Los Angeles World Airports
Van Nuys Airport
Noisier Aircraft Phaseout
Draft Environmental Impact Report

VOLUME 1

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September 2008

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Acronyms

µg/m^3	micrograms per cubic meter
AB	Assembly Bill
AC	Advisory Circular
AEM	Area Equivalent Method
ANCA	Airport Noise and Capacity Act
APU	auxiliary power unit
AQMP	Air Quality Management Plan
ARTS	Automated Radar Terminal System
ASA	Air Service Area
ATADS	Air Traffic Activity Data System
AVAPCD	Antelope Valley Air Pollution Control District
BOAC	Board of Airport Commissioners
BUR	Bob Hope Airport in Burbank
CAA	Clean Air Act
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMA	Camarillo Airport
CNEL	Community Noise Equivalent Level
CNEL	community noise equivalent level
CNO	Chino Airport
CO	carbon monoxide
CO2	carbon dioxide
COPC	chemical of potential concern
dB	decibel

dBA	A-weighted decibel
DPM	diesel exhaust particulate matter
EDMS	Emissions and Dispersion Modeling System
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
EPRI	Electric Power Research Institute
ETMSC	Enhanced Traffic Management System Counts
FAA	Federal Aviation Administration
FAA Tower	FAA air traffic control tower
FAR	Federal Aviation Regulation
FR	*Federal Register*
GA	General aviation
GHG	greenhouse gases
GIS	geographical information system
GWP	global warming potential
HARP	Hot Spots Assessment and Reporting Program
HRA	Health Risk Assessment
Hz	hertz
I-405	Interstate 405
ICAO	International Civil Aviation Organization
INM	Integrated Noise Model
IPCC	Intergovernmental Panel on Climate Change
LAWA	Los Angeles World Airports
LAX	Los Angeles International Airport
LTO	landing and takeoff
MDAQMD	Mojave Desert Air Quality Management District
mg/m^3	milligrams per cubic meter
MMT CO_2e	million metric tons of carbon dioxide equivalent
MPO	metropolitan planning organization
NAAQS	National Ambient Air Quality Standards
NBAA	National Business Aviation Association
NEPA	National Environmental Policy Act
NO2	nitrogen dioxide
NOC	Notice of Completion
NOP	Notice of Preparation

NOx	nitrogen oxide
O3	ozone
OEHHA	Office of Environmental Health Hazard Assessment
Pb	lead
PM10	particulate matter of 10 microns or less
PM2.5	particulate matter of 2.5 microns or less
ppm	parts per million
PRC	Public Resources Code
project	Van Nuys Airport Noisier Aircraft Phaseout Project
RCPG	Regional Comprehensive Plan and Guide
ROG	reactive organic gas
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO2	sulfur dioxide
SOx	sulfur oxide
TAC	toxic air contaminant
U.S.C.	United States Code
VCAPCD	Ventura County Air Pollution Control District
VNDS	Van Nuys Database System
VNY	Van Nuys Airport
VOC	volatile organic compound
WJF	William J. Fox Airfield
WP	With Project
YTD	year to date

EXECUTIVE SUMMARY

S.1 Project Setting

The Van Nuys Airport Noisier Aircraft Phaseout Project (project) proposes changes in airplane operations at the Van Nuys Airport (VNY), which is located in a developed area in the western end of the San Fernando Valley, within the northwestern portion of the City of Los Angeles. Changes proposed at VNY as part of the project would also affect operations (i.e., takeoffs and landings) at five other airports in the region: Bob Hope Airport (BUR) in the City of Burbank, Los Angeles County; Camarillo Airport (CMA) in the City of Camarillo, Ventura County; Los Angeles International Airport (LAX) on the western edge of the City of Los Angeles; Chino Airport (CNO) near the City of Chino, western San Bernardino County; and William J. Fox Airfield (WJF) near the City of Lancaster, northern Los Angeles County.

S.2 Project Summary & Alternatives

The project would establish noise limits at VNY, prohibiting operations by aircraft that exceed specified takeoff noise levels, according to a four-phase program implemented between 2009 and 2016. The noise limits would reduce aircraft operations at VNY and, in turn, would lead to a minimal increase in operations at five identified "diversion" airports—airports located in the regional vicinity of VNY to where aircraft no longer able to operate at VNY are anticipated to shift. The project proposes no physical development or change in land use at any of the affected airports.

The phased reduction in maximum takeoff noise levels at VNY would occur as follows:

- On or after January 1, 2009: No aircraft may arrive or depart VNY whose takeoff noise level equals or exceeds 85A-weighted decibels (dBA).
- On or after January 1, 2011: No aircraft may arrive or depart VNY whose takeoff noise level equals or exceeds 83 dBA.
- On or after January 1, 2014: No aircraft may arrive or depart VNY whose takeoff noise level equals or exceeds 80 dBA.
- On or after January 1, 2016: No aircraft may arrive or depart VNY whose takeoff noise level equals or exceeds 77 dBA.

Military, government, medical, and emergency operations would not be subject to the project's aircraft noise limits. The project also includes exemptions for aircraft that are permanently departing VNY, for aircraft types first flown before 1950, for historic former military aircraft that are now privately owned, and for operations related to major maintenance and repairs. The latter two exemptions would expire in 2016.

LAWA predicts that some of the aircraft affected by the project's proposed phaseout would be retired and taken out of service following the adoption of the ordinance, some would be modified with "hushkits" that reduce aircraft noise, and others would continue operating at other Southern California regional airports. Five airports in the region were identified as the most likely to receive the diverted VNY traffic: BUR, LAX, CMA, CNO, and WJF.

In addition to the project and the No Project Alternative (Alternative 1), under which the proposed phaseout program would not be implemented, the EIR considers the environmental effects of one project alternative. Alternative 2 is the Phaseout with Stage 3 and Stage 4 Exemptions Alternative, under which a phaseout program similar to that of the project would be implemented, but also including an additional exemption for Stage 3 and Stage 4 aircraft. The Alternative 2 ordinance would be slightly less restrictive than the project, leading to fewer aircraft operations being diverted from VNY. All of the aircraft operations affected by the Alternative 2 exemptions, an estimated 32 annual operations during the 2014 planning year, are anticipated to operate at LAX under the proposed project, but would remain at VNY under Alternative 2.

S.3 Summary of Known Areas of Controversy

Prior to conducting the analysis for this EIR, a Notice of Preparation was prepared and submitted for a 30-day public review period. A total of 12 written comment letters were received during the review period. Though many comments were supportive of the project's efforts to reduce noise in the vicinity of VNY, some parties expressed concern over the air quality and noise impacts the project could produce at diversion airports. In addition, the primary areas of controversy arising during the NOP scoping period are non-CEQA-related suggestions that the project conflicts with policy of the Federal Aviation Administration and is contrary to the interests of the business aviation community.

S.4 Summary of Significant Impacts and Mitigation Measures

This EIR identifies significant project-level and cumulative air quality impacts. These impacts result from increasing aircraft operations at certain diversion airports, which would increase pollutant emissions in their respective locations. There is no feasible mitigation to reduce these significant impacts to less-than-significant levels, and significant and unmitigated impacts are identified. The project and alternatives would result in noise increases at the five diversion airports, but no significant noise impacts are identified for the project or either of the alternatives.

Because the project does not propose or require any development or other physical modification at VNY or the diversion airports, most of the environmental issue areas typically evaluated as part of the CEQA process are not applicable to this project and have not been analyzed in detail in this Draft EIR, in accordance with Section 15128 of the State CEQA Guidelines. The following environmental issue areas were eliminated from detailed consideration in this Draft EIR: aesthetics, agricultural resources, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, mineral resources, population/housing, public services, recreation, transportation/traffic, and utilities/service systems. As explained in Section 4.1, the project would not result in significant impacts on any of these issue areas.

S.4.1 Significant Project-Level Air Quality Impacts

The modeling analysis performed for the project indicates that project-related increases in aircraft operations at CMA would result in air pollutant emissions at that location that exceed the daily thresholds of the Ventura County Air Quality Management District. Emissions that are exceeded are volatile organic compounds and oxides of nitrogen. Because the relevant thresholds are exceeded, a significant impact was identified at this airport.

S.4.1.1 Mitigation Measures and the Effect of Alternatives

There are no feasible mitigation measures to avoid or substantially lessen this air quality impact.

Alternative 1 (No Project) would avoid this significant impact by avoiding the project-related increase of emissions at CMA. Alternative 2 would not affect the project's shift of emissions to CMA, and this significant impact would result at CMA under Alternative 2.

S.4.2 Significant Cumulative Air Quality Impacts

The project-level impact noted above is also identified as a considerable contribution to a significant cumulative impact. The project also results in considerable contributions to significant cumulative impacts because it would transfer emissions from the South Coast Air Basin to two other air basins that are in non-attainment of certain pollutants. The Mojave Desert Air Basin and the South Central Coast Air Basin are both in non-attainment of ozone and particulate-matter standards. The project would transfer emissions of particulate matter and ozone precursors (i.e., volatile organic compounds and oxides of nitrogen) from the South Coast Air Basin to these two neighboring basins. This would combine with future anticipated increases of these gases within the respective regions and contribute to the basins' continued non-attainment status.

S.4.2.1 Mitigation Measures and the Effect of Alternatives

There are no feasible mitigation measures to avoid or substantially lessen the project's contribution to these cumulative air quality impacts.

Alternative 1 (No Project) would avoid these significant contributions to air quality impacts by avoiding the project-related increase of emissions to the Mojave Desert Air Basin and the South Central Coast Air Basin, and by avoiding emissions increases at CMA. Alternative 2 (Phaseout with Stage 3 and Stage 4 Exemptions) would not affect the project's shift of emissions to the basins; therefore, these significant cumulative impacts would occur with implementation of Alternative 2.

The significant impacts and mitigation measures associated with the project and alternatives are summarized in Table S-1.

Table S-1. Summary Matrix of Significant Impacts and Mitigation Measures Associated with the Project and Alternatives

Significant Impact	Alternative	Level of Significance without Mitigation	Mitigation	Level of Significance After Mitigation
AQ-1: Exceedance of Ventura County Air Quality Management District Daily Emissions Thresholds at CMA The project would result in emissions of volatile organic compounds and oxides of nitrogen at Camarillo Airport in excess of Ventura County Air Quality Management District daily thresholds.	Proposed Project	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant
	Alternative 1	No Impact	N/A	N/A
	Alternative 2	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant
CAQ-1: New cumulatively considerable contribution of air pollutants to the Mojave Desert Air Basin The project would add emissions of ozone precursors (volatile organic compounds and oxides of nitrogen) and particulate matter to the Mojave Desert Air Basin, which is in non-attainment status for ozone and particulate matter.	Proposed Project	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant
	Alternative 1	No Impact	N/A	N/A
	Alternative 2	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant
CAQ-2: New cumulatively considerable contribution of air pollutants to the South Central Coast Air Basin The project would add emissions of ozone precursors (volatile organic compounds and oxides of nitrogen) and particulate matter to the South Central Coast Air Basin, which is in non-attainment status for ozone and particulate matter.	Proposed Project	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant
	Alternative 1	No Impact	N/A	N/A
	Alternative 2	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant

Significant Impact	Alternative	Level of Significance without Mitigation	Mitigation	Level of Significance After Mitigation
CAQ-3: Cumulatively Considerable Emissions at CMA, causing exceedance of Ventura County Air Pollution Control District Thresholds	Proposed Project	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant
The project would result in emissions of volatile organic compounds and oxides of nitrogen at Camarillo Airport in excess of Ventura County Air Quality Management District daily thresholds, thereby presenting a considerable contribution to cumulative impacts in the South Central Coast Air Basin.	Alternative 1	No Impact	N/A	N/A
	Alternative 2	Significant	There is no feasible mitigation that would avoid or substantially lessen this impact.	Significant

1.0

INTRODUCTION

This Environmental Impact Report (EIR) has been prepared by Los Angeles World Airports (LAWA) to evaluate the environmental impacts resulting from the proposed Van Nuys Airport Noisier Aircraft Phaseout Project (project). LAWA is the lead agency for the project pursuant to the California Environmental Quality Act (CEQA). The EIR is intended to assist LAWA and the City of Los Angeles in deciding the content and potential adoption of an ordinance to phase out operations of noisier aircraft at Van Nuys Airport (VNY).[1] The EIR would be considered by the LAWA Board of Airport Commissioners (BOAC) prior to making a recommendation on the proposed ordinance and forwarded to the Trade, Commerce and Tourism (TCT) Committee of the Los Angeles City Council for approval. The TCT Committee would review the EIR prior to making a recommendation to the full City Council for approval or denial of the proposed ordinance. The City Council has the ultimate responsibility of considering the environmental impacts of the project and making decisions on whether to certify the EIR and adopt the ordinance.

1.1 Project Background

1.1.1 Background on Proposed Phaseout

On September 27, 1989, the BOAC requested that the Executive Director investigate and prepare proposals to phase out Stage 2 aircraft from VNY.[2] On June 13, 1990, BOAC approved Resolution No. 17154, which proposed three noise abatement regulations for VNY: (1) a 1-hour extension of the starting time of an existing nighttime departure curfew; (2) a limit on operations of certain noisier aircraft

1 Operations, as used throughout this EIR, are defined as takeoffs and landings.

2 The Federal Aviation Administration (FAA) has established noise standards that aircraft must meet to receive new or revised "type" or "airworthiness" certificates. These standards are defined in 14 Code of Federal Regulations (CFR) Part 36, Noise Standards: Aircraft Type and Airworthiness Certification (Part 36). For aircraft with maximum takeoff weights of 12,500 pounds or more and for all jet aircraft, Part 36 identifies four classes or "stages" of aircraft with respect to their relative noisiness: Stage 1 aircraft have never been shown to meet any noise standards, either because they have never been tested, or because they have been tested and failed; Stage 2 aircraft meet original noise limits, set in 1969; Stage 3 aircraft meet more stringent limits, established in 1977; and Stage 4 aircraft meet the most stringent limits, established in 2005.

(known as the Non-Addition Rule and described further below); and, (3) a 7-year phaseout of operations of noisier aircraft not affected by the Non-Addition Rule. BOAC subsequently approved, and the Los Angeles City Council adopted, the first two proposed regulations.[3]

Prior to adoption of these regulations, FAA confirmed in writing to LAWA that, because they were proposed prior to October 1, 1990, they were "exempt from the notice and analysis requirements of 14 Code of Federal Regulations (CFR) Part 161… Specifically, the Stage 2 restrictions in the proposal would be exempt under 49 United States Code (U.S.C.) 47533."[4] (Section 47533 exempts "any proposed airport noise or access restriction at a general aviation airport if the airport proprietor has formally initiated a regulatory or legislative process before October 2, 1990.")

All three of these regulations are based on departure noise levels published in FAA Advisory Circular (AC) 36-3, Estimated Airplane Noise Levels in A-Weighted Decibels. The Non-Addition Rule and noisier aircraft phaseout both addressed operations of aircraft with noise levels that equal or exceed 77 A-weighted decibels (dBA).[5] The 77 dBA limit was selected because at the time the ordinance was adopted, no Stage 3 aircraft based at VNY equaled or exceeded it. Briefly, the Non-Addition Rule prohibits additional non-Stage 3 aircraft with noise levels that equal or exceed 77 dBA from being parked, tied-down, or hangared at the airport for more than 30 days in any calendar year, subject to exceptions for major maintenance, repair, and refurbishment.

The phaseout proposed in Resolution No. 17154 implemented a restriction on all operations of aircraft that equal or exceed 77 dBA through the following four-step schedule:

- On or after January 1, 1991: No aircraft may arrive or depart VNY whose AC 36-3 takeoff noise level equals or exceeds 85 dBA.
- On or after January 1, 1993: No aircraft may arrive or depart VNY whose AC 36-3 takeoff noise level equals or exceeds 83 dBA.

3 Appendix B.5 describes all of the existing VNY noise management measures. The departure curfew and Non-Addition Rule are described in Sections B.5.2.6 and B.5.2.7, respectively. Appendix B.6 reproduces Ordinances 171889 and 173215, which added these two regulations to the Van Nuys Airport Noise Abatement and Curfew Regulation (Ordinance 155727).

4 August 28, 1997 letter from Susan L. Kurland, FAA Associate Administrator for Airports, to Mr. Breton K. Lobner, Senior Assistant Los Angeles City Attorney. In 1990, the U.S. Congress enacted the Airport Noise and Capacity Act (ANCA) (Pub. L. No. 101-508, 104 Stat. 1388, as recodified at 49 United States Code (U.S.C.) 47521 et seq.). Certain ANCA provisions directed the FAA to establish a national program to review noise and access restriction proposals that affect operations of aircraft classified as Stage 2 and Stage 3 under federal noise standards. FAA implemented this program through Federal Aviation Regulation Part 161 (14 CFR Part 161, Notice and Approval of Airport Noise and Access Restrictions). ANCA limited the applicability of the Part 161 review process to Stage 2 restrictions proposed after October 1, 1990, and to Stage 3 restrictions that first became effective after October 1, 1990.

5 The departure curfew uses a more stringent 74 dBA limit, selected when the curfew was first enacted in 1981, because that was the departure noise level of the loudest twin piston powered aircraft operating at VNY.

- On or after January 1, 1996: No aircraft may arrive or depart VNY whose AC 36-3 takeoff noise level equals or exceeds 80 dBA.
- On or after January 1, 1998: No aircraft may arrive or depart VNY whose AC 36-3 takeoff noise level equals or exceeds 77 dBA.

On April 17, 2006, BOAC adopted Resolution No. 22980, which readopted the proposal for the 7-year phaseout of Stage 2 aircraft originally proposed in Resolution No. 17154. Resolution No. 22980 also instructed the Executive Director to report back to BOAC on LAWA's plan for pursuing the Stage 2 phaseout independent of an ongoing Part 161 study that was initiated in 2005 to pursue several proposed noise-based operating restrictions at VNY. LAWA provided that Stage 2 phaseout report on July 17, 2006, which ultimately led to the BOAC approval of the August 20, 2007, draft ordinance language (Appendix A). The proposed ordinance is the basis of the project examined in this EIR, and proposes the following phaseout schedule:

- On or after January 1, 2009: No aircraft may arrive or depart VNY whose AC 36-3, as amended, takeoff noise level equals or exceeds 85 dBA.
- On or after January 1, 2011: No aircraft may arrive or depart VNY whose AC 36-3, takeoff noise level equals or exceeds 83 dBA.
- On or after January 1, 2014: No aircraft may arrive or depart VNY whose AC 36-3, takeoff noise level equals or exceeds 80 dBA.
- On or after January 1, 2016: No aircraft may arrive or depart VNY whose AC 36-3, takeoff noise level equals or exceeds 77 dBA.

The dBA levels proposed for restriction by this ordinance language are identical to those proposed by Resolution No. 17154; only the dates have changed. Because the updated phaseout schedule includes a 7-year timetable, it is no more restrictive than the original proposal. Three other factors make the updated phaseout proposal less restrictive compared to the original proposal. First, in and of itself, the 18-year deferment of implementation represents a significant easing. Second, the fleet of potentially affected aircraft has shrunk since 1989 due to retirements and replacements. For example, the active North American fleet of Learjet 24 and 25 aircraft decreased from 426 in 1989 to 324 by the end of 2007, while the active North American fleet of Gulfstream II and III aircraft decreased from 372 to 357 over the same time period. Third, LAWA has further modified the original proposal to incorporate exemptions for operations of two classes of "historic" aircraft, for operations related to major repair and maintenance, and for permanent departures of non-compliant aircraft. Chapter 2, Project Description, describes these exemptions in detail.

1.1.2. Alternatives to the Proposed Phaseout

In addition to the ordinance proposed in the project, this EIR also analyzes the impacts of a variation on the phaseout ordinance. This would include in the

ordinance an exemption for all Stage 3 and Stage 4 aircraft, or Alternative 2.[6] As part of the data collection and analysis process conducted for this EIR, LAWA determined that a small number of operations at VNY are conducted by Stage 3 aircraft that exceed phaseout noise limits. These aircraft are Boeing 727 aircraft that were certified as Stage 2 aircraft in 1990 when LAWA first proposed the phaseout. Subsequent to that date, operators of these aircraft made modifications to reduce their operational noise emissions that resulted in their recertification as Stage 3 aircraft. This was done to comply with another provision of ANCA that required a national phaseout of Stage 2 aircraft with maximum certificated takeoff weights over 75,000 pounds by January 1, 2000. Prior to passage of ANCA, LAWA had no basis for anticipating these Stage 2 aircraft would be recertified as Stage 3, so when LAWA proposed the noisier aircraft phaseout at VNY, there was no basis for anticipating the intended Stage 2 phaseout would also affect Stage 3 aircraft.

LAWA anticipates there will be very few operations of these Stage 3 727s at VNY in the future. According to estimates performed in preparation of the Noise Analysis Technical Report, jointly prepared by HMMH and SH&E in August 2008 (included as Appendix B of this EIR), the forecasts of *total annual operations* in these aircraft for the 4 phaseout years are as follow:

- 2009: 38 annual operations – approximately 19 arrivals and 19 departures
- 2011: 35 annual operations – approximately 18 arrivals and 18 departures
- 2014: 32 annual operations – approximately 16 arrivals and 16 departures
- 2016: 19 annual operations – approximately 10 arrivals and 10 departures

As discussed previously, ANCA and Part 161 only exempt Stage 3 restrictions that first became effective on or before October 1, 1990. The intent of the project's proposed ordinance was to achieve this Part 161 exemption, but the project's noisier aircraft phaseout would not be exempt from the Part 161 review process if it restricted Stage 3 aircraft operations, no matter how small in number. To address this situation, this EIR considers Alternative 2, which exempts Stage 3 and 4 aircraft.[7] The ordinance proposed in Alternative 2 is identical to that of the project, except that it includes an additional exemption that would allow all aircraft certified as either Stage 3 or Stage 4 to continue to operate out of VNY, regardless of their takeoff noise levels. The phaseout ordinance proposed in Alternative 2 is provided as Appendix A.1 of this EIR. This alternative reduces noise and air quality impacts at LAX, when compared to the project, but would result in greater noise and air quality impacts at VNY.

The additional exemption proposed in Alternative 2 follows the precedent LAWA set when it adopted the one-hour extension of the nighttime departure curfew and the

6 This alternative is analyzed in this EIR to an equal level of detail as the project. The full explanation of the alternative and the alternatives analysis is presented in Chapter 5.

7 ANCA and Part 161 are silent on their applicability to Stage 4 aircraft, because that class of aircraft did not exist at the time they were adopted. There is no reason to believe that any Stage 4 aircraft would ever exceed the most stringent 77 dBA phaseout limit. However, this alternative exempts Stage 4 aircraft based on the logic that it is appropriate to exempt the quietest class of aircraft.

Non-Addition Rule, both of which incorporated a Stage 3 exemption that was not included in the original proposal. The addition of the Stage 3 exemption did not jeopardize the exemption of these regulations from the Part 161 review requirements. To the contrary, the FAA specially noted in the previously cited correspondence[8] that addition of the Stage 3 exemption "would satisfactorily resolve concerns expressed in the FAA's letter to the President of the City Council, John Ferraro, dated July 17, 1996."[9]

1.1.3 Additional Airports Affected by Proposed Phaseout

LAWA predicts that some of the aircraft affected by the project's proposed phaseout would be retired following the adoption of the ordinance, while certain phased out aircraft could be expected to use other Southern California regional airports. Therefore, this EIR has been prepared to assess the environmental effects at those airports identified as the most likely recipients of the shifted operations, referred to as "diversion airports" throughout this EIR. Those airports include Los Angeles International Airport (LAX); Bob Hope Airport, Burbank (BUR); Camarillo Airport (CMA); Chino Airport (CNO); and General William J. Fox Airfield, Lancaster (WJF). An explanation of the methods used to identify the diversion airports is provided in full in the Noise Report (Appendix B of this EIR) and summarized in Section 4.2.

1.2 CEQA Process

This environmental document has been prepared pursuant to the California Environmental Quality Act (CEQA) of 1970, as amended (Public Resources Code [PRC] §21000 *et seq*.) and the State CEQA Guidelines (14 California Code of Regulations [CCR] Chapter 3, §15000 *et seq*.) These regulations require that all state and local government agencies consider the environmental consequences of projects over which they have discretionary authority prior to taking action on those projects.

LAWA, as the lead agency, has determined that an EIR is the appropriate level of documentation for compliance with CEQA for the proposed project in accordance with the provisions of the State CEQA Guidelines.

The overall purposes of the CEQA process are to:

- Ensure that the environment and public health and safety are protected in the face of discretionary projects initiated by public agencies or private concerns;

8 August 28, 1997 letter from Susan L. Kurland, FAA Associate Administrator for Airports, to Mr. Breton K. Lobner, Senior Assistant Los Angeles City Attorney

9 July 17, 1996 letter from Susan L. Kurland, FAA Associate Administrator for Airports, to The Honorable John Ferraro, President, City Council of the City of Los Angeles. This letter noted that without a Stage 3 exemption, the one-hour curfew extension would be subject to Part 161 review requirements "as it applies to Stage 3 aircraft."

- Fully disclose the project's environmental effects to the public, to agency decision makers who will approve or deny the project, and to responsible and/or trustee agencies charged with managing resources that may be affected by the project; and
- Provide a forum for public participation in the decision-making process with respect to environmental effects.

As defined by Section 15378 of the State CEQA Guidelines, a project is any action that "has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." Section 15093 of the State CEQA Guidelines requires the decision makers to balance the benefits of a proposed project against any unavoidable environmental risks it may have. If the benefits of the project outweigh the unavoidable adverse environmental impacts, the decision makers may adopt a statement of overriding considerations, finding that the environmental effects are acceptable in light of the project's benefits to the public. The environmental review process as set forth under CEQA is outlined below.

1.2.1 Scoping Process

The process of determining the scope, focus, and content of an EIR is known as scoping. The purpose of scoping is to solicit input from members of the public and applicable local, state, and federal agencies, organizations and individuals, to identify the range of actions, alternatives, potential environmental effects, and methods of assessment to be analyzed in the EIR. Pursuant to Sections 15082 and 15083 of the state CEQA Guidelines, LAWA has completed a public noticing and scoping process for the EIR.

1.2.1.1 Notice of Preparation

On October 22, 2007, consultants for LAWA sent out by certified mail a written Notice of Preparation (NOP) for the project. The NOP was sent to a total of 35 interested or potentially affected parties, 7 seven of which were state or federal agencies determined to be relevant to the project.[10] The other 28 parties included selected regional airports and businesses at VNY. A Notice of Completion (NOC) for the NOP was also sent to the State Clearinghouse to assist in their distribution of the NOP to agencies. In a separate public outreach distribution conducted by LAWA, other interested parties, including the potential diversion airports and all other airports within a 60-mile radius from VNY, received the NOP by regular mail. The NOP and NOC are provided in Appendix C.

The intent of the NOP was to advise interested and potentially affected parties, as determined in consultation with LAWA and VNY staff, of the formal start of the CEQA process for the project, of the start of the 30-day public comment period on

10 Pursuant to Section 15082(a) of the State CEQA Guidelines, the NOP was submitted to all responsible agencies and any federal agency involved in approving the project. There are no trustee agencies responsible for natural resources affected by the project; therefore, no trustee agencies were included in the NOP submittal.

the NOP (November 1 through November 30, 2007) and of the public scoping meeting being held in Van Nuys on November 15, 2007. Following the close of the NOP scoping period, any comments received from interested and/or potentially affected agencies and parties were documented for use in preparing the EIR.

Other applicable filings of the NOP for the project included the following:

- On October 23, 2007, LAWA filed the NOP with the Los Angeles County Clerk's office.
- On October 25, 2007, LAWA filed the NOP with the Los Angeles City Clerk's office.

1.2.1.2 Public Scoping Meeting

On November 15, 2007, LAWA held a public scoping meeting from 6:00 PM to 8:30 PM at the Van Nuys Airtel Plaza Hotel, 7277 Valjean Avenue, Van Nuys, California. Approximately 20 members of the public and interested parties attended the meeting. Comments were not recorded at the meeting as people were free to visit various information stations and talk informally about the project with LAWA staff and consultants. Spanish-speaking interpreters were present to maximize participation. As part of LAWA's outreach effort, approximately 165 affected or interested parties were mailed a notice of the public scoping meeting, and both the NOP and public scoping meeting were noticed in *The Daily News* and *The Los Angeles Times*, two general circulation newspapers of Los Angeles County.

