraft, 0.9 percent turboprops, 0.03 percent business jets, and 11 percent helicopters. According to airport management, the fleet mix has remained consistent, but the level of aircraft operations has dropped to 70,000 to 75,000 operations per year. The Master Plan included noise contours for existing (2002) and future (2023) operations. The 2023 noise contours are slightly smaller than 2002, and therefore, for planning purposes, the Project is compared to 2002 operations.

**Potential Noise Impacts Based on Current Aircraft Operations**

The Airport Master Plan includes noise contours for the airport based on 2002 aircraft operational activity. The Community Noise Equivalent Level (CNEL) noise contours were developed using the Federal Aviation Administration's Integrated Noise Model (INM), Version 6.0.

The level of aviation noise impacts are based on the extent of residential and other sensitive land uses surrounding the airport. Based on land use limitations set by the Airport Land Use Commission (ALUC), residential land uses that are located within the CNEL 65 dB noise contour are Normally Inconsistent with aircraft noise levels, and residential land uses located between the CNEL 60 dB and the CNEL 65 dB noise contours are Conditionally Consistent with aircraft noise levels. The Project site is not located within the 2002 CNEL 60 dB or greater, noise contour.

The current level of aircraft operations is approximately 30 percent lower than the levels modeled for the 2002 noise contours. This reduction in aircraft operations would translate into a reduction in the level of noise exposure surrounding the airport. Therefore, since the Project site is not significantly impacted by the 2002 noise exposure levels, the site is also not significantly impacted by the current level of aircraft activity.

**Flight Tracks and Overflights**

Figure 1, displayed on the next page, provides an overview of the location of the Project relative to the location of the airport. The green lines are general representations of the flight paths typically used by aircraft arriving to Runway 6 (from the west and southwest) and departing Runway 24 (to the west and southwest). The location of the Project is located approximately ½ mile south of the extended centerline of Runway 6/24. Aircraft may deviate from these paths. One general flight path is located west of the Project.

Based on information found in the Airport Master Plan, only 6.5 percent of all arrivals to Runway 6 follow the flight path closest to the Project, and have the potential for flying over the site. The other 93.5 percent of arrivals to Runway 6 use alternate arrival patterns. Departures using Runway 24 (to the west/southwest) have similar percentages. Approximately 90 percent of all departures off Runway 24 turn to the right, or stay on a straight out pattern. Only 10 percent of these departures make a left turn, towards the Seal Beach VOR, and could possibly fly over, or near, the Project site.

The Project is also located under a suggested Visual Flight Route Flyway, which follows Highway 91. This flyway is used during periods of visual flight rules (VFR). Aircraft flying west are at an altitude of 4,500 feet and aircraft flying east at 5,500 feet. Therefore, the Project may experience sporadic noise from higher altitude aircraft, which are en route to destinations other than Fullerton Municipal Airport.

Due to the Project's proximity to the Los Alamitos AAF, it may also experience occasional over flights from military aircraft.

