3.0 RESPONSES TO COMMENTS

3.1 ORGANIZATION OF RESPONSES TO COMMENTS

The Draft Environmental Impact Report (“EIR”) public review period for the John Wayne Airport Settlement Agreement Amendment began on Friday, May 23, 2014, and ended on Tuesday, July 8, 2014. During the public review period, the County of Orange received a total of 113 comment letters from State and local agencies, organizations, and individuals on the Draft EIR. An additional seven comment letters were received after the public review period was closed.

Consistent with Section 15088 of the State CEQA Guidelines, the County’s responses to comments received are provided below. The comments in each letter are bracketed and numbered. The responses, which are provided following the comment letter, are numbered to match the bracketing on the letter. Comment letters received are categorized by type of agency (federal, State, or local), organizations, or individuals. Within each category, the comment letters are organized in alphabetical order. In addition, transcripts of oral comments received at the two public meetings are provided. The responses to comments in the transcripts are provided in the order received.

A number of comments received during the public review process addressed the same topical issues. To avoid repetitiveness in the responses to these comments, “Topical Responses” have been prepared to address these common concerns. Topical responses are provided below in Section 3.2. Where applicable, the response provided references the appropriate topical response.

3.2 TOPICAL RESPONSES

3.2.1 TOPICAL RESPONSE 1: BLACK CARBON

The County of Orange, as the proprietor of John Wayne Airport (“JWA”), received public comments that expressed concern about air pollution that could be characterized as black dust or soot. For purposes of this response, it has been assumed that what is referred to as black dust or soot by the commenters is what is frequently termed “black carbon.” As discussed further below, particulate matter (including black carbon) at JWA is expected to decrease during all three phases of the Proposed Project (see Draft EIR Table 4.1-8, page 4.1-29). The following discussion provides information on black carbon in response to these comments.

STATE OF THE SCIENCE ON BLACK CARBON

The Draft Environmental Impact Report (“EIR”) includes background information on airborne particulate matter (“PM”) in Section 4.1, Air Quality. In response to the comments received on black carbon, additional background on the state of the science of black carbon, a component of PM, is provided below.

The U.S. Environmental Protection Agency (“USEPA”) describes black carbon as “the most strongly light-absorbing component of PM and is formed by the incomplete combustion of fossil fuels, biofuels, and biomass. Black carbon is emitted directly into the atmosphere in the form of
Responses to Comments

fine particles (‘PM$_{2.5}$’) and is the most effective form of PM, by mass, at absorbing solar energy. For example, per unit mass in the atmosphere, black carbon can absorb a million times more energy than carbon dioxide (‘CO$_2$’). Black carbon is a major component of “soot”, a complex light-absorbing mixture that also contains some organic carbon.”

The USEPA has studied and is continuing to study the effects of black carbon, including public health effects. In terms of health effects, “over the past decade, the scientific community has focused increasingly on trying to identify the health impacts of particular PM$_{2.5}$ constituents, such as [black carbon]. However, there currently is insufficient information to differentiate the health effects of these constituents; thus, [the USEPA] assumes that many constituents are associated with adverse health impacts. The limited scientific evidence that is currently available about the health effects of [black carbon] is generally consistent with the general PM$_{2.5}$ health literature, with the most consistent evidence for cardiovascular effects.”

The USEPA has two particular studies of interest that provide additional details on black carbon, and its related air quality impacts and health effects. First, in 2009, the USEPA released the final Integrated Science Assessment (“ISA”) for Particulate Matter, which provides an evaluation of the scientific literature on the potential human health effects and welfare effects associated with ambient exposure to PM as a whole. According to the report, “this ISA thus serves to update and revise the evaluation of the scientific evidence available at the time of the previous review of the [National Ambient Air Quality Standards (‘NAAQS’)] for PM that was concluded in 2006.”

Second, in 2012, the USEPA completed a “Report to Congress on Black Carbon,” which summarizes available scientific information on the climate and health impacts of black carbon. (This report is hereafter referred to as the “2012 USEPA report.”)

**BLACK CARBON IS EMITTED FROM MANY SOURCES**

According to the 2012 USEPA report, transportation/mobile sources accounted for 52.3 percent of the black carbon emitted in the United States in year 2005. As defined by the USEPA, this category of sources includes on-road vehicles, non-road vehicles, locomotives, commercial marine vessels, aircraft, and tire and brake wear. Diesel on-road and non-road sources are the major contributors to black carbon emissions from transportation/mobile sources, accounting for 41.7 percent of the total U.S. black carbon emissions, as measured for year 2005. In comparison, aircraft-related black carbon emissions only accounted for 0.06 percent of total U.S. black carbon emissions. This percentage was calculated based on the reported estimate of 410 tons/yr of black carbon from aircraft and a total of 637,167 tons/yr of black carbon emissions in the U.S.

The 2012 USEPA report also identified other sources of black carbon. For example, residential sources (including wood, oil, coal, and natural gas combustion) account for 3.6 percent of total

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5 Ibid (page 1-1).
7 Ibid.
8 All values in this section based on data presented in Tables 4-1 and 4-2 of the 2012 USEPA report (USEPA 2012c).
U.S. black carbon emissions, emitting more than 50 times as much black carbon as aircraft. Wildfires also are a major contributor to black carbon emissions, representing nearly 24 percent of total U.S. black carbon emissions.

Also of relevance, the South Coast Air Quality Management District’s (“SCAQMD”) 2012 Air Quality Management Plan (“AQMP”) indicates that near-roadway studies have found the highest concentrations of black carbon in the immediate vicinity (i.e., within 17 meters) of freeways frequently traveled by heavy-duty diesel trucks (i.e., the I-710 freeway), with black carbon concentrations decreasing exponentially with increasing distance downwind from the freeway. According to the AQMP, downwind black carbon concentrations decreased to levels equivalent to upwind background levels at a distance of approximately 300 meters from the freeway (i.e., by 300 meters downwind, the concentrations of black carbon were equal to the general background air). This exponential decrease is discussed on page 9-12 of the SCAMQD’s 2012 AQMP and is shown in Figure 9-3 of the AQMP, as shown below.

![Diagram showing exponential decrease of black carbon concentrations downwind](image)

**FIGURE 9-3**

Relative Black Carbon (BC), Carbon Monoxide (CO), Particle Number (a surrogate for ultrafine particles or UFP), and Particle Mass (PM2.5) Concentrations Upwind and Downwind of the I-405 (a) and I-710 (b) Freeways (from Zhu et al., 2002a; 2002b).

Note that PM2.5 was not measured at the I-710.

Source: Final 2012 Air Quality Management Plan

While operations at JWA may result in PM$_{2.5}$ emissions and thus black carbon emissions, given the varied sources of black carbon emissions, the black dust or soot in the surrounding area is likely not solely due to JWA due to the proximity of other likely sources of black carbon (e.g., on-road vehicles operating along I-405 and SR-73).

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10 Ibid (Page 9-3).
**UNDERSTANDING AIR DISPERSION**

The relationship between emissions and air concentrations is complex. Numerous factors influence the dispersion and transport of emissions. These factors include emission source location, parameters of the source of emissions (e.g., exit velocity), emissions magnitude, and atmospheric conditions (e.g., mixing height, wind direction, and wind speed). The following section describes how these factors influence the transport of emissions, including black carbon, from sources to receptors.

Proximity of the emission source to the receptor is one of the most influential factors in determining relative impacts between emission sources. As discussed above, studies by the SCAQMD have shown that black carbon concentrations decrease exponentially with distance from the source. And, based on data specific to JWA, the approach flight path assumes aircraft are at an elevation of 1,000 feet (0.2 miles) at a distance of 3.1 miles from the runway and an elevation of 3,000 feet (0.6 miles) at a distance of 9.0 miles from the runway. Similarly, the departing flight path assumes aircraft are at an elevation of 1,000 feet (0.2 miles) at a distance of 0.7 miles from the runway and an elevation of 3,000 feet (0.6 miles) at a distance of 4.6 miles from the runway. When an aircraft is on approach or departing, dispersion and dilution of pollutants will occur between sources (i.e., aircraft) and receptors.

The small particle size of black carbon also influences how emissions may “deposit.” Specifically, black carbon is considered to be smaller than 2.5 microns in diameter (i.e., PM$_{2.5}$). Particles of this size behave more like a gas and do not deposit like larger particles.\(^{11}\) Thus, the presence of aircraft overhead may appear to lead to deposition of emissions straight down, but the small particle sizes likely do not deposit or settle straight down. Rather, the meteorology will disperse the black carbon over a wider area leading to low concentrations by the time it reaches ground level.\(^{12}\)

Mixing height is another complex but important factor. According to the Federal Aviation Administration’s (“FAA”) Emissions and Dispersion Modeling System (“EDMS”) Technical Manual, “The mixing height is the maximum height at which the mixing of pollutants occurs. It is the height above the earth’s surface at which lies the bottom of an inversion aloft. Pollutants dispersing beneath an inversion aloft are limited in vertical mixing to that which occurs beneath the bottom of the inversion aloft.”\(^{13}\) Stated somewhat more simply, the mixing height is the “depth through which atmospheric pollutants are typically mixed by dispersive processes.”\(^{14}\) The air dispersion modeling for the Proposed Project includes modeling up to the mixing height of 3,000 feet, which is the EDMS default standard for airport air dispersion modeling.\(^{15}\) This

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approach ensures that aircraft emissions are modeled from ground level up to mixing height in order to estimate the maximum impacts from aircraft on receptors. According to the FAA’s report on Air Quality Impacts by Airplane Operations, “Above this [mixing] height, pollutants that are released generally do not mix with ground level emissions and do not have an effect on ground level concentrations in the local area. Accordingly, if airplane operations occur above the mixing height, they will have negligible effect on ground level concentrations.”

While aircraft in approach or on take-off may appear to be a primary source of black carbon emissions for those beneath the flight path, the combination of the factors discussed above (location, particle size, and atmospheric conditions) all lead to the dispersion and dilution of emissions before they ever reach ground level (if at all).