A total of 12 written comment letters were received during the 30-day NOP review period. Comments were primarily supportive of the project's efforts to reduce noise for affected parties in the vicinity of VNY. Other comments primarily focused on the need to evaluate the potential noise and air quality effects of the project on the potential reliever airports. The comment letters, as well as a summary table of the issues addressed, are provided in Appendix C of this EIR.

1.2.2 Draft EIR

1.2.2.1 Contents

After the public scoping phase has been completed, the next step in the CEQA EIR process is preparation of a Draft EIR and submission of that document to the CEQA-mandated public review process. CEQA has established requirements addressing the analyses that must be presented in an EIR. These analyses address:

- all significant effects on the environment that would result from the proposed project,
- any significant effects on the environment that cannot be avoided if the project is implemented,

- any significant effects on the environment that would be irreversible if the project is implemented,
- any growth-inducing impacts of the proposed project,
- any cumulative impacts of the proposed project,
- an explanation supporting the exclusion from analysis in the EIR of any effects that were determined to be less than significant,
- mitigation measures proposed to minimize the significant effects on the environment, and
- alternatives to the proposed project.

1.2.2.2 Public Review of the Draft EIR

As required under Section 15105 of the CEQA Guidelines, the Draft EIR for this project is being made available for review and comment for a period of 45 days. Copies were sent to the State Clearinghouse in Sacramento for circulation to interested state agencies, and copies were sent directly to responsible, trustee, and local agencies. Copies are also available for review by members of the public at the Los Angeles City and County Clerks' offices during normal business hours. An electronic copy of the Draft EIR will be available on LAWA's website: http://www.lawa.org/vny/vnyEnvironment.cfm.

Written comments on the Draft EIR will be accepted at the mailing address shown below, and will be accepted electronically via a link provided in the web address shown below.

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1.2.3 Final EIR

After the close of the Draft EIR public review period, LAWA will compile and review all comments from agencies, organizations, and individuals pertaining to the Draft EIR. They will then prepare a Final EIR, which will include the components listed below:

- comments received on the Draft EIR,
- written responses to all comments,
- a list of commenter's, and

- a discussion of revisions or additions to the Draft EIR, if any, made in response to the comments.

The Final EIR will be reviewed by the BOAC, the TCT Committee, and the City Council prior to a decision on certification of the EIR and potential adoption of the project.

1.3 Document Organization

This Draft EIR is organized as shown below:

- The Table of Contents lists the contents and page numbers of the document.
- The Executive Summary presents a brief summary of the findings of the EIR.
- Chapter 1, Introduction, introduces the proposed project and provides background and history to the project, as well as a description of the CEQA process, public scoping, and document organization.
- Chapter 2, Project Description, describes the project characteristics and identifies how the project would affect VNY and the diversion airports.
- Chapter 3, Environmental Setting, describes the setting of the proposed project and diversion airports.
- Chapter 4, Impacts and Mitigation Measures, identifies the environmental resources focused out of this EIR, analyzes potential effects of the proposed project on noise and air quality, and discusses the potential for mitigation to reduce those effects to a less-than-significant level.
- Chapter 5, Other CEQA Considerations, provides analyses of project alternatives, cumulative impacts, growth-inducing impacts, and any significant irreversible environmental changes resulting from the project.
- Chapter 6, References and List of Preparers, provides the bibliographic and expert authorities cited in the text and a list of individuals and organizations responsible for preparing this EIR.
- Appendix A, VNY Phaseout Ordinance, provides a copy of the proposed ordinance approved by BOAC on August 20, 2007; Appendix A.1 provides a copy of the modified ordinance associated with Alternative 2.
- Appendix B, Noise Technical Report, provides the supporting data used to prepare the Noise analysis presented in Section 4.2 of this EIR.
- Appendix C, Notice of Preparation, Notice of Completion, and Scoping Comments, which summarizes the comments received during the 30-day public NOP review period.
- Appendix D, Air Quality Technical Materials, provides the supporting data used to prepare the air quality analysis presented in Section 4.3 of the EIR.

2.0

PROJECT DESCRIPTION

2.1 Project Description

2.1.1 Project Characteristics

The proposed Van Nuys Airport Noisier Aircraft Phaseout Project (project) would prohibit certain operations at Van Nuys Airport (VNY) by aircraft that exceed specified takeoff noise levels. The project would reduce the maximum takeoff noise levels allowed at VNY in four phases between 2009 and 2016. By 2016, the project would prohibit operations under most circumstances by aircraft whose takeoff noise level as published in the most current version of the Federal Aviation Administration (FAA) Advisory Circular (AC) 36-3 "Estimated Airplane Noise Levels in A-Weighted Decibels" is greater than or equal to 77 dBA.[1] The project includes exemptions for two historic aircraft types—those first flown before January 1, 1950, and those former military aircraft of types first flown on or after January 1, 1950. An exemption is also provided for operations related to major maintenance and repair work. Government, military, medical, and emergency operations would also be exempt from the project aircraft noise limits. Additional detail on the phaseout program and the exemptions proposed in the project ordinance is provided in Appendix A and below.

The project proposes no physical development or change in land use but will affect aircraft operations at VNY. The proposed project would also be expected to affect operations at several other airports in the region, referred to as "diversion airports" and described below under Section 2.2, but would not entail physical development or change in land use at those diversion airports.

VNY is located in the northwestern portion of the City of Los Angeles in the San Fernando Valley, and is generally bounded by Roscoe Boulevard to the north,

[1] For aircraft types not included in the AC, Section 5.3(c) of the draft ordinance requires operators to provide evidence to the Board of Airport Commissioners (BOAC) that the departure noise of the aircraft will not exceed the limit.

Vanowen Street to the south, Balboa Boulevard to the west, and Woodley Avenue to the east. Figure 2-1 provides a regional location map of the VNY project area.

2.1.1.1 City of Los Angeles Ordinance

A draft ordinance amending the previously adopted City of Los Angeles Ordinance No. 155727, Van Nuys Airport Noise Abatement and Curfew Regulation, provides the basis of the proposed project. The draft ordinance is provided in Appendix A of this Draft EIR. On August 20, 2007, the Board of Airport Commissioners (BOAC) approved the language for the draft ordinance and directed staff to initiate the environmental and approval process. With approval of the draft ordinance, Sections 5.2 and 5.3 would be added to Ordinance 155727 that identify both an updated schedule for implementation of the phaseout, as well as a number of exemptions from the maximum aircraft noise levels proposed at VNY.

Section 5.2 Aircraft Operations – Maximum Noise Levels

The ordinance states the following implementation dates for noisier aircraft phaseout at VNY:

- On or after January 1, 2009: No aircraft may arrive or depart the Airport [i.e., VNY] whose Advisory Circular 36-3A, as amended (AC 36-3), takeoff noise level equals or exceeds 85 dBA.
- On or after January 1, 2011: No aircraft may arrive or depart the Airport whose AC 36-3 takeoff noise level equals or exceeds 83 dBA.
- On or after January 1, 2014: No aircraft may arrive or depart the Airport whose AC 36-3 takeoff noise level equals or exceeds 80 dBA.
- On or after January 1, 2016: No aircraft may arrive or depart the Airport whose AC 36-3 takeoff noise level equals or exceeds 77 dBA.

Section 5.3 Exemptions from Maximum Noise Levels

The ordinance provides the following categories of exemptions to the noisier aircraft phaseout at VNY:

- Military aircraft and any government-owned or operated aircraft involved in law enforcement, emergency, fire or rescue operations
- Aircraft exempted by federal or state law for a bona fide medical or lifesaving emergency
- Aircraft engaged in bona fide medical or lifesaving emergencies, as proven by acceptable evidence of such emergency
- Aircraft of a type or class not included in AC 36-3 for which evidence has been furnished that the departure noise of the aircraft will not exceed the applicable takeoff noise level restriction set forth in the proposed phaseout program

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Van Nuys Airport
Regional Project Location

Basemap: United States Department of Agriculture Geospatial Data Gateway, United States Geological Survey (USGS), Environmental Systems Research Institute (ESRI)

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Figure 2-1
Regional Location
Van Nuys Airport Noisier Aircraft Phaseout EIR

- Aircraft that have been identified by the FAA as having a lower takeoff noise level than the applicable takeoff noise level restriction set forth in the proposed phaseout program
- Historic aircraft first flown prior to January 1, 1950[2]
- Until January 1, 2016, historic, former military aircraft first flown on or after January 1, 1950
- Until January 1, 2016, aircraft operations associated with repair and maintenance activity at VNY, including major alterations, required maintenance inspections related to major repairs or major alterations, or systems installations and warranty work
- Permanently departing aircraft.

The proposed exemptions can be understood as falling into five categories. The first is meant to ensure that official military-related flights and emergency-response flights may continue to be carried out at VNY without repercussions. The second category of exemptions is meant to allow continued operations at VNY of any aircraft sufficiently documented as not exceeding the respective noise limits in place during the phaseout periods. The third category of exemption encompasses operations of two types of historic planes: aircraft predating 1950; and newer (1950 and after), former military planes that are now privately owned and operated for personal, non-military purposes. The fourth exemption category covers major maintenance operations, and has been proposed to limit the potential burden on aircraft repair businesses located at VNY. Finally, the exemption for permanently departing aircraft allows any noisy aircraft based at VNY to depart for the purposes of relocating to another airport.

2.1.2 Project Alternatives

As discussed in CEQA Guidelines Section 15126.6, the EIR must evaluate reasonable and feasible alternatives to the proposed project. Chapter 5 of this Draft EIR includes a discussion of two specific alternatives, along with an explanation of why prospective alternatives that could be considered for this project are limited. Alternative 1 (No Project) is defined as the status quo, with no project-related changes in aircraft operating restrictions at VNY. Alternative 2 (Stage 3 and 4 Exemptions) proposes the same operating restrictions at VNY as the project (including exemptions), but with an additional exemption for aircraft certificated as Stage 3 or Stage 4.[3]

[2] BOAC will review exemption provisions on or before January 1, 2019, and every 10 years thereafter for these aircraft.
[3] Stage 3 and Stage 4 are defined in Section 1.1.1 of this Draft EIR.

2.1.3 Project Phaseout Schedule

The proposed project would be implemented in four phases between 2009 and 2016, as summarized below in Table 2-1. It is anticipated that the BOAC would adopt the project ordinance or an alternative ordinance to implement the phaseout in late 2008.

Table 2-1. Phaseout Implementation Schedule

Date	Noise Limit for Aircraft Operation
January 1, 2009	≥ 85 dBA
January 1, 2011	≥ 83 dBA
January 1, 2014	≥ 80 dBA
January 1, 2016	≥ 77 Dba

Source: Los Angeles World Airports 2007

2.1.4 Affected Aircraft Operations at VNY

2.1.4.1 Noisier Aircraft Operations

Table 2-2 shows the estimated forecast of jet operations at VNY by aircraft whose maximum takeoff noise level is greater than or equal to the respective dBA limits proposed to be imposed during each of the project's phaseout years. These forecasts, conducted by SH&E and incorporated into the jointly prepared Noise Report (HMMH & SH&E, 2008; Appendix B of this EIR), formed the basis for analyzing the project's impacts at VNY and the diversion airports. The numbers in the tables represent the estimated operations that would no longer be allowed to operate at VNY with implementation of the project. The numbers do not take into account that the previous year's limitation is imposed. In other words, all estimated 2009 operations of Boeing 727s at VNY would be affected by the 2009 limitations; were the 2009 limitation not to be imposed, that number of Boeing 727s operations is anticipated to decrease to 35 by 2011 due to retirement of older aircraft that is expected to occur regardless of whether the project would be imposed.[4]

[4] FAA data shows that VNY operations of large, hushkitted Stage 3 aircraft declined by 8.7% per year between 2004 and 2007. As time goes on and the aircraft continue to age, it is anticipated that operations of these older aircraft would decline at a slightly faster rate of 9.3% per year. This 9.3% rate was assumed in generating the forecasts for this project analysis.

Table 2-2. Jet Aircraft Operations at VNY Affected by Proposed Project

Aircraft Type	2009	2011	2014	2016
Boeing 727*	38	35	32	19
Learjet 24, 25, 28	—	—	522	435
Gulfstream II/III	—	—	1,428	1,358
Falcon 20	—	—	—	63
Other	—	7	7	11
Total	**38**	**42**	**1,989**	**1,886**

Source: HMMH and SH&E, 2008.

* Includes variants B727, B721, and B722

As shown in Table 2-2, the operational noise limits for 2009 and 2011 would affect only a small number of jet operations in those respective years, but would affect a larger number of operations in 2014 and 2016 because the 2014 and 2016 limits would apply to a greater number of operations—those of older Gulfstream and Learjet aircraft that operate frequently at VNY. The number of affected operations decreases from 2014 to 2016 because the decrease in the number of older aircraft due to anticipated aircraft retirements would have a greater impact than the additional reduction in takeoff noise limits proposed by the project ordinance. As a result, 2014 is the planning year with the greatest effect on noisier jet operations at VNY, causing the greatest reduction in operations and, therefore, causing the greatest number of diversions to three of the identified diversion airports—BUR, LAX, and CMA, as described below. Analyzing the ordinance's impacts during this year provides a worst-case scenario of project impacts at the three airports anticipated to handle the diverted traffic.

At two other diversion airports—CNO and WJF—project-related diversions from VNY are not anticipated to occur until 2016. As discussed previously, the proposed ordinance includes exemptions that would permit certain noisy jet aircraft to operate at VNY until 2016, but not thereafter. Rather than causing the affected aircraft to be taken out of service, the expiration of the exemptions is expected to move the aircraft operations to other airports in the region in 2016. Therefore, 2016 is the first year in which impacts are anticipated to occur at CNO and WJF. Diversions would continue to occur after 2016, but they are estimated to be lower as time goes on due to the retirement of older aircraft anticipated to occur independent of the project. For this reason, the EIR focuses on 2014 as the planning year for VNY, BUR, LAX, and CMA[5]; and it focuses on 2016 for CNO and WJF. These airports are described below in Section 2.2.

[5] While 2014 would be the year of the greatest diversions at BUR, LAX and CMA, it is important to note that these airports would continue to be affected by the ordinance beyond 2014, but to a lesser extent (See Table 2-2).

2.1.4.2 VNY Operational Changes

Aircraft Operations Subject to Maximum Noise Levels

Operators of aircraft at VNY that exceed the proposed project takeoff noise limits would respond to the proposed restriction in one of three ways: 1) retire the current aircraft and replace it with one that meets the proposed limits; 2) modify the current aircraft by installing a hushkit[6] that enables it to meet the proposed noise limits and continue to operate the aircraft at VNY; or 3) shift operations to another airport in the region. Aircraft owners who operate frequently at VNY are expected to replace or hushkit their aircraft so they can continue to operate at VNY. Aircraft owners who operate less frequently at VNY are expected to shift to diversion airports in the greater southern California region. According to aircraft owner and operator surveys conducted in 2006, approximately 342 general aviation jet aircraft that exceed the 2016 noise restrictions currently operate out of VNY. Of these, 205 aircraft had only one or two VNY flights, 87 had between 3 and 11 flights, and 50 flew 12 or more flights at VNY. Owners of the 50 noisy aircraft that flew 12 or more flights (24 or more operations) are expected to replace or hushkit their aircraft so they can continue to operate at VNY. The others are expected to shift to other airports to avoid the cost of replacing or hushkitting their aircraft. Table 2-3 shows the projected operations of affected aircraft, comparing replacements or hushkit installations that remain at VNY to those operations that are anticipated to shift to another nearby airport.

Table 2-3. Changes in General Aviation Jet Aircraft Operations Due to the Proposed Project

	2009	2011	2014	2016
Replace or Hushkit Aircraft	0	0	1,620	1,350
Shift to Another Airport	38[1]	42[1]	369[1]	536[2]
Total	38	42	1,989	1,886

Notes:
1: All shifts to BUR, LAX, or CMA
2: Includes 176 shifts to BUR, LAX, or CMA; and 360 shifts to CNO or WJF
Source: HMMH and SH&E, 2008

The operational noise limits for 2009 and 2011 would only affect a small number of operations at VNY, and these operations are expected to shift to other airports. The noise limit for 2014 would affect an estimated 1,989 operations. Operators are expected to replace or hushkit the aircraft that account for 1,641 or 82% of these operations, with 348 operations expected to shift to other airports. The noise limit for

[6] Hushkits are devices designed to reduce aircraft engine noise, typically using exhaust mixers, acoustically treated tailpipes, revised inlet nacelles and guide vanes to reduce the noise generated by older, low-bypass jet engines.

2016 would affect 1,886 operations (not accounting for the operations reduction due to the ordinance's proposed 2014 limit). As would be the case in 2014, operators would replace or modify the noisy aircraft responsible for most of these operations, with 536 operations shifting to other airports in 2016. While the number of total estimated 2016 diversions is higher than the estimate for 2014, 176 of these would be diversions to BUR, LAX, or CMA that were already accounted for in the 2014 number; the remaining 360 would be diversions to CNO or WJF newly occurring in 2016.

Aircraft Operations Exempt from Maximum Noise Levels

The proposed project would allow exemptions that would permit operations at VNY by five groups of aircraft that exceed the takeoff noise limits: 1) military- and emergency-related operations; 2) permanently departing aircraft; 3) historic aircraft first flown before 1950 (piston-powered aircraft are expected to conduct all historic aircraft operations at VNY); 4) historic former military aircraft first flown in 1950 or later that are now privately owned; 5) aircraft being repaired or undergoing major maintenance at VNY; and 6) any aircraft sufficiently documented as not exceeding the respective noise limits in place during the phaseout periods. No expirations would be imposed on the military- and emergency-related exemptions, or on the exemption for permanently departing aircraft. The pre-1950 historic-aircraft exemption has no expiration date but is subject to review on or before January 1, 2019, and every ten years thereafter. The exemptions for the former military aircraft (first flown in 1950 or later) and for the repair-related operations would both expire in 2016, pursuant to the proposed ordinance. Operators would require a permit from the airport to conduct repair-related operations for aircraft that exceed the project noise limits. Section 5.3(g) of the draft ordinance describes the specific provisions of this prior-permission process in detail.

Table 2-4 shows the forecast of noisy jet operations that the proposed project would permit under its privately owned former military and maintenance exemption provisions, which would continue until 2016, when the exemptions expire. Former military jet operations are expected to remain constant at VNY at a low level until 2016. The maintenance exemption is not expected to begin to have an effect on shifting operations from VNY until 2014 because project noise limits would not affect older Gulfstream aircraft operations until that year. The maintenance exemption would give maintenance providers at VNY who specialize in older aircraft more time to adjust their businesses to the new restrictions, reducing any potential economic costs associated with these restrictions. Both of these exemptions would expire on January 1, 2016.

Table 2-4. Number of Noisier Jet Operations Exceeding the Noise Limits and Remaining at VNY Due to Exemptions for Former Military and Maintenance Operations

Type of Exemption	2009	2011	2014	2016
Former Military	100	100	100	0
Maintenance/Repair	0	0	260	0
Total	100	100	360	0

Source: HMMH and SH&E, 2008

2.1.4.3 Diversion Airports

Operations Shifted in 2014

Based on operational trends and facilities available at existing airports, as well as highway distances and driving times in the southern California region, three airports are expected to receive the aircraft operations that shift from VNY in the peak diversion year of 2014: Bob Hope Airport in Burbank (BUR), Camarillo Airport (CMA), and Los Angeles International Airport (LAX). Table 2-5 shows the number of operations that are expected to shift to each of these three airports as a result of the proposed project in 2014, the year with the greatest number of operations affected at VNY. (Diversion operations caused by the 2014 noise-level limitation would continue to occur at the identified airports during 2016 and thereafter, but diversions are anticipated to be fewer as time goes on because of the non-project-related retirement of older aircraft expected to occur.)

Table 2-5. Shifts in Jet Operations from VNY to Other Airports in 2014

	BUR	LAX	CMA	CNO	WJF	Total
Annual	192	62	115	0	0	369
Daily Average	0.5	0.2	0.3	0	0	1.0

Source: HMMH and SH&E, 2008

The number of flights expected to be shifted in 2014 is limited. With the implementation of the proposed project, BUR is expected to receive an additional 192 operations per year, CMA 115 an additional operations per year, and LAX just 62 additional operations per year. When averaged out per day, this amounts to far less than one additional daily operation at each of the airports.

Exemption-Related Operations Shifted in 2016

The maintenance aircraft and former military aircraft operations that would no longer be permitted after the exemptions expire are expected to shift to other airports in the region. In 2016, 102 former military aircraft operations would be expected to shift to Chino Airport (CNO), located approximately 60 miles east of Van Nuys in Chino because one of the historic aircraft exemptions expires that year. CNO currently has two aviation museums and a number of businesses engaged in restoring old aircraft, including former military aircraft, and is likely to attract the former military aircraft affected by the project because of the availability of facilities and personnel dedicated to the upkeep of these historic aircraft. In addition, 260 maintenance-related operations of Gulfstream 2 and Gulfstream 3 jets are expected to shift to William J. Fox Airfield (WJF) located in Lancaster, approximately 60 miles northeast of Van Nuys, when the maintenance exemption expires in 2016. When interviewed as part of environmental review for this project, one of the primary maintenance providers at VNY that conducts major maintenance on these Gulfstream jets, and who would therefore be affected by the exemption expiration, expressed a preference to develop facilities at WJF that would accommodate aircraft no longer permitted to conduct maintenance operations at VNY. Table 2-6 shows the number of operations that are expected to shift as a result of the proposed project in 2016. As with the estimated 2014 shifts listed above in Table 2-5, the shifts of former military aircraft and maintenance aircraft operations would, on average, amount to less than one operation per day at each of the affected airports.

Table 2-6. Exemption-Related Shifts in Jet Operations from VNY to Other Airports in 2016

	WJF	CNO	Total
Per Year	260	100	360
Per Day	0.7	0.3	1.0

Source: HMMH and SH&E, 2008

2.2 Project Location and Diversion Airports

While the proposed phaseout of noisier aircraft would occur at VNY, the reduction in aircraft operations at that airport is expected to shift some operations to five other airports—termed "diversion airports"—located elsewhere in the greater Southern California region, including BUR, LAX, CNO, and WJF. VNY and the five diversion airports potentially affected by the proposed project are briefly described below, while a more complete discussion of the existing conditions and environmental setting at each of these airports is presented in Chapter 3.

The process of selecting the likely diversion airports for analysis in this EIR entailed the initial identification of 16 facilities within approximately 60 driving miles of Van Nuys, as well as a review of the airports' characteristics that would make them

attractive or accommodating to aircraft phased out from operating at VNY. These characteristics include their current level of jet aircraft activity, the lengths and widths of their runways, the availability of jet fuel, driving distance and travel time from VNY, and the existence of any noise restrictions that would preclude diverted VNY aircraft from operating at the respective airports.

Review of these considerations led LAWA to screen out most of the initially identified facilities as unlikely to receive VNY diversions. Regional facilities that were considered unlikely to serve as diversion airports and thus were eliminated from analysis in this EIR are Hawthorne, John Wayne Orange County, Long Beach, Ontario, Oxnard, and Santa Monica. Figure 2-2 provides a regional location map of the diversion airports and those airports screened out from further consideration. Additional detail of the methodology and conclusions for identifying diversion airports can be found in Section 7.2 of the Noise Repot (Appendix B of this EIR). VNY and the five airports that were considered the most likely diversion candidates to accommodate phased-out VNY aircraft are discussed below.

2.2.1 Van Nuys Airport (VNY)

Van Nuys Airport is located in Van Nuys, a community within the City of Los Angeles located in the San Fernando Valley. The airport is approximately 1 mile west of the Interstate-405 (I-405) freeway and 21 miles northwest of downtown Los Angeles.

The airport is owned and operated by LAWA, which also owns and operates Los Angeles International Airport (LAX) and L.A./Ontario International Airport (ONT), and which operates the passenger airline terminal at L.A./Palmdale Regional Airport (PMD). VNY serves as a reliever airport and has no commercial service.[7] VNY has a control tower and two parallel runways, Runway 16R-34L (8,001 by 150 feet) and Runway 16L-34R (4,001 by 75 feet) used mainly for light piston aircraft operations.

VNY is located in an area that is fully developed, primarily with residential and commercial uses, and therefore is one of 10 "noise problem" airports in California, as defined by the provisions of the California Airport Noise Standards (California Code of Regulations [CCR], Title 21, Section 5000 *et seq*.).[8]

2.2.2 Bob Hope Airport (BUR)

Bob Hope Airport is located approximately 9 miles east of VNY in the City of Burbank. BUR is classified by the FAA as a medium hub airport[9] and provides passenger airline, all-cargo, and general aviation service. The airport is owned and

[7] A reliever airport is an FAA category identifying general-aviation facilities that serve to offload small-aircraft traffic from larger hub airports, such as LAX and BUR.
[8] Available on the California Department of Transportation Aeronautics Division website: http://www.dot.ca.gov/hq/planning/aeronaut/htmlfile/avnoise.php (accessed June 2008).
9 Medium hub airports enplane between 0.25% and 1% of total US revenue passenger traffic.

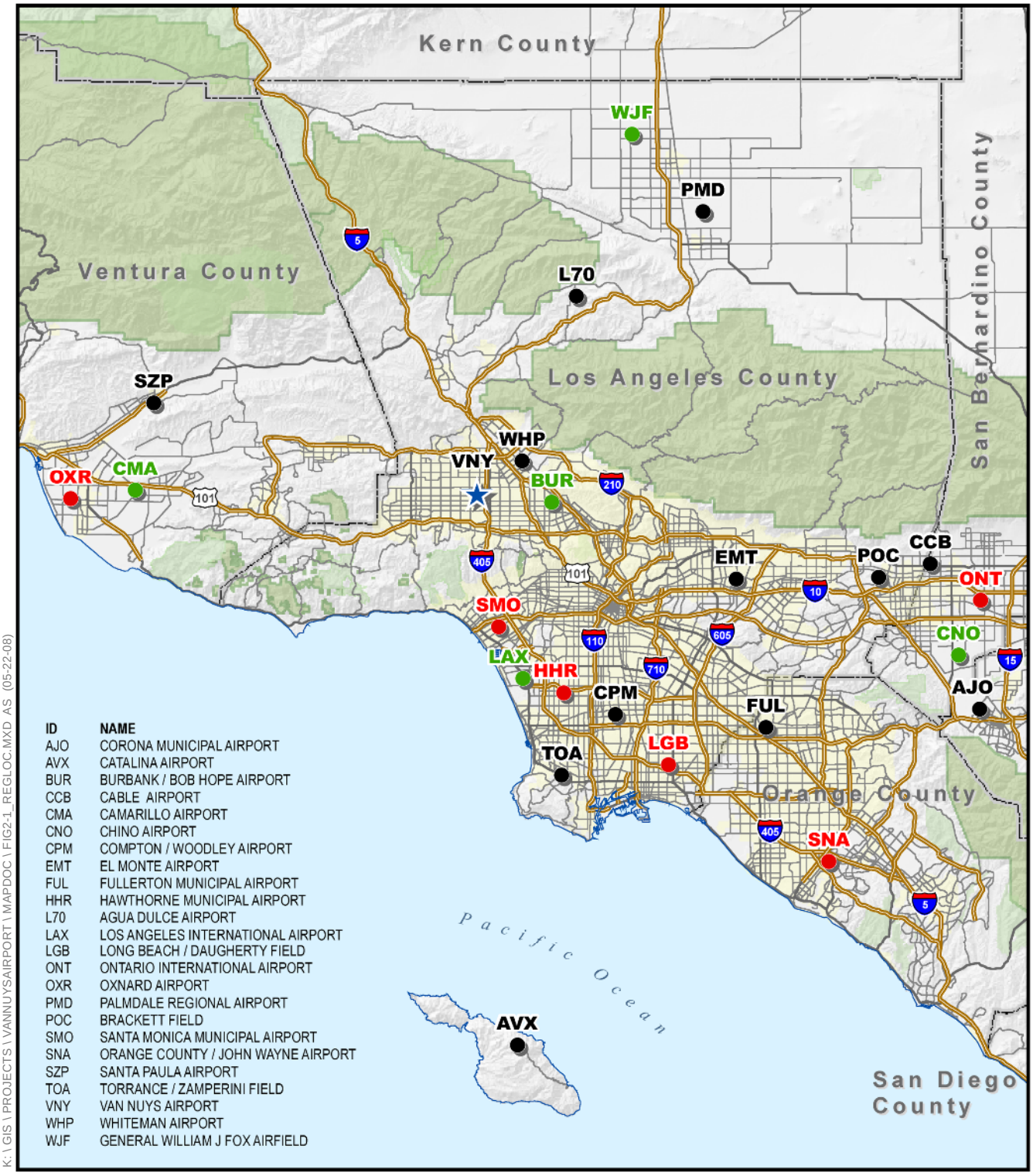

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Figure 2-2
Regional Airports Considered
Van Nuys Airport Noisier Aircraft Phaseout EIR

operated by the Burbank-Glendale-Pasadena Airport Authority. BUR has two intersecting runways, Runway 15-33 (6,886 by 150 feet) and Runway 8-26 (5,801 by 150 feet).