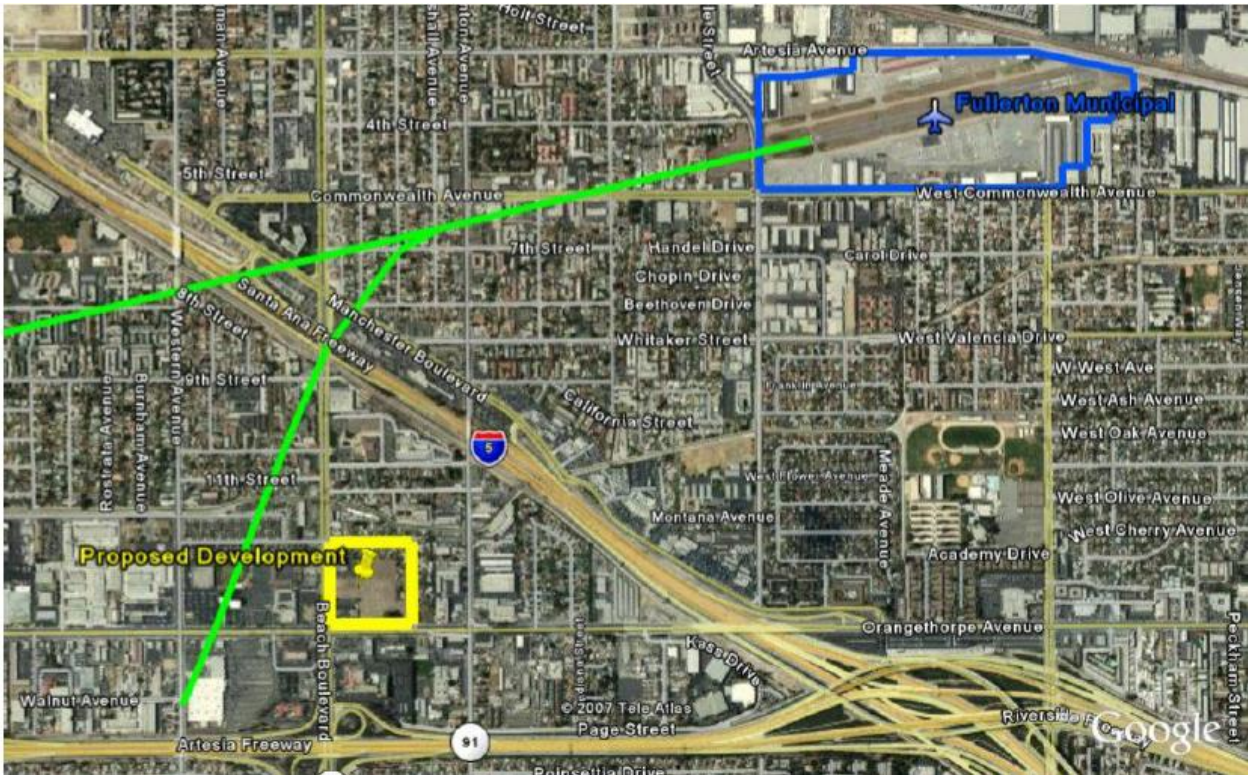



**Figure 1**
**Project Location and Flight Tracks**

**Conclusions**

The proposed Project location is situated far enough away from Fullerton Municipal Airport that there are no significant noise impacts associated with this site. There is no evidence that previous, current, or future aircraft activity levels would produce enough noise exposure to affect the growth of the CNEL noise contours to include the location of the Project.

The Project site may experience occasional aircraft overflights, and increased single event noise levels due to its location relative to the flight paths used for arrivals and departures to and from the airport. However, the majority of aircraft operating in and out of Fullerton Municipal Airport will not fly over this location. It is entirely possible this location experiences more noise due to its proximity to Interstate 5 and Highway 91 than because of aircraft operations.

**TASK 2 – FEDERAL AVIATION REGULATION PART 77**

**Background Data**

Construction of tall structures, such as the Project, may potentially affect airspace used by aircraft. Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace*, is applied when tall structures are being planned. Specifically FAR Part 77:

- Establishes standards for determining obstructions in navigable airspace;
- Sets forth the requirements for notice to the Federal Aviation Administration (FAA) of certain proposed construction or alteration;
- Provides for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace;
- Provides for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and
- Provides for establishing antenna farm areas.

**FAR Part 77 Analysis**

Standards used to determine obstructions in navigable airspace are defined in FAR Part 77 Subpart C, *Obstruction Standards*. Subpart C defines imaginary surfaces applied to an airport, which are used to determine which existing objects are, and what future objects would be, an obstruction to air navigation. Because the Project is less than one mile from Fullerton Municipal Airport, imaginary surfaces defined in FAR Part 77 Subpart C apply to the Project site. Specifically, two surfaces associated with Fullerton Municipal Airport overlay the site: the Horizontal Surface and the Conical Surface.

The Horizontal Surface is a horizontal plane 150 feet above the established airport elevation. The airport elevation is the highest point along the runway, and in the case of Fullerton Municipal Airport is 96 feet above mean sea level (MSL). Therefore, the Horizontal Surface for Fullerton Municipal Airport is 246 feet above MSL. The perimeter of the Horizontal Surface is defined by swinging arcs, with 5,000-foot radii, from the center of each end of the Primary Surface and connecting the adjacent arcs by lines tangent to those arcs. The Primary Surface is centered on the runway and extends 200 feet beyond the physical runway end.

Most of the Project site is underlies the Conical Surface (see Figure 2). This surface extends outward and upward from the periphery of the Horizontal Surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet. Elevations of the Conical Surface over the Project site range from 246 feet above MSL to 281 feet above MSL.