**UNDERSTANDING PROJECT EMISSIONS**

Section 4.1, Air Quality, of the Draft EIR analyzes the environmental significance of the Proposed Project’s PM$_{2.5}$ emissions, which can be used as a surrogate for black carbon since black carbon is a component of PM and there are no current USEPA standards related to black carbon. (Unlike for black carbon, the USEPA has air quality standards for PM$_{2.5}$, particulate matter less than 10 microns and 2.5 microns in diameter, respectively.) The 2012 USEPA report indicates that the ratio of black carbon to PM$_{2.5}$ for aircraft is 0.13 (e.g., 1 pound of PM$_{2.5}$ contains 0.13 pound of black carbon).

The Proposed Project results in a decrease in PM$_{10}$ and PM$_{2.5}$ emissions from aircraft as compared to the existing environmental condition, as shown in Draft EIR Table 4.1-8, page 4.1-29 (see also Draft EIR, Table 4.1-5, page 4.1-21). The reduction in PM$_{10}$ and PM$_{2.5}$ emissions is due to the anticipated reduction in general aviation operations from the baseline conditions. (See Draft EIR Table 3-12, page 3-37.) Because black carbon is a fraction of PM$_{2.5}$, the Proposed Project also is anticipated to result in a reduction in black carbon emissions from aircraft associated with the Project.

It should also be noted that the PM$_{2.5}$ estimates in the Draft EIR are conservative as the analysis relies upon current aircraft emission factors published by the International Civil Aviation Organization (“ICAO”), which do not account for future (cleaner) aircraft engines being phased in. If future clean aircraft information were available and able to be quantified in the analysis, further reductions in PM$_{2.5}$ (and thus black carbon) emissions from that reported in the Draft EIR would be likely.

The Proposed Project’s modeled PM$_{10}$ and PM$_{2.5}$ concentrations (and, therefore, black carbon concentrations) would decrease along the modeled flight path compared to the maximum concentrations reported in Section 4.1.6 and Table 4.1-13 (page 4.1-38) of the Draft EIR. The air dispersion modeling shows that maximum modeled impacts are located close to the Airport, with impacts decreasing with distance from the Airport. Therefore, concentrations farther away from the Airport are expected to be lower than the concentrations reported in the Draft EIR. Furthermore, the modeled concentrations conservatively do not incorporate the decrease in

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17 USEPA. 2012c (Table 4-2).

general aviation emissions; if the decrease in general aviation emissions were included in the air dispersion model, the PM$_{2.5}$ modeled concentrations would be lower than those shown in the Draft EIR (Draft EIR, Table 4.1-13, page 4.1-38.).

Note also that health risk is addressed in Section 4.1.6 of the Draft EIR and Section 5.4 of the Air Quality Technical Report (Appendix D). Specifically, the Health Risk Assessment provided in Section 4.1, Air Quality, evaluates cancer, cancer burden, chronic non-cancer, and acute non-cancer health risks. The Health Risk Assessment is summarized in the Draft EIR on pages 4.1-4; 4.1-11 through 4.1-14; 4.1-22; and 4.1-61 through 4.1-65. The Draft EIR relies upon SCAQMD's established thresholds to assess potential changes in cancer risk due to Project emissions. As shown in Table 4.1-23 (page 4.1-62) of the Draft EIR, the Proposed Project would not exceed the SCAQMD’s cancer risk or cancer burden thresholds. In addition, the Proposed Project would not exceed the SCAQMD’s chronic non-cancer hazard index threshold at any modeled receptor locations or the acute non-cancer hazard index threshold at residential and sensitive receptor locations. The maximum estimated acute non-cancer hazard index at worker receptor locations was equal to the SCAQMD threshold.

**PROJECT EFFORTS TO FURTHER REDUCE BLACK CARBON EMISSIONS**

As discussed in Section 4.1.7 (Mitigation Program) of the Draft EIR, the County of Orange, as the proprietor of JWA, is committed to reducing air quality impacts and PM$_{2.5}$ (and thus black carbon) emissions from sources under its control. Here, the FAA regulates most aspects of aircraft operations that might influence the PM$_{2.5}$ emissions from aircraft. Specifically, the Federal Aviation Regulations ("FARs"), part of Title 14 of the Code of Federal Regulations ("CFR"), are rules prescribed by the FAA governing all aviation activities in the United States, including aircraft maintenance procedures, engine manufacture guidelines, and aircraft flight paths.

Nevertheless, the County has identified fifteen (15) mitigation measures in the Draft EIR that would help reduce emissions resulting from the Proposed Project (see Draft EIR Section 4.1.7). Many of these measures help reduce combustion-related emissions, and thus would help reduce potential PM$_{2.5}$ (and black carbon) emissions. Some examples of these measures include: increasing the amount of electrified ground support equipment that is used; supporting the expansion of public transit opportunities; supporting bicycle use by Airport employees; and, supporting the use of alternatively fueled taxis and shuttles. As noted in Table 4.1-6 (Emission Reduction Strategies Currently Implemented at JWA), page 4.1-23, of the Draft EIR, JWA has also already incorporated combustion reductions into its existing operations through efforts such as providing plug-in power at all of the gates, which reduces the use of auxiliary power units on aircraft.

**Summary**

As explained above, the Draft EIR’s assessment of the Proposed Project’s PM$_{2.5}$ emissions necessarily encompasses the Proposed Project’s black carbon emissions since black carbon is a component of PM. The EIR’s methodological approach also is consistent with (i) guidance established by the SCAQMD, and (ii) the unregulated status of black carbon relative

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to the regulatory agencies with expertise on the subject (i.e., USEPA; California Air Resources Board; SCAQMD).

Importantly, the Draft EIR’s analysis, in Table 4.1-8 (page 4.1-29), shows that aircraft-related PM emissions (including black carbon) are expected to decrease in all three phases of the Proposed Project as compared to the existing environmental condition, in contrast to commenters’ assertions that aircraft-related black carbon levels would increase with adoption of the Proposed Project. And, the discussion above demonstrates that there are a multitude of non-Project-related potential black carbon sources in the vicinity of JWA (such as diesel trucks traveling along I-405) and its neighboring communities that likely are contributing to the black carbon deposits identified by the commenters. Specifically, diesel on-road and non-road sources accounted for 41.7 percent of the total U.S. black carbon emissions, as measured for year 2005. In comparison, aircraft-related black carbon emissions only accounted for 0.06 percent of total U.S. black carbon emissions. This percentage was calculated based on the reported estimate of 410 tons/yr of black carbon from aircraft and a total of 637,167 tons/yr of black carbon emissions in the U.S. While operations at JWA may result in PM$_{2.5}$ emissions and thus black carbon emissions, the black dust or soot in the surrounding area is likely not solely due to JWA due to the proximity of other likely sources of black carbon (e.g., on-road vehicles operating along I-405 and SR-73).

### 3.2.2 TOPICAL RESPONSE 2: LOS ANGELES TIMES/USC STUDY

The County of Orange, as the proprietor of John Wayne Airport (“JWA”), received public comments that reference an article in the May 29, 2014 edition of the Los Angeles Times (“LA Times”). This LA Times article references a study conducted by the University of Southern California on particle number (”PN”) concentrations downwind from Los Angeles International Airport (“LAX”). (This study is hereafter referred to as the “USC Study.”) These comments address ultrafine particles (“UFPs”), as this air pollutant was the focus of the USC Study. The following discussion provides responsive information on UFPs.

#### STATE OF THE SCIENCE ON ULTRAFINE PARTICLES

Section 4.1, Air Quality, of the Draft Environmental Impact Report (“EIR”) includes background information on airborne particulate matter (“PM”). Additionally, UFPs are discussed in Draft EIR Section 4.10, Water Quality (page 4.10-7), and Section 2.1.4 of the Air Quality Technical Report (a copy of which is located in Draft EIR Appendix D). In response to the comments received on UFPs, additional background on the state of the science on UFPs is provided below.

In recent years, the U.S. Environmental Protection Agency (“USEPA”) has conducted research on airborne ultrafine particulate matter (as defined to include particles less than 100 nm in diameter). According to this research, UFPs are not purposefully manufactured nor are they necessarily of a constant composition or size. Rather, UFPs are the result of combustion or friction processes, or natural processes in the air and are ubiquitous in the atmosphere at low concentrations with elevated levels in urban areas (due to the many modes of combustion that

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are found in urban areas). UFPs are not stable particles, but are condensates that continue to aggregate to larger and larger particulates. The greatest influence on the rate of aggregation is the particle concentration: the higher the concentration, the faster the rate of aggregation. For this reason, exposure to UFPs tends to be a local issue requiring close association with the particle source.

In addition to the research described above, the USEPA also has ongoing research on PM-related health outcomes. As stated by the USEPA, the health effects research to date is focused on:

- Health effects resulting from different sizes of PM;
- Health effects resulting from different chemical make-ups or composition of PM;
- Relationship between PM and asthma;
- Toxic mechanisms that trigger biological processes that lead to PM's effects; and,
- Susceptible populations at greater risk from PM exposure.

The research in these areas will help USEPA assess whether UFPs should be regulated.

**AIR MONITORING AND AMBIENT AIR QUALITY STANDARDS**

There is currently no state or federal “standard” for UFPs. Thus, while these particles can be measured in ambient air via Ultrafine Particle Counters (“UPC”), which measure particle number concentrations (particles/cm³), there is currently no basis for comparison or assessment. The only comparisons for measured particle numbers are relative to baseline particle numbers. Therefore, the results of ambient air monitoring studies cannot be used to determine impacts relative to the applicable air quality standards (e.g., California Ambient Air Quality Standards (“CAAQS”) and National Ambient Air Quality Standards (“NAAQS”), which are the standards to assess level of pollution to protect public health.