Like VNY, BUR is located in a developed area, and is also considered to have a noise problem as defined by the provisions of the California Airport Noise Standards. BUR is in the process of submitting a Part 161 Study to the FAA requesting approval for a nighttime curfew. BUR was identified as a potential receptor of project-related VNY aircraft diversions because of a combination of BUR's short driving distance to VNY and the presence of facilities and fuel that would accommodate diverted general aviation aircraft.

2.2.3 Los Angeles International Airport (LAX)

Los Angeles International Airport is located approximately 22 miles south of VNY and 15 miles southwest of downtown Los Angeles. It is classified by the FAA as a large hub airport[10] and provides passenger airline, all-cargo, and general aviation service. The airport is owned and operated by LAWA. LAX has four parallel runways: Runway 7L-25R (12,091 by 150 feet); Runway 7R-25L (11,095 by 200 feet); Runway 6R-24L (10,285 by 150 feet) and Runway 6L-24R (8,925 by 150 feet).

Like VNY and BUR, its proximity to development means that LAX is listed by the state as a noise-problem airport. LAX is conducting a Part 161 Study to analyze the benefits and costs of restricting certain nighttime aircraft departure operations. LAX was identified as a potential receptor of project-related VNY aircraft diversions because of a combination of LAX's short driving distance to VNY and the presence of facilities and fuel that would accommodate diverted general aviation aircraft.

2.2.4 Camarillo Airport (CMA)

Camarillo Airport is a general aviation facility owned and operated by the County of Ventura Department of Airports. CMA is located in the City of Camarillo approximately 43 miles west of VNY and is classified by the FAA as a reliever airport.

The airport has a control tower and a single runway, Runway 8-26 (6,013 by 150 feet). Airport noise abatement procedures do not permit aircraft departures between midnight and 5:00 AM without prior approval from the facility's Airport Director. CMA was identified as a potential receptor of project-related VNY aircraft diversions because of a combination of CMA's short driving distance to VNY and the presence of facilities and fuel that would accommodate diverted general aviation aircraft.

[10] Large hub airports enplane at least 1% of total US revenue passenger traffic.

2.2.5 Chino Airport (CNO)

Chino Airport is a general aviation facility owned and operated by the San Bernardino County Department of Airports. It is located 3 miles southeast of the City of Chino approximately 60 miles east of VNY. CNO is classified by the FAA as a reliever airport. The airport has a control tower and three runways: Runway 8R-26L (7,000 by 150 feet), Runway 8L-26R (4,858 by 150 feet), and Runway 3-21 (4,919 by 150 feet). CNO was identified as a potential receptor of the project-related diversions of former military aircraft operations from VNY (when the ordinance's proposed exemption expires in 2016) because CNO currently has two aviation museums and a number of businesses engaged in restoring old aircraft, including former military aircraft, creating an inviting atmosphere for these project-related diversions.

2.2.6 General William J. Fox Airfield (WJF

General William J. Fox Airfield is a general aviation facility located in Lancaster approximately 60 miles northeast of VNY. WJF is owned by the County of Los Angeles Department of Public Works and is operated under contract by American Airports Corporation. The airport has a control tower and single runway, Runway 6-24 (7,201 by 150 feet). WJF was identified as a likely receptor of the project-related diversions of operations from VNY related to major maintenance and repairs (when the ordinances' proposed exemption expires in 2016) because one of the primary maintenance providers at VNY that services the Gulfstream jets potentially affected by the exemption's expiration expressed a preference to develop facilities at WJF that would accommodate aircraft no longer permitted to conduct maintenance operations at VNY. WJF would be regionally accessible to aircraft operators needing major maintenance and repairs for these jets.

2.3 Project Objectives

Pursuant to CEQA Guidelines Section 15124(b), LAWA has identified the following objectives for the project:

- Reduce aircraft noise impacts on areas near VNY, particularly the impacts on residential areas.
- Limit the burden on aircraft owners and operators by reducing takeoff noise limits incrementally over the span of several years.
- Limit the burden on maintenance providers at VNY by providing exemptions for maintenance-related operations until 2016.
- Reinforce compliance with noise limitations by providing a feasible program of penalties for violators.
- Support the goal of the VNY Master Plan to accommodate military aircraft older than 1950 by including an exemption for historic aircraft.

2.4 Required Approvals

Implementing the proposed phaseout program requires approval by the following bodies and agencies. The bodies listed below will use this EIR to consider the project's potential environmental effects prior to taking action on approving or denying the project.

- LAWA Board of Airport Commissioners
- Los Angeles City Council
- Mayor of Los Angeles

3.0

ENVIRONMENTAL SETTING

This chapter provides a general description of the physical setting at VNY and each of the five diversion airports. For this general discussion, the physical setting is described in terms of conditions as they were known to exist when the NOP was filed and submitted in October 2007. Where aircraft operational data is given, in some cases the most current data available is from 2006. Additional detail of the existing conditions at VNY and the diversion airports as they relate to noise and air quality impact analysis is provided in Sections 4.2 and 4.3, respectively.

3.1 Van Nuys Airport (VNY)

Van Nuys Airport (VNY) is a 740-acre general aviation facility owned and operated by Los Angeles World Airports (LAWA). The airport is located in the west-central portion of the City of Los Angeles' incorporated boundaries, approximately 25 miles northwest of downtown Los Angeles in the center of the San Fernando Valley. The airport is generally bounded by Roscoe Boulevard on the north, Victory Boulevard on the south, Balboa Boulevard on the west, and Woodley Avenue on the east.

The area surrounding VNY is built out—developed with a combination of residential, commercial, industrial, and public uses, single-family residential being the predominant use. Much of the land immediately surrounding the airport is developed with light industrial and commercial manufacturing uses, with golf courses and public park land located immediately to the south.

VNY has been cited as the world's busiest general aviation airport, averaging approximately 400,000 aircraft operations per year. Between 2000 and 2006, business jet operations at VNY increased by an annual average of 8.1%, which is comparable to the 8.7% annual average seen throughout the Los Angeles area. A total of 764 aircraft were based at VNY in 2006. Airport facilities include two runways—an 8,001-foot primary runway (Runway 16R-34L) and a 4,000-foot training runway (Runway 16L-24R). There are approximately 100 businesses located within the airport property, including five major fixed-base operators that provide aircraft storage and parking, aviation fuel, aircraft sales, flight instruction, aircraft charter and aircraft maintenance.

A partial nighttime curfew is in place at VNY that affects Stage 2 and Stage 3 jets. Stage 2 jets are prohibited from departing between of 10 p.m. and 7 a.m.; Stage 3 jets are prohibited from departing between 11 p.m. and 7 a.m., unless their certificated departure noise rating is below 74 dBA. Medical life flights, military aircraft, and government-owned aircraft involved in emergency operations (fire, law enforcement, and search & rescue) are exempt from the curfew. There is no curfew on arrivals.

Figure 3.1 shows the FAA Airport Diagram for VNY.

3.2 Diversion Airports

3.2.1 Bob Hope Airport

Bob Hope Airport (BUR)—also known as Burbank-Glendale-Pasadena Airport—is a commercial and general aviation facility owned and operated by the Burbank-Glendale-Pasadena Airport Authority, a government agency operating under a joint-powers agreement between those three cities. BUR is located approximately nine miles east of VNY in the northwestern corner of the City of Burbank corporate limits and adjacent to the City of Los Angeles communities of Sun Valley and North Hollywood.

Aircraft operations at BUR include commercial passenger and cargo flights, as well as general aviation flights, with a recent count indicating 107 general aviation aircraft are based there. Approximately 125,700 total operations occurred at BUR during the 12-month period ending in October 2007, and approximately 19,900 business-jet operations (17% of Los Angeles-area operations) occurred in 2006. Within its approximately 610-acre footprint, the airport features two runways, two commercial terminals, and two general aviation terminals. A voluntary noise curfew is imposed at BUR between 10:00 pm and 7:00 am.

BUR is located in an area that is primarily developed, and the airport is immediately surrounded by industrial and commercial development to the east, residential development to the west, industrial development and a cemetery to the south, and industrial and residential development to north. Figure 3.2 shows the FAA Airport Diagram for BUR.

3.2.2 Los Angeles International Airport

Los Angeles International Airport (LAX) is a major commercial and general aviation facility that like VNY is owned and operated by LAWA. It is located along the Pacific coast within the boundaries of the City of Los Angeles, approximately 20 miles south of VNY. The 3,900-acre facility features nine terminals and four runways, and accommodates a large volume of passenger and cargo flights; the airport is the world's fifth busiest in terms of passenger service and ranks 11th internationally in cargo tonnage. LAX handled just under 657,000 total airport

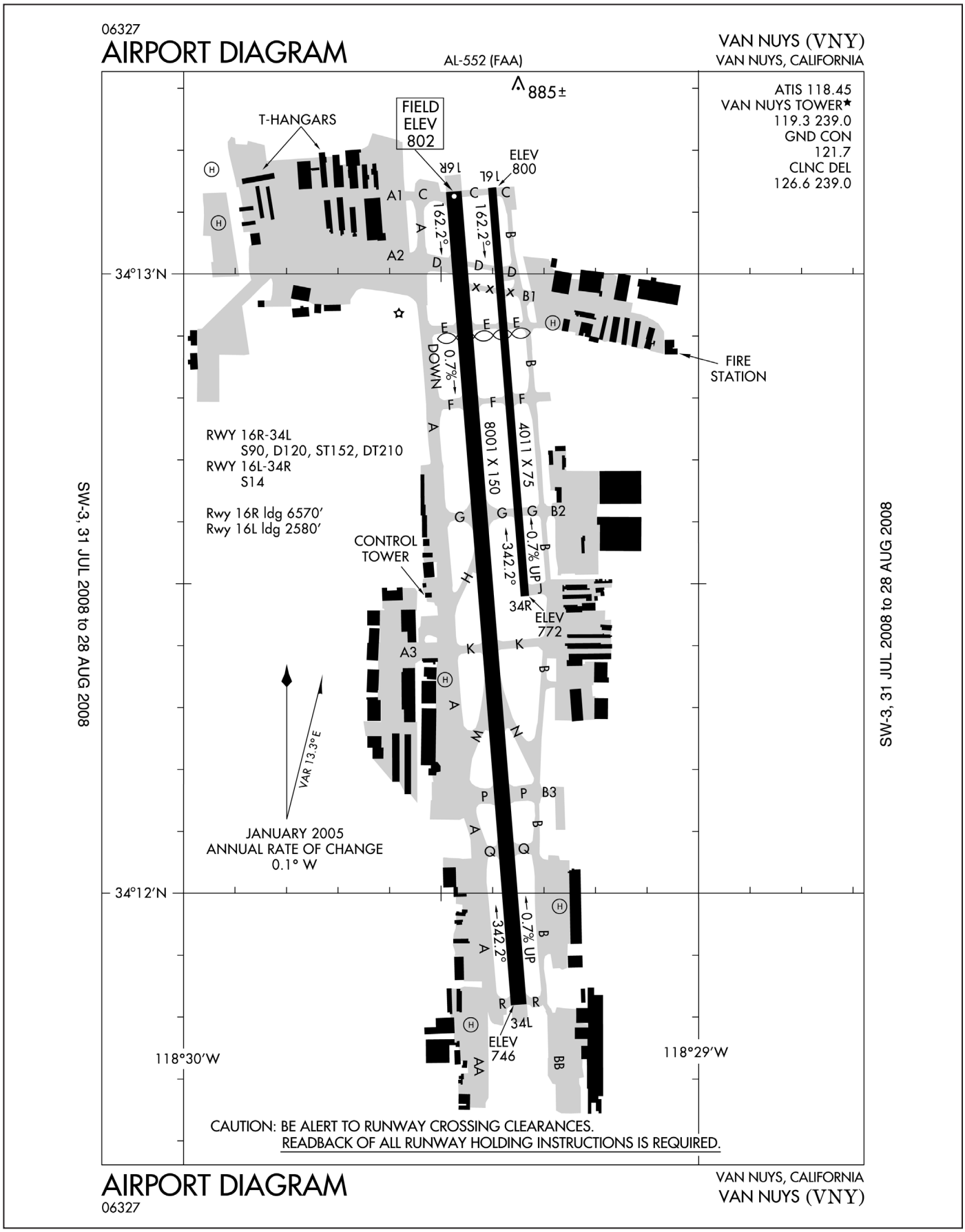

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Figure 3-1
FAA Airport Diagram for VNY
Van Nuys Airport Noisier Aircraft Phaseout EIR

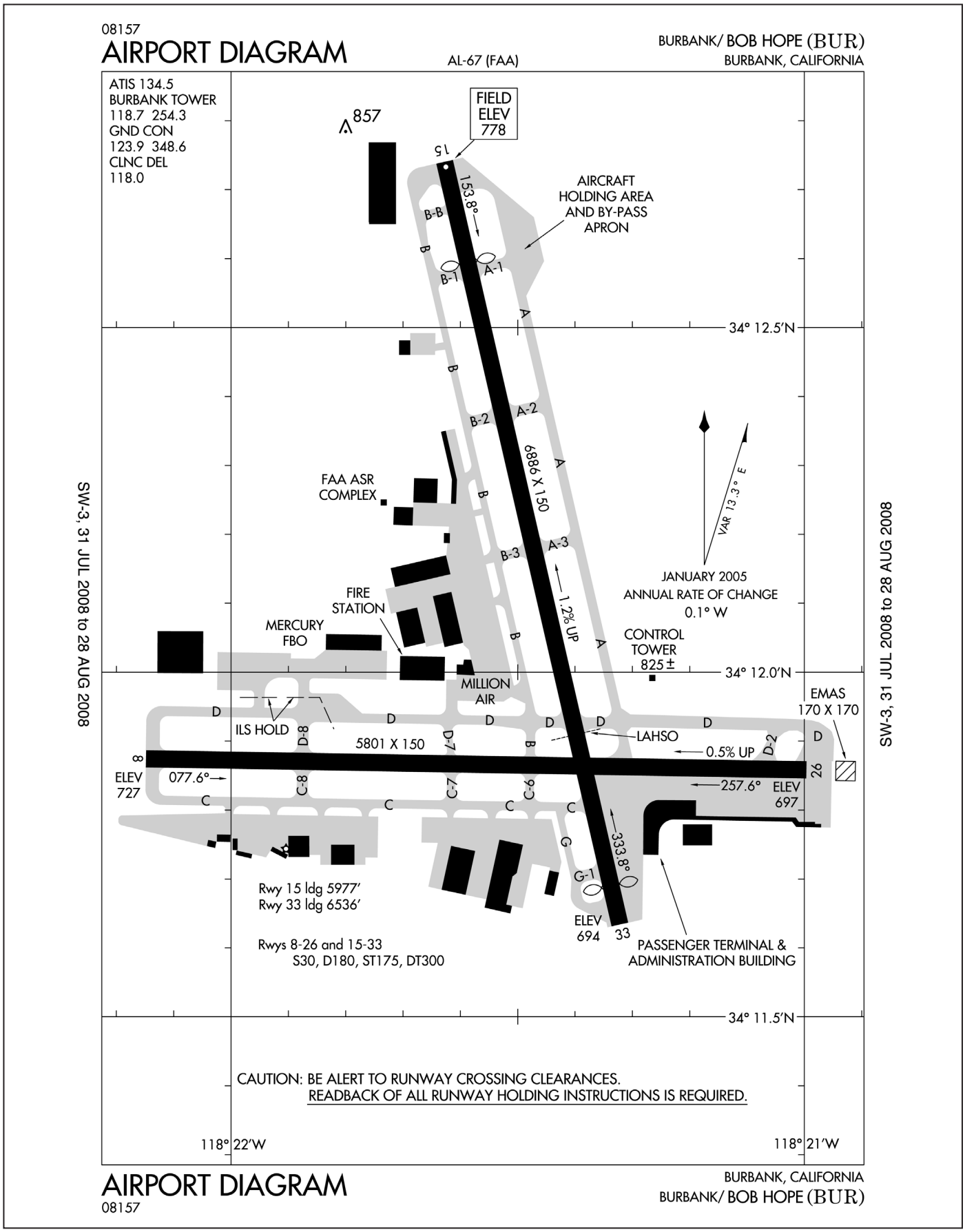

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Figure 3-2
FAA Airport Diagram for BUR
Van Nuys Airport Noisier Aircraft Phaseout EIR

operations in 2006, including an estimated 20,250 business jet operations, or approximately 17% of such operations occurring within the Los Angeles area.

LAX is located in a primarily built out area, with the surrounding lands developed with a mixture of residential, commercial, industrial, and public uses, and the undeveloped Los Angeles/El Segundo dunes located directly to the west of the airport. The airport is surrounded by the community of Westchester to the north, the City of El Segundo to the south, the City of Inglewood to the east, and the Pacific Ocean to the west. Figure 3.3 shows the FAA Airport Diagram for LAX.

3.2.3 Camarillo Airport

Camarillo Airport (CMA) is located in the southwestern corner of the City of Camarillo corporate limits, bordering unincorporated Ventura County land, and is approximately 40 miles west of VNY. It is a general aviation facility owned and operated by the County of Ventura Department of Airports. The airport does not accommodate commercial passenger flights, but the airport is classified by the FAA as a reliever airport for the Los Angeles area, meaning that it serves to relieve congestion at commercial service airports located in the region.

A recent count indicates there are 564 general aviation aircraft based at CMA. Approximately 154,000 aircraft operations occurred during the 12-month period ending in June 2006, and the airport had 4,650 business jet operations during 2006 (approximately 4% of such operations throughout the region). The airport features two runways and encompasses a 670-acre footprint. Takeoffs are prohibited at CMA between midnight and 5:00 am.

CMA is located just south of U.S. Highway 101 in an area that is partially developed. Agricultural land in active row-crop production surrounds CMA to the west, south, and east. The western and southern agricultural land is within the jurisdiction of the County of Ventura, while the eastern agricultural land is within the jurisdiction of the City of Camarillo. Land immediately north of the site is developed for industrial and commercial uses, and single-family development is located further northeast of the airport. Figure 3.4 shows the FAA Airport Diagram for CMA.

3.2.4 Chino Airport

Chino Airport (CNO) is located in the southern portion of the City of Chino corporate limits in southwestern San Bernardino County, approximately 60 miles east of VNY. It is a general aviation facility owned and operated by the County Department of Airports, with no commercial passenger operations, and is categorized as a reliever airport for the nearby Ontario International Airport.

By recent count, 620 general aviation aircraft are based at CNO. Approximately 165,000 total aircraft operations occurred there during the 12-month period ending

June 2007, with approximately 1,480 business jet operations (1% of business operations throughout the region). CNO covers approximately 1,100 acres and maintains three runways. Two aviation museums are associated with the airport, which is a popular center for restoration of older and historic aircraft. There are no noise restrictions in effect at CNO.

CNO is located approximately three miles southeast of central Chino, within an area characterized by open space, active agricultural land, and industrial development, with some residential development located south of the airport. Land south and southeast of the airport is designated for future residential and commercial development. Figure 3.5 shows the FAA Airport Diagram for CNO.

3.2.5 William J. Fox Airfield

General William J. Fox Airfield (WJF) is a one-runway, general aviation facility located on approximately 1,200 acres in the incorporated boundaries of the City of Lancaster in northern Los Angeles County, approximately 60 miles northeast of VNY. It is owned and operated by the County of Los Angeles Department of Public Works. No commercial passenger service is available at WJF.

WJF has approximately 195 general aviation based aircraft, and approximately 82,000 total aircraft operations occurred there during the 12-month period ending in May 2007. Business jet operations totaled approximately 500 during 2006, or less than 1% of the region's business jet operations. The U. S. Forest Service also maintains an air tanker base at the airport. No noise restrictions are in effect at WJF.

WJF is located in an undeveloped area designated for industrial use, and is approximately 3 miles northeast of the developed center of Lancaster. The western boundary of Edwards Air Force Base is located approximately 2 miles northeast of WJF. Figure 3.6 shows the FAA Airport Diagram for WJF.

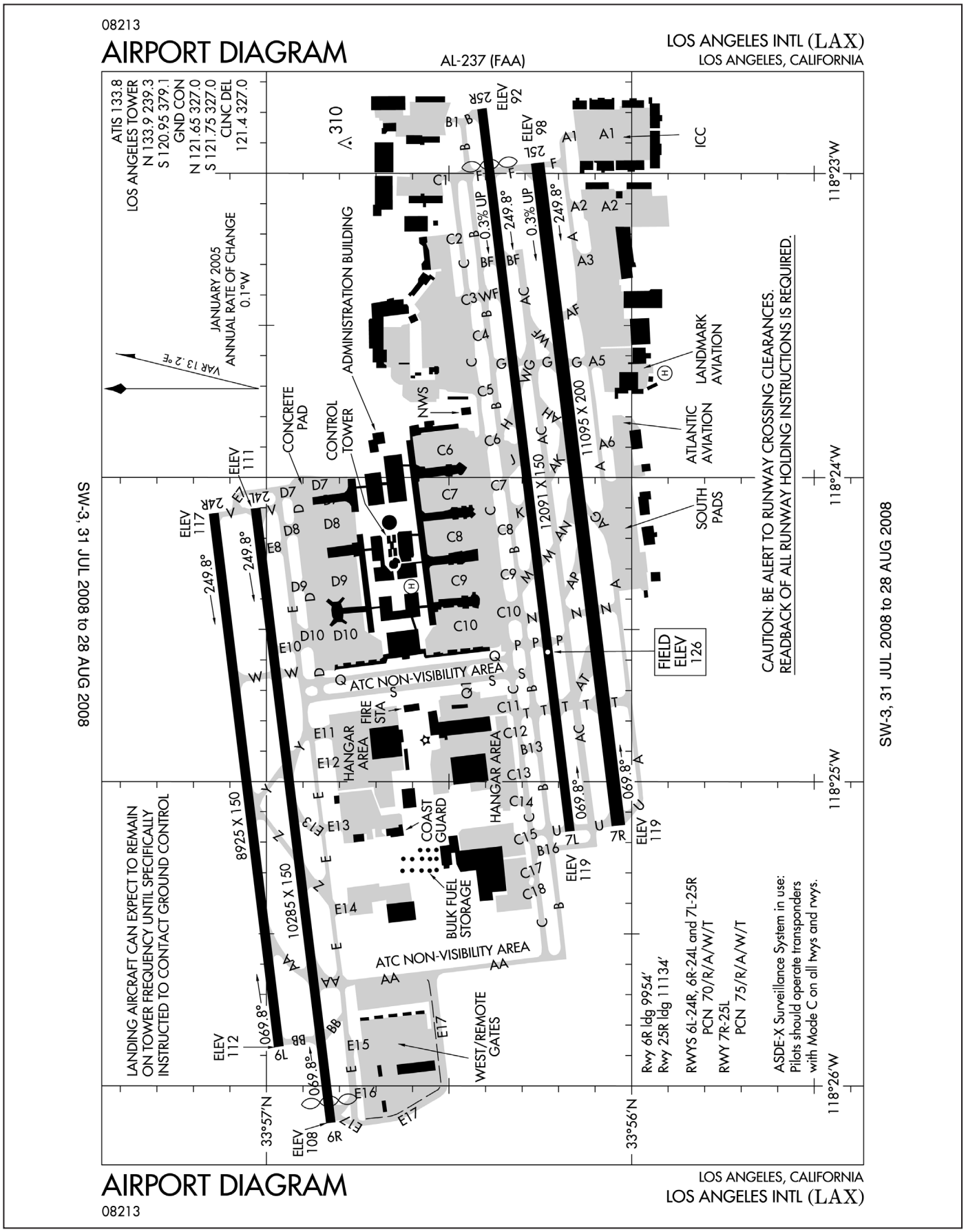

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Figure 3-3
FAA Airport Diagram for LAX
Van Nuys Airport Noisier Aircraft Phaseout EIR

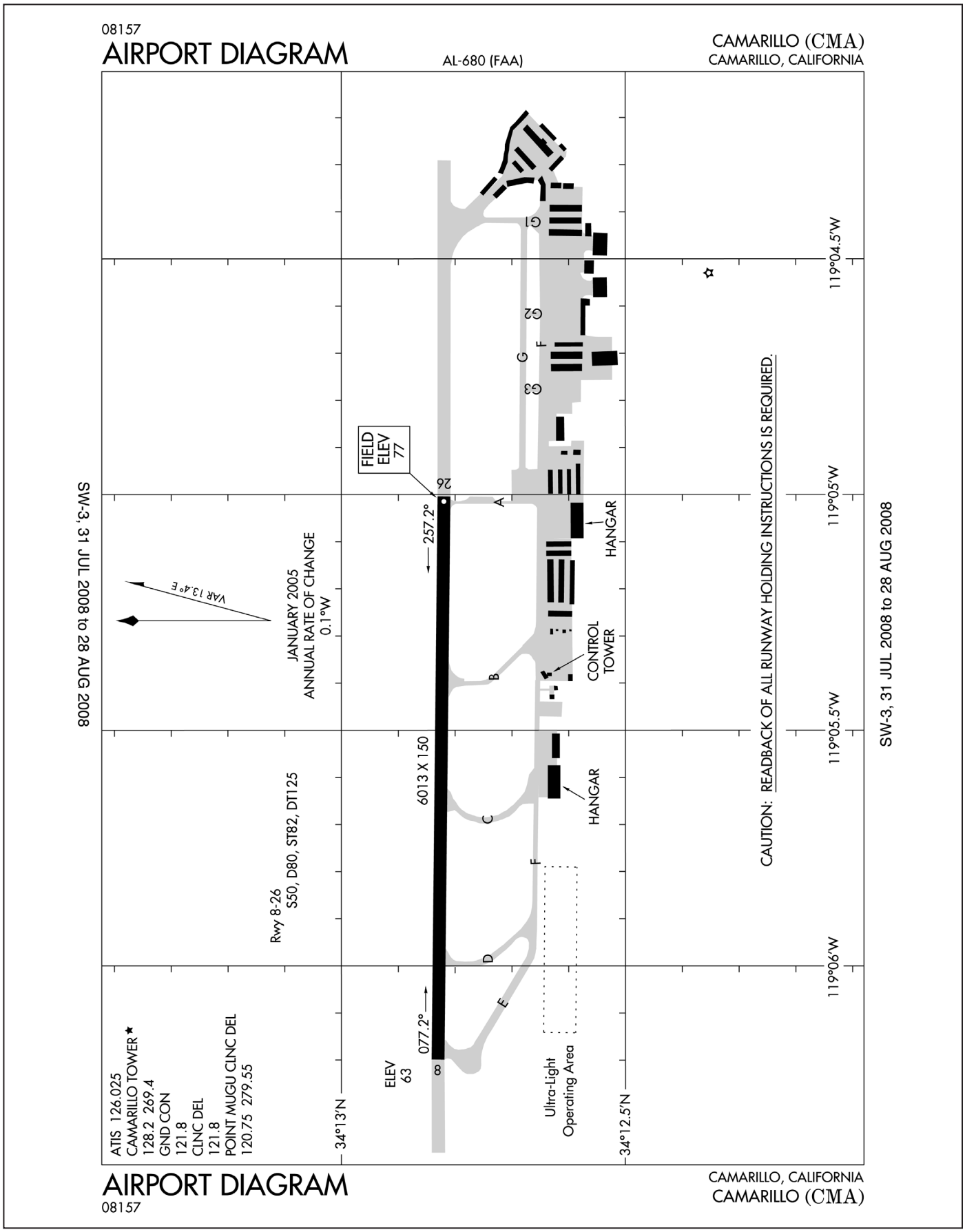

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Figure 3-4
FAA Airport Diagram for CMA
Van Nuys Airport Noisier Aircraft Phaseout EIR