The Project site is fairly level with some slight mounding near the middle of the site. Currently, the edges of the site are at about 77 feet above MSL and the middle of the site is about 80 feet above MSL. The site will be leveled to construct the Project, and the finish grade is assumed to be 77 feet above MSL. Structures that penetrate the surfaces defined in FAR Part 77 Subpart C are obstructions, and can negatively affect air navigation. Therefore, structures at the Project are limited in height by the FAR Part 77 Subpart C surfaces. Structure height allowed at the site ranges from 169 feet at the northeast corner, to about 204 feet at the southwest corner. Figure 3 illustrates the Project site and maximum structure heights, in one-foot increments. The entire structure, including mechanical equipment, mechanical penthouses, and antenna, must remain below the Subpart C surfaces to avoid penetrating the surfaces and being classified as an obstruction.

**Federal Aviation Administration Notification**

As mentioned above, FAR Part 77 also establishes requirements for notice to the FAA. Notice is given to the FAA by filing FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAR Part 77 Subpart B, *Notice of Construction or Alteration*, provides criteria for when notice must be provided. These criteria applied to Fullerton Municipal Airport states notice must be given if the development exceeds a slope of 50 to 1 within 10,000 feet of the runway. The notification area includes the Project site and therefore structures taller than 96 feet on the northeast corner to 117 feet on the southwest corner will require filing of FAA Form 7460-1. Figure 4 depicts the FAR Part 77 notification area.

During the FAA's review of the 7460-1, the following divisions will review the development:

- Air Traffic
- Flight Standards
- Airway Facilities
- Airports
- Military

Following FAA's review, a letter of determination will be issued. There are three possible determinations:

- The Project would not exceed any standard of Subpart C and would not be a hazard to air navigation;
- Would exceed a standard of Subpart C but would not be a hazard to air navigation; or
- Would exceed a standard of Subpart C and further aeronautical study is necessary to determine whether it would be a hazard to air navigation, that the sponsor may request within 30 days that further study, and that, pending completion of any further study, it is presumed the Project would be a hazard to air navigation.