The European Commission’s Environment Directorate-General (“DG”) has also not adopted standards for UFPs. The DG exists “to initiate and define new environmental legislation and to ensure that agreed measures are put into practice in the EU Member States.” In 2008, the DG began enforcing limits on airborne PM₁₀ and PM₂.₅ concentrations under Directive 2008/50/EC; however, there is no indication of standards for UFPs. In 2013, an international symposium...
discussed a German national aerosol standard for number concentrations of soot particles, without a clear identification of a proposed standard for UFPs in general.32

**Exposure and Toxicology**

The most common route of exposure to UFPs is via inhalation. Because of their small size, these particles can constitute only a fraction of the airborne particulate mass while the number of particles can be equal to or greater than the number of particles in the PM$_{10}$ to PM$_{2.5}$ fractions. Trends in nanotoxicology are towards quantifying UFP exposure in terms of particle number per unit volume, as opposed to mass per unit volume common with current approaches for particulate and non-particulate toxicants. Studies have suggested that UFPs may pose greater health risks than larger particles per unit mass as the smaller particles may contain higher proportions of organic material (particularly semi-volatile organic compounds), have larger surface area per unit mass, and have an ability to penetrate cells.33 While it is believed that the toxicological potency of UFPs is higher than that of larger particles (such as PM$_{10}$ or PM$_{2.5}$) on a mass basis, the toxicity of UFPs is also believed to be similar to PM$_{10}$ and PM$_{2.5}$ on a particle number basis.

Toxicity associated with exposure to UFPs is currently understood to follow two principal “modes of action” (i.e., ways it affects the human body). The first mode is direct action on the lung: UFPs, like other airborne particulates, act as irritants inducing inflammation at sites of high concentration. Chronic lifetime inflammation of deep lung tissue can lead to conditions such as COPD fibrosis, and pulmonary cancers.34 The second mode of action is impacts to the circulatory system: UFPs are small enough to escape macrophage scavenging and pass through the epithelium of the lung into the interstitium and the associated circulation to be transported by the lymph or blood, respectively.35 UFPs in the circulation have been found to induce inflammatory processes within the vasculature resulting in accelerated arteriosclerosis and other hardening diseases.36 On a chronic basis, this can result in increased probability of coronary disease and strokes. Other proposed modes of action continue to be studied.37

In summary, UFPs may represent an important air pollution consideration; however, scientists are still working to understand the exposure and toxicity concerns of these particles. Additionally, the complexity of this pollutant presents challenges, as the particles change with time during transport in regards to concentration, size and biological efficacy, due to the fact that they are constantly in the midst of condensation and aggregation dynamics.

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Limited Applicability of the USC Study

It is important to note that the level of operations and the meteorological conditions at LAX are very different from those at JWA. As described below, these two attributes suggest that the overall findings of the USC Study are not directly transferrable to what may occur at JWA and its surrounding communities.

First, LAX has approximately 63.7 million passengers per year as compared with the 9.17 million passengers served by JWA in 2013 (see page 2-10 of the Draft EIR), which is an approximately seven times difference in passenger levels. (Similarly, the Proposed Project’s accommodation of 12.5 million passengers per year at JWA beginning in 2026 is an approximately five times difference.) LAX also handles 1.9 million tons of cargo per year compared with less than 18,000 tons per year for JWA; therefore, LAX handles more than 100 times as much cargo per year. Thus, the level of aircraft and related support activity (e.g., diesel trucks) at LAX is very different from that which occurs at JWA. These facts suggest that the level of UFPs at JWA is likely much lower than what may have been emitted at LAX.

Second, LAX and JWA have very different wind patterns. Exhibit RTC-1 shows the wind rose for the area near LAX, in comparison to Exhibit RTC-2, which depicts the wind rose for the Airport (RTC-2 was previously provided as Figure 3 of the Air Quality Technical Report. The JWA figures show a more varied wind pattern than what generally occurs in the LAX area. The different wind patterns are likely to create very different dispersion patterns for air pollutants at LAX versus JWA. This fact suggests that it is likely that any emissions of UFPs at JWA will disperse in a different pattern than they do at LAX.

Furthermore, as discussed below, the area assessed by the USC Study includes many other sources of UFPs. And, while the area surrounding JWA also contains a variety of sources of UFPs, those sources are likely different from what exists around LAX. This complicating fact limits the ability to extrapolate the findings from the USC Study to the area surrounding JWA.

LAWA Response to USC Study

Los Angeles World Airports (“LAWA”), the proprietor of LAX, has provided additional information that suggests the USC Study may not accurately reflect the conditions around LAX. Highlights of the statement LAWA released in response to the USC Study is below.

In January 2014, LAWA completed the multi-year LAX Air Quality Source Apportionment Study, which was one of the most extensive air quality studies ever performed at an airport. In their May 29, 2014 statement on the USC Study, LAWA highlighted these key findings of the LAX Air Quality Source Apportionment Study as follows:

1. All major pollutants were below [NAAQS] and [CAAQS].

2. Air toxics are comparable or lower than elsewhere in the South Coast Air Basin.

3. Air pollutant concentrations show sharp decreases as distance from the source of emissions increases.

4. Based on data analysis from first season sampling, a supplemental study was conducted to further investigate [UFP] sources. The supplemental study determined that larger UFP indicated an association with vehicle emissions while smaller UFP indicated an association with jet exhaust and possibly secondary particles.

**Ultrafine Particles, Many Sources and Localized Impacts**

The challenge with monitoring data is often discriminating the original source of the emissions measured. UFPs are emitted from a variety of sources as published by California Air Resources Board ("CARB"):42

- On-road vehicles (43 percent)
- Stationary sources (32 percent)
- Miscellaneous combustion (15 percent)
- Other mobile sources (10 percent)

Furthermore, the South Coast Air Quality Management District ("SCAQMD") discusses UFPs in Chapter 9 of the 2012 Air Quality Management Plan ("AQMP").43 According to the AQMP, "UFPs are emitted from almost every fuel combustion process, including diesel, gasoline, and jet engines, as well as external combustion processes such as wood burning."44 The AQMP indicated that motor vehicle emissions are a major source of UFP emissions, but stationary combustion and other processes are also contributors. Furthermore, temporal concentrations of UFPs correlate closely with daily traffic patterns in the region, with the highest levels observed on weekdays during rush hours.

According to the AQMP, "the majority of all near-roadway studies conducted to date have focused on the influence of proximity to roadways on outdoor (residential) and indoor exposure to air pollutants. In virtually all of these works, it was found that the outdoor concentrations of primary pollutants emitted from motor-vehicle emissions (UFP and [black carbon] in particular) were more strongly correlated with distance from roadways than the outdoor concentrations of species dominated by atmospheric formation or other regional sources (e.g. PM$_{2.5}$)."45

Consistent with the AQMP, other studies have shown that concentrations of UFPs are closely related to the proximity to a source of UFPs. A report by Airport Councils International ("ACI") described a study conducted by the Swiss Federal Office for Civil Aviation at Zurich Airport further supported this finding.46 Specifically, "equally high particle concentrations were measured on the M4 and M25 roadways as on the airport perimeter roads. They are too far from

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44 SCAQMD 2013 (page 9-2).

45 SCAQMD 2013 (page 9-12).

the airport for operations to have had any influence on concentrations. The predominant source was the heavy traffic using the roads at the time the measurements were taken.47

**Project Efforts to Reduce Ultrafine Particle Emissions**

As discussed in Section 4.1.7 of the Draft EIR (Air Quality - Mitigation Program), the County of Orange, as the proprietor of JWA, is committed to reducing emissions of UFPs from sources under its control. The Federal Aviation Administration (“FAA”) regulates most aspects of aircraft operations that might influence the ultrafine particle emission from aircraft. Specifically, the Federal Aviation Regulations (“FARs”) are rules prescribed by the FAA governing all aviation activities in the United States. The FARs are part of Title 14 of the Code of Federal Regulations ("CFR"),48 and address items such as aircraft maintenance procedures, engine manufacture guidelines, and aircraft flight paths.49

Nevertheless, the County has identified fifteen (15) mitigation measures in the Draft EIR that would help reduce air emissions from the Proposed Project (see Draft EIR Section 4.1.7). Many of these measures help reduce combustion-related emissions, and thus would help reduce UFPs. Some examples of these measures include: increasing the amount of electrified ground support equipment that is used; supporting the expansion of public transit opportunities; supporting bicycle use by Airport employees; and, supporting the use of alternatively fueled taxis and shuttles. As noted in Table 4.1-6 (Emission Reduction Strategies Currently Implemented at JWA), page 4.1-23, of the Draft EIR, JWA has also already incorporated combustion reductions into its existing operations through efforts such as providing plug-in power at all of the gates, which reduces the use of auxiliary power units on aircraft.

**Summary**

UFPs are an area of potential concern for public health, and thus the USEPA has ongoing research to further understand what those health effects may be. However, there is currently no ambient air standard for UFPs. Additionally, while the USC Study suggests that the area surrounding LAX is highly impacted by UFPs, there are other studies that show the potential impact from airports on UFP concentrations is highly localized near the airport, and that there are other sources of particles that may also contribute to elevated particle concentrations in any given area.

The analysis in the Draft EIR thoroughly examines the potential air quality emissions and impacts associated with the Proposed Project, and evaluates PM$_{2.5}$, the smallest particulate matter size that is currently regulated for air quality and public health. And, the methodology to assess air quality impacts that is included in the Draft EIR follows the guidance established by the SCAQMD.

The uncertainties regarding the measurement and toxicity of UFPs limits the usefulness of any potential monitoring that could be conducted at this time. Further, due to the absence of an established regulatory or scientifically-based threshold for UFPs, any evaluation of the impacts associated with UFPs would require speculation, which is not required by CEQA.

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47 Ibid (page 26).
49 FAA 2014.
Responses to Comments
Responses to Comments

Wind Rose for Costa Mesa Station for Years 2007–2011

Exhibit RTC-2

John Wayne Airport Settlement Agreement Amendment
3.2.3 TOPICAL RESPONSE 3: COMMERCIAL AIRCRAFT FLIGHT PATH ISSUES

The County of Orange, as the proprietor of John Wayne Airport ("JWA"), received public comments regarding the potential to modify flight paths utilized by commercial aircraft operating at the Airport. As discussed further below, changes to the flight path are outside the scope of the Proposed Project; and, the County of Orange, as the proprietor of the Airport, has no authority or control over aircraft in flight. Rather, the Federal Aviation Administration ("FAA") has exclusive regulatory jurisdiction over flight paths, and the pilot-in-command of each aircraft is responsible for safely maneuvering the aircraft in accordance with the FAA's airspace procedures. The County historically has and will continue to work with FAA and affected communities on matters concerning the utilization of airspace around JWA. The following discussion provides additional information on the regulation of federal airspace, and existing and potential airspace procedures, in response to those comments.