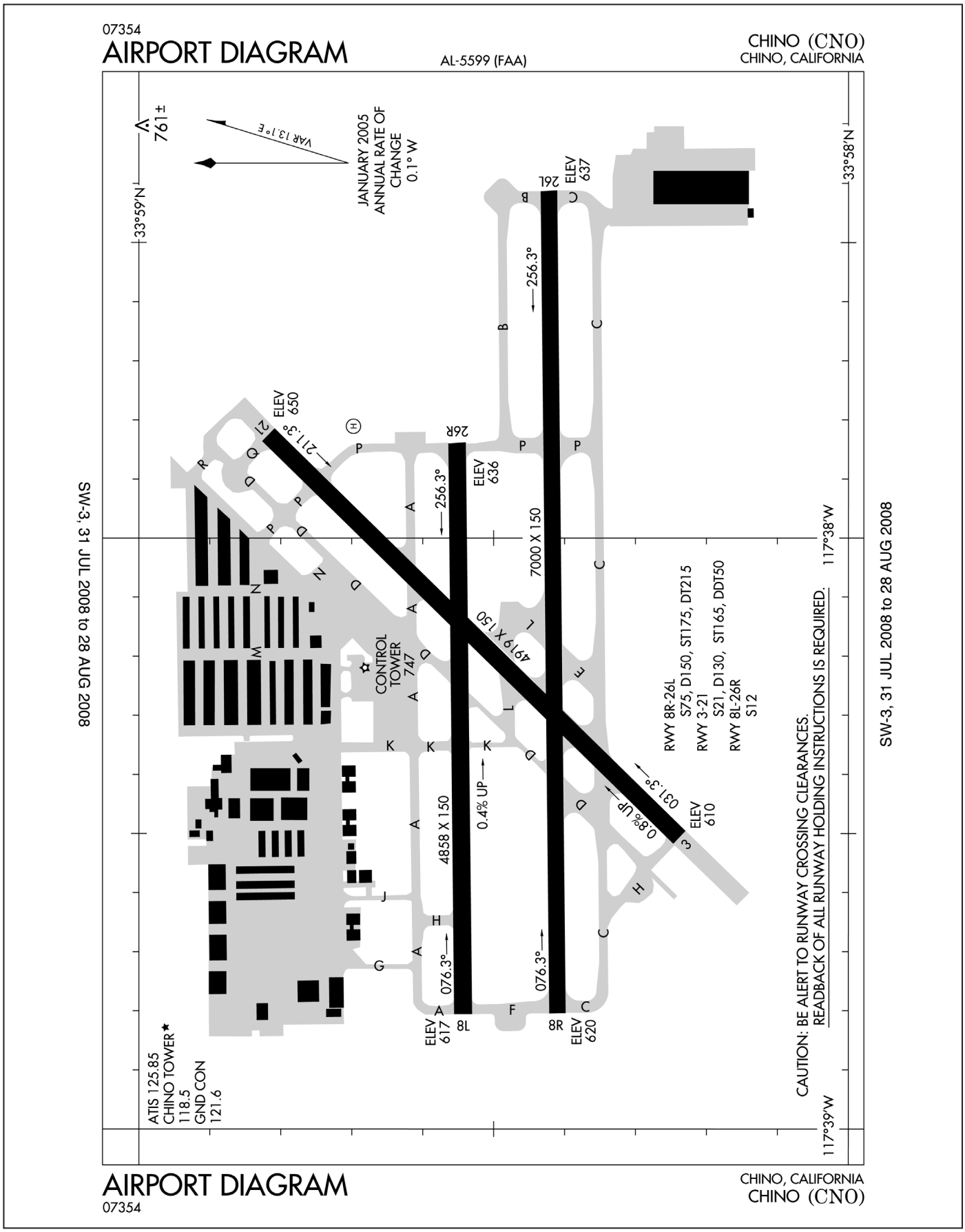

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Figure 3-5
FAA Airport Diagram for CNO
Van Nuys Airport Noisier Aircraft Phaseout EIR

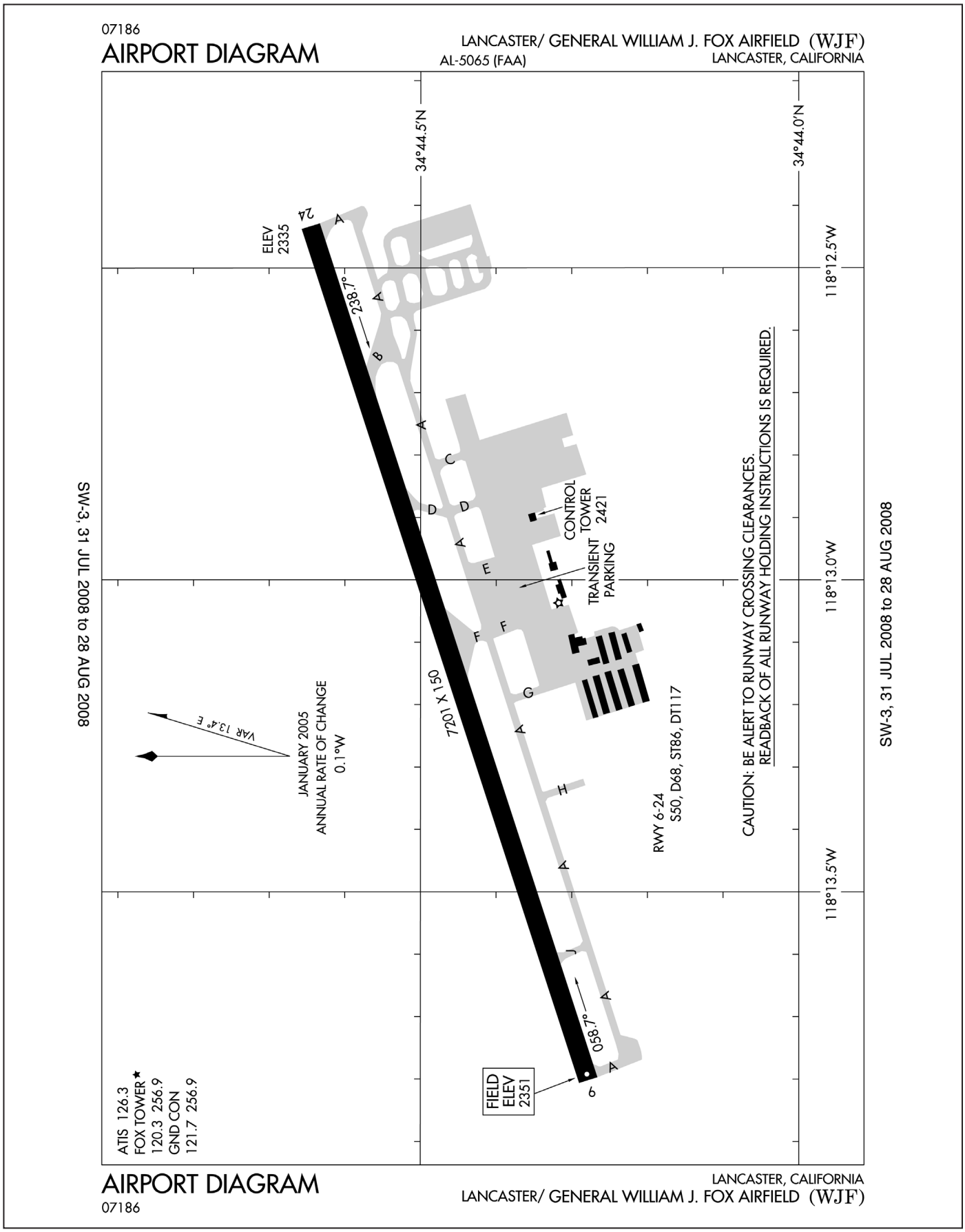

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Figure 3-6
FAA Airport Diagram for WJF
Van Nuys Airport Noisier Aircraft Phaseout EIR

4.0

ENVIRONMENTAL IMPACTS OF THE PROJECT

Chapter 4 provides a discussion of the environmental effects resulting from project implementation, in accordance with Section 15120 of the State CEQA Guidelines. Section 4.1 addresses the environmental impact issue areas for which, during the scoping process, the project was identified as having either no impact or a less-than-significant impact. These include the following:

Noise and air quality were determined during the scoping process to be the issue areas where the project would potentially have significant impacts, and therefore warranted detailed technical analysis in preparation of this EIR. The following sections present these project analyses:

4.1

ENVIRONMENTAL RESOURCES DETERMINED TO BE LESS THAN SIGNIFICANT

Section 15128 of the California Environmental Quality Act (CEQA) Guidelines states that an Environmental Impact Report (EIR) "shall contain a statement briefly indicating the reasons that various possible significant effects of a project were determined not to be significant and [are] therefore not discussed in detail in the EIR." The following section presents a discussion of the environmental resource areas that were identified as not having the potential for significant impacts as a result of the VNY Noisier Aircraft Phaseout project during the initial review of the project by the CEQA lead agency, Los Angeles World Airports (LAWA), the CEQA lead agency. In addition, the scoping process for the project, described in Chapter 1 of this EIR, did not indicate the need to address the environmental resources discussed below.

Because the project does not propose or require any development or other physical modification at VNY or the other airports anticipated to receive diverted aircraft over time, many of the environmental considerations that are typically evaluated as part of the CEQA process are not applicable to this project. For the reasons stated below, the proposed project would have no impact or a less-than-significant impact on aesthetics, agricultural resources, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, mineral resources, population/housing, public services, recreation, transportation/ traffic, and utilities/service systems.

4.1.1 Aesthetics

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway.

- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

The project proposes no physical development; modification of land, structures, or features; or other prominently visible elements. Therefore, the project would have no effect on scenic vistas, scenic resources, or visual character, and there would be no impact pursuant to the first three criteria listed above. Changes to the visual environment resulting from project implementation would be limited to a slight reduction in aircraft takeoffs and landings at VNY and a very minimal increase in takeoffs and landings at the diversion airports. On average, the increase is anticipated to be less than one aircraft operation per day at each of the diversion airports, which would not be noticeable to viewers in the vicinity of the airports, who are already accustomed to views of aircraft operations in their vicinity. Additional aircraft operating at the diversion airports would not create a substantial new source of light or glare. Some activity may occur at night time, including in the vicinity of residences. Aircraft are equipped with headlamps and other lights for safety purposes, but nighttime aircraft activity would be extremely seldom and, furthermore, would not result in lights being shined into residential receptors. Therefore, there would be no aesthetic impacts.

4.1.2 Agricultural Resources

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use.
- Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract.
- Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

The project proposes no development, change in land use, or other component that would affect agricultural resources. Therefore, the project would not result in direct conversion of Farmland to non-agricultural uses or conflict with agricultural zoning or a Williamson Act contract. Of the affected airports, CMA, CNO, and WJF are located in areas that support agricultural operations, with row crops grown adjacent to the airport sites at CMA and CNO. However, the minimal increase in operations projected at those airports (forecasted at less than one per day at each of the diversion airports) would have no direct or indirect effect on agricultural operations, and would not result in changes that could indirectly result in conversion of farmland to non-agricultural uses. Therefore, there would be no agricultural resources impacts.

4.1.3 Biological Resources

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Have a substantial adverse effect on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

The project proposes no development, clearing, excavation, or other components that would affect vegetation, plants, or wildlife. None of the diversion airports is located adjacent to open space preserves or other areas featuring sensitive biological resources that could be affected by the minimal increase in flight operations, and the associated aircraft activity would have no effect on any such resources. Therefore, the project would have no impact on candidate, sensitive, or special-status species; would have no impact on riparian or other sensitive habitat; would have no impact on wetlands; would not interfere with wildlife movement, migration, or nursery sites; and would not conflict with local plans—including habitat conservation plans—related to biological resources. There would be no biological resources impacts.

4.1.4 Cultural Resources

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- Disturb any human remains, including those interred outside of formal cemeteries?

The project proposes no excavation, construction, or other work that would potentially affect archeological resources that may be present above or below the ground surface at any of the airports. Therefore, there is no potential for the project to affect archaeological resources, paleontological resources, or human remains. The project would not demolish or modify any structures, or entail any other work that would potentially affect any historical resources that may exist at the airports, and there is no potential for the project to affect historical resources. Therefore, there would be no cultural resources impacts.

4.1.5 Geology/Soils

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic groundshaking, seismic-related ground failure, and landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.

The project would not entail any earthwork, erection of structures, or other components that could affect or be affected by the local geological conditions and on-site soils. Because there are no structures proposed by the project, seismic rupture, ground shaking, and ground failure have no bearing on the project, nor do landslides, unstable geologic units, expansive soil. Because the project proposes no earthwork, there would be no impacts with respect to top soil. Because the project proposes no septic tanks, there would be no impacts related to such facilities. Therefore, there would be no geology/soils impacts.

4.1.6 Hazards and Hazardous Materials

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area.
- Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Hazardous materials related to the project are limited to the fuel and other common petroleum products used to power and maintain the aircraft that currently operate at VNY. By shifting aircraft operations from VNY to the diversion airports, the project would slightly reduce the volumes of these chemicals transported, used, and stored at VNY, while minimally increasing such transportation, use, and storage at the diversion airports, in order to accommodate additional operations. No new storage tanks or fueling facilities would be necessary to accommodate this minimal increase in usage, and on-site use and storage of hazardous materials would continue to conform to all relevant federal and state regulations. The proposed project would not entail the use, transport, storage, or disposal of any other hazardous materials, and the minimal increases in materials storage and uses would not create a significant hazard through foreseeable upsets or accidents. Therefore, the impact would be less than significant.

As discussed in Section 4.3.3.5 of this EIR, there are no schools or other sensitive receptors located within ¼ mile of any diversion airports. Therefore, there will be no impact related to hazardous emissions within ¼ mile of a school. The project does not propose any significant source of hazardous emissions or entail handling acute

hazardous substances. The project would result in minimal increases in jet exhaust at the diversion airports, but, as discussed in Section 4.3.5.2 of this EIR, this emission would not constitute a significant health risk. Therefore, the hazardous emissions impact is less than significant.

The project proposes no development or land modification and, therefore, would have no bearing on any hazardous materials location that may be located on or around VNY or the diversion airports. Therefore, there would be no impact.

The project entails a reduction in air traffic volume at VNY and a very minor increase in operations at the receiving airports, all within or in the vicinity of airport land use plans. The project-related increase at the receiving airports, as projected for the 2014 and 2016 planning periods, averages less than one flight per day at each airport—a minimal increase that would not be enough to cause a significant hazards impact due to operation in proximity to existing or planned development.[1] Therefore, this impact would be less than significant. The project is not located in the vicinity of any private air strips, and would have no related impact.

The project proposes no development or other physical components that would affect any emergency response plans existing or place persons or structures in proximity to areas prone to wildfires. Therefore, there would be no impact.

4.1.7 Hydrology/Water Quality

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation onsite or offsite.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or offsite.
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.

1 See Tables 2-5 and 2-6 and associated discussion (Chapter 2 of this EIR) for greater detail on the estimates of annual and daily flight increases at the diversion airports.

- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures that impede or redirect floodflows.
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee/dam.
- Cause inundation by seiche, tsunami, or mudflow.

The project proposes no development, earthwork, alteration of waterways, drainage patterns, or floodplains, or other components that would affect hydrology and water quality in the vicinity of the affected airports. No increases in the amount of impervious surfaces would occur with the proposed project at any of the affected airports. No aspect of the project would result in surface or groundwater pollution or affect groundwater supplies. Because the project entails no construction, it would not place structures within a floodplain, increase flood risk, or cause inundation. Aircraft operations have no bearing on risks related to floods, seiches, tsunamis, or mudflow. Therefore, there would be no hydrology and water quality impacts.

4.1.8 Land Use/Planning

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Physically divide an established community.
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

The project does not propose development at VNY or any of the diversion airports, and therefore would not conflict with existing land use plans for any of the affected airports. The proposed project was contemplated in the 2006 VNY Master Plan.[2] The VNY master plan sets out a noise policy which states: "Establish a maximum daytime noise level for all aircraft operating at Van Nuys Airport of 77 d.b.a., based on takeoff noise levels for each aircraft reported in the most current FAA Advisory Circular 36-3. This measure would effectively eliminate all Stage 2 jets and some Stage 3 jets. Analyze separately the application of a maximum daytime noise limit to Stage 2 and Stage 3 jets to properly assess the costs and benefits of these measures. In addition, evaluate the impact on historic planes" (2006 VNY Master Plan page 12). The proposed project would be consistent with this policy. Consistency with applicable Air Quality Plans is addressed in section 4.3 of this EIR.

2 http://www.vnymasterplan.org/docs/vny_draft_mp.pdf

A slight increase in aircraft operations is anticipated at the five diversion airports, averaging less than one aircraft operation per day at each airport. This increase is not large enough to necessitate construction of new facilities to accommodate the redirected aircraft or its passengers, require revision of airport land use plans, or otherwise generate growth at the affected airports or in their surrounding areas. Therefore, there would be no land use and planning impacts.

The project proposes no development or other component that would physically divide a community, and the project would have no bearing on any habitat conservation plan or natural community conservation plan that may apply to the area surrounding VNY or other alternative airports in the region. Therefore, there would be no related impacts.

4.1.9 Mineral Resources

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

The project proposes no development, excavation, or other components that would deplete mineral resources, nor does it propose development or any other components that would prevent future extraction of any mineral resources that may be present in the vicinity of the affected airports. Therefore, there would be no mineral resource impacts.

4.1.10 Population and Housing

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).
- Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere.
- Displace a substantial number of people, necessitating the construction of replacement housing elsewhere.

The project proposes no demolition of existing development or any other component that would displace any people or housing units, nor does it propose new jobs, extension of infrastructure, or other features that would directly or indirectly induce

growth and require accommodation of future population. Therefore, there would be no population and housing impacts.

4.1.11 Public Services

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection, police protection, schools, parks, or other public facilities.

The project includes no physical elements that would alter existing facilities for fire, police, schools, parks, or other public facilities. The slight increase in aircraft activity at the five diversion airports—an average of less than one more operation per day at each of the airports—would translate into a very minor increase in activity on the ground at these facilities. This, in turn, would present an indiscernible increase in demand for emergency response and police protection services provided by local agencies, including:

- BUR: Burbank Fire Department, Burbank-Glendale-Pasadena Airport Authority Police Department
- LAX: Los Angeles Airport Fire Department, Airport Police Division of LAWA
- CMA: Ventura County Fire Protection District, Ventura County Sheriff's Department
- CNO: Chino Valley Independent Fire District, Chino Police Department
- WJF: Los Angeles County Fire Department, Los Angeles County Police Department

The increase in airport activity would occur at facilities already served by these respective agencies, and would not be of a scale that would overburden the police and fire departments or cause the need for new or expanded facilities. Therefore, there would be no impact on fire and police protection services.

The project proposes no new development that would increase population and subsequent demand on local schools or parks. Therefore, there would be no impact on schools and parks services.

4.1.12 Recreation

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

The project proposes no new development that would increase population and resultant demand on local parks in the vicinity of VNY or any of the diversion airports, nor does the project propose new recreational facilities in these locations. Therefore, there would be no recreation impacts.

4.1.13 Transportation/Traffic

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system.
- Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

The project would result in a slight shift in regional air-traffic patterns, but not of a scale that would present hazardous conditions, overload the diversion airports' facilities, or cause other significant air-traffic impacts.

The project's impact on ground-based traffic would also be very minor. Project-related decrease in aircraft operations at VNY would result in a minimal, unnoticeable reduction in automobile trips in the vicinity of the airport. For instance, it is estimated that during the planning year 2014, approximately 369 aircraft

operations would shift from VNY to other airports (Table 2-3 in Chapter 2, Project Description). Averaged out over the entire year, that is a reduction of slightly more than one operation per day. By the assumption that one aircraft operation equates to one vehicle trip, the project would result in a similar reduction in vehicle trips of slightly more than one per day. This unnoticeable decrease in the amount of vehicle traffic using the local circulation system is a minor beneficial impact of the project. The projected increase of approximately 369 aircraft operations at the three diversion airports would be less than one per day at each of the facilities during the 2014 planning year (Table 2-5 in Chapter 2, Project Description). In 2016, operations would be even less. This would constitute an unnoticeable increase in roadway traffic around the diversion airports, and not one that would substantially increase the amount of traffic in the vicinity of the airports relative to street system capacity or degrade level of service. Increases in 2016 traffic to CNO and WJF would be similarly inconsequential, with an average of 0.7 additional daily operations at CNO and an average of 0.3 daily operations at WJF.

Small increases in vehicular traffic at the diversion airports would not present a strain on existing parking facilities or require expansion of existing parking areas, and would not affect public transportation service or bike routes that may exist in the respective areas. Therefore, there would be no ground-based vehicular traffic impacts.

The very small increase of less than one aircraft operation per day at each of the diversion airports would not represent a significant hazard to existing or planned development in the areas. The project proposes no physical development or physical changes at VNY or the diversion airports; there would be no design features or incompatible uses that could pose hazardous traffic conditions or result in inadequate emergency access. Therefore, there would be no traffic hazard impacts.

4.1.14 Utilities/Service Systems

Appendix G of the State CEQA Guidelines states that a project would have a significant environmental impact if it would

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?

- Result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?
- Comply with federal, state, and local statutes and regulations related to solid waste?

The decrease in aircraft operations at VNY would result in a minor decrease in demand on existing utilities and services provided at the airport, including water, wastewater, and solid waste facilities. The increase in operations at the diversion airports, estimated at less than one per day at each airport, would result in a minor increase in demand on existing utilities and services at the respective facilities, but this demand increase would not be noticeable, and would not burden the existing utilities or cause the need for new or expanded facilities. The project entails no component that would apply to wastewater treatment requirements, require construction or expansion of water or wastewater treatment facilities, require construction of expansion of stormwater drainage facilities. The project would not generate solid waste. Therefore, the utilities and service systems impacts would be less than significant.

4.2

NOISE ANALYSIS

4.2.1 Introduction

This section provides the analysis of the noise impacts that would result from implementing the project. The project would not involve any physical development or change in land use, and would not affect the manner in which operations are conducted at VNY (e.g., runway used, flight path followed, power settings, rates of climb or descent, or other factors that affect the noise exposure associated with a specific operation). Therefore, the only project-related changes in noise exposure at VNY would result from changes in aircraft operations undertaken to comply with the proposed ordinance (Appendix A). As discussed in Chapter 2, these responses would include cancelling operations, moving operations to another regional airport, or substituting quieter aircraft that comply with the limit. As a result the project would decrease aircraft noise levels around VNY. Noise increases at the airports to which operations would be diverted are quantified and assessed.

This section summarizes the analysis and conclusions presented in the Noise Report jointly prepared by HMMH and SH&E in August 2008 (Appendix B of this EIR). Unless otherwise noted, the Noise Report is the source for all technical information presented in this section.

4.2.1.1 Noise Definitions

Noise is generally defined as *unwanted sound*. It may be loud, unpleasant, unexpected, or undesired sound typically associated with human activity that interferes with or disrupts others' activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance and suitability of the noise in a particular setting, the time of day and type of activity during which the noise occurs, and the sensitivity of the individual.

Sound is generally characterized by frequency and intensity. Frequency describes the sound's pitch and is measured in hertz (Hz); intensity describes the sound's level, volume, or loudness and is measured in decibels (dB). Sound frequency is a measure of how many times the crest of a sound pressure wave passes a fixed point each second. For example, when a drummer beats a drum, the skin of the drum vibrates at a certain number of times per second. Sound frequencies between 20 Hz and 20,000 Hz are within the range of perception for a sensitive human ear.

The method commonly used to quantify environmental sounds consists of evaluating all the frequencies of a sound according to a weighting system that reflects the reduced sensitivity of human hearing to low frequencies and extremely high frequencies. This frequency-dependent modification is called A-weighting, and the decibel level measured is called the A-weighted sound level (dBA). In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve. A sound level of 0 dBA is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal conversational speech has a sound level of approximately 60 dBA. Sound levels above about 120 dBA begin to be felt inside the human ear as discomfort and eventually pain at still higher levels.

In general, human sound perception in a community environment is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving sound level. Because of the logarithmic scale of the decibel unit, sound levels cannot be added or subtracted arithmetically. A simple rule of thumb is useful in dealing with sound levels: if a sound's physical intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example, 60 dB plus 60 dB equals 63 dB, 80 dB plus 80 dB equals 83 dB. When 60 dB and 70 dB sources are added, the resulting noise level equals 70.4 dB.

California regulations require use of a decibel-based measure called Community Noise Equivalent Level (CNEL) to describe cumulative noise exposure resulting from aircraft operations.[1] In very simple terms, CNEL is a measure of long-term noise exposure that includes adjustments for increased sensitivity to noise during the evening (7 p.m.to 10 p.m.) and night (10 p.m.to 7 a.m.) time periods. Appendix B.1 of the Noise Report (Appendix B) provides an introduction to CNEL and other noise-related terms used in this EIR. CNEL projections have two principal functions:

- to provide a quantitative basis for assessing land use compatibility with aircraft noise exposure, pursuant to the guidelines of airport proprietors and the respective local jurisdictions, and
- to provide a means for determining the significance of changes in noise exposure that might result from changes in airport layout, operations, or activity levels.

[1] Title 21, California Code of Regulations (CCR), California Airport Noise Standards, Subchapter 6, Noise Standards, Article 1, General, Section 5001, Definitions, p 220.

Noise-sensitive uses are those in which the activities of residents or other occupants require a lower noise level. These include residences, schools, libraries, convalescent homes, transient lodgings, churches, and auditoriums.

4.2.2 Regulatory Setting

The FAA maintains general oversight of airport operations in the United States, but defers to local land use jurisdictions for determination of the noise exposure that is acceptable for any given land use. Despite that deference, most local land use control jurisdictions and airport proprietors (including California, Los Angeles, and LAWA) base aircraft noise and land use compatibility decisions on federal guidelines set forth in Federal Aviation Regulation (FAR) Part 150.[2] Appendix B.3 presents the federal, state, city, and LAWA noise guidelines.

Part 150 defines a two-step process for airport proprietors to follow in order to comply with these noise guidelines: first, identifying land uses that are incompatible with aircraft noise, and then implementing noise reduction (abatement) or noise mitigation measures. While the program is voluntary, there is a significant incentive for airport proprietors to participate, since federal funding is available to assist proprietors in implementing FAA-approved abatement or mitigation measures. Additional explanation of Part 150 is found in Appendix B.3. Table B.3.1 in Appendix B.3 presents a detailed table of noise and land use compatibility criteria adopted by LAWA, which are consistent with City of Los Angeles, state, and federal guidelines, and with all applicable CEQA requirements. At the most basic level, all of these government agencies consider all land uses to be compatible with cumulative noise exposure below 65 dB CNEL.

Lead Agencies typically use a significance threshold to determine whether a project would result in a significant environmental impact. "A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effects will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (CEQA Guidelines § 15064.7.) The City of Los Angeles CEQA Threshold Guide defines a significance threshold for airport-related project impacts on noise levels as follows: "A significant impact on ambient noise levels would normally occur if noise levels at a noise sensitive use attributable to airport operations exceed 65 dB and the project increases ambient noise levels by 1.5 dB CNEL or greater."[3] This threshold is generally consistent with the FAA policies and procedures for compliance with the

[2] 14 Code of Federal Regulations (CFR) Part 150, Airport Noise Compatibility Planning.

[3] City of Los Angeles. 2006. L.A. CEQA Thresholds Guide. Environmental Affairs Department. Los Angeles, CA, p. I.4-3–I.4-5.

National Environmental Policy Act (NEPA) as they apply to noise-sensitive land uses, which read:[4]

- a significant impact would occur if the project-related action would cause noise-sensitive areas already at or above CNEL 65 dB to experience an increase in noise of CNEL 1.5 dB or greater; and
- if noise-sensitive areas at or above CNEL 65 dB will have an increase of CNEL 1.5 dB or more, noise-sensitive areas lying between CNEL 60 and 65 dB should be examined to identify whether increases of CNEL of 3 dB or more occur in these areas due to the proposed project. If so, noise mitigation measures should be considered.