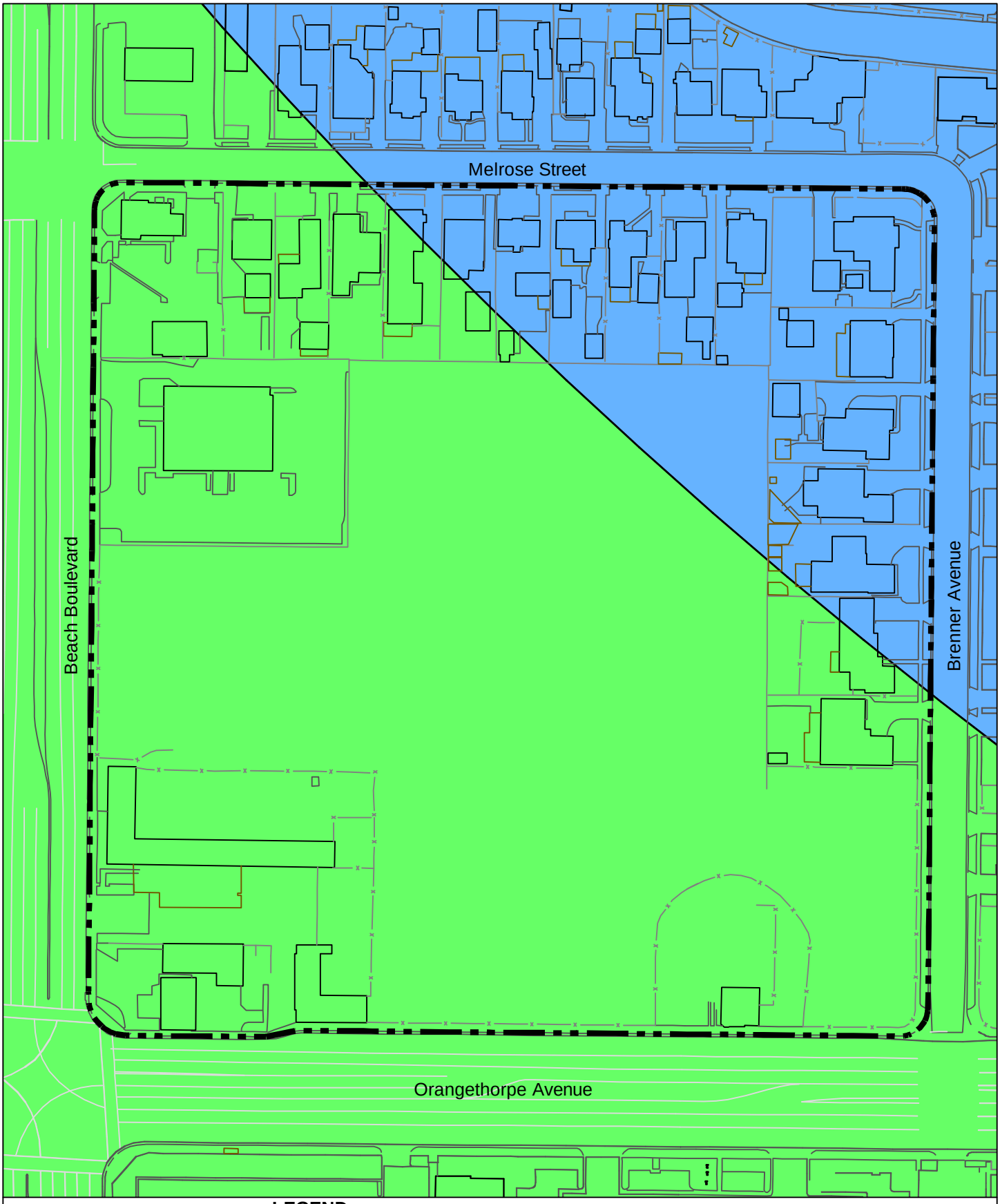



**Figure 2**
**FAR Part 77 Surfaces**


N

0 60' 120'