FEDERAL AIRSPACE

The United States government has exclusive sovereignty over the airspace of the United States (49 U.S.C. §40103). To that end, Congress gave the FAA the authority to: (i) develop plans and policies for the use of the navigable airspace, and (ii) assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace. (49 U.S.C. §40103(b).)

Establishment of aircraft flight paths is the sole responsibility of the FAA (49 U.S.C. §40103(b)(2)):

The Administrator [of the FAA] shall prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes) for –

(A) navigating, protecting, and identifying aircraft;
(B) protecting individuals and property on the ground;
(C) using the navigable airspace efficiently; and,
(D) preventing collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

All other entities, including the County of Orange as the owner and operator of JWA, are expressly prohibited by federal law from exerting any control over aircraft flight paths.

The County of Orange is the lead agency for this Environmental Impact Report ("EIR"). Because the establishment of flight paths is solely under the control of the FAA, no changes to flight paths (vertical or horizontal) are contemplated by the Proposed Project, the alternatives or the mitigation measures. Section 4.6.7 (Mitigation Program) of Draft EIR Section 4.6 (Noise) presents a detailed discussion of potentially feasible noise mitigation measures that have been identified to address the significant noise impacts of the Proposed Project.
DISCUSSION OF ARRIVAL AND DEPARTURE PATHS FOR AIRCRAFT OPERATING INTO AND OUT OF JOHN WAYNE AIRPORT

Arrival Flight Paths – How and Why?

According to the FAA, commercial aircraft, business jets and most high-performance aircraft use the Instrument Landing System ("ILS"), which is a ground-based radio system designed to provide an aircraft pilot with precise guidance for a straight-in approach to a runway. The ILS can be thought of as an imaginary line that projects straight out from the end of the runway at a three-degree vertical angle and extends approximately 10 miles north of the Airport.

The point at which aircraft intercept the ILS varies based on a number of factors including, but not limited to: (i) aircraft type, speed, weight; (ii) weather; (iii) traffic volume; (iv) instrument equipage; (v) flight crew technique (i.e., when the turn onto final approach is initiated, and the rate of turn); and (vi) the FAA’s separation or sequencing requirements.

In low-visibility conditions, pilots are directed by the FAA to intercept the ILS at a point approximately seven to ten miles north of JWA. When visibility is clear, however, pilots have the discretion to intercept the ILS at a point closer to the Airport, which can result in more dispersion of aircraft over the community.

Generally speaking, the approach procedures currently in use at JWA can be described as follows:

**North Approach:** Aircraft arriving from the north approach the Airport from the ocean over Huntington Beach on a path that is parallel to JWA, followed by a 180-degree right turn for a straight-in approach to the runway. This turn can begin anywhere over a wide area starting near South Coast Plaza and extending to the 91 Freeway.

**East Approach:** Aircraft arriving from the east approach the Airport north of, and perpendicular to, JWA, followed by a left turn for a straight-in approach to the runway. This turn can begin anywhere over a wide area starting near Tustin and extending to the 91 Freeway.

Aircraft turns during the last three to four miles of the final approach in good weather, and within the last six to seven miles during poor weather, are undesirable because they do not allow pilots to establish and maintain a stabilized approach.

Arrival procedures for JWA have been established to provide for appropriate alignment with the runway, air traffic patterns in the region, and prevailing wind conditions. (With winds predominantly coming from the ocean, aircraft typically arrive from the north about 95 percent of the time, with slight variations from year to year.) The FAA has advised, and JWA's independent observations concur, that the arrival paths have been relatively unchanged for many years.

The “55 Freeway” Arrival

While the extended runway centerline crosses the intersection of the 5 Freeway and 55 Freeway, it does not align with the 55 Freeway. Instead, the extended runway centerline is well east of the 55 Freeway. Further, the final approach to JWA, as established by the FAA, is straight (while the alignment of the 55 Freeway is not).
Responses to Comments

The FAA advises, and the Airport’s independent observations confirm, that the alignment of the ILS has been unchanged for decades, and is the only precision approach into JWA. Visual approach paths are less precise and allow the pilot to visually navigate to the runway end. Aircraft navigating visually may over-fly a portion of the 55 Freeway, but there is no requirement for them to do so.

In 2009, in response to an inquiry from a local community group, the FAA concluded that the use of a “55 Freeway” procedure was “not a viable noise mitigation solution and presents several airspace efficiency and safety of flight issues.” Further, the FAA indicated that the “[u]se of the Freeway Chartered Visual Approach to Runway 19R may also transfer noise from one community to another.” (See February 3, 2009 letter from William Withycombe, Regional Administrator, FAA Western Pacific Region to Richard Nelson, President, Foothill Communities Association immediately following this topical response.)

Generally, the FAA has discouraged implementation of measures that would result in the shift of noise from one community to another.

Foothill Communities Association’s Request for Alternate Arrival Path

In July 2011, the Foothill Communities Association (“FCA”) requested that JWA re-engage with the FAA, and the air carriers operating at JWA, regarding a request to identify alternate approaches to the Airport and other measures that could reduce aircraft noise. The FAA responded that its staff has worked closely with JWA and FCA over several years to identify ways to mitigate the noise exposure to residents represented by the FCA. The FAA also emphasized that all parties involved are fully aware of the noise created by aircraft operations at JWA, that all options currently available have been explored, and that the air carriers are complying with all applicable regulations. (See July 28, 2011 letter from William Withycombe, Regional Administrator, FAA Western Pacific Region to Alan Murphy, JWA Airport Director immediately following this topical response.)

Departure Flight Paths – How and Why?

Commercial aircraft, business jets and most high-performance aircraft use Runway 19R for departures from JWA. These aircraft are assigned an initial departure heading straight-out from the runway to a distance of approximately one nautical mile, at which point the aircraft make a 15-degree left turn to generally follow the Newport Back Bay until crossing the coastline, where they either turn left to the east or right to the north or northwest, depending on their destination and route of flight.

This flight path is not an exact path along the ground and a broadening of the flight path may be observed as aircraft depart JWA and proceed toward the coastline and beyond. Variables affecting flight path dispersion and aircraft altitude include, but are not limited to: (i) weather (e.g., winds aloft and temperature, which affect aircraft climb rates); (ii) air traffic volume; (iii) flight crew technique (i.e., when the left turn is initiated, and the rate of turn); (iv) aircraft type, speed, and weight; (v) instrument equipage; and, (vi) the FAA’s separation or sequencing requirements.

The flight procedures and paths at JWA are intended to take advantage of the Airport’s unique runway configuration and prevailing wind conditions. (With winds predominantly coming from the ocean, aircraft typically depart to the south about 95 percent of the time with slight variations
from year to year. Only during Santa Ana wind conditions does the flow reverse with departures to the north.)

**Noise Abatement Departure Procedure ("NADP") and Advisory Circular ("AC") 91-53A**

In 1993, the FAA issued AC 91-53A in an effort to standardize NADPs. This AC describes acceptable criteria for two safe departure profiles known as the “close-in” and “distant” NADPs. The procedures are based on the proximity of noise sensitive uses, like homes and schools, to the departure end of an airport runway. The AC provides general guidance for departure procedures at all commercial airports, not just JWA. In general, defined aircraft initiate thrust cutback at or above 800 feet above ground level and maintain speed and thrust criteria as described in the procedures to 3,000 feet, or until the aircraft has fully transitioned through its climb configuration. Ultimately, air carriers develop their own AC 91-53A-compliant procedures according to their operational specifications for each aircraft type. The use of NADPs is at the discretion of each air carrier.

Some commercial aircraft operating at JWA do utilize NADPs, which may include a reduction in power on departure. A power cut-back, however, is not and could not be legally required by the County, as the operator of JWA.

Also of note, the commercial aircraft flown in the 1980s were generally noisier than today's fleet. In the past, those older aircraft had to depart at full power, climb as quickly as possible to gain altitude, and then reduce power until after reaching the coastline in order to meet JWA’s noise limits. The newer, quieter aircraft of today often do not need to execute as deep of a power cut-back, or in some cases *any* power reduction, to meet the Airport’s noise limits.

**NEXTGEN, PBN AND RNAV**

The Next Generation Air Transportation System ("NextGen") is the FAA's plan to modernize the National Airspace System ("NAS") through 2025. Through NextGen, the FAA is addressing the impact of air traffic growth by increasing NAS capacity and efficiency while simultaneously improving safety, reducing environmental impacts, and increasing user access to the NAS.

To achieve its NextGen goals, FAA is implementing new Performance-Based Navigation ("PBN") routes and procedures that leverage emerging technologies and aircraft navigation capabilities, which include satellite-based navigation systems that replace the traditional, ground-based systems. The intended result of PBN is more accurate and predictable flight paths.

The two main components of PBN are Area Navigation ("RNAV") and Required Navigation Performance ("RNP"). RNAV enables aircraft to fly on any desired flight path within the coverage of ground- or space-based navigation aids, or within the limits of the capability of aircraft navigation systems, or a combination of both. By using RNAV, aircraft can adhere to a desired flight path with smaller deviations than traditional technology allows. In order to utilize RNAV procedures, aircraft need onboard systems called Flight Management Systems ("FMS"). The FMS monitors the position, altitude and speed of the aircraft and alerts the flight crew if the requirements are not met during operation. RNP specifies the performance criteria of the navigation equipment in terms of required accuracy.
According to the FAA, implementation of RNAV procedures generally reduces the dispersion or “fanning” of flight paths, but will not result in a single path. Therefore, aircraft flight path dispersion will continue to be noticeable to communities under JWA’s arrival and departure corridors.