As discussed in Section 4.2.4.1, the noise analysis conducted for this project utilized these thresholds for identifying significant noise impacts.

The City of Los Angeles's CEQA Guidelines permits use of FAA's Area Equivalent Method (AEM) a screening tool for airport noise impacts. If preliminary analysis indicates that a project would result in a 1.5 dB or higher increase in CNEL, then a more detailed analysis using FAA's Integrated Noise Model (INM) is required. INM is more complex than AEM and entails extensive local data collection, processing, and entry.

4.2.3 Environmental Setting

Existing noise conditions at VNY and each of the five diversion airports were determined by noise modeling that is fully explained in the Noise Report (Appendix B, pg. 4-6) and summarized in the subsections below. Existing conditions include estimations of noise levels for the baseline (2007) and forecast (2014 for VNY, BUR, LAX, and CNO; 2016 for CMA and WJF) timeframes. Existing noise receptors in the vicinity of the airports include residences and other land uses, as shown in Figures 4.3-1 through 4.3-6, included in the following section of this EIR.

4.2.3.1 VNY: Baseline and Forecast Aircraft Operations

This section presents the 2007 baseline estimate and 2014 forecasts of aircraft operations at VNY, and provides the basis for the analysis of the impacts of the project and Alternatives 1 and 2 on VNY noise contours.[5] As discussed in Section

[4] Federal Aviation Administration. 2004. Environmental Impacts: Policies and Procedures. Order 1050.1E. Washington, DC. Appendix A, Section 14.4, p. A-61–A-63. This order refers to the yearly day/night average sound level (DNL) as FAA's primary metric. However, Section 14.1a of the order recognizes CNEL as an alternative metric for California.

5 The noise impacts of Alternative 1 and 2 are analyzed quantitatively in this section, with additional discussion in the Alternatives section of this EIR (see Section 5.1 below).

2.1.4 of this EIR, 2014 was identified as the planning year for VNY impacts (and for those of BUR, LAX, and CMA) because it is the phase-out year during which the most aircraft operations would be shifted from VNY to those other airports. Therefore, 2014 is the year in which the greatest environmental effects would result from project implementation at these airports. Diversions from VNY would continue after 2014, but the number of diversions is anticipated to reduce due to the retirement of older aircraft that is expected to occur independent of the project. CNO and WJF will not be affected until 2016, when exemptions to the proposed noise limitation program expire.

The forecast of aircraft operations is based on previously developed forecasts for the ongoing VNY FAR Part 161 study. For that study, a detailed analysis of VNY aircraft operations was performed for the 2004 base year, and operations were projected for future analysis years, 2009 and 2014. The Part 161 base year was projected out to 2007 by reviewing trends that occurred between 2004 and 2007 (see Appendix B, pg. 10-19), These recent trends and additional historic trends were compiled to determine a forecast of aircraft operation for 2014, which is utilized as the basis for future-year impact analysis at VNY in this EIR. 2016 operations estimates were also projected in order to provide a basis for the diversions that would occur in that year.

General aviation (GA) activity at VNY encompasses a wide range of users and aircraft types, from pilot training schools using single-engine fixed- or rotary-wing aircraft to corporate flight departments and fractional jet operators flying long-range, high-performance business jets. To reflect the trends and operating profiles associated with these varied user groups, aircraft operations were projected for six distinct categories of activity: business jets, turboprops, pistons, helicopters, active military, and touch-and-go training.

Several available data sources were compiled to formulate an estimated 2004 fleet mix on which to determine the 2007 baseline, including (1) FAA air traffic control tower (FAA Tower) counts, (2) LAWA curfew counts at VNY, (3) FAA Automated Radar Terminal System (ARTS) data, (4) the Van Nuys Database System (VNDS), (5) FAA Enhanced Traffic Management System counts; (6) data from helicopter count surveys conducted at VNY in December 2005 and April 2006, (7) the 2001 baseline fleet mix for the Part 150 study, and (8) the fleet mix used by LAWA to produce the 2002 through 2004 noise contours for VNY. Determining this fleet mix enabled projections of annual growth for each of the categories, which enabled an estimate of the composite noise levels emitted at VNY for the 2007 baseline and 2014 and 2016 planning years.

Table 4.2-1 describes the total arriving and departing aircraft operations at VNY in 2004. Overflights recorded by the FAA Tower at VNY were excluded from the base year 2004 operation counts so that the base year data would reflect only the number of aircraft arriving at or departing from the VNY airfield. Actual changes in aircraft operations were reviewed to update the 2004 operations to 2007. VNY operations, including overflights, declined by approximately 16.2% from 2004 to 2007. A detailed discussion of the fleet mix and estimate of the baseline aircraft operations at

VNY used to determine 2007 baseline and 2014 noise conditions is provided in the Noise Report (Appendix B, Section 5).

Table 4.2-1. Total Aircraft Operations at VNY, 2004

Data Source	Operations
FAA Tower Counts (0:700–22:45)	**372,291**
LAWA Curfew Counts (22:45–06:59)	**8,192**
Total VNY Arriving and Departing Aircraft	**380,483**

Source: HMMH & SH&E, 2008

Estimated 2007 Baseline Aircraft Operations

The estimated 2007 FAA Tower counts and LAWA curfew counts were used to develop the 2007 baseline level of operations by aircraft category using methodology and assumptions similar to those used to develop the 2004 baseline fleet mix. Table 4.2-2 presents the 2007 baseline activity levels by aircraft category and the estimated percent change from 2004. Aircraft operations declined by an estimated 17.5% between 2004 and 2007. The overall decline masks an underlying change in the mix of activity at VNY. While total activity fell between 2004 and 2007, jet aircraft operations grew by 8.8%, to 48,143, accounting for 15% of VNY's operations. The sectors of activity most sensitive to rising fuel prices experienced steep declines. Operations by turboprop and piston aircraft fell by more than 30%, and touch-and-go training operations declined by 19%.

Table 4.2-2. Estimated 2007 VNY Aircraft Operations by Aircraft Category

Aircraft Category	2004	2007	Percent Change	Average Annual Percent Change
GA Jet	44,264	48,143	8.8%	2.8%
Turboprop	24,874	15,728	-36.8%	-14.2%
Piston	136,273	89,143	-34.6%	-13.2%
Helo	52,202	61,298	17.4%	5.5%
Military	293	321	9.4%	3.0%
Private Military	659	659	0.0%	0.0%
Training	121,918	98,715	-19.0%	-6.8%
Total	**380,483**	**314,007**	**-17.5%**	**-6.2%**

Source: HMMH & SH&E, 2008

Table 4.2-3 shows annual and average daily operations at VNY by aircraft category for the 2007 baseline. Non-training operations in light general aviation aircraft, turboprops, and pistons represented one-third of total operations. Touch-and-go

training operations accounted for 31% of total aircraft activity. An estimated 20% of operations were performed by helicopters. Business jets accounted for approximately 15% of total aircraft activity. Less than 1% of total operations were by active or privately owned former military aircraft.

Table 4.2-3. Baseline 2007 Operations by Aircraft Category

Aircraft Category	Annual	Average Daily	Percent of Total
Business Jets	48,143	131.9	15%
Turboprop	15,728	43.1	5%
Piston	89,143	244.2	28%
Helicopter	61,298	167.9	20%
Military	321	0.9	0%
Private Former Military	659	1.8	0%
Touch and Go	98,715	270.5	31%
Total	**314,007**	**860.3**	**100%**

Source: HMMH & SH&E, 2008

When business jet operations at VNY are categorized by noise stage, Stage 2 business jets - the aircraft most affected by the proposed phaseout - accounted for approximately 10% of business jet operations at VNY in 2007 (Table 4.2-4). In general, the number of Stage 2 business jet operations has been declining as older Stage 2 aircraft are retired from the fleet and some older aircraft are flown less frequently.

Table 4.2-4. Baseline 2007 Jet Operations at VNY by Noise Stage, Direction, and Time of Day

	Arrivals				**Departures**				
Noise Stage	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**	**Total**	**Total Arrivals and Departures**
Stage 2	1,708	390	284	2,382	2,146	219	16	2,382	4,764
Stage 3	16,283	2,968	2,438	21,690	18,358	1,353	1,978	21,690	43,379
Total	**17,991**	**3,358**	**2,722**	**24,072**	**20,504**	**1,572**	**1,995**	**24,072**	**48,143**
Percent of Total									
Stage 2	3.5%	0.8%	0.6%	4.9%	4.5%	0.5%	0.0%	4.9%	9.9%
Stage 3	33.8%	6.2%	5.1%	45.1%	38.1%	2.8%	4.1%	45.1%	90.1%
Total	**37.4%**	**7.0%**	**5.7%**	**50.0%**	**42.6%**	**3.3%**	**4.1%**	**50.0%**	**100.0%**

Source: HMMH & SH&E, 2008

The time-of-day profile for Stage 2 and Stage 3 business jets is very similar. Of the Stage 2 jet operations, 19.1% occurred during the evening or night hours compared to 20.1% for Stage 3 operations. Because the existing VNY noise abatement and curfew regulations prohibit night departures by aircraft with estimated takeoff noise levels exceeding 74 dBA, almost no Stage 2 business jets depart during the night period. The small number of Stage 2 night departures that was estimated for 2007, fewer than 0.05 per day, represents exempted operators, violators of the noise policy, or minor differences in how departures were recorded.

Historic and Forecast Growth Aircraft Operations

Growth assumptions for each of the major categories of aircraft activity at VNY were developed by reviewing historic trends at VNY and considering the outlook for the general aviation industry nationwide. This section discusses actual trends at VNY based on historic activity and the growth assumptions underlying the forecast of future activity, which were used to determine forecast increases in noise at VNY. The information presented below is a summary; for additional detail on these matters, see the Noise Report (Appendix B, Section 5.3).

Forecast Growth Rate Assumptions

Table 4.2-5 presents the growth rate assumptions underlying the forecast of 2014 aircraft operations at VNY. Growth rate assumptions were based on a review of historic trends at VNY, including actual operations for 2005 and 2006 (January to May), the general outlook for different segments of the GA market, assumptions regarding fuel prices, and the FAA's forecast for the United States GA market.

Table 4.2-5. Forecast Average Annual Growth in Aircraft Operations at VNY by Aircraft Category, 2004–2014

Aircraft Category	Van Nuys	FAA Industry*
Business Jets	6.5%	10.5%
Turboprops	0.8%	1.3%
Pistons	-2.8%	1.3%
Helicopters	4.6%	4.6%
Military	0.0%	-0.5%
Private Former Military	0.0%	na
Touch and Go	-3.0%	1.5%

*FAA, Aerospace Forecasts Fiscal Year (FY) 2006–FY 2017, March 2006.
Source: HMMH & SH&E, 2008

The business jet segment has been the fastest growing segment of activity at VNY and within the United States general aviation industry. Increases in business jet operations have been driven by growing demand for private jet transportation

services by businesses and wealthy individuals. The business jet segment is expected to continue to grow over the forecast period through growth in these services as well as a new private transportation product, on-demand air taxi. At VNY, jet operations are forecast to increase at an average rate of 6.5% per year between 2004 and 2014. Privately owned former military aircraft at Van Nuys accounted for only 659 operations in 2004, averaging less than one takeoff and landing per day. Based on conversations with owners of former military aircraft conducted as part of analysis of this project, the forecast assumes that this level of activity remains constant over the forecast period.

Forecast Operations (2014)

Assuming the growth described above, forecasts for 2014 without the implementation of the proposed phaseout of noisier aircraft at VNY are shown below in Table 4.2-6. 2014 baseline conditions were used to estimate the number of aircraft operations that would be affected by the operation, and also provide a basis for comparing the project conditions to conditions as they would exist in 2014 without the project.

Table 4.2-6. Forecast 2014 Operations at VNY by Aircraft Category

Aircraft Category	Forecast 2014
Business Jets	83,449
Turboprops	26,835
Piston	102,979
Helicopter	82,212
Military	293
Private Military	659
Touch and Go	90,354
Total	**386,781**

Source: HMMH & SH&E, 2008

Table 4.2-7 presents forecast 2014 operations by type of operation (i.e., arrival or departure) and time of day. Almost two-thirds of the additional business jet activity forecast is anticipated to occur during the daytime. During the evening hours, 78 additional business jet operations are forecast under the status quo. Night activity increases by 39 jet operations. Arrivals make up the majority of the additional activity forecast during the evening hours and nearly all of the additional operations forecast during the night period.

Table 4.2-7. Forecast 2014 Operations by Type and Time of Day

Direction and Time of Day	Forecast 2014
Total Operations	386,781
Day	335,956
Evening	33,790
Night	17,036
Arrivals	193,391
Day	164,784
Evening	19,541
Night	9,066
Departures	193,391
Day	171,172
Evening	14,249
Night	7,969

Source: HMMH & SH&E, 2008

Table 4.2-8 summarizes forecast 2014 jet operations at VNY by noise stage. Stage 2 jets are forecast to perform 2,301 operations in 2014. This represents almost 2,000 additional operations in Stage 2 jets than would occur with implementation of the project. With the project in place, some operators of Stage 2 jets are expected to replace their aircraft with Stage 3 aircraft and continue operating at VNY. As a result, 1,609 fewer operations in Stage 3 jets are anticipated in the 2014 forecast than would occur with implementation of the project. The net result is an additional 348 business jet operations forecast at VNY in 2014 if the project is not implemented.

Table 4.2-8. Forecast 2014 Jet Operations at VNY by Noise Stage

	2014 Forecast	
Noise Stage	**Operations**	**Percent Share**
Stage 2	2,301	2.8%
Stage 3	81,148	97.2%
Total	**83,449**	**100.0%**

Source: HMMH & SH&E, 2008

4.2.3.2 VNY: Baseline and Forecast Aircraft Noise

Because aircraft operations are anticipated to increase at VNY between 2007 and 2014 (independent of the project) aircraft-generated noise is also anticipated to increase. The Noise Report (Appendix B) analyzed the change between baseline and forecast noise levels at VNY by applying estimated changes in operational traffic to the FAA's AEM model. Changes in noise level were also applied to the noise level contours surrounding VNY, indicating the estimated noise levels experienced by residences and businesses surrounding the airport. Using the AEM model, changes in noise conditions were identified in terms of changes to the area within the airport's various noise contours (referenced as a percentage change) and increases in the dBA levels that would be experienced. Estimated and forecasted noise conditions are discussed below.

The increase in air traffic at VNY without implementation of the project is anticipated to increase the CNEL by 0.8 dB between 2007 and 2014. This increased noise is anticipated to expand the area within the 65-dB noise contour by approximately 13.3%. Figure 4.2-1 shows the estimated expansion of the 65-, 70-, and 75-dB contours at VNY between the 2007 baseline conditions and the projected 2014 conditions, without project implementation.

An inventory of land use was undertaken to determine the residences, residential population, and other potentially sensitive land uses surrounding VNY that would be affected by forecasted increases in aircraft operational noise. Dwelling unit and population counts were developed from 2000 census block-level data and applied to field-verified land uses, confirmed by surveys conducted on a parcel-by-parcel basis in the airport vicinity. Table 4.2-9 shows the estimated numbers of dwelling units and residents within the contours under the 2007 baseline conditions, compared with those affected by 2014 forecast conditions. As discussed in Appendix B.5 of the Noise Report, LAWA policy calls for sound-insulating all residential dwelling units within the 65-dB CNEL contour (where the owner accepts the offer of treatment). The bottom half of the table presents the estimated dwelling units and population that will require additional noise insulation given the increases anticipated by 2014.

Table 4.2-9. Estimated Dwelling Units and Residents within 2007 and 2014 CNEL Contours (with and without sound insulation

		Analysis Year, Case, and CNEL Contour Interval					
		2007, Baseline			2014, Forecast		
Basis for Counts	**Type of Count***	**65–70 CNEL**	**70–75 CNEL**	**Total**	**65–70 CNEL**	**70–75 CNEL**	**Total**
Dwelling units within the contours	S.F. D.U.	411	8	419	688	9	697
	S.F. Pop.	1,320	39	1,359	2,138	42	2,180
	M.F. D.U.	1,600	27	1,627	1,958	170	2,128
	M.F. Pop.	5,451	104	5,555	6,496	663	7,159
	Total D.U.	**2,100**	**35**	**2,135**	**2,646**	**179**	**2,825**
	Total Pop.	**6,771**	**143**	**6,914**	**8,634**	**705**	**9,339**
Dwelling units within contours and lacking sound insulation under existing conditions**	S.F. D.U.	400	0	400	677	1	678
	S.F. Pop.	1,286	0	1,286	2,104	4	2,108
	M.F. D.U.	1,379	0	1,379	1,820	60	1,880
	M.F. Pop.	4,659	0	4,659	6,038	225	6,263
	Total D.U.	**1,779**	**0**	**1,779**	**2,497**	**61**	**2,558**
	Total Pop.	**5,945**	**0**	**5,945**	**8,142**	**229**	**8,371**

*S.F. = single family, M.F. = multifamily, D.U. = dwelling units. **See discussion and figure in Appendix B.5.3.1.

Source: HMMH & SH&E, 2008.

As the table shows, the increase in noise contour by 2014 is anticipated to increase the number of residences within the 65-dB contour to 2,825 from 2,135; this would affect an estimated 2,425 additional residents (9,339 under 2014 conditions compared to 6,914 under 2007 conditions).

In addition to the numerous residential receptors, there is only one parcel containing a potentially noise-sensitive nonresidential land use within the existing contours. This is the Los Angeles Baptist City Mission, located north of the airport at 16514 Nordhoff Street in North Hills. The property includes a house of worship and school, and currently is bisected by the airport's 65-dB contour.

4.2.3.3 Diversion Airports: Baseline and Forecast Aircraft Operations and Noise

The airports that are forecast to receive operations diverted from VNY as a result of the project include BUR, LAX, CMA, CNO, and WJF. This section describes the

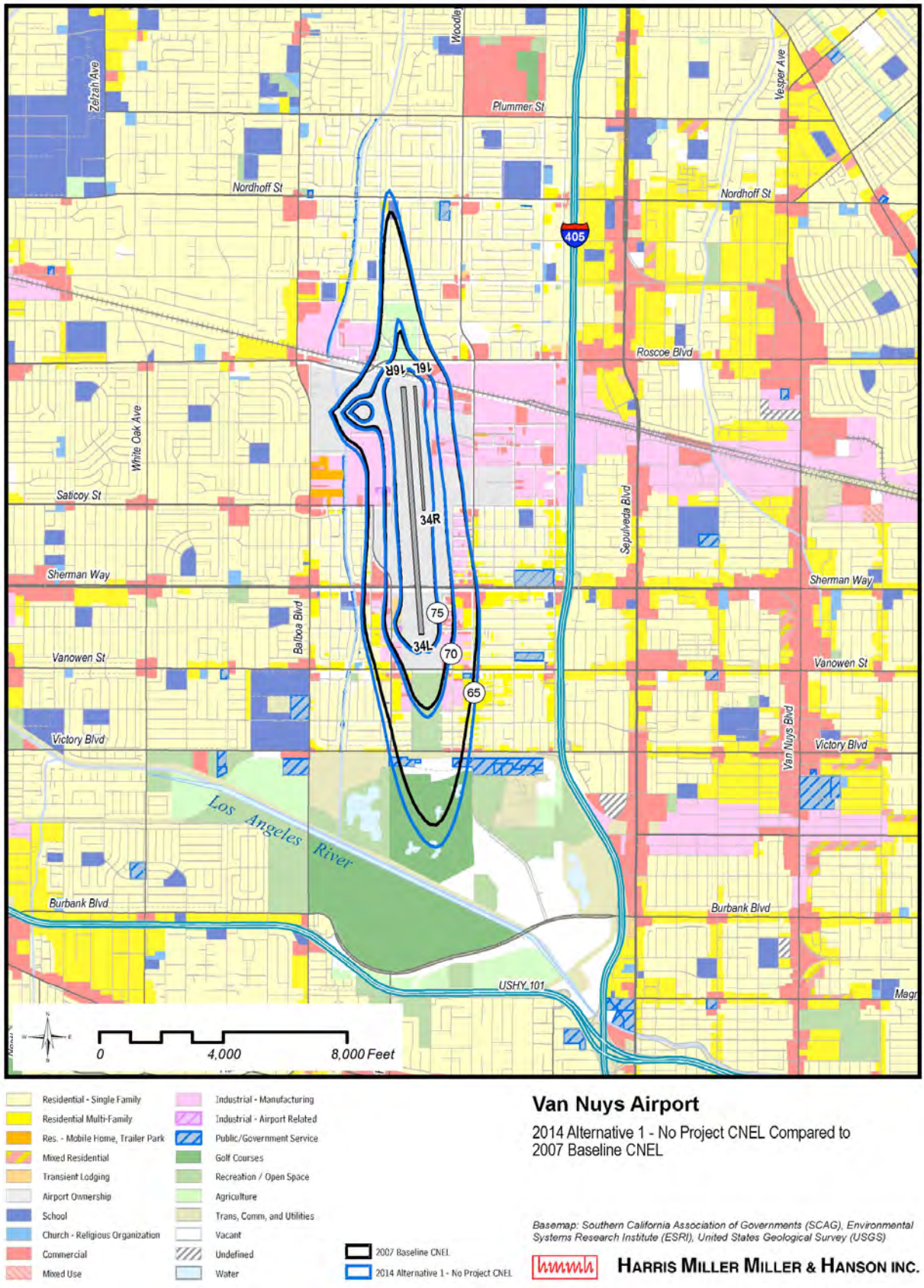

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Figure 4.2-1
CNEL Contours at VNY: Baseline and 2014 Forecast
Van Nuys Airport Noisier Aircraft Phaseout EIR

methodology for developing forecast operations at the diversion airports and presents the 2007 baseline and 2014/2016 forecasts of aircraft operations without project implementation. As with the VNY forecasts, forecasts for all the diversion airports except LAX were determined using fleet mix and time of day profiles, and considered regional and airport-specific growth projections based on FAA data. Actual changes in aircraft operations as reported in the FAA Air Traffic Activity Data System (ATADS) and FAA Enhanced Traffic Management System Counts (ETMSC) databases were reviewed and used to estimate activity levels for the 2007 baseline. Growth rate assumptions were developed and applied to calendar year 2006 activity to estimate the 2007 baseline activity at each of the diversion airports. Baseline and forecast operations for LAX were based on existing forecasts prepared for LAWA for the Los Angeles International Airport Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement. A full explanation of the methods used to estimate and forecast baseline and future operations numbers is provided in the Noise Report (Appendix B).

Table 4.2-10 presents a summary of the growth rate assumptions used to estimate 2007 baseline operations by type at all the diversion airports.

Table 4.2-10. Growth Rate Assumptions for Aircraft Operations at Diversion Airports, 2006–2007

Activity Type	BUR*	CMA	CNO	WJF
Business Jet	-5.0%	5.0%	37.6%	1.5%
Air Carrier	5.7%	na	na	na
Commuter	-4.4%	na	na	na
Itinerant GA Non-Jet	-10.5%	-6.4%	3.4%	-5.3%
Local GA Non-Jet	-35.2%	-1.5%	-4.7%	3.9%
Military (Itinerant + Local)	-4.8%	125.2%	51.1%	-0.1%

Note: Actual growth for year to date (YTD) September 2006–2007 based on FAA ATADS and ETMSC, except where noted.

Excludes LAX. 2007 aircraft operations for LAX are based on actual activity reported by LAWA.

* Actual growth for YTD September 2006–2007 for business jets based on FAA, ETMSC; actual YTD November 2006–2007 growth rates for major air carriers and commuter airlines based on USDOT T-100 database; actual CY 2006–2007 growth for non-jet GA and military based on FAA ATADS.

Source: HMMH & SH&E, 2008

Estimated 2007 baseline operations for the diversion airports are summarized in Table 4.2-11.The level of aircraft activity at the diversion airports ranges from 66,000 annual operations at WJF to 678,000 at LAX. Only BUR and LAX have operations by scheduled commercial airlines (major air carriers and commuter airlines). The majority of the activity at the other airports consists of itinerant and local non-jet aircraft operations. A more detailed description of baseline operations for each diversion airport is provided below.

Table 4.2.-11. Estimated 2007 Baseline Operations at Diversion Airports by Type of Activity

Activity Type	BUR	LAX*	CMA	CNO	WJF
Business Jet	18,863	21,013	4,883	2,037	508
Air Carrier	58,629	454,946	na	na	na
Commuter	11,819	173,081	na	na	na
Itinerant GA Non-Jet	26,174	11,981	74,601	67,590	31,738
Local GA Non-Jet	5,060	—	63,860	96,376	32,291
Military(Itinerant + Local)	265	2,488	1,740	594	1,513
Total	**120,810**	**663,509**	**145,083**	**166,596**	**66,049**

Source: HMMH & SH&E, 2008

* LAX data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Bob Hope Airport

Aircraft Operations

Table 4.2-12 shows estimated 2007 baseline operations at BUR. There were an estimated 121,000 operations, excluding overflights, at BUR in the 2007 baseline. Major air carriers and commuter airlines accounted for 58% of total airport operations. GA non-jet itinerant operations, which include air taxis and the cargo operations of Ameriflight, represented 22% of total activity. Business jets were responsible for 16% of total operations in the base year. Because of the high level of regularly scheduled commercial airline services at BUR, local operations, including training activity, are minimal.

Table 4.2-12. 2007 Baseline Operations at BUR by Type of Activity

Activity Type	Annual	Average Daily	Percent of Total
Air Carrier/Commuter	70,448	193.0	58%
Business Jet	18,863	51.7	16%
GA Non-Jet Itinerant	26,174	71.7	22%
GA Non-Jet Local	5,060	13.9	4%
Military (Itinerant + Local)	265	0.7	0%
Total	**120,810**	**331.0**	**100%**

Source: HMMH & SH&E, 2008

Table 4.2-13 presents estimated baseline operations for BUR by type and by time of day. Approximately 75% of total aircraft operations occurred during the day. The

evening period accounted for 16% of operations, and nearly 9% of activity occurred during the night. The GA non-jet category had the highest percentage of activity during the night period, at 27.2%. Almost 12% of business jet operations occurred during the night but only 2.1% of commercial airline activity. The limited amount of commercial airline activity at night illustrates the effect of the current voluntary nighttime curfew for air carriers at BUR.

Table 4.2-13. 2007 Baseline Operations at BUR by Type of Activity and Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Activity Type	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
Air Carrier/Commuter	54,226	14,754	1,468	70,448	77.0%	20.9%	2.1%
Business Jet	14,721	1,948	2,194	18,863	78.0%	10.3%	11.6%
GA Non-Jet Itinerant	16,207	2,852	7,115	26,174	61.9%	10.9%	27.2%
GA Non-Jet Local	4,742	318	—	5,060	93.7%	6.3%	0.0%
Military (Itinerant + Local)	253	12	—	265	95.3%	4.7%	0.0%
Total	**90,149**	**19,884**	**10,777**	**120,810**	**74.6%**	**16.5%**	**8.9%**

Source: HMMH & SH&E, 2008

As shown in Table 4.2-14, there were 757 operations in Stage 2 business jet aircraft (excluding military operations) at BUR in 2007. Stage 2 types in the BUR fleet are represented by the following INM types: GIIB (411 operations), GII (212 operations), LEAR25 (81 operations), and FAL20 (52 operations). Stage 3 aircraft types accounted for 96% of BUR's total business jet operations in the baseline case.

Table 4.2-14. 2007 Baseline Business Jet Operations at BUR by Noise Stage

Noise Stage	**Annual Operations**	**Percent of Total**
Stage 2	757	4.0%
Stage 3	18,106	96.0%
Total	**18,863**	**100.0%**

Source: HMMH & SH&E, 2008

Table 4.2-15 summarizes baseline and forecast aircraft operations at BUR by type of activity. In 2014, aircraft operations at BUR are forecast at 148,000, a 23% increase over the 2007 baseline level of activity. Business jets are forecast to be the fastest growing segment of activity and will account for 33,000 operations, or 22% of total operations, in 2014 compared to 16% in 2007. Aircraft operations are forecast to reach 156,000 in 2016, with the business jet operations growing to 37,000, or 24% of the total.