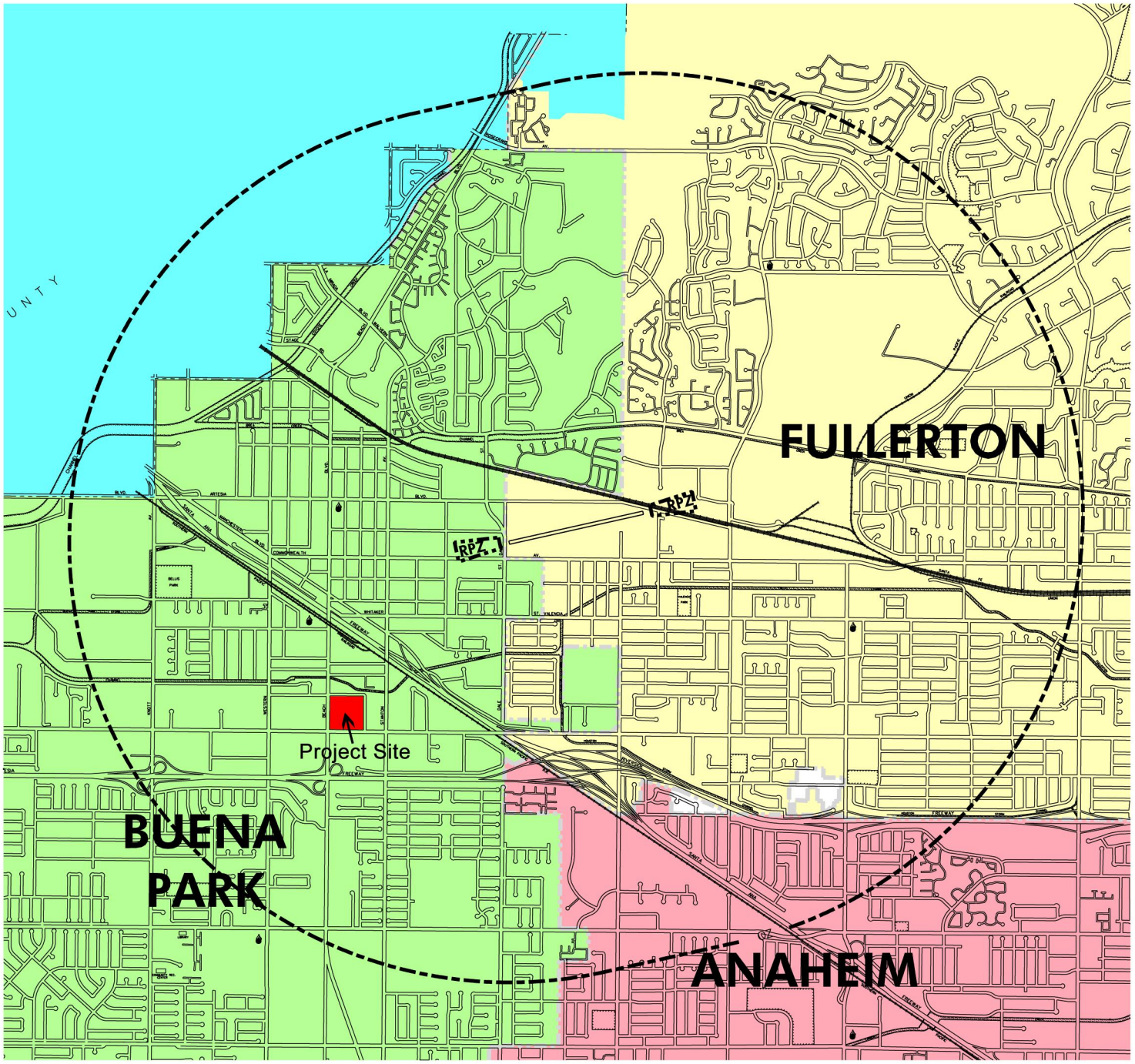
GRAPHIC SCALE

**LEGEND:**

- Intermediate FAR Part 77 Contour
- Major FAR Part 77 Contour
- Existing Ground Countor
- Project Boundary

**Figure 3**
**Building Height Restrictions**

# AELUP Height Restriction Zone for FMA




Note: – County Unincorporated areas are shown in white.
– Larger format map is available through Commission office at 949–252–5170

## FAR PART 77

### Fullerton Municipal Airport

### Notification Area: 10,000′ Radius at 50:1 Slope

LEGEND

10,000' Radius

CITY BOUNDARIES

0 1000 2000 3000 4000 5000
500
Scale In Feet

**Figure 4**
**Fullerton Municipal Airport**
**Notification Area**

Source: Airport Environs Land Use Plan for Fullerton Municipal Airport, Amended: November 18, 2004.

This determination may also contain a notice that the Project is one for which lighting or marking standards prescribed in FAA Advisory Circular 70/7460-1, *Obstruction Marking and Lighting*, applies, and will provide information on how the structure should be marked and lighted in accordance with the Advisory Circular.

**Orientation of Development and Materials Used**

DMJM Aviation researched affects of building materials and orientation of the Project, and how it may affect aviation operations, including affects on navigational equipment. Through discussions with the FAA LAX Airports District Office (ADO) staff, it was discovered there is a multitude of variables, including time of day, season, weather conditions, and so forth, which may or may not cause glare and affect aviation operations at Fullerton Municipal Airport. Structures with a metallic surface will reflect navigational signals, whereas structures with non-metallic surfaces will absorb the signals. FAA staff recommends submitting FAA Form 7460-1 form with a site plan, and proposed materials to the FAA for formal review. Through FAA's review of the 7460-1 form, affects to aviation operations and navigational equipment will be considered and a determination made. As noted above, such a determination may include lighting and marking recommendations.

**California Airport Land Use Planning Handbook**

The Orange County Airport Land Use Commission uses the California Department of Transportation's California Airport Land Use Planning Handbook ("Handbook") extensively during reviews of development proposals. The Handbook provides guidance on compatible land uses around airports. To accomplish this, safety compatibility zones for airports are established in the Handbook. Also included in the Handbook, are maximum residential densities and maximum nonresidential intensities for each safety compatibility zone. Applying generic Handbook safety compatibility zone guidelines to Fullerton Municipal Airport, results in the traffic pattern zone (Zone 6) to overly the northeastern most corner of the Project site by about 80 feet. There is no limit to the number of dwelling units per acre in Zone 6, and the maximum nonresidential intensity is limited to 150 people per gross acre in a suburban setting and is not limited in an urban setting.

**Conclusions**

The Project should be designed so it does not penetrate FAR Part 77 Subpart C surfaces. This will ensure there are no impacts to air navigation. All components of the development, including any mechanical penthouses and antenna should remain below Subpart C surfaces. As illustrated in Figure 3, the Project can include structures up to 169 feet tall in the northeast corner to 204 feet in the southwest corner.

Due to the Project's proximity to Fullerton Municipal Airport, FAA Form 7460-1 should be filed. This will give the FAA an opportunity to point out any potential concerns they may have with the Project, building materials, and orientation. The Orange County Airport Land Use Commission will also require the FAA determination letter to review the Project.