**NextGen Departure Procedure: RNAV – STREL**

The FAA’s current RNAV departure for JWA, known as STREL ONE, was implemented in March 2011. Only those aircraft departing to destinations east of Las Vegas use the STREL procedure, which is about 50 percent of all commercial departures. All other commercial departures utilize the traditional departure procedure described above. Radar flight paths comparing the STREL procedure to the traditional departure procedure, which is still used for about half of JWA’s departures, show that – since STREL was implemented – aircraft using the RNAV departure adhere to the flight path with narrower dispersion than the traditional departure procedure. A fact sheet and flight path information on RNAV departures can be found on JWA’s web site: http://www.ocair.com/CommunityRelations/FAQ‐RNAVDepartureProcedures.aspx.

**NextGen Arrival Procedure: RNAV – KEFFR**

The FAA’s planned RNAV arrival procedure, known as KEFFR, is tentatively scheduled for implementation in November 2014. Only aircraft arriving from the east would use KEFFR. According to the FAA, KEFFR is a standard terminal arrival route (“STAR”), which incorporates an optimized profile descent (“OPD”). The primary benefits of an OPD occur when the aircraft begins its descent from cruising altitude and end when the aircraft either levels off for sequencing or is established on the ILS. Once on the ILS, aircraft will continue to operate the same as they do today. Communities that are farther away from the Airport and under the OPD portion of the KEFFR should benefit from a reduction in noise. Communities under or near the ILS are unlikely to experience any noticeable change in noise levels.
Mr. Richard Nelson  
President, Foothill Communities Association  
P.O. Box 261  
Tustin, CA 92781

Dear Mr. Nelson:

This is in response to your letter dated December 6, 2008, in which you requested the Federal Aviation Administration (FAA) to evaluate changes to the Freeway Charted Visual Approach to Runway 19 Right (19R) at John Wayne Airport (SNA) that you proposed. You also asked the FAA to describe the range of authority John Wayne Airport management has with respect to flight operations beyond the boundaries of the airport.

The Freeway Charted Visual Approach to Runway 19R is one of many published approach procedures to SNA. After careful review and analysis, airspace and procedures specialists in the FAA’s Air Traffic Organization (ATO) concluded that use of this procedure in the manner envisioned by the Foothill Communities Association (FCA) is not a viable noise mitigation solution and presents several airspace efficiency and safety of flight issues. Use of the procedure in the way suggested by the FCA may require the FAA to alter Visual Flight Rules (VFR) procedures and routes near the airport and may require alteration of Instrument Flight Rules (IFR) en route traffic flows. It may also require the alteration of other arrival and departure procedures at SNA and adjacent airports. In addition, pilots using this approach may need to delay stabilizing the aircraft and configuring it for landing to accommodate the requirements of the approach procedure.

Use of the Freeway Charted Visual Approach to Runway 19R may also transfer noise from one community to another because ground tracks would be changed. Making a change to existing ground tracks is specifically discouraged by the Draft FAA Aviation Noise Abatement Policy 2000. Any changes to existing ground tracks would require an environmental assessment. The current dispersion of arriving aircraft flight tracks should reduce exposure to noise at any one location. Variables affecting flight track dispersion include, but are not limited to, weather, time of day, traffic volume, flight crew technique, aircraft type, and air traffic separation or sequencing requirements.

The FCA also requested that the FAA direct jet arrivals to delay deployment of landing gear. Deployment of landing gear is required for a stabilized approach to the airport. Safe deployment of the landing gear is based on aircraft type and other aircraft performance characteristics. It is also based on air carrier company policy and further determined by the pilot in command on a flight-by-flight basis.
FCA believes that advanced technology may also provide a solution to community noise concerns in the future. Technological innovation has had a positive effect on community noise impacts in recent years. Required Navigation Performance, Continuous Descent Approaches, or visual approaches that utilize Area Navigation (RNAV) may be among those solutions implemented as the technology develops. As these technologies evolve, they may provide an improved means of reducing aircraft noise. Future decisions regarding changes to operational procedures and altitudes currently used by jet arrivals to SNA may require community involvement or public meetings if arrival ground tracks or flight profile changes are proposed, or for actions that may alter the current dispersion of arrival aircraft flight tracks, thereby transferring aircraft noise from one community to another.

Finally, the ATO reviewed and analyzed historical Runway 19R jet aircraft arrival flight tracks at SNA and concluded that no procedural changes to ground tracks or flight profiles of jet arrivals have been made. Further, the ATO validated that the flight tracks of jet aircraft executing Instrument Landing System (ILS) and visual approaches to Runway 19 Right are within normal operational range, and that these aircraft are descending within normal parameters.

The Draft FAA Aviation Noise Abatement Policy 2000 describes the responsibilities of the FAA and airport proprietors with respect to the regulation of noise. Airport proprietors are primarily responsible for planning and implementing actions designed to reduce the effect of airport-generated noise on residents of the surrounding area. Such actions include, among other things, restrictions on scheduling and operations, establishing noise abatement ground procedures that do not interfere with the safe and efficient movement of aircraft on the ground, and the establishment of voluntary noise abatement procedures for arriving and departing aircraft.

The FAA has the sole authority to establish flight operational procedures and to manage the air traffic control system and navigable airspace in the United States. This includes the design and use of IFR and VFR arrival and departure procedures. FAA requires an environmental assessment for new or revised procedures which would route air traffic over noise-sensitive areas at less than 3,000 feet above ground level (AGL).

This letter addresses each of the concerns you raised in your correspondence. If you desire further information regarding this matter, please contact Mr. Richard G. Cambra, Manager, Executive Operations Staff, at (310) 725-7300.

Sincerely,

William C. Withycombe
Regional Administrator
JUL 28 2011

Mr. Alan L. Murphy
Airport Director
John Wayne Airport
3160 Airway Avenue
Costa Mesa, CA 92626-4608

Dear Mr. Murphy:

Thank you for your letter dated July 5, 2011, regarding the Foothills Community Association (FCA) concerns about noise generated by aircraft on approach to John Wayne Airport.

My office has worked closely with the FCA over the last several years to address this issue. We have also worked with staff and management at the Federal Aviation Administration (FAA) Southern California Terminal Radar Approach Control and the John Wayne Airport Traffic Control Tower as well as your staff at the airport to identify ways to mitigate the noise exposure to residents represented by the FCA.

I believe all the parties involved are fully aware of the noise impact created by aircraft operations at John Wayne Airport. I also believe that we have fully explored all the options at our disposal to mitigate the noise generated by aircraft on approach.

After carefully reviewing our previous efforts and the facts surrounding this issue, we have determined that air carriers are complying with all applicable regulations regarding Visual Flight Rules approach procedures at John Wayne Airport. One of FAA’s major initiatives, Optimization of Airspace and Procedures in the Metroplex, will consider various types of airspace procedures, including Required Navigation Performance. The stakeholders for this process are the FAA and the users, including John Wayne Airport and the major air carriers. This would be a great opportunity to address the issues raised by FCA. You will be receiving an invitation to this August 2011 kick-off meeting directly from the Metroplex Program Office.

Please contact my office at (310) 725-3550 if you have any questions.

Sincerely,

William C. Withycombe
Regional Administrator
3.2.4 TOPICAL RESPONSE 4: ARRIVAL CORRIDOR NOISE IMPACTS

Several comments were received regarding noise levels and flight paths along the arrival corridor that passes over the City of Tustin, the North Tustin community, the eastern edge of the City of Orange and portions of the City of Villa Park. Arrival flight paths and single event noise levels are directly correlated, with the highest noise levels experienced in the areas nearly underneath the flight paths. This is reflected in the single event noise contours shown in the Draft Environmental Impact Report ("EIR") Exhibit 4.6-13 from Section 4.6 (Noise). Please refer to Topical Response 3 pertaining to Commercial Aircraft Flight Path Issues for a discussion of the arrival flight paths.

The Proposed Project does not propose any changes to the aircraft flight paths. Single event noise levels from aircraft overflights are not expected to change with the Proposed Project. Implementation of the Proposed Project would, however, result in an increase in the number of aircraft overflights. The number of increased overflights in any one area would be expected to increase over existing conditions proportional to the increase in the number of Average Daily Departures ("ADDs"). It should be noted that the Proposed Project allows for, proportionally, fewer additional Class A aircraft, the noisiest commercial aircraft operating at the Airport, than for the quieter Class E aircraft, which meet the stricter Single Event Noise Exposure Level ("SENEL") limits at the departure Noise Monitoring Stations ("NMS") defined in the Settlement Agreement.

Under Phase 3 of the Proposed Project, the number of Class A ADDs will increase up to 95 per day (15 more than existing conditions) and the number of Class E ADDs will increase up to 73 per day (37 more than existing conditions). Note that this is based on the airport operating at the full capacity allowed under Phase 3 of the Proposed Project with the maximum allowable Class A ADDs. However, how the ratio of Class A to Class E ADDs will change in the future is not known as it will be determined by market forces and aircraft technology advances. The number of Class A ADDs could be considerably lower than the maximum allowed. This would allow a larger number of Class E ADDs, which are effectively controlled by the Settlement Agreement’s Million Annual Passenger ("MAP") limit. Alternatively, the maximum number of Class A ADDs could be reached prior to the MAP limits, which would result in a lower number of Class E ADDs and potentially a higher ratio of Class A to Class E ADDs. However, as the MAP limits are approached in this situation, the ratio of Class A to Class E ADDs approaches the conditions assessed in the Draft EIR and discussed above with the airport operating with the maximum number of Class A ADDs and the maximum MAP allowed under Phase 3 of the Proposed Project.

Exhibit 4.6-13 presents 85 A-weighted decibel ("dBA") SENEL contours for the most common commercial aircraft operating at the Airport. Along the 85 dBA SENEL contour, maximum aircraft noise levels would be expected to be approximately 75 dBA (SENEL is a measure of the total acoustic energy from a noise event and, for aircraft overflights, is typically approximately 10 decibels ["dB"] greater than the maximum noise level during the event). Higher single event noise exposures are experienced inside the contour, and lower exposures are experienced outside of the contour.