Table 4.2-15. Baseline and Forecast Operations at BUR by Type of Activity

Activity Type	2007 Baseline	Percent of Total	2014 Forecast	Percent of Total	2016 Forecast	Percent of Total
Air Carrier/Commuter	70,448	58.3%	79,086	53.4%	81,741	52.3%
Business Jet	18,863	15.6%	32,744	22.1%	37,439	24.0%
GA Non-Jet Itinerant	26,174	21.7%	30,626	20.7%	31,446	20.1%
GA Non-Jet Local	5,060	4.2%	5,332	3.6%	5,413	3.5%
Military (Itinerant + Local)	265	0.2%	265	0.2%	265	0.2%
Total	**120,810**	**100.0%**	**148,053**	**100.0%**	**156,303**	**100.0%**

Source: HMMH & SH&E, 2008

As shown in Table 4.2-16, the percentage of total operations occurring during the night period increases over the forecast period from 8.9% to 9.3% because of growth in business jet operations and their increased share of total forecast activity. The number of operations occurring during the noise-sensitive evening and night hours is forecast to increase from approximately 31,000 in 2007 to 37, 000 in 2014 and 39,000 in 2016.

Table 4.2-16. Baseline and Forecast Operations at BUR by Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Year	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
2007 Baseline	90,149	19,884	10,777	120,810	74.6%	16.5%	8.9%
2014 Forecast	110,742	23,530	13,781	148,053	74.8%	15.9%	9.3%
2016 Forecast	117,070	24,634	14,600	156,303	74.9%	15.8%	9.3%

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Based on historic trends in the industry, business jet operations in Stage 2 aircraft are projected to decline by more than 50% over the forecast period, comparing 2007 baseline conditions to 2016 forecast conditions, as older aircraft are retired. Between the 2007 baseline and 2016, business jet operations in Stage 3 aircraft are expected to more than double, from 18,000 to 37,000. By 2016, Stage 2 business jets are projected to account for less than 1% of total business jet operations at BUR (Table 4.2-17).

Table 4.2-17. Baseline and Forecast Business Jet Operations at BUR by Noise Stage

Noise Stage	2007 Baseline	Percent of Total	2014 Operations	Percent of Total	2016 Operations	Percent of Total
Stage 2	757	4.0%	371	1.1%	318	0.8%
Stage 3	18,106	96.0%	32,373	98.9%	37,121	99.2%
Total	**18,863**	**100.0%**	**32,744**	**100.0%**	**37,439**	**100.0%**

Source: HMMH & SH&E, 2008

Aircraft Noise

BUR is located in an area that is primarily developed, and the airport is immediately surrounded by industrial and commercial development to the east, residential development to the west, industrial development and a cemetery to the south, and industrial and residential development to north. Because aircraft operations are anticipated to increase at BUR between 2007 and 2014 (independent of the project) aircraft-generated noise is also anticipated to increase. Without implementation of the project, increases in air traffic at BUR are anticipated to increase the CNEL by 0.9 dB between 2007 and 2014. This increased noise is anticipated to increase the area within the 65-dB noise contour by approximately 14.6%.

Los Angeles International Airport

Aircraft Operations

Baseline operations at LAX are summarized by type of activity in Table 4.2-18. There were approximately 664,000 aircraft operations at LAX in 2007, nearly 95% of which were performed by commercial passenger or cargo airlines. Business jets accounted for only 3% of total aircraft operations, and civilian GA non-jets performed less than 2% of operations.

Table 4.2-18. 2007 Baseline Operations at LAX by Type of Activity

Activity Type	Annual	Average Daily	Percent of Total
Air Carrier/Commuter	628,027	1,720.6	94.7%
Business Jet	21,013	57.6	3.2%
GA Non-Jet Itinerant	11,981	32.8	1.8%
GA Non-Jet Local	—	—	0.0%
Military (Itinerant + Local)	2,488	6.8	0.4%
Total	**663,509**	**1,817.8**	**100.0%**

Source: HMMH & SH&E, 2008; data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Table 4.2-19 presents estimated baseline operations for LAX by type and by time of day. Compared to the other diversion airports, LAX had the highest percentage of operations occurring during the evening and nighttime, reflecting the airport's role as a large-hub commercial service airport and international gateway. Of the business jets that operated at LAX in 2007, 76% operated during the daytime, and 24% operated during the evening and nighttime hours.

Table 4.2-19. 2007 Baseline Operations at LAX by Type of Activity and Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Activity Type	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
Air Carrier/Commuter	427,554	98,361	102,112	628,027	68.1%	15.7%	16.3%
Business Jet	15,994	2,388	2,631	21,013	76.1%	11.4%	12.5%
GA Non-Jet Itinerant	7,662	3,109	1,210	11,981	64.0%	25.9%	10.1%
GA Non-Jet Local	—	—	—	—	0.0%	0.0%	0.0%
Military (Itinerant + Local)	104	124	2,260	2,488	4.2%	5.0%	90.8%
Total	**451,314**	**103,982**	**108,213**	**663,509**	**68.0%**	**15.7%**	**16.3%**

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008; data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

As shown in Table 4.2-20, 94% of the business jets that operated at LAX in 2007 were Stage 3 aircraft. Only 1,200 of the business jet operations were by Stage 2 aircraft.

Table 4.2-20. 2007 Baseline Business Jet Operations at LAX by Noise Stage

Noise Stage	**Annual Operations**	**Percent of Total**
Stage 2	1,211	5.8%
Stage 3	19,802	94.2%
Total	**21,013**	**100.0%**

Source: HMMH & SH&E, 2008; data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Table 4.2-21 summarizes baseline and forecast aircraft operations at LAX by activity type. Total aircraft operations are forecast to grow from 664,000 in 2007 to 739,379 in 2016. Business jets operations are forecast to reach 31,000 by 2016 and account for 4.2% of total airport activity.

Table 4.2-21. Baseline and Forecast Operations at LAX by Type of Activity

Activity Type	2007 Baseline	Percent of Total	2014 Forecast	Percent of Total	2016 Forecast	Percent of Total
Air Carrier/Commuter	628,027	94.7%	674,332	93.9%	692,196	93.6%
Business Jet	21,013	3.2%	28,454	4.0%	31,131	4.2%
GA Non-Jet Itinerant	11,981	1.8%	13,035	1.8%	13,352	1.8%
GA Non-Jet Local	—	0.0%	—	0.0%	—	0.0%
Military (Itinerant + Local)	2,488	0.4%	2,700	0.4%	2,700	0.4%
Total	**663,509**	**100.0%**	**718,520**	**100.0%**	**739,379**	**100.0%**

Source: HMMH & SH&E, 2008; data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Because commercial airline services are forecast to continue to be the dominant type of activity at LAX, the time-of-day profile for airport operations is unchanged over the forecast period. Approximately 32% of LAX aircraft operations occur during the evening and night periods in the baseline and forecast years, as summarized in Table 4.2-22.

Table 4.2-22. Baseline and Forecast Operations at LAX by Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Year	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
2007 Baseline	451,314	103,982	108,213	663,509	68.0%	15.7%	16.3%
2014 Forecast	488,948	112,307	117,265	718,520	68.0%	15.6%	16.3%
2016 Forecast	503,245	115,474	120,660	739,379	68.1%	15.6%	16.3%

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008; data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

As the fleet of Stage 2 business jets shrinks over the forecast period, the number of Stage 2 business jet operations at LAX is also expected to decline. By 2016, approximately 500 annual operations in Stage 2 business jets are expected at LAX compared to approximately 1,200 in 2007. As a result, the Stage 2 aircraft share of business jet activity at LAX will fall from 5.8% in 2007 to less than 2% in 2016 (Table 4.2-23).

Table 4.2-23. Baseline and Forecast Business Jet Operations at LAX by Noise Stage

Noise Stage	2007 Baseline	Percent of Total	2014 Operations	Percent of Total	2016 Operations	Percent of Total
Stage 2	1,211	5.8%	596	2.1%	509	1.6%
Stage 3	19,802	94.2%	27,858	97.9%	30,622	98.4%
Total	**21,013**	**100.0%**	**28,454**	**100.0%**	**31,131**	**100.0%**

Source: HMMH & SH&E, 2008; data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Aircraft Noise

LAX is located in a primarily built out area, with the surrounding lands developed with a mixture of residential, commercial, industrial, and public uses, and the undeveloped Los Angeles/El Segundo dunes located directly to the west of the airport. Because aircraft operations are anticipated to increase at LAX between 2007 and 2014 (independent of the project) aircraft-generated noise is also anticipated to increase. Without implementation of the project, increases in air traffic at LAX are anticipated to increase the CNEL by 0.4 dB between 2007 and 2014. This increased noise is anticipated to increase the area within the 65-dB noise contour by approximately 6.0%.

Camarillo Airport

Aircraft Operations

Table 4.2-24 shows the estimated 2007 baseline operations at CMA. As shown in the table, there were 145,000 aircraft operations at CMA in 2007, and GA non-jet aircraft accounted for 95% of total airport operations. More than 40% of the airport's operations are local operations, which include pilot training activity, such as touch-and-go operations; flights that remain within the local traffic pattern; and flights between the airport and a practice area within a 20-mile radius of the tower. Business jet aircraft accounted for less than 5,000 annual operations, or 3% of total activity.

Table 4.2-24. 2007 Baseline Operations at CMA by Type of Activity

Activity Type	Annual	Average Daily	Percent of Total
Air Carrier/Commuter	0	—	0.0%
Business Jet	4,883	13.4	3.4%
GA Non-Jet Itinerant	74,601	204.4	51.4%
GA Non-Jet Local	63,860	175.0	44.0%
Military (Itinerant + Local)	1,740	4.8	1.2%
Total	**145,083**	**397.5**	**100.0%**

Source: HMMH & SH&E, 2008

Table 4.2-25 summarizes 2007 aircraft activity at CMA by type and by time of day. Nearly 92% of aircraft operations at CMA occurred during the daytime. The high percentage of daytime activity reflects the high percentage of non-jet itinerant and training operations that occur predominantly during daytime hours. Approximately 6% of aircraft operations occurred during evening hours, and only 2% operated during the night. The time-of-day pattern for business jets differs from the time-of-day pattern for non-jet aircraft, with a higher percentage of activity occurring during the evening and night periods. In 2007, 8% of business jet operations were in the evening, and 7% were at night.

Table 4.2-25. 2007 Baseline Operations at CMA by Type of Activity and Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Activity Type	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
Air Carrier/Commuter	—	—	—	—	—	—	—
Business Jet	4,134	408	341	4,883	84.7%	8.4%	7.0%
GA Non-Jet Itinerant	68,297	4,399	1,904	74,601	91.6%	5.9%	2.6%
GA Non-Jet Local	58,909	3,752	1,198	63,860	92.2%	5.9%	1.9%
Military (Itinerant + Local)	1,593	103	44	1,740	91.6%	5.9%	2.6%
Total	**132,933**	**8,663**	**3,487**	**145,083**	**91.6%**	**6.0%**	**2.4%**

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.
Source: HMMH & SH&E, 2008

Table 4.2-26 shows the business jet fleet mix at CMA by noise classification stage. In 2007, approximately 4% of CMA's business jet operations were performed by Stage 2 jets.

Table 4.2-26. 2007 Baseline Business Jet Operations at CMA by Noise Stage

Noise Stage	Annual Operations	Percent of Total
Stage 2	191	3.9%
Stage 3	4,691	96.1%
Total	**4,883**	**100.0%**

Source: HMMH & SH&E, 2008

Baseline and forecast aircraft operations at CMA are summarized by type of activity in Table 4.2-27. Total aircraft operations are projected to increase by 17%, from 145,000 in 2007 to 169,000 in 2016. Business jet operations are forecast to be the fastest growing, more than doubling over the forecast period. However, non-jet general aviation will continue to be the dominant type of activity at CMA, accounting for 93% of 2016 operations.

Table 4.2-27. Baseline and Forecast Operations at CMA by Type of Activity

Activity Type	2007 Baseline	Percent of Total	2014 Forecast	Percent of Total	2016 Forecast	Percent of Total
Air Carrier/Commuter	—	0.0%	—	0.0%	—	0.0%
Business Jet	4,883	3.4%	8,764	5.3%	10,395	6.1%
GA Non-Jet Itinerant	74,601	51.4%	90,386	54.6%	92,157	54.5%
GA Non-Jet Local	63,860	44.0%	64,781	39.1%	64,781	38.3%
Military (Itinerant + Local)	1,740	1.2%	1,740	1.1%	1,740	1.0%
Total	**145,083**	**100.0%**	**165,671**	**100.0%**	**169,073**	**100.0%**

Source: HMMH & SH&E, 2008

Because business jet operations are forecast to account for only 6.1% of activity by 2016, the time-of-day profile for the airport changes very little over the forecast period. As shown in Table 4.2-28, 8% to 9% of CMA operations are forecast to occur during the evening and night periods, compared to 8.4% in the 2007 baseline.

Table 4.2-28. Baseline and Forecast Operations at CMA by Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Year	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
2007 Baseline	132,933	8,663	3,487	145,083	91.6%	6.0%	2.4%
2014 Forecast	151,499	9,983	4,189	165,671	91.4%	6.0%	2.5%
2016 Forecast	154,488	10,230	4,355	169,073	91.4%	6.1%	2.6%

Note:
Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Table 4.2-29 summarizes baseline and forecast business jet activity at CMA by noise stage classification. As older Stage 2 business jets, such as the LEAR25 and Gulfstream II are retired, the number of Stage 2 business jet operations at CMA is expected to decline over the forecast period. However, Stage 3 business jet operations are forecast to increase, from approximately 4,700 in 2007 to 10,300 in 2016. As a result, Stage 3 aircraft will account for 99% of total business jet operations at CMA in 2016, compared to 96% in the baseline year.

Table 4.2-29. Baseline and Forecast Business Jet Operations at CMA by Noise Stage

Noise Stage	**2007 Baseline**	**Percent of Total**	**2014 Operations**	**Percent of Total**	**2016 Operations**	**Percent of Total**
Stage 2	191	3.9%	102	1.2%	88	0.8%
Stage 3	4,691	96.1%	8,662	98.8%	10,307	99.2%
Total	**4,883**	**100.0%**	**8,764**	**100.0%**	**10,395**	**100.0%**

Source: HMMH & SH&E, 2008

Aircraft Noise

CMA is located in an area that is partially developed. Agricultural land in active row-crop production surrounds CMA to the west, south, and east. Land immediately north of the site is developed for industrial and commercial uses, and single-family development is located further northeast of the airport. Because aircraft operations are anticipated to increase at CMA between 2007 and 2014 (independent of the project) aircraft-generated noise is also anticipated to increase. Without implementation of the project, Increases in air traffic at CMA are anticipated to increase the CNEL by 0.8 dB between 2007 and 2014. This increased noise is anticipated to increase the area within the 65-dB noise contour by approximately 13.8%.

Chino Airport

Aircraft Operations

Table 4.2-30 shows estimated 2007 baseline operations at CNO by type of activity. As shown in the table, CNO accommodated 167,000 aircraft operations in 2007, with civilian GA non-jet aircraft accounting for 99% of operations. More than half of airport operations were local operations, including pilot training and touch-and-go maneuvers.

Table 4.2-30. 2007 Baseline Operations at CNO by Type of Activity

Activity Type	Annual	Average Daily	Percent of Total
Air Carrier/Commuter	—	—	0%
Business Jet	2,037	5.6	1%
GA Non-Jet Itinerant	67,590	185.2	41%
GA Non-Jet Local	96,376	264.0	58%
Military (Itinerant + Local)	594	1.6	0%
Total	**166,596**	**456.4**	**100%**

Source: HMMH & SH&E, 2008

Table 4.2-31 presents CNO operations by type and by time of day. Because of the high proportion of activity by non-jet aircraft, particularly local operations, more than 90% of total aircraft operations at CNO occurred during the daytime. Only 6% of operations occurred during the evening, and 1% occurred during the night. A higher percentage of jet aircraft operations occurred during the evening and night periods. Of the 2,000 annual jet operations, 11% operated during the evening, and approximately 12% operated during the night.

Table 4.2-31. 2007 Baseline Operations at CNO by Type of Activity and Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Activity Type	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
Air Carrier/Commuter	—	—	—	—	—	—	—
Business Jet	1,570	231	236	2,037	77.1%	11.4%	11.6%
GA Non-Jet Itinerant	61,677	4,210	1,703	67,590	91.3%	6.2%	2.5%
GA Non-Jet Local	89,938	6,438	—	96,376	93.3%	6.7%	0.0%
Military (Itinerant + Local)	542	37	15	594	91.3%	6.2%	2.5%
Total	**153,726**	**10,916**	**1,954**	**166,596**	**92.3%**	**6.6%**	**1.2%**

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Table 4.2-32 shows a breakdown of operations by noise stage at CNO. While there were just 2,000 operations (approximate) in business jet aircraft during the base year at the airport, 18% were performed by Stage 2 jets, as shown in Table 4.2.8-20.

Table 4.2-32. 2007 Baseline Business Jet Operations at CNO by Noise Stage

Noise Stage	**Annual Operations**	**Percent of Total**
Stage 2	376	18.5%
Stage 3	1,661	81.5%
Total	**2,037**	**100.0%**

Source: HMMH & SH&E, 2008

As shown in Table 4.2-33, total aircraft operations at CNO are forecast to increase by 8.4%, from 167,000 in 2007 to 181,000 in 2016. Business jets are forecast to grow at a faster rate, increasing by 15%, but still remain a small portion of total airport activity.

Table 4.2-33. Baseline and Forecast Operations at CNO by Type of Activity

Activity Type	2007 Baseline	Percent of Total	2014 Forecast	Percent of Total	2016 Forecast	Percent of Total
Air Carrier/Commuter	—	0.0%	—	0.0%	—	0.0%
Business Jet	2,037	1.2%	2,132	1.2%	2,349	1.3%
GA Non-Jet Itinerant	67,590	40.6%	74,983	41.9%	76,567	42.4%
GA Non-Jet Local	96,376	57.8%	101,121	56.5%	101,121	56.0%
Military (Itinerant + Local)	594	0.4%	594	0.3%	594	0.3%
Total	**166,596**	**100.0%**	**178,830**	**100.0%**	**180,631**	**100.0%**

Source: HMMH & SH&E, 2008

The time-of-day operating profile for CNO remains constant over the forecast period, with approximately 8% of aircraft operations occurring during the evening and night periods (Table 4.2-34).

Table 4.2-34. Baseline and Forecast Operations at CNO by Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Year	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
2007 Baseline	153,726	10,916	1,954	166,596	92.3%	6.6%	1.2%
2014 Forecast	164,992	11,694	2,144	178,830	92.3%	6.5%	1.2%
2016 Forecast	166,610	11,814	2,206	180,631	92.2%	6.5%	1.2%

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Stage 2 business jet operations at CNO are forecast to decline, from approximately one per day in 2007 to one every third day by 2016, as shown in Table 4.2-35. Stage 3 jets are forecast to account for all the growth in business jet operations at CNO. As a result, the Stage 2 share of business jet operations will decline, from 18.5% in 2007 to 5.1% in 2016.

Table 4.2-35. Baseline and Forecast Business Jet Operations at CNO by Noise Stage

Noise Stage	2007 Baseline	Percent of Total	2014 Operations	Percent of Total	2016 Operations	Percent of Total
Stage 2	376	18.5%	148	6.9%	120	5.1%
Stage 3	1,661	81.5%	1,984	93.1%	2,229	94.9%
Total	**2,037**	**100.0%**	**2,132**	**100.0%**	**2,349**	**100.0%**

Source: HMMH & SH&E, 2008

Aircraft Noise

CNO is located within an area characterized by open space, active agricultural land, and industrial development, with some residential development located south of the airport. Land south and southeast of the airport is designated for future residential and commercial development. Overall, aircraft operations are anticipated to increase at CNO between 2007 and 2016 (independent of the project), but aircraft-generated noise is anticipated to decrease slightly. This is due to the reduction in Stage 2 business jets that is anticipated to occur in the coming years. The CNEL is anticipated to decrease by approximately 0.1 dB between 2007 and 2016, and this decreased noise level is anticipated to decrease the area within the 65-dB noise contour by approximately 1.5%.

William J. Fox Airport

Aircraft Operations

Baseline 2007 operations at WJF are shown in Table 4.2-36. The airport handled 66,000 aircraft operations in the 2007, and civilian GA non-jet aircraft accounted for almost all of the activity. Local operations, including training maneuvers, represented almost half of all aircraft operations. Business jets accounted for only 508 annual operations, or slightly less than 1% of total activity.

Table 4.2-36. 2007 Baseline Operations at WJF by Type of Activity

Activity Type	Annual	Average Daily	Percent of Total
Air Carrier/Commuter	—	—	0%
Business Jet	508	1.4	1%
GA Non-Jet Itinerant	31,738	87.0	48%
GA Non-Jet Local	32,291	88.5	49%
Military (Itinerant + Local)	1,513	4.1	2%
Total	**66,049**	**181.0**	**100%**

Source: HMMH & SH&E, 2008

Table 4.2-37 summarizes baseline operations by type and time of day. Because activity at WJF is dominated by GA non-jet aircraft, with a high percentage of local operations, 85% of aircraft operations occurred during the daytime, and only 1% occurred during the more noise-sensitive night period. As shown in Table 4.2-38, only 4% of business jet operations were performed by Stage 2 aircraft.

Table 4.2-37. 2007 Baseline Operations at Fox Field by Type of Activity and Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Activity Type	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
Air Carrier/Commuter	—	—	—	—	—	—	—
Business Jet	470	18	19	508	92.6%	3.6%	3.8%
GA Non-Jet Itinerant	26,984	4,449	304	31,738	85.0%	14.0%	1.0%
GA Non-Jet Local	27,454	4,515	322	32,291	85.0%	14.0%	1.0%
Military (Itinerant + Local)	1,286	212	15	1,513	85.0%	14.0%	1.0%
Total	**56,195**	**9,195**	**660**	**66,049**	**85.1%**	**13.9%**	**1.0%**

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Table 4.2-38. 2007 Baseline Business Jet Operations at WJF by Noise Stage

Noise Stage	**Annual Operations**	**Percent of Total**
Stage 2	22	4.4%
Stage 3	485	95.6%
Total	**508**	**100.0%**

Source: HMMH & SH&E, 2008

Aircraft activity at WJF is projected to increase by 6% over the forecast period, reaching 70,000 annual operations in 2016 (Table 4.2-39). Business jet operations are forecast to increase at a faster rate but remain less than 1% of total activity in the outer forecast year.

Table 4.2-39. Baseline and Forecast Operations at WJF by Type of Activity

Activity Type	2007 Baseline	Percent of Total	2014 Forecast	Percent of Total	2016 Forecast	Percent of Total
Air Carrier/Commuter	—	0.0%	—	0.0%	—	0.0%
Business Jet	508	0.8%	583	0.8%	606	0.9%
GA Non-Jet Itinerant	31,738	48.1%	35,048	50.4%	35,304	50.3%
GA Non-Jet Local	32,291	48.9%	32,394	46.6%	32,716	46.6%
Military (Itinerant + Local)	1,513	2.3%	1,513	2.2%	1,513	2.2%
Total	**66,049**	**100.0%**	**69,537**	**100.0%**	**70,139**	**100.0%**

Source: HMMH & SH&E, 2008

The percentage of WJF operations occurring during the evening and night hours remains unchanged over the forecast period, as shown in Table 4.2-40.

Table 4.2-40. Baseline and Forecast Operations at WJF by Time of Day

	Operations by Time of Day				Percent of Total 24 Hours		
Year	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
2007 Baseline	56,195	9,195	660	66,049	85.1%	13.9%	1.0%
2014 Forecast	59,154	9,677	706	69,537	85.1%	13.9%	1.0%
2016 Forecast	59,668	9,759	712	70,139	85.1%	13.9%	1.0%

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

The retirement of older Stage 2 business jets (not related to the project) is projected to result in fewer Stage 2 jet operations at WJF. By 2016, Stage 2 aircraft will account for only 1% of total business jet operations, compared to 4% in the 2007 base year (Table 4.2.41).

Table 4.2.41. Baseline and Forecast Business Jet Operations at WJF by Noise Stage

Noise Stage	2007 Baseline	Percent of Total	2014 Operations	Percent of Total	2016 Operations	Percent of Total
Stage 2	22	4.4%	8	1.4%	7	1.2%
Stage 3	485	95.6%	575	98.6%	599	98.8%
Total	**508**	**100.0%**	**583**	**100.0%**	**606**	**100.0%**

Source: HMMH & SH&E, 2008

Aircraft Noise

WJF is located in a primarily undeveloped area designated for industrial use, and is almost devoid of noise receptors, save a few scattered residences located in the vicinity of the airport. As with CNO, aircraft operations are anticipated to increase at WJF between 2007 and 2016 (independent of the project), but aircraft-generated noise is anticipated to decrease slightly. This is due to the reduction in Stage 2 business jets that is anticipated to occur in the coming years, independent of the project. The CNEL is anticipated to decrease by approximately 0.5 dB between 2007 and 2016, and this decreased noise level is anticipated to decrease the area within the 65-dB noise contour by approximately 8.5%.

4.2.4 Impact Analysis

4.2.4.1 Significance Criteria

Lead Agencies typically use a significance threshold to determine whether a project would result in a significant environmental impact. "A threshold of significance is an identifiable quantitative, qualitative, or performance level of a particular environmental effect, non-compliance with which means the effects will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant." (CEQA Guidelines § 15064.7.) The following significance criteria were used to analyze noise impacts for this project, reflecting thresholds of the City of Los Angeles and FAA, (see discussion above in Section 4.2.2):

- Where noise exceeds 65 dB as a result of airport activity, a significant impact would occur if the project would cause a noise increase of 1.5 dB or more as received at noise-sensitive land uses.
- If noise-sensitive areas at or above CNEL 65 dB have a project-related increase of CNEL 1.5 dB or more, a significant impact would also occur if the project would cause CNEL increases of 3 dB or more at noise-sensitive land uses lying between CNEL 60 and 65 dB.

As described in Section 4.2.4.3 of this EIR, a "single event" or "Berkeley Jets" analysis was also conducted for this project to provide a fuller examination of how the project would contribute to noise conditions in the vicinity of the airports. For this single-event analysis, the following criteria was used:

- The project would have a significant noise impact if it would result in a daily average of one additional flight during night hours (10 p.m. to 7 a.m.).

Appendix G of the State CEQA Guidelines suggests six criteria to consider in assessing a project's potential noise effects; these Appendix G criteria are either addressed by the bulleted criteria listed above or else not relevant to the project and were therefore not considered in detail in this EIR. The criteria are discussed below for informational purposes, with an explanation of their applicability to the project.

The first Appendix G criterion asks whether the project "would result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies." The significance criteria bulleted above address this criterion by incorporating the applicable FAA standard (mirrored by City of Los Angeles criterion) for analysis within the 65 dB and 60 dB noise contours. The second State CEQA Guidelines criterion relates to groundborne noise and vibration, neither of which would result from the project; therefore, this criterion is not addressed. The third criterion states, "Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?" This criterion is addressed in this project analysis by the bulleted criteria listed above; a "substantial permanent increase" in this analysis is a 1.5-dB increase within the 65-dB contour and, if that occurs, a 3-dB increase within the 60-dB contour. The fourth CEQA Appendix G criterion asks whether the project would "result in a substantial temporary or periodic increase in ambient noise levels"; because all of the noise impacts occurring as a result of this project are considered permanent, this temporary-impact criterion is not applicable to this analysis. The fifth and sixth ask whether a project would result in "excessive noise levels" for those people in the vicinity of an airport or private airstrip. Due to the nature of this airport-related project, the bulleted criteria listed above amply address airport-related issues. "Excessive noise levels," as analyzed for this project, would be a 1.5-dB increase within the 65-dB contour and, if that occurs, a 3-dB increase within the 60-dB contour. There are no private airstrips pertaining to this project; therefore, the sixth Appendix G criterion is not relevant.