Exhibit 4.6-13 also shows that, for the loudest aircraft, Airbus A300-600 (flown only by Fed Ex at John Wayne Airport ["JWA"]), the 85 dBA SENEL contour extends through the City of Tustin, well north of Interstate (I) 5. The Boeing 737-700 85 dBA SENEL contour extends approximately
½ mile north of I-5. The Boeing 737-800 85 dBA SENEL contour extends approximately 1,000 feet north of I-5, and the Boeing 757 contour extends just to I-5. The Airbus A320 contour stops approximately ½ mile south of I-5. The Bombardier CRJ9 85 dBA SENEL contour does not extend beyond Edinger Avenue. As discussed above, these contours are not expected to change as a result of implementation of any Proposed Project or any alternative.

Noise levels at NMS 10N are representative of the noise levels impacting Tustin and the surrounding area. NMS 10N is located in the northern portion of the City of Tustin, directly in line with the Airport’s runway under the Instrument Landing System (“ILS”) navigation aid glide slope. Noise levels at NMS 10N are representative of noise levels in the City of Tustin and the Community of North Tustin within a few of decibels. Areas closer to the Airport experience somewhat higher noise levels while areas to the east and west of the arrival path and further from the Airport experience somewhat lower noise levels.

Relevant information regarding single event noise levels measured at NMS 10N is presented in the Draft EIR and in the Noise Analysis Technical Report (Appendix C of the Draft EIR). Appendix A of the Noise Analysis Technical Report (Appendix C of the Draft EIR) presents average SENEL noise levels measured at the NMS over the past ten years by airline and aircraft type. Figure 14B of the Noise Analysis Technical Report presents a histogram of aircraft overflight SENEL noise levels measured at NMS 10N. This Figure shows that the majority of aircraft overflights generate single event noise levels between 81 and 84 dBA with the loudest being approximately 88 dBA. This equates to an approximate maximum outdoor overflight noise level of between 71 and 74 dBA for most events but as high as approximately 78 dBA for some events.

The Time-Above Metric is an indicator of how a single event overflight can impact speech communication. Table 4.6-7 (page 4.6-40) from Section 4.6 (Noise) of the Draft EIR presents the amount of time noise levels are projected to exceed 65 dBA, 77 dBA, and 85 dBA at all of the NMS. Figure 5 of the Noise Analysis Technical Report (Appendix C of the Draft EIR) shows how voice communication is affected by background noise. Speech communication is considered to be considerably affected when background noise levels are between 60 and 65 dBA. Figure 5 of the Noise Analysis Technical Report shows that communication at the expected voice level is limited to approximately 6 to 8 feet when background levels are between 60 and 65 dBA. Communication becomes difficult at distances greater than 25 to 35 feet. At an ambient noise level of 77 dBA, communication at expected voice levels are limited to approximately 2 feet and communication beyond approximately 7 feet becomes difficult. Voice communication within approximately 35 feet is possible, but difficult at this level of background noise. Outdoor noise levels of 77 dBA and 85 dBA result in interior noise levels that are approximately 65 dBA with windows open and closed, respectively.

Table 4.6-7 (page 4.6-40) in Section 4.6 (Noise) shows that, under existing conditions, aircraft associated with the Airport generate a noise level greater than 65 dBA for a cumulative 17.1 minutes per day at NMS 10N. Therefore, some outdoor speech interference can be expected in the area around NMS 10N. However, this would only occur for several seconds during each overflight event that, cumulatively, result in noise levels exceeding 65 dBA for 17.1 minutes per day.

Table 4.6-7 (page 4.6-40) also shows that modeled aircraft overflight noise levels do not exceed 77 dBA at NMS 10N under existing conditions. An outdoor noise level of 77 dBA results in an interior noise level of approximately 65 dBA for typical residences with open windows.
Therefore, indoor speech communication would not be expected to be substantially interfered with by aircraft noise at NMS 10N, but some outdoor speech interference would be expected. As discussed above, maximum overflight noise levels at NMS 10N can approach and may occasionally exceed 77 dBA. Further, as discussed above, aircraft noise levels in areas in the City of Tustin that are located closer to the Airport will experience somewhat higher noise levels than at NMS 10N. Therefore, these homes likely experience some aircraft overflight events with outdoor noise levels exceeding 77 dBA and experience communication interference. There is no reason to expect that speech communication interference would occur in a structure in this area with windows closed.

Table 4.6-23 (page 4.6-82) in Section 4.6 (Noise) shows that, under Phase 3 of the Proposed Project, the time above 65 dBA is projected to increase 6.1 minutes at NMS 10N to 23.2 minutes per day. The table also shows that 3.1 minutes of this increase is anticipated to occur under the No Project Conditions. Therefore, the Proposed Project results in a 3 minute per day increase in the time above 65 dBA, which is 15 percent over future conditions without the Project.

Table 4.6-24 (page 4.6-83) in Section 4.6 (Noise) shows that the Proposed Project would not result in an anticipated increase in the time above 77 dBA at NMS 10N. As previously indicated none of the phases of the Proposed Project would result in time above 77 dBA at NMS 10N. Homes in Tustin located closer to the Airport that currently do experience overflights with noise levels greater than 77 dBA would be expected to experience an increase in time above 77 dBA approximately proportional to the increase in time above 65 dBA at NMS 10N. For example, implementation of the Proposed Project would be expected to result in an approximate 36 percent increase in the time above 77 dBA.

The Significance Thresholds adopted by the County and the Federal Aviation Administration ("FAA") are based on the Community Noise Equivalent Level ("CNEL") noise metric. CNEL is a measure of the average daily noise exposure which takes into account aircraft single event noise levels along with the number of aircraft events and the time of day these events occur. Under the CNEL noise metric, the specific arrival paths of aircraft are less important than the distribution of these paths because it is a measure of the daily average noise exposure. Research has found that annoyance is best correlated with CNEL noise levels and that SENEL levels are not well correlated with annoyance.

Table 4.6-5 (page 4.6-39) of the Draft EIR presents the annual CNEL noise levels measured at each of the NMS, including NMS 10N, each year between 2001 and 2012. This shows that between 2001 and 2007, the CNEL level at NMS 10N was 57.1 dB CNEL except for 2 years where it was within 0.2 dB of this value. Since 2007, the noise level at NMS 10N has decreased slightly each year with almost a 2 dB reduction between 2007 and 2012. It should be noted that this decrease is minor and would not be expected to be noticed by most people. Table 4.6-4 (page 4.6-34) in Section 4.6 (Noise) shows that the modeled 2013 CNEL at NMS 10N was 54.1 dB CNEL, more than a decibel lower than measured in 2012. Data published subsequently by the JWA's Noise and Access Office shows that the measured noise level at NMS 10N was slightly higher at
Responses to Comments

54.8 dB CNEL.⁵⁰ The modeled 2013 CNEL levels presented in the Draft EIR were based on aircraft operations in the first three quarters of 2013 (i.e., through September).

Table 4.6-9 (page 4.6-46) of the Draft EIR shows that CNEL levels at NMS 10N are approximately 54 dB CNEL currently and that the level with any of the Proposed Project will result in an increase in the CNEL level of slightly more than 1 dB (e.g., 1.2dB). This would effectively return noise levels to those experienced at NMS 10N between 2001 and 2007. The noise levels and increases are less than the County/FAA significance threshold and therefore, while the number of overflight events would increase, their effect on the overall noise environment around NMS 10N is not significant. However, this does not mean that no one would be expected to be highly annoyed at the aircraft noise.

Exhibit 4.6-5 of the Draft EIR shows the percentage of persons expected to be highly annoyed based on their Day-Night Noise Level (“DNL”) noise exposure (DNL is nearly equivalent to CNEL). The exhibit shows that in between 55 and 57 dB Ldn, between 2 and 4 percent of the population would be expected to be highly annoyed. The field data shown in the exhibit shows that the annoyance level is much higher than this in many cases. Based on the 2010 census, there are 75,540 persons living in the City of Tustin. Therefore, between 1,500 and 3,000 residents would be expected to be highly annoyed by the aircraft noise. The City, County, and FAA residential outdoor noise standard of 65 dB CNEL allows for up to approximately 10 percent of persons to be highly annoyed. This standard was adopted knowing that it would result in a small percentage of the population being highly annoyed by the noise. Exhibit 4.6-5 shows that noise exposures would need to be less than 40 dB Ldn for the percentage of highly annoyed to approach 0 percent. However, noise levels in developed areas away from major noise sources (e.g., an airport or high traffic volume roadway) are typically in the 45 dB CNEL to 55 dB CNEL range. Reducing the number of persons highly annoyed by noise to zero is not feasible.

3.2.5 TOPICAL RESPONSE 5: EFFECTS ON PROPERTY VALUES

A number of commenters addressed the Project’s potential economic impacts on the fair market value of their property. As discussed below, this is not an issue requiring analysis under the California Environmental Quality Act (“CEQA”). Moreover, it is unlikely that the Project would cause any significant adverse impact on residential property values.

CEQA REQUIREMENTS

CEQA (Section 21080(e)), the State CEQA Guidelines (e.g., Sections 15064(e) and 15131), and established case law in California interpreting CEQA have made it clear that CEQA does not require analysis of a project’s potential effects that do not result, directly or indirectly, in a “physical change” to the environment. Indeed, noting that CEQA does not require analysis of impacts that are solely economic in nature, California courts have held CEQA is not intended to protect against depreciation in the value of property in the vicinity of a public project. (e.g., Porterville Citizens for Responsible Hillside Development v. City of Porterville (2007) 157 Cal.App.4th 885; Gray v. County of Madera (2008) 167 Cal.App.4th 1099.)

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PROPERTY VALUE STUDIES

Researchers have conducted numerous “valuation” studies in areas around airports in the United States and elsewhere in the world. However, understanding the applicability of these studies is complex because it is extremely difficult to isolate airport noise (or even airport proximity) as the causative factor in any conclusions regarding effects on value. Rather, the noise level at a given property location becomes one of many property features and amenities (e.g., number of rooms, crime rate, schools) that make up the total value of that property. Some of the studies make little or no attempt to normalize the data for property-specific factors. And, even when an “appraisal” approach to valuation is performed, it is still difficult to isolate aircraft noise or proximity to an airport as the causative effect except when noise levels substantially exceed the noise levels projected for residential areas near an airport.

The following is a summary of two reports that focus on this issue. The first summarizes multiple studies conducted at various airports. Some of the studies included in that analysis were conducted at airports substantially larger than John Wayne Airport (e.g., Chicago’s O’Hare International Airport). This provides a broader overview of studies conducted on this issue. The second study was conducted in Orange County as part of the analysis for the then-proposed airport at the former El Toro Marine Corps Air Station.

Airport Cooperative Research Program Study

The Airport Cooperative Research Program (“ACRP”) develops near-term practical solutions to problems faced by airport operators. ACRP is managed by the Transportation Research Board (“TRB”) of the National Academies and sponsored by the Federal Aviation Administration (“FAA”). The TRB commissioned a continuing project, “Synthesis of Information Related to Airport Practices,” which is used to search for and synthesize useful knowledge from all available sources; concise, documented reports on specific topics related to airport practices have been prepared as part of this program.

In September 2008, “Synthesis 9: Effects of Aircraft Noise: Research Update on Selected Topics” was released by the ACRP. The purpose of the synthesis was to update and complement the U.S. Federal Highway Administrations’ 1985 “Aviation Noise Effects” report because, in the decades since the 1985 study was first published, much had changed in the understanding of this complex issue, including increased air travel; new and quieter aircraft; increased awareness of land use planning and aviation noise; and mitigation of previously incompatible land uses. Knowledge of the effects of aviation noise also changed, including knowledge advancements in the areas of health effects, annoyance, sleep disturbance, and potential effects on children’s learning abilities in school.

In summary, the 2008 synthesis report concluded that “the studies of the effects of aviation noise on property values are highly complex owing to the differences in methodologies, airport/community environments, market conditions, and demand variables involved.” The following list includes conclusions of the studies summarized in the 2008 synthesis report:


52 Ibid.
Responses to Comments

- While most studies concluded that aviation noise effects on property value range from some negative impacts to significant impacts, some studies combined airport noise and proximity and concluded that the net effect on property value was positive.

- Prospective homeowners were at times not well-informed about the aircraft noise levels at the property of interest and this lack of information often led to high bid prices and possible disappointment after purchase.

- Homeowners that came to their location when the location was quiet and later were exposed to aircraft noise bore the greatest burden of aviation noise. However, once noise levels stabilized, the property value adjusted owing to the effects of noise and subsequent homeowners were not adversely affected.

- Those that acquired their property aware of the existing noise exposure were compensated for the existing noise exposure when they willingly purchased properties that sold at a market-discounted price. This has led to the description of aircraft noise as a one-time effect on property value.

Orange County Business Council Study

The Orange County real estate industry, in partnership with the Orange County Business Council, commissioned a fact-based study in February 2000 to objectively examine the impact a proposed commercial airport at the closed El Toro Marine Corps Air Station could have on residential property values. Study participants included the Orange County Business Council, the Orange Coast Association of Realtors, and the Pacific West Association of Realtors. The study, which was discussed in Final EIR 573, looked at the experience of more than 20 other communities that experienced the actual effects of airport proximity on property values. The study also surveyed the 2,000 most recent home purchasers in Orange County to measure how the proposed El Toro airport affected their home purchase decision. The study concluded that:

- Factors other than the airport were more significant to their home purchase decision.

- The available data, studies, and analysis yielded remarkably similar and stable estimates of the relationship of airports to property values over the previous 25 years.

- Many conditions can impact property values.

- Noise is clearly the most significant airport factor in relation to property values.

- Higher value homes may be more impacted than lower value homes.

- Poor land use planning can exacerbate negative effects while good planning can mitigate negative effects.

- In certain circumstances, the benefits of proximity to an airport tend to cancel out or exceed the noise effects on surrounding property values.53

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**CONCLUSION**

In conclusion, property values are not an environmental topic that requires analysis under CEQA. These concerns reflect socioeconomic rather than environmental values. The EIR is an environmental document prepared in accordance with CEQA. Pursuant to Section 15131 of the State CEQA Guidelines, the economic or social effects of a project shall not be treated as significant effects on the environment.

An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes, which in turn may result in physical changes. If it were determined that a project’s social and/or economic effects would cause physical changes to the environment, the EIR would provide an analysis on the physical changes. In the case of the Proposed Project, however, it is not reasonably foreseeable that economic or social effects would cause potentially significant adverse physical environmental changes.

### 3.2.6 TOPICAL RESPONSE 6: QUALITY OF LIFE

CEQA does not define the phrase “quality of life.” Rather, CEQA requires that the physical effects of a project be examined and disclosed; CEQA does not prescribe how those effects combine to influence “quality of life.”

That being said, the physical environment is an important component of an individual’s perception of the overall positive or negative quality of his or her life. There also are many potential components other than the physical environment (e.g., personal health, employment, commute length, income, and accessibility of services) that contribute to an individual’s perception of the quality of his or her life. The relative importance of the various elements of the physical environment varies by individual.

The specific physical effects anticipated to occur with development of the Project are addressed in the Draft EIR. Those topical areas with the greatest potential to affect quality of life are discussed in Section 4 of the Draft EIR. This section of the Draft EIR addresses ten topical areas including, but not limited to, air quality, noise, and traffic, all of which would be contributors to one’s perception of quality of life. Therefore, to the extent that the physical effects are perceived as affecting one’s quality of life, the information required under CEQA is provided in the Draft EIR. The evaluation of how these impacts combine to affect one’s “quality of life” is an interpretive matter not addressed under CEQA.

Though “quality of life” is not a CEQA topic, this concern was incorporated into the Project Objectives. The second Project Objective reads: “To reasonably protect the environmental interests and concerns of persons residing in the vicinity of the JWA, including their concerns regarding ‘quality of life’ issues arising from the operation of JWA, including but not limited to noise and traffic” (See Section 3.3 of the Draft EIR for the complete listing of Project Objectives). As part of the decision-making process, the Board of Supervisors will consider not only the environmental impacts addressed in the Draft EIR, but how well the Proposed Project meets the Project Objectives.

Section 15021 of the State CEQA Guidelines states that “CEQA recognizes that in determining whether and how a project should be approved, a public agency has an obligation to balance a variety of public objectives, including economic, environmental, and social factors . . .” Whenever
an agency approves a project that would have significant unavoidable impacts, the rationale for approving the project is outlined in the statement of overriding considerations. It is through this process that balancing of competing Project Objectives is conducted.

### 3.2.7 TOPICAL RESPONSE 7: PART 161 AND THE CHALLENGE OF AIRPORT ACCESS RESTRICTIONS FOR NOISE CONTROL

Part 161 of the Federal Aviation Regulations, formally titled “Notice and Approval of Airport Noise and Access Restrictions,” was promulgated as a result of the Airport Noise and Capacity Act (“ANCA”) enacted by Congress in 1990. The purpose of ANCA is to limit the ability of airports to restrict access based on noise in exchange for the “phase-out” of noisier Stage 2 aircraft (over 75,000 pounds) by the year 2000.

ANCA and its implementing regulations, Part 161, impose onerous requirements on airports that must be satisfied prior to implementing certain types of noise-based restrictions. ANCA and Part 161 broadly apply to any “noise or access restriction,” which includes, for example, the following: (a) airports attempting to impose restrictions on Stage 2 aircraft operations proposed after October 1, 1990; (b) airports seeking to impose restrictions on Stage 3 aircraft operations that became effective after October 1, 1990; and, (c) airports attempting to amend airport noise and access restrictions that were in effect on October 1, 1990, but were amended after that date, where the amendment reduces or limits aircraft operations or affects aircraft safety. Airports that adopt noise or access restrictions that otherwise are preempted and unauthorized by ANCA and Part 161 may lose, among other things: (i) their eligibility for Airport Improvement Program (“AIP”) grants, and (ii) the authority to impose and use Passenger Facility Charges.

Specifically, Part 161 defines noise or access restrictions as follows:

\[ \text{Noise or access restrictions} = \text{restrictions (including but not limited to any regulation, provisions of ordinances and leases or other mandatory restriction or requirement) affecting access or noise that affect the operations of Stage 2 or Stage 3 aircraft, such as limits on the noise generated on either a single-event or cumulative basis; a limit, direct or indirect, on the total number of Stage 2 or Stage 3 aircraft operations; a noise budget or noise allocation program that includes Stage 2 or Stage 3 aircraft; a restriction imposing limits on hours of operations; a program of airport-use charges that has the direct or indirect effect of controlling airport noise; and any other limit on Stage 2 or Stage 3 aircraft that has the effect of controlling airport noise. This definition does not include peak-period pricing programs where the objective is to align the number of aircraft operations with airport capacity.} \]

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54 Stage number is an FAA system used to determine and certify the noise level of an aircraft based on weight and number of engines. Aircraft noise levels are certified as Stage 2, 3, or 4. Any aircraft that predates this system and was never tested and certified is classified as Stage 1. Stage 2 includes aircraft such as the B-727, B-737-200, and the DC-9. Stage 2 aircraft were required by law to be modified with “hush kits” to meet Stage 3 noise levels or phased out of service by January 1, 2000. Stage 2 aircraft were phased out of JWA in the late 1990s.

55 Stage 3 aircraft are, on average, about 10 decibels (”dB”) quieter than a comparably-sized Stage 2 aircraft. These aircraft include the Boeing 737-800, 757 and 767; the Airbus 320; and the MD 80/90.

56 14 C.F.R. §161.5.
Part 161 expressly does not apply to the following types of aeronautical procedures:57

Aircraft operational procedures that must be submitted for adoption by the FAA, such as preferential runway use, noise abatement approach and departure procedures and profiles, and flight tracks, are not subject to this part. Other noise abatement procedures, such as taxiing and engine runups, are not subject to this part unless the procedures imposed limit the total number of Stage 2 or Stage 3 aircraft operations, or limit the hours of Stage 2 or Stage 3 aircraft operations, at the airport.

There are two ways for an airport to impose a restriction affecting Stage 3 aircraft: (1) obtain the agreement of all airport users (including all “new entrants”) affected by the proposed restriction or (2) submit an application and obtain FAA approval. Both mechanisms present significant procedural and substantive challenges. Specifically, the FAA will approve a Stage 3 aircraft restriction only if it makes six (6) specific findings based on the airport’s application to impose a restriction as provided below, and determines that the airport has completed any environmental documentation that may be required under the National Environmental Policy Act (“NEPA”). The complete text of the six regulatory conditions that must be met in a Part 161 application are provided in the discussion below.