4.2.4.2 Project Impact of Operations at VNY

Before specifically addressing the project's noise impacts at VNY, it is necessary to explain the project-related reductions in aircraft operations estimated at the airport. As described in Section 2.1 of this EIR, the project would result in a small number of GA jet operations that currently occur at VNY transferring to BUR, LAX, or CMA in 2009 and 2011 due to the limited number of operations affected by the proposed noise limitations in those years. By 2014, the project's noise limitations would affect a much greater number of operations, estimated at 1,989 for the year. In 2016, the number of aircraft operations affected by the project is anticipated to decline to 1,886, due to the retirement of older jets that is expected to occur independent of the project. Table 4.2-42 shows the number of operations that would be affected by type of aircraft.[6]

6 See Table 28 of Appendix B and related discussion.

Table 4.2-42. VNY Jet Operations Affected by the Project

Aircraft Type	2009	2011	2014	2016
Boeing 727	38	35	32	19
Learjet 24, 25, 28	—	—	522	435
Gulfstream II/III	—	—	1,428	1,358
Falcon 20	—	—	—	63
Other	—	7	7	11
Total	**38**	**42**	**1,989**	**1,886**

Note: "Other" includes operations by early model Sabreliners and Hawkers.
Source: HMMH & SH&E, 2008

Project Impacts on Forecast Activity (2014)

Table 4.2-43 compares forecast aircraft operations by aircraft category for 2014 under the project to activity levels for the 2007 baseline. Under the project, 386,433 aircraft are forecast to land or take off from the VNY in 2014. This represents a 23% increase in activity over the 2007 baseline. Because business jet activity is expected to continue growing more rapidly than recreational and training activity, the mix of aircraft operations is forecast to change, with the business jet share growing from 15% in the baseline to 20% in 2014. Touch-and-go training activity, performed with piston aircraft, is projected to decline over the forecast period and account for only 23% of total 2014 aircraft operations.[7]

Table 4.2-43. Forecast 2014 Operations by Aircraft Category under the Project

Aircraft Category	Baseline 2007	Percent of Total	Project Forecast 2014	Percent of Total
Business Jets	48,143	15%	83,101	22%
Turboprops	15,728	5%	26,835	7%
Piston	89,143	28%	102,979	27%
Helicopter	61,298	20%	82,212	21%
Military	321	0%	293	0%
Private Military	659	0%	659	0%
Touch and Go	98,715	31%	90,354	23%
Total	**314,007**	**100%**	**386,433**	**100%**

Source: HMMH & SH&E, 2008

[7] See Appendix B, Section 5.1 through 5.4.

Project Impacts on Operations by Time of Day and Direction

As shown in Table 4.2-44, both the absolute number and the share of operations occurring during the night period increases with the proposed project in 2014. Total nighttime operations increase by 56%, from approximately 11,000 in the 2007 baseline year, to approximately 17,000 in 2014. The growth in night operations is primarily the result of growth in the number of jet and helicopter operations, which have a high proportion of activity during the night hours. As a result, the share of total VNY operations occurring during the night increases from 3.5% in the base year to 4.4% in 2014 with the proposed noisier aircraft phaseout.

Table 4.2-44. Forecast 2014 Operations by Aircraft Category and Time of Day under the Project

	Operations by Time of Day				Percent of Total 24 Hours		
Aircraft Category	**Day**	**Evening**	**Night**	**Total**	**Day**	**Evening**	**Night**
Business Jets	66,405	8,304	8,392	83,101	79.9%	10.0%	10.1%
Turboprop	23,252	2,058	1,525	26,835	86.6%	7.7%	5.7%
Piston	93,858	8,788	334	102,979	91.1%	8.5%	0.3%
Helicopter	66,629	8,842	6,741	82,212	81.0%	10.8%	8.2%
Military	279	14	—	293	95.1%	4.9%	0.0%
Private Military	621	34	5	659	94.2%	5.1%	0.7%
Touch and Go	84,681	5,672	—	90,354	93.7%	6.3%	0.0%
Total 2014 Project	**335,725**	**33,712**	**16,996**	**386,433**	**86.9%**	**8.7%**	**4.4%**
Total 2007 Baseline	***276,551***	***26,528***	***10,927***	***314,007***	***88.1%***	***8.4%***	***3.5%***

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

The forecast overall arrival and departure mix by time of day under the project is similar to the 2007 baseline mix, shown below in Table 4.2-45. Operations during the day are almost evenly divided between arrivals (49.1%) and departures (50.9%), whereas 58% of evening operations and 53% of night operations are arrivals. Business jets have a slightly different profile than the overall airport average. Departures account for a greater share of business jet operations during the day, and evening and night activity by business jets is more heavily weighted toward arrivals. More than two-thirds of the forecast business jet operations during the evening are arrivals, and 56% of the forecast business jet operations during the night hours are arrivals.

Table 4.2-45. Forecast 2014 Operations by Aircraft Category, Time of Day, and Direction under the Proposed Project

	Day		Evening		Night	
Aircraft Category	**Arrivals**	**Departures**	**Arrivals**	**Departures**	**Arrivals**	**Departures**
Business Jets	46.9%	53.1%	68.6%	31.4%	55.8%	44.2%
Turboprops	48.2%	51.8%	70.7%	29.3%	49.6%	50.4%
Piston	48.7%	51.3%	63.4%	36.6%	53.7%	46.3%
Helicopter	50.7%	49.3%	44.0%	56.0%	50.7%	49.3%
Military	48.3%	51.7%	82.5%	17.5%	—	—
Private Military	48.9%	51.1%	76.5%	23.5%	3.0%	97.0%
Touch and Go	50.0%	50.0%	50.0%	50.0%	—	—
Total 2014 Project	**49.1%**	**50.9%**	**57.8%**	**42.2%**	**53.1%**	**46.9%**
Total 2007 Baseline	***49.2%***	***50.8%***	***56.7%***	***43.3%***	***53.7%***	***46.3%***

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Project Impacts on Aircraft Diverted from VNY to Other Airports

After identifying the five potential diversion airports, diversions were allocated to the airports depending on the reason for their diversion (i.e., accounting for the expiration of exemptions).[8] The shift in operations from VNY to alternative airports also considered factors such as driving time and operating convenience. Using this approach, BUR was estimated to attract 57% of the business jet operations shifted from VNY, CMA was estimated to attract 34%, and LAX was estimated to attract 9%. Boeing 727s that have been converted to GA use represent an exception to this rule. All 727 operations at VNY are expected to shift to LAX, where this aircraft type operates frequently and can be more readily serviced.

Table 4.2-46 shows the forecast of GA jet operations shifted from VNY to BUR, LAX, and CMA in 2014 as a result of implementing the project's phaseout. GA jet operations at BUR would increase by 0.5 operation per day, with smaller increases at CMA and LAX. Table 4.2-47 shows the Stage 2 and Stage 3 operations at BUR, LAX, and CMA under the project and the No Action alternative.

8 For an explanation of the selection process for the diversion airports, see Chapter 2 of this EIR and Section 7.2 of the Noise Report (Appendix B of this EIR).

Table 4.2-46. GA Jet Operations Shifted from VNY to BUR, LAX, and CMA in 2014 Under Project Conditions

Aircraft Type	To BUR	To LAX	To CMA
Gulfstream II	22	3	13
Gulfstream III	73	12	44
Learjet 25	75	12	45
Learjet 25	17	3	10
Boeing 727	—	15	—
Boeing 721	—	12	—
Boeing 722	—	5	—
Hawker 25A	2	—	1
Sabreliner 1	2	—	1
Learjet 28	1	—	1
Total	**192**	**62**	**115**
Per Day	**0.5**	**0.2**	**0.3**

Source: HMMH & SH&E, 2008

Table 4.2-47. 2014 Business Jet Operations at BUR, LAX, and CMA, Comparing Project and Forecast Conditions

Scenario	BUR	LAX	CMA
2014 Project			
Stage 2	563	1,010	217
Stage 3	32,373	27,537	8,662
Total	**32,936**	**28,516**	**8,879**
Stage 2 Percentage	**1.7%**	**3.5%**	**2.5%**
2014 Forecast			
Stage 2	371	596	102
Stage 3	32,373	27,858	8,662
Total	**32,744**	**28,454**	**8,764**
Stage 2 Percentage	**1.1%**	**2.1%**	**1.2%**

Source: HMMH & SH&E, 2008; LAX data based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Compared to the forecast estimates, the project would increase the Stage 2 share of business jet operations at BUR from 1.1% to 1.7%, the share at LAX from 2.1% to

3.5%, and the share at CMA from 1.2% to 2.5%. In addition, the number of annual general aviation 727 operations at LAX would increase by 32. Except for the 727s at LAX, the number of Stage 3 business jet operations at these airports would not be affected.

Under Alternative 2, which exempts all Stage 3 operations from the phaseout, the GA 727 operations at VNY would not shift to LAX. Except for this, there is no difference in diversion between the project and Alternative 2.

The proposed phaseout has the greatest impact on noisy jet operations at BUR, LAX, and CMA in 2014, but it will also affect operations in 2016 at CNO and WJF when exemptions on noisy aircraft maintenance activity and privately owned former military aircraft operations at VNY expire. A total of 260 annual operations are expected to shift to WJF, based on 65 maintenance visits with one arrival, one departure, and one test flight per visit. The maintenance activity is expected to involve Gulfstream II and Gulfstream III aircraft, and all operations are expected to occur during daytime hours. A total of 100 annual operations are expected to shift to CNO.

Aircraft Noise

With implementation of the project, noise levels generated by VNY aircraft operations in 2014 would increase beyond the 2007 baseline levels, but this increase would be lower than that anticipated for the No Project scenario (Alternative 1). Alternative 2 would also lead to a lesser increase in noise levels at VNY, though greater than that of the project. Table 4.2-48 compares the estimated 2014 noise effects at VNY associated with the project and the two alternatives, including the projected increases in CNEL and the increases in the area of the 65-dB contour.

Table 4.2-48. VNY Impacts: 2014 Project and Alternatives vs. 2007 Baseline

	Estimated Changes Compared to 2007 Baseline	
Scenario	**Increase in area within 65 dB CNEL**	**Change in CNEL**
2014 Proposed Project	+6.6%	+0.4 dB
2014 Alternative 1, No Project	+13.3%	+0.8 dB
2014 Alternative 2, Exempted Stage 3 and Stage 4 Aircraft	+6.8%	+0.4 dB

Source: HMMH & SH&E, 2008

To further illustrate the benefits of the phaseout variations, Table 4.2-49 compares the 2014 project and Alternative 2 to the 2014 Alternative 1 conditions. As the table shows, the two phaseout variations would similarly reduce the area within the 65-dB

CNEL by approximately 6% and slightly reduce CNEL, when compared to forecasted No Project conditions.

Table 4.2-49. VNY Alternative Comparison: 2014 Project and Alternative 2 vs. 2014 Alternative 1

	Estimated Changes Compared to 2014 Alternative 1	
Scenario	**Increase in area within 65 dB CNEL**	**Change in CNEL**
2014 Proposed Project	-6.0%	-0.4 dB
2014 Alternative 2	-5.8%	-0.4 dB

Source: HMMH & SH&E, 2008

As the tables show, the project would have a beneficial noise impact at VNY by reducing noise levels received by surrounding receptors.

The differences in 2014 contour expansion associated with the project and Alternative 2, as compared to the 2014 No Project scenario, are depicted in Figures 4.2-2 through 4.2-4.

While the project noise exposure in 2014 would be greater than the 2007 baseline noise exposure (Figure 4.2-2), the increase is the result of projected growth in airport activity that would occur independent of the project, since the 2014 proposed project CNEL contours are smaller than the 2014 No Project contours (Figure 4.2-3). The growth in noise exposure from 2007 to 2014 without the project (as shown above in Figure 4.2-1) is noticeably greater than the growth from 2007 to 2014 with the project (Figure 4.2-2) (i.e., the proposed project mitigates the projected growth in exposure).The estimated project noise exposure in 2014 is essentially identical to Alternative 2 (Figure 4.2-4); the exemption permits such a small number of aircraft to continue operating that the benefit of the restriction is not noticeably affected.

The proposed project and Alternative 2 would both reduce noise received in the vicinity of VNY. Because the project and Alternative 2 would not contribute to the increase in noise levels in comparison to baseline and the noise levels would not increase by 1.5 dB or greater within the 65-dB contour, this impact at VNY is less than significant.

Population, Dwelling Unit, and Sensitive-Receptor Impact Analyses

To further quantify the benefits of the project at VNY, land use analyses were undertaken to estimate the numbers of residential dwelling units, the residential

population, and other effects on potentially sensitive land uses within the contours presented in the preceding figures that would be affected by the project-related reductions in noise. This analysis does not specifically address the significance thresholds listed in Section 4.2.4.1, but is provided for informational purposes to show project effects at residences in the vicinity of VNY.

The top half of Table 4.2-50 presents the total estimated residential dwelling units and population within the 65 to 70 and 70 to 75 dB CNEL contour bands (the only two bands encompassing any residential use). The bottom half of the table presents the estimated dwelling units and population that are outside the area within which LAWA expects to have completed sound insulation treatment by the end of 2009.

As the table shows, the project would reduce the number of dwelling units that would require sound insulation in 2014, from 2,558 (no-project conditions) to 2,400 (project conditions). Because of the very slight increase in noise associated with the additional exemption proposed in Alternative 2, the alternative would add one more dwelling unit requiring sound insulation than would the proposed project.

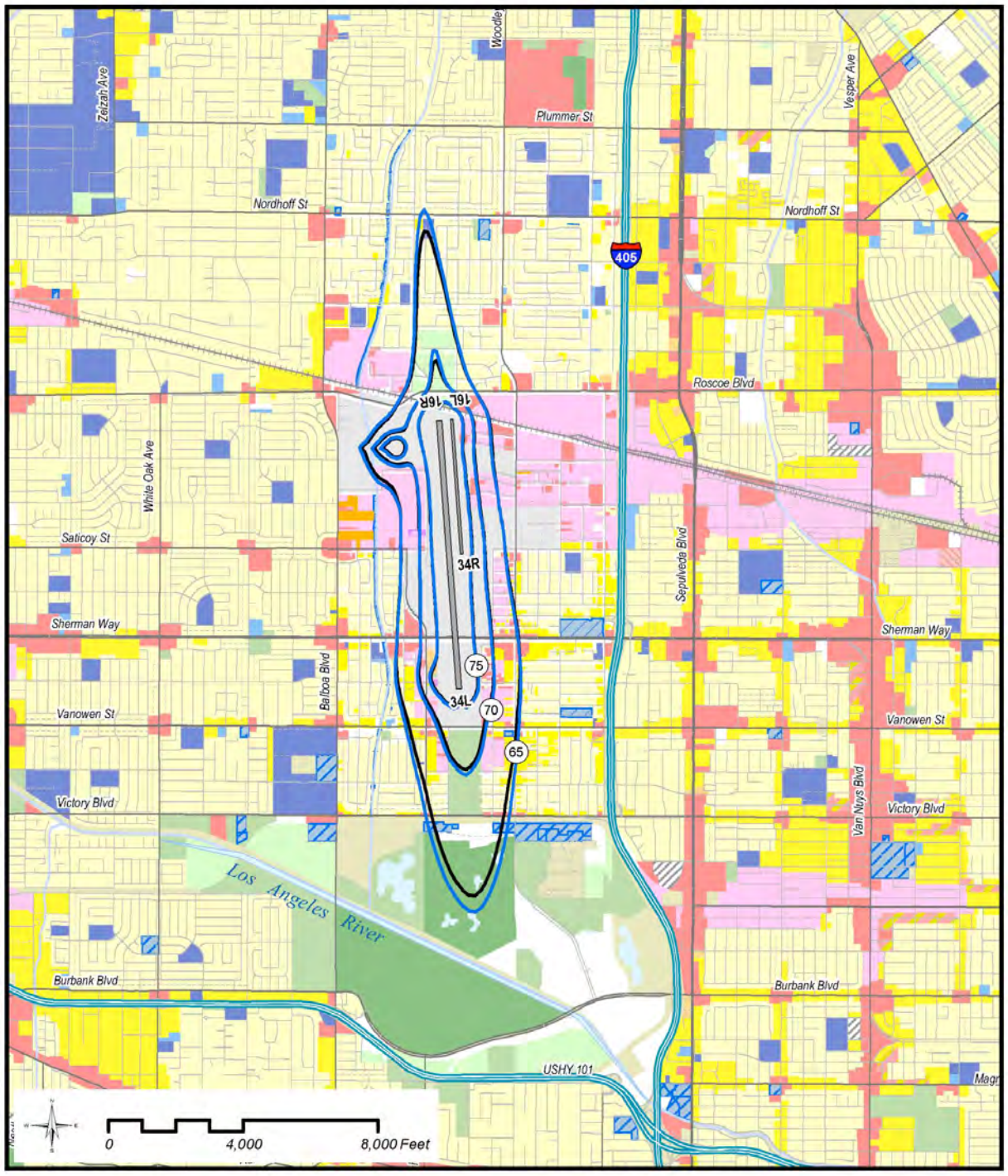

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Figure 4.2-2
CNEL Contours at VNY: Baseline and 2014 Project
Van Nuys Airport Noisier Aircraft Phaseout EIR

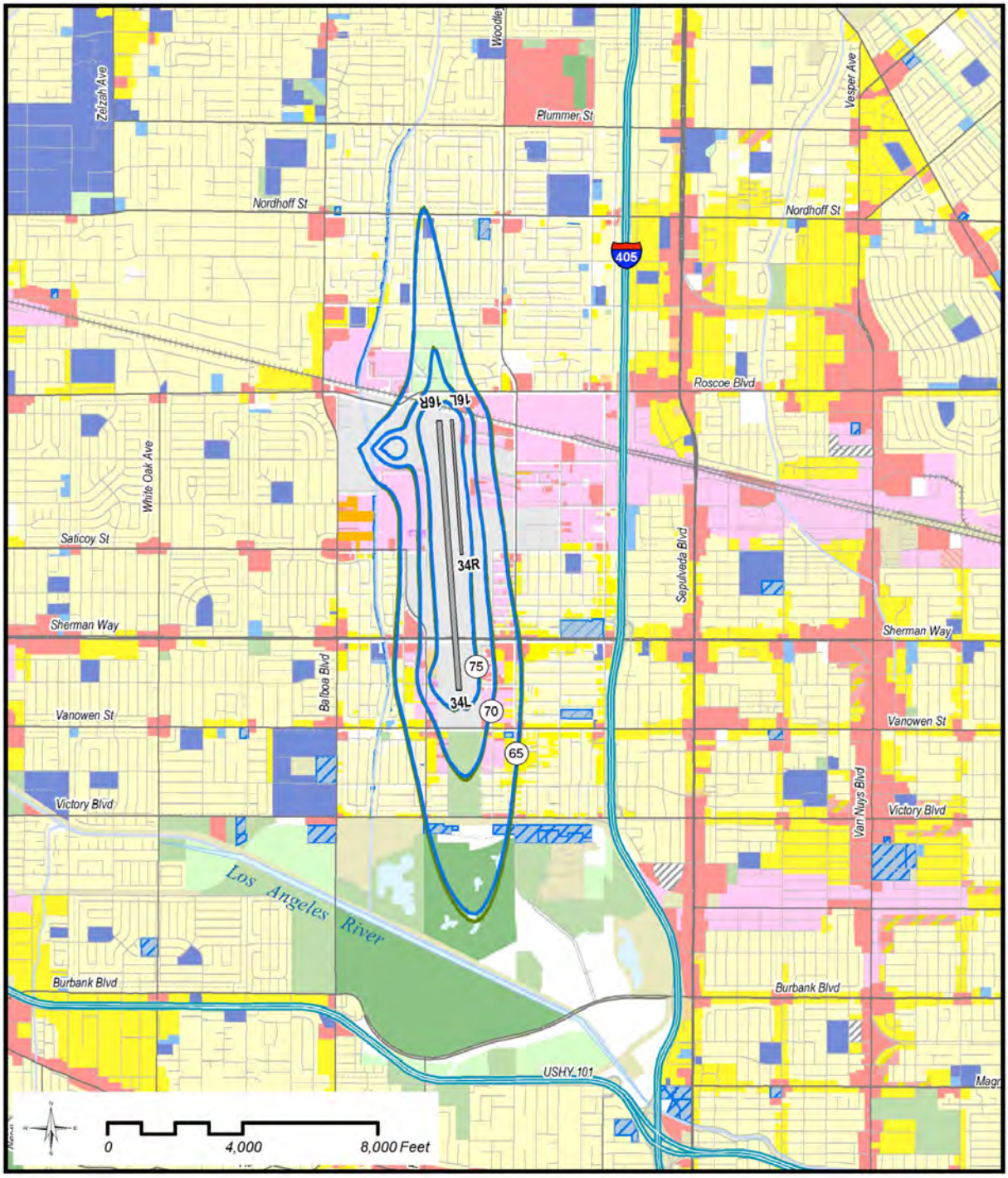

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Figure 4.2-3
CNEL Contours at VNY: 2014 Forecast and 2014 Project
Van Nuys Airport Noisier Aircraft Phaseout EIR

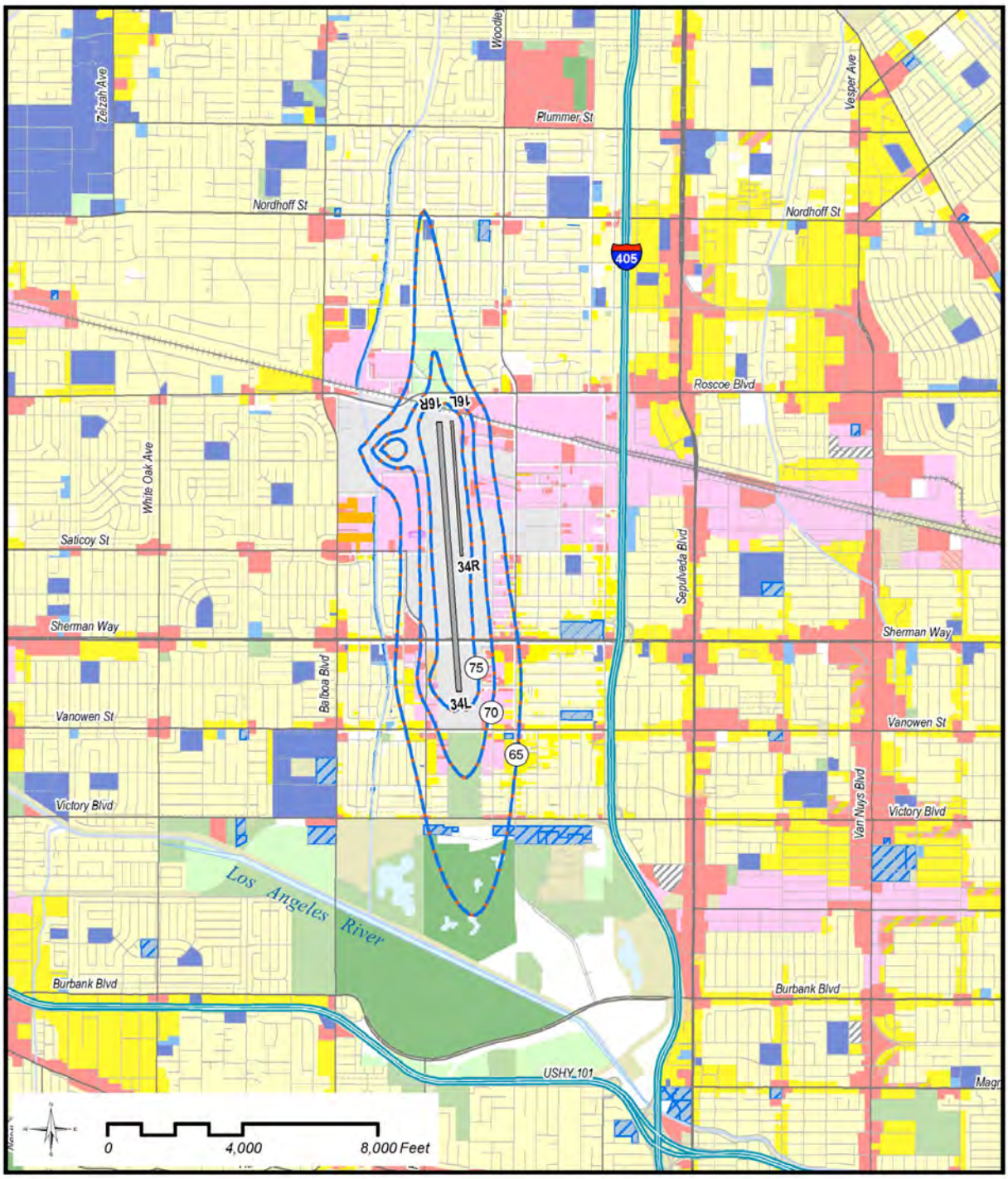

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Figure 4.2-4
CNEL Contours at VNY: 2014 Project and 2014 Alternative 2
Van Nuys Airport Noisier Aircraft Phaseout EIR

Table 4.2-50. VNY Impacts: Estimated Dwelling Units and Residents within 2007 and 2014 CNEL Contours (with and without sound insulation)

		Analysis Year, Case, and CNEL Contour Interval											
		2007			**2014**								
		Baseline			**Project**			**Alt. 1**			**Alt. 2**		
Basis for Counts	**Type of Count***	**65–70 CNEL**	**70–75 CNEL**	**Total**	**65–70 CNEL**	**70–75 CNEL**	**Total**	**65–70 CNEL**	**70–75 CNEL**	**Total**	**65–70 CNEL**	**70–75 CNEL**	**Total**
Dwelling units within the contours	S.F. D.U.	411	8	419	626	9	635	688	9	697	627	9	636
	S.F. Pop.	1,320	39	1,359	1,957	42	1,999	2,138	42	2,180	1,960	42	2,002
	M.F. D.U.	1,600	27	1,627	1,922	110	2,032	1,958	170	2,128	1,922	110	2,032
	M.F. Pop.	5,451	104	5,555	6,421	438	6,859	6,496	663	7,159	6,421	438	6,859
	Total D.U.	2,100	35	2,135	2,548	119	2,667	2,646	179	2,825	2,549	119	2,668
	Total Pop.	6,771	143	6,914	8,378	480	8,858	8,634	705	9,339	8,381	480	8,861
Dwelling units within contours and lacking sound insulation under existing conditions**	S.F. D.U.	400	0	400	615	1	616	677	1	678	616	1	617
	S.F. Pop.	1,286	0	1,286	1,927	4	1,931	2,104	4	2,108	1,926	4	1,930
	M.F. D.U.	1,379	0	1,379	1,784	0	1,784	1,820	60	1,880	1,784	0	1,784
	M.F. Pop.	4,659	0	4,659	5,963	0	5,963	6,038	225	6,263	5,963	0	5,963
	Total D.U.	1,779	0	1,779	2,399	1	2,400	2,497	61	2,558	2,400	1	2,401
	Total Pop.	5,945	0	5,945	7,890	4	7,894	8,142	229	8,371	7,889	4	7,893

*S.F. = single family, M.F. = multifamily, D.U. = dwelling units. **See discussion and figure in Appendix B.5.3.1.

Source: HMMH & SH&E, 2008.

As discussed in Section 4.2.2, Regulatory Setting, the City of Los Angeles CEQA Guidelines state that airport-related noise analyses must consider all potentially sensitive land uses within the 65-dB CNEL contour. Following land use-compatibility criteria established by LAWA (Noise Report Appendix B.3, Table B.3.1), there is only one parcel containing potentially noise-sensitive, nonresidential land uses within any of the VNY noise contours depicted in the preceding figures. That parcel is occupied by the Los Angeles Baptist City Mission, at 16514 Nordhoff Street (North Hills). The property includes a house of worship and school, and is shown on Figure 5 of the Noise Report (see Appendix B).

Supplemental analysis was conducted to specify future noise levels at this receptor, comparing project conditions to those of the alternatives. Table 4.2-51 presents the results of this supplemental analysis, and shows that 2014 forecasts with the project would result in a 1.1-dB increase above the 2007 baseline; this is approximately 0.1 dB less than in 2014 forecasts without the project (Alternative 1). Alternative 2 conditions are not anticipated to differ from those of the proposed project.

Table 4.2-51. Supplemental Noise Analysis Results for the Los Angeles Baptist City Mission

				CNEL Difference 2014 Project CNEL Minus:		
2007 Baseline CNEL	**2014 Project CNEL**	**2014 Alt. 1 CNEL**	**2014 Alt. 2 CNEL**	**2007 Baseline CNEL**	**2014 Alt. 1 CNEL**	**2014 Alt. 2 CNEL**
64.3 dB	65.4 dB	65.5 dB	65.4 dB	1.1 dB	-0.1 dB	0.0 dB

Source: HMMH & SH&E, 2008

Supplemental analysis conducted for 1,254 residential receptors in proximity of VNY, presented in Appendix B.7 of the Noise Report (Appendix B), indicated that the greatest increase between 2007 baseline CNEL and 2014 project forecasts, as received at these receptors, is 1.3 dB, and that the project would either result in the same or less noise exposure in 2014 compared to No Project conditions.