In order to facilitate the FAA’s review of the application, any airport proposing a noise or access restriction on Stage 3 operations must prepare and make available for public comment an analysis that demonstrates, based on substantial evidence, that the six (6) regulatory conditions (listed below) for approval have been met for each restriction and any alternatives submitted. In addition, the airport must demonstrate, through a cost-benefit analysis, that the benefit of the proposed restriction exceeds the cost. The benefits must be expressed in dollars and then compared to the cost to the aircraft operators of implementing the restriction(s). In other words, any noise benefits projected to result from the restrictions must be expressed in terms of dollars and must be compared to costs borne by the affected air carriers (e.g., acquisition of new aircraft, fuel associated with longer flight routes).

Additionally, the FAA has considerable discretion to disapprove an application on a variety of grounds and has disapproved them consistently since the advent of the statute almost 25 years ago. Indeed, the framework established by ANCA and Part 161 for Stage 3 restrictions make it abundantly clear that the FAA will approve a restriction on Stage 3 aircraft only in exceptional circumstances. This is consistent with Congress’ intent when enacting ANCA to protect Stage 3 aircraft. While some airports have attempted to complete the full analysis required by Part 161, few have completed it and most view the prospect for FAA approval of any restriction on Stage 3 operations as practically impossible.

57 14 C.F.R. §161.7(a).
**Responses to Comments**

**PART 161’S SIX REGULATORY CONDITIONS (14 C.F.R. §161.305)**

**Condition 1: The restriction is reasonable, nonarbitrary, and nondiscriminatory.**

(A) Essential information needed to demonstrate this condition includes the following:

1. Evidence that a current or projected noise or access problem exists, and that the proposed action(s) could relieve the problem, including:

   (i) A detailed description of the problem precipitating the proposed restriction with relevant background information on factors contributing to the proposal and any court-ordered action or estimated liability concerns; a description of any noise agreements or noise or access restrictions currently in effect at the airport; and measures taken to achieve land-use compatibility, such as controls or restrictions on land use in the vicinity of the airport and measures carried out in response to 14 CFR part 150; and actions taken to comply with grant assurances requiring that:

   (A) Airport development projects be reasonably consistent with plans of public agencies that are authorized to plan for the development of the area around the airport; and

   (B) The sponsor give fair consideration to the interests of communities in or near where the project may be located; take appropriate action, including the adoption of zoning laws, to the extent reasonable, to restrict the use of land near the airport to activities and purposes compatible with normal airport operations; and not cause or permit any change in land use, within its jurisdiction, that will reduce the compatibility (with respect to the airport) of any noise compatibility program measures upon which federal funds have been expended.

   (ii) An analysis of the estimated noise impact of aircraft operations with and without the proposed restriction for the year the restriction is expected to be implemented, for a forecast timeframe after implementation, and for any other years critical to understanding the noise impact of the proposed restriction. The analysis of noise impact with and without the proposed restriction including:

   (A) Maps of the airport noise study area overlaid with noise contours as specified in §§161.9 and 161.11 of this part;

   (B) The number of people and the noncompatible land uses within the airport noise study area with and without the proposed restriction for each year the noise restriction is analyzed;

   (C) Technical data supporting the noise impact analysis, including the classes of aircraft, fleet mix, runway use percentage, and day/night breakout of operations; and

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58 14 C.F.R. §161.305(e)(2)(i).
(D) Data on current and projected airport activity that would exist in the absence of the proposed restriction.

(2) Evidence that other available remedies are infeasible or would be less cost-effective, including descriptions of any alternative aircraft restrictions that have been considered and rejected, and the reasons for the rejection; and of any land use or other nonaircraft controls or restrictions that have been considered and rejected, including those proposed under 14 CFR part 150 and not implemented, and the reasons for the rejection or failure to implement.

(3) Evidence that the noise or access standards are the same for all aviation user classes or that the differences are justified, such as:

(i) A description of the relationship of the effect of the proposed restriction on airport users (by aviation user class); and

(ii) The noise attributable to these users in the absence of the proposed restriction.

(B) At the applicant's discretion, information may also be submitted as follows:

(I) Evidence not submitted under paragraph (e)(2)(ii)(A) of this section (Condition 2) that there is a reasonable chance that expected benefits will equal or exceed expected cost; for example, comparative economic analyses of the costs and benefits of the proposed restriction and aircraft and nonaircraft alternative measures. For detailed elements of analysis, see paragraph (e)(2)(ii)(A) of this section.

(2) Evidence not submitted under paragraph (e)(2)(ii)(A) of this section that the level of any noise-based fees that may be imposed reflects the cost of mitigating noise impacts produced by the aircraft, or that the fees are reasonably related to the intended level of noise impact mitigation.

Condition 2: The restriction does not create an unreasonable burden on interstate or foreign commerce.\(^{59}\)

(A) Essential information needed to demonstrate this statutory condition includes:

(I) Evidence, based on a cost-benefit analysis, that the estimated potential benefits of the restriction have a reasonable chance to exceed the estimated potential cost of the adverse effects on interstate and foreign commerce. In preparing the economic analysis required by this section, the applicant shall use currently accepted economic methodology, specify the methods used and assumptions underlying the analysis, and consider:

(i) The effect of the proposed restriction on operations of aircraft by aviation user class (and for air carriers, the number of operations of aircraft by carrier), and on the volume of passengers and cargo for the year the restriction is expected to be implemented and for the forecast timeframe.

\(^{59}\) 14 C.F.R. §161.305(e)(2)(ii).
(ii) The estimated costs of the proposed restriction and alternative nonaircraft restrictions including the following, as appropriate:

(A) Any additional cost of continuing aircraft operations under the restriction, including reasonably available information concerning any net capital costs of acquiring or retrofitting aircraft (net of salvage value and operating efficiencies) by aviation user class; and any incremental recurring costs;

(B) Costs associated with altered or discontinued aircraft operations, such as reasonably available information concerning loss to carriers of operating profits; decreases in passenger and shipper consumer surplus by aviation user class; loss in profits associated with other airport services or other entities; and/or any significant economic effect on parties other than aviation users.

(C) Costs associated with implementing nonaircraft restrictions or nonaircraft components of restrictions, such as reasonably available information concerning estimates of capital costs for real property, including redevelopment, soundproofing, noise easements, and purchase of property interests; and estimates of associated incremental recurring costs; or an explanation of the legal or other impediments to implementing such restrictions.

(D) Estimated benefits of the proposed restriction and alternative restrictions that consider, as appropriate, anticipated increase in real estate values and future construction cost (such as sound insulation) savings; anticipated increase in airport revenues; quantification of the noise benefits, such as number of people removed from noise contours and improved work force and/or educational productivity, if any; valuation of positive safety effects, if any; and/or other qualitative benefits, including improvements in quality of life.

(B) At the applicant's discretion, information may also be submitted as follows:

(1) Evidence that the affected carriers have a reasonable chance to continue service at the airport or at other points in the national airport system.

(2) Evidence that other air carriers are able to provide adequate service to the airport and other points in the system without diminishing competition.

(3) Evidence that comparable services or facilities are available at another airport controlled by the airport operator in the market area, including services available at other airports.

(4) Evidence that alternative transportation service can be attained through other means of transportation.

(5) Information on the absence of adverse evidence or adverse comments with respect to undue burden in the notice process required in §161.303, or alternatively in §161.321, of this part as evidence that there is no undue burden.
Condition 3: The proposed restriction maintains safe and efficient use of the navigable airspace.  

Essential information needed to demonstrate this statutory condition includes evidence that the proposed restriction maintains safe and efficient use of the navigable airspace based upon:

(A) Identification of airspace and obstacles to navigation in the vicinity of the airport; and

(B) An analysis of the effects of the proposed restriction with respect to use of airspace in the vicinity of the airport, substantiating that the restriction maintains or enhances safe and efficient use of the navigable airspace. The analysis shall include a description of the methods and data used.

Condition 4: The proposed restriction does not conflict with any existing Federal law or regulation.

Essential information needed to demonstrate this condition includes evidence demonstrating that no conflict is presented between the proposed restriction and any existing Federal statute or regulation, including those governing:

(A) Exclusive rights;

(B) Control of aircraft operations; and

(C) Existing Federal grant agreements.

Condition 5: The applicant has provided adequate opportunity for public comment on the proposed restriction.

Prior to submitting an application to the FAA, the Airport must notify interested and affected parties of the proposed rule and invite public comment. Essential information needed to demonstrate this condition includes evidence that there has been adequate opportunity for public comment on the restriction as specified in §161.303 or §161.321 of this part.

Condition 6: The proposed restriction does not create an undue burden on the national aviation system.

Essential information needed to demonstrate this condition includes evidence that the proposed restriction does not create an undue burden on the national aviation system such as:

(A) An analysis demonstrating that the proposed restriction does not have a substantial adverse effect on existing or planned airport system capacity, on observed or forecast airport system congestion and aircraft delay, and on airspace system capacity or workload;

(B) An analysis demonstrating that nonaircraft alternative measures to achieve the same goals as the proposed subject restrictions are inappropriate;

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60 14 C.F.R. §161.305(e)(2)(iii).
61 14 C.F.R. §161.305(e)(2)(iv).
63 14 C.F.R. §161.305(e)(2)(vi).
(C) The absence of comments with respect to imposition of an undue burden on the national aviation system in response to the notice required in §161.303 or §161.321.

3.3  **COMMENT LETTERS RECEIVED FROM AGENCIES**

Comments were received from 11 public agencies. The comment letters are organized with State agencies first, followed by local agencies. Comments were received from the following agencies:

**STATE AGENCIES**

California Department of Transportation (Caltrans)
Native American Heritage Commission
State Clearinghouse

**LOCAL AGENCIES**

City of Costa Mesa
City of Irvine
City of Laguna Beach
City of Orange
City of Rancho Santa Margarita
City of Santa Ana
City of Tustin
City of Villa Park