Effect of Historic Aircraft and Maintenance-Related Exemptions

Though it does not specifically address a significance thresholds identified in Section 4.2.4.1, it is useful for informational purposes to describe the noise implications of the project's inclusion of the exemptions for historic-aircraft operations and maintenance-related operations. The proposed exemptions for historic aircraft and maintenance-related operations would permit a small number of operations at VNY by aircraft that exceed the departure noise limits; the forecast of exempted operations indicates a maximum of 362 such operations per year in 2014, slightly less than one per day. To illustrate the negligible effect of these exempted operations, Figure 4.2-5 compares 2014 CNEL contours for the proposed project to separate contours that include each of the two categories of exempted operations. As the figure indicates, the effect of the small number of exempted operations is minimal.

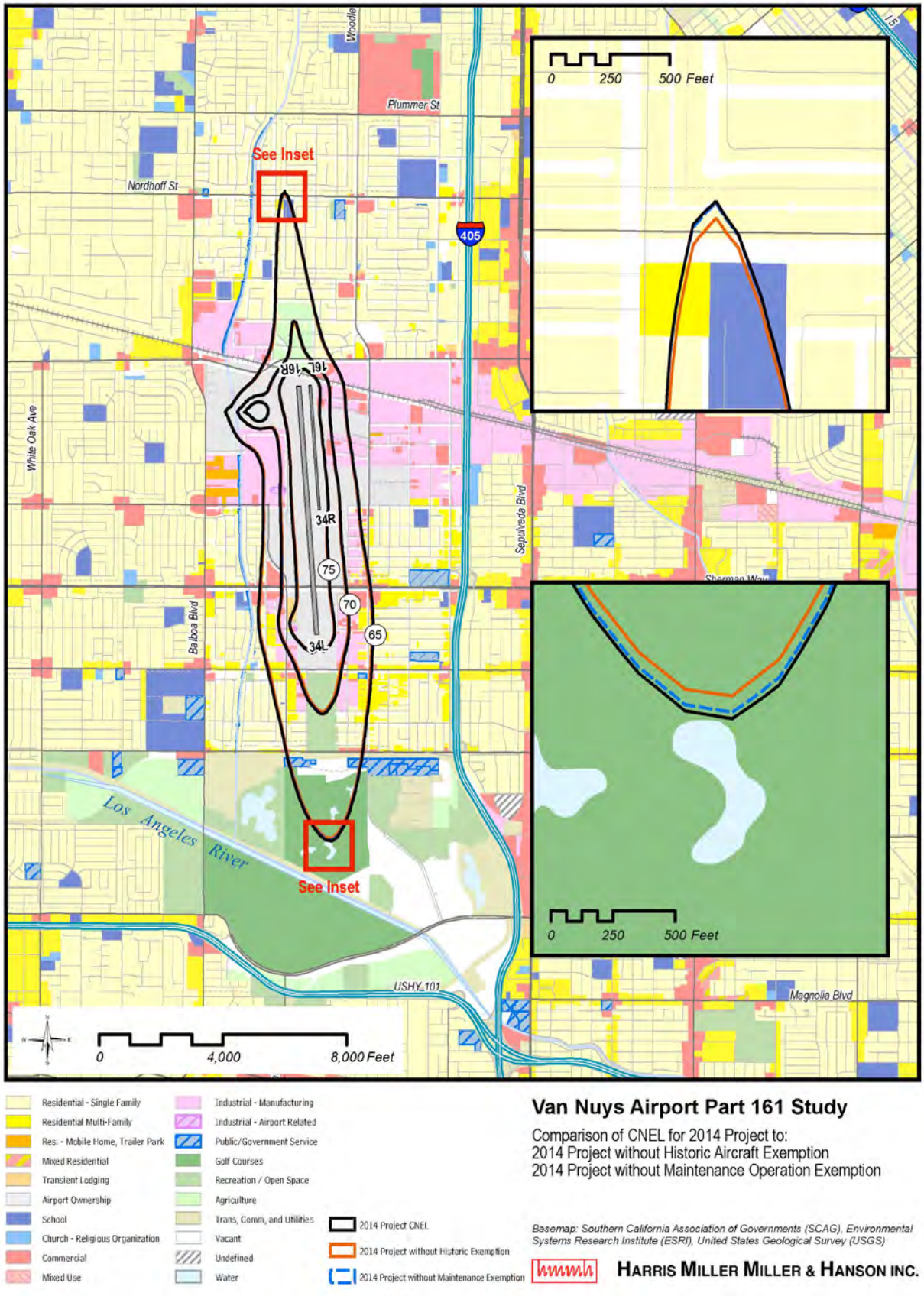

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Figure 4.2-5
CNEL Contours at VNY: Effects of Proposed Exemptions
Van Nuys Airport Noisier Aircraft Phaseout EIR

4.2.4.3 Noise Impacts at Diversion Airports

Project-related diversion of aircraft operations from VNY would increase noise levels at BUR, LAX, CMA, CNO, and WJF beyond their forecasted levels, to varying degrees. Two types of noise analyses were conducted for the diversion airports: a screening to determine if the additional project-related operations would result in an increase in CNEL noise exposure that reaches the identified significance threshold of 1.5 dB; and a so-called "Berkeley Jets" analysis to consider the potential effects of individually noticeable noise levels. The Berkeley Jets analysis is a type of "single event" analysis that focuses on noise exposure associated with *individual* aircraft operations, in contrast to the CNEL-based assessment of exposure averaged over a course of time. Berkeley Jets analyses have most often been applied to assess nighttime noise, but at a more fundamental level, they address the inadequacy of CNEL to fully describe potential noise impacts of individual aircraft "noise events," regardless of the time of day.[9]

By including the Berkeley Jets analysis, this EIR goes beyond CNEL analysis to provide detailed information about the frequency and single-event noise levels of the diverted operations. For each of the diversion airports, this analysis tabulates the number and frequency of potential diversions and the corresponding percentage increases in operations during the three CNEL time periods (day: 7 a.m.–7 p.m., evening: 7 p.m.–10 p.m., and night: 10 p.m.–7 a.m.). Appendix B.8 presents a more detailed "supplemental" Berkeley Jets analysis that further categorizes the diverted aircraft types according to their relative "noisiness," based on their departure noise levels, (since the diverted types are far noisier on departure than arrival). It compares the changes in activity to the underlying frequency of operations at the airports in the same noise categories. By doing this, the analysis assessed whether the diversions would result in a dramatic shift in the overall distribution of operations by noisiness.

Since the maximum anticipated effect on operations at BUR, LAX, and CMA would occur in 2014, it was used as the forecast year for analysis at those airports. Project-related impacts would continue to occur beyond that year, but would be lower than in 2014 due to the retirement of older jets that is expected to occur independent of the project. Since there would be no effect on operations at CNO and WJF until 2016, that year was used as the forecast year for analyses at those airports for both the CNEL and Berkeley Jets analyses. As with the 2014 impacts noted above, impacts would continue to occur beyond 2016, but would be lower due to older jet retirement.

[9] Berkeley Jets analyses have become common in California since a 2001 decision of the California Court of Appeals that found that, for purposes of preparing an EIR that complies with CEQA, sole reliance on the CNEL metric is not necessarily sufficient to provide adequate information on potential noise impacts in areas outside 65 dB CNEL (Berkeley Keep Jets Over the Bay Committee v. Board of Port Commissioners, [2001] 91 Cal. App. 4th 1344.) The court noted in its decision that "fundamental information about the project's noise impacts…specifically included the number of additional nighttime flights that would occur under the project, the frequency of those flights, and their effect on sleep," information that is not always made apparent by merely analyzing CNEL impacts.

Bob Hope Airport

An estimated total of 192 business jet operations are anticipated to shift to BUR in 2014, or an average of 0.52 per day. No other types of aircraft are anticipated to divert to BUR. Table 4.2-52 shows the estimated distribution of transferred operations by day, evening, and night.

Table 4.2-52. 2014 Business Jet Operations Shifted from VNY to BUR

Operation Type	Day	Evening	Night	Total
Departures	83	12	1	96
Arrivals	75	13	8	96
Total	**158**	**25**	**9**	**192**

Note: Totals may not equal sum of columns due to rounding.
Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: FAA ASDI data, SH&E analysis. HMMH & SH&E, 2008

Noise Levels Impacts

The small amount of project-related diversions to BUR would lead to minor increases in noise levels beyond the increases forecast for 2014. As Table 4.2-53 shows, the project is estimated to produce a 1.5% increase in 65 dB contour area and a 0.1 dB increase in CNEL exposure in 2014, when compared to the forecast conditions. These increases would be generally unnoticeable to the human ear. When compared to the 2007 baseline conditions, a 1.0-dB increase is anticipated to occur. BUR would be unaffected by the Alternative 2 exemptions, and Alternative 2 would have the same impacts as the project. Diversions would continue to occur at BUR after 2014, but the noise impacts would be lower due to retirement of older jets that is expected to occur independently of the project. Because neither the project nor Alternative 2 would increase noise within the 65-dB contour at BUR by 1.5 dB or more in 2014, this impact is less than significant. Impacts would be lower in 2016 and, therefore, would also be less than significant in that planning year.

Table 4.2-53. BUR Impacts: 2014 Project and Alternatives vs. 2007 Baseline

	2014 VNY Proposed Project		2014 VNY Alternative 1		2014 VNY Alternative 2	
	Area	**CNEL**	**Area**	**CNEL**	**Area**	**CNEL**
2007 BUR Baseline	+16.3%	+1.0 dB	+14.6%	+0.9 dB	+16.3%	+1.0 dB
2014 BUR Forecast	+1.5%	+0.1 dB	--	--	+1.5%	+0.1 dB

Note: Percent change in area within 65 dB CNEL and approximate decibel change in CNEL for cases listed above compared to baseline listed on left (i.e., case listed above minus case listed on left; positive entry means case listed above is "noisier").

Source: HMMH & SH&E, 2008

The Burbank-Glendale-Pasadena Airport Authority recently released an Official Draft Part 161 Application for a Proposed Curfew at BUR.[10] That application uses a 2015 forecast year. Table 4.2-54 presents the results of an AEM analysis that applied the forecast 2014 VNY diversions to the BUR 2015 forecast, both with and without the BUR curfew in place. Since the noise level limit at VNY would be the same in 2015 as in 2014 (because no additional noise limits are proposed at VNY in 2015), and since operations in the aircraft types that would be affected by the phaseout are expected to decrease slowly over time, even in the absence of the phaseout, the 2014 diversions provide a slightly conservative (i.e., "worst-case") assumption to assess at BUR.

Table 4.2-54. BUR 2015 Impacts, With and Without Proposed BUR Curfew

	Effect of VNY Proposed Project		**Effect of VNY Alternative 1, No-Project Alternative**		**Effect of VNY Alternative 2, Exempted Stage 3 and 4 Aircraft**	
	Area	**CNEL**	**Area**	**CNEL**	**Area**	**CNEL**
2015 BUR Forecast	+0.9%	+0.1 dB	+0.0%	+0.0 dB	+0.9%	+0.1 dB
2015 BUR Curfew	+1.5%	+0.1 dB	+0.0%	+0.0 dB	+1.5%	+0.1 dB

Note: Percent change in area within 65 dB CNEL and approximate decibel change in CNEL for cases listed above compared to baseline listed on left (i.e., case listed above minus case listed on left; positive entry means case listed above is "noisier")..

Source: HMMH & SH&E, 2008

Table 4.2-54 reveals that neither the project nor either of the alternatives under consideration at VNY would result in a significant change in noise exposure compared to 2015 forecast conditions at BUR, with or without the adoption of a curfew at that airport.

Berkeley Jets Impacts

Table 4.2-55 provides a summary of relevant statistics related to the number and frequency of operations that the project would divert to BUR, as further discussed in Appendix B.8 (see pg. B.8-9 through B.8-13). The area surrounding BUR is mostly developed, with a mixture of residential and commercial uses. As the table shows, the absolute number of diverted operations to BUR is very small. The most frequent occurrence of operational diversions to BUR is anticipated to be in the daytime, averaging one operation every two days. Additional nighttime operations are anticipated to be very seldom, occurring, on average, once every 30 days. This frequency of additional operations at BUR would not provide a substantial disturbance to the surrounding receptors, especially at night. Because the project would not cause a daily average of one or more additional night flights to occur at BUR, the Berkeley Jets impacts at BUR are less than significant.

[10] Jacobs Consultancy. 2008. Official Draft FAR Part 161 Application for a Proposed Curfew at Bob Hope Airport. Prepared for Burbank-Glendale-Pasadena Airport Authority, Burbank, CA. March.

Table 4.2-55. Frequency Statistics for Additional Operations at BUR: Project and Alternative 2

	Statistics Related to Diverted Operations by CNEL Time Period								
	Day (7 a.m.–7 p.m.)			Evening (7 p.m.–10 p.m.)			Night (10 p.m.–7 a.m.)		
Airport	No. of Diverted Day Ops (per day)	Percent Increase in Day Ops	Days between Diverted Ops	No. of Diverted Evening Ops (per day)	Percent Increase in Evening Ops	Days between Diverted Ops	No. of Diverted Night Ops (per day)	Percent Increase in Night Ops	Days between Diverted Ops
BUR	0.431	0.142%	2	0.062	0.096%	16	0.033	0.088%	30

Source: HMMH & SH&E, 2008

Los Angeles International Airport

An estimated total of 62 business jet operations are anticipated to shift to LAX in 2014, or an average of 0.17 per day. Table 4.2-56 shows the estimated distribution of this increase between day, evening, and night.

Table 4.2-56. 2014 Business Jet Operations Shifted from VNY to LAX

Operation Type	Day	Evening	Night	Total
Departures	27	3	1	31
Arrivals	24	4	2	31
Total	**51**	**8**	**3**	**62**

Note: Totals may not equal sum of columns due to rounding in modeling analysis.
Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Noise Level Impacts

The minimal project-related increase in operations would not produce a perceptible increase in noise beyond the forecast 2014 levels. As Table 4.2-57 shows, neither the project nor Alternative 2 would increase the CNEL or the area within the airport's 65 dB contour. Diversions from VNY represent a very small percentage of the total air traffic at LAX, which is one of the busiest airports in the world. Normal forecast growth in activity at LAX would overwhelm any change associated with project-related diversions from VNY. Diversions would continue to occur at LAX after 2014, but the noise impacts would be lower due to retirement of older jets that is expected to occur independently of the project. Because neither the project nor Alternative 2 would increase noise within the 65-dB contour at LAX by 1.5-dB or more, this impact is less than significant. Impacts would be lower in 2016 and, therefore, would also be less than significant in that planning year.

Table 4.2-57. LAX Impacts: 2014 Project and Alternatives vs. 2007 Baseline

	2014 Proposed Project		2014 Alternative 1		2014 Alternative 2	
	Area	**CNEL**	**Area**	**CNEL**	**Area**	**CNEL**
2007 LAX Baseline	+6.0%	+0.4 dB	+6.0%	+0.4 dB	+6.0%	+0.4 dB
2014 LAX Forecast	+0.0%	+0.0 dB	--	--	+0.0%	+0.0 dB

Note: Percent change in area within 65 dB CNEL and approximate decibel change in CNEL for cases listed above compared to baseline listed on left (i.e., case listed above minus case listed on left; positive entry means case listed above is "noisier").

Source: HMMH & SH&E, 2008; analysis based on LAWA, LAX Senior and Subordinate Revenue Bonds Series 2008 - Final Official Statement

Berkeley Jets Impacts

Table 4.2-58 provides a summary of relevant statistics related to the number and frequency of operations that the project would divert to LAX, as further discussed in Appendix B.8 (see pg. B.8-4 through B.8-8). Alternative 2 impacts would be less than these, because the additional exemption would keep operations at VNY that would transfer to LAX under the project. As the table shows, the absolute number of diverted operations to LAX is very small. For any given CNEL time period, diversions would occur no more frequently than once every nine days, on average. At night, the time period of particular interest in the Berkeley Jets decision, the diversions would be the rarest—estimated at once every four months—and would not be noticeable compared to the large amount of traffic that exists under baseline and forecast conditions, regardless of project implementation. Because the project would not cause a daily average of one or more additional night operations to occur at LAX, the Berkeley Jets impacts at LAX are less than significant.

Table 4.2-58. Frequency Statistics for Additional Operations at LAX: Project Only

	Statistics Related to Diverted Operations by CNEL Time Period								
	Day (7 a.m.–7 p.m.)			Evening (7 p.m.–10 p.m.)			Night (10 p.m.–7 a.m.)		
Airport	No. of Diverted Day Ops (per day)	Percent Increase in Day Ops	Days between Diverted Ops	No. of Diverted Evening Ops (per day)	Percent Increase in Evening Ops	Days between Diverted Ops	No. of Diverted Night Ops (per day)	Percent Increase in Night Ops	Days between Diverted Ops
LAX	0.116	0.009%	9	0.047	0.015%	21	0.009	0.002%	128

Source: HMMH & SH&E, 2008

Camarillo Airport

An estimated total of 115 business jet operations are anticipated to shift to CMA in 2014, or an average of 0.31 per day. Table 4.2-59 shows the estimated breakdown of this increase between day, evening, and night.

Table 4.2-59. 2014 Business Jet Operations Shifted from VNY to CMA

Operation Type	Day	Evening	Night	Total
Departures	50	7	0	58
Arrivals	45	8	5	58
Total	**94**	**15**	**5**	**115**

Note: Totals may not equal sum of columns due to rounding.

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Noise Level Impacts

The small amount of project-related diversions to CMA would lead to minor increases in noise levels beyond the forecast 2014 levels. As Table 4.2-60 shows, the project would result in approximately a 19.8% increase in the area within the 65 dB CNEL contour and approximately a 1.1 dB overall increase in CNEL compared to the 2007 baseline, which is only a 5.3% increase in area and 0.3 dB increase in CNEL exposure compared to the 2014 forecast represented by Alternative 1. CMA operations would be unaffected by the Alternative 2 exemptions, and impacts would be the same as under the project. Diversions would continue to occur at CMA after 2014, but the noise impacts would be lower due to retirement of older jets that is expected to occur independently of the project. Because neither the project nor Alternative 2 would increase noise within the 65-dB contour at CMA by 1.5 dB or more this impact is less than significant. Impacts would be lower in 2016 and, therefore, would also be less than significant in that planning year.

Table 4.2-60. CMA Impacts: 2014 Project and Alternatives vs. 2007 Baseline

	2014 VNY Proposed Project		2014 VNY Alternative 1		2014 VNY Alternative 2	
	Area	**CNEL**	**Area**	**CNEL**	**Area**	**CNEL**
2007 CMA Baseline	+19.8%	+1.1 dB	+13.8%	+0.8 dB	+19.8%	+1.1 dB
2014 CMA Forecast	+5.3%	+0.3 dB	--	--	+5.3%	+0.3 dB

Note: Percent change in area within 65 dB CNEL and approximate decibel change in CNEL for cases listed above compared to baseline listed on left (i.e., case listed above minus case listed on left; positive entry means case listed above is "noisier").

Source: HMMH & SH&E, 2008

Berkeley Jets Impacts

Table 4.2-61 provides a summary of relevant statistics related to the number and frequency of operations that the project would divert to CMA, as further discussed in Appendix B.8 (see pg. B.8-14 through B.8-18). As the table shows, the absolute number of diverted operations to CMA is very small. The most frequent occurrence of operational diversions to CMA is anticipated to be in the daytime, averaging one operation every four days. At night, the diversions would be the rarest—estimated at approximately once every 50 days. Because the project would not cause a daily average of one or more additional night operations to occur at CMA, the Berkeley Jets impacts at CMA are less than significant.

Table 4.2-61. Frequency Statistics for Additional Operations at CMA: Project and Alternative 2

	Statistics Related to Diverted Operations by CNEL Time Period								
	Day (7 a.m.–7 p.m.)			Evening (7 p.m.–10 p.m.)			Night (10 p.m.–7 a.m.)		
Airport	No. of Diverted Day Ops (Per Day)	Percent Increase in Day Ops	Days between Diverted Ops	No. of Diverted Evening Ops (Per Day)	Percent Increase in Evening Ops	Days between Diverted Ops	No. of Diverted Night Ops (Per Day)	Percent Increase in Night Ops	Days between Diverted Ops
CMA	0.257	0.062%	4	0.037	0.135%	27	0.020	0.174%	50

Source: HMMH & SH&E, 2008

Chino Airport

Privately owned former-military jets that cannot operate at VNY when the exemption expires in 2016 are all expected to shift to CNO, which is a center for military aircraft restoration. Table 4.2-62 shows the expected shift in operations, a total of 100 annual operations, or an average of 0.27 per day. Given current usage patterns at VNY, most operations are expected to occur during daytime hours, with a small number of evening and night flights.

Table 4.2-62. 2016 Privately Owned Former Military Jet Operations Shifted to CNO

Operation Type	Day	Evening	Night	Total
Departures	42	4	4	50
Arrivals	50	0	0	50
Total	**92**	**4**	**4**	**100**

Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Noise Level Impacts

The small amount of project-related diversions to CNO would lead to minor increases in noise levels beyond the forecast 2016 levels. Without project implementation (i.e., under Alternative 1), noise levels are anticipated to decrease at CNO as a result of the non-project-related retiring of older Stage 1 and Stage 2 jets. The project would result in increases in noise levels, but very minor ones. Table 4.2-63 shows that the project would result in approximately a 5.9% increase in the area within the 65 dB CNEL contour and approximately a 0.4 dB overall increase in CNEL compared to the 2007 baseline and a 7.5% increase in area and 0.5 dB increase in CNEL exposure over forecast conditions in 2016. CNO would be unaffected by the Alternative 2 exemptions, and Alternative 2 would have the same impacts as the project. Diversions would continue to occur at CNO after 2016, but the noise impacts would be lower due to retirement of older jets that is expected to occur independently of the project. Because neither the project nor Alternative 2 would increase noise within the 65-dB contour at CNO by 1.5 dB or more this impact is less than significant.

Table 4.2-63. CNO Impacts: 2016 Project and Alternatives vs. 2007 Baseline

	2016 VNY Proposed Project		2016 VNY Alternative 1		2016 VNY Alternative 2	
	Area	**CNEL**	**Area**	**CNEL**	**Area**	**CNEL**
2007 CNO Baseline	+5.9%	+0.4 dB	-1.5%	-0.1 dB	+5.9%	+0.4 dB
2016 CNO Forecast	+7.5%	+0.5 dB	--	--	+7.5%	+0.5 dB

Note: Percent change in area within 65 dB CNEL and approximate decibel change in CNEL for cases listed above compared to baseline listed on left (i.e., case listed above minus case listed on left; positive entry means case listed above is "noisier").

Source: HMMH & SH&E, 2008

Berkeley Jets Impacts

Table 4.2-64 provides a summary of relevant statistics related to the number and frequency of operations that the project would divert to CNO, as further discussed in Appendix B.8 (see pg. B.8-19 through B.8-23). As the table shows, the absolute number of diverted operations to CNO is very small. The most frequent occurrence

of operational diversions to CNO is anticipated to be in the daytime, averaging one operation every four days. Additional nighttime and evening operations are anticipated to occur once every 92 days. Because the project would not cause a daily average of one or more additional night operations to occur at CNO, the Berkeley Jets impacts at CNO are less than significant.

Table 4.2-64. Frequency Statistics for Additional Operations at CNO: Project and Alternative 2

	Statistics Related to Diverted Operations by CNEL Time Period								
	Day (7 a.m.–7 p.m.)			**Evening (7 p.m.–10 p.m.)**			**Night (10 p.m.–7 a.m.)**		
Airport	No. of Diverted Day Ops (per day)	Percent Increase in Day Ops	Days between Diverted Ops	No. of Diverted Evening Ops (per day)	Percent Increase in Evening Ops	Days between Diverted Ops	No. of Diverted Night Ops (per day)	Percent Increase in Night Ops	Days between Diverted Ops
CNO	0.251	0.055%	4	0.011	0.034%	92	0.011	0.181%	92

Source: HMMH & SH&E, 2008

William J. Fox Airport

When the maintenance exemption expires in 2016, a total of 260 annual operations are expected to shift to WJF, based on the usual occurrence of 65 maintenance visits with one arrival, one departure, and one test flight per visit (Table 4.2-65). The maintenance activity is expected to involve Gulfstream II and Gulfstream III aircraft. All operations are expected to occur during daytime hours when maintenance-related flights typically take place.

Table 4.2-65. 2016 Maintenance-Related Operations Shifted to WJF

Operation Type	Day	Evening	Night	Total
Departures	130	0	0	130
Arrivals	130	0	0	130
Total	**260**	**0**	**0**	**260**

Note: Day = 7 a.m. – 7 p.m.; Evening = 7 p.m. – 10 p.m.; Night = 10 p.m. – 7 a.m.

Source: HMMH & SH&E, 2008

Noise Level Impacts

The small amount of project-related diversions to CNO would lead to minor increases in noise levels above the forecast 2016 levels. As at CNO, noise levels are anticipated to decrease at WJF without project implementation (i.e., under Alternative 1) as a result of the non-project-related retiring of older, noisier aircraft. Under project conditions, noise levels would also decrease, but at a lower rate than under Alternative 1. Table 4.2-66 shows that the project would present a 3.9% increase in area and 0.2 dB increase in CNEL exposure over 2016 forecast

conditions. WJF would be unaffected by the Alternative 2 exemptions, and Alternative 2 would have the same impacts as the project. Diversions would continue to occur at WJF after 2016, but the noise impacts would be lower due to retirement of older jets that is expected to occur independently of the project. Because neither the project nor Alternative 2 would increase noise within the 65-dB contour at WJF by 1.5 dB or more this impact is less than significant.

Table 4.2-66. WJF Impacts: 2016 Project and Alternatives vs. 2007 Baseline

	2016 VNY Proposed Project		2016 VNY Alternative 1		2016 VNY Alternative 2	
	Area	**CNEL**	**Area**	**CNEL**	**Area**	**CNEL**
2007 WJF Baseline	-4.9%	-0.3 dB	-8.5%	-0.5 dB	-4.9%	-0.3 dB
2016 WJF Forecast	+3.9%	+0.2 dB	--	--	+3.9%	+0.2 dB

Note: Percent change in area within 65 dB CNEL and approximate decibel change in CNEL for cases listed above compared to baseline listed on left (i.e., case listed above minus case listed on left; positive entry means case listed above is "noisier").

Source: HMMH & SH&E, 2008

Berkeley Jets Impacts

Table 4.2-67 provides a summary of relevant statistics related to the number and frequency of operations that the project would divert to WJF, as further discussed in Appendix B.8 (see pg. B.8-24 through B.8-26). The area surrounding WJF is largely undeveloped and has little residential development or other receptors that would be affected by aircraft operational noise. As stated above, all project-related WJF operations are anticipated to occur during the daytime, and the additional operations are estimated to occur once a day, on average. This would not provide a substantial disturbance. Because the project would not cause a daily average of one or more additional night operations to occur at WJF, the Berkeley Jets impacts at WJF are less than significant.

Table 4.2-67. Frequency Statistics for Additional Operations at WJF: Project and Alternative 2

	Statistics Related to Diverted Operations by CNEL Time Period								
	Day (7 a.m.–7 p.m.)			Evening (7 p.m.–10 p.m.)			Night (10 p.m.–7 a.m.)		
Airport	No. of Diverted Day Ops (Per Day)	Percent Increase in Day Ops	Days between Diverted Ops	No. of Diverted Evening Ops (Per Day)	Percent Increase in Evening Ops	Days between Diverted Ops	No. of Diverted Night Ops (Per Day)	Percent Increase in Night Ops	Days between Diverted Ops
WJF	0.710	0.435%	1	--	--	--	--	--	--

Source: HMMH & SH&E, 2008

4.2.4.4 Significant Impacts and Mitigation Measures

The project would not result in any significant impacts at VNY or the diversion airports. Therefore, no mitigation is required.

4.3

AIR QUALITY

4.3.1 Introduction

The project-related displacement of aircraft to the identified diversion airports would increase aircraft operations at the diversion airports, resulting in an increase in air pollution emissions from aircraft at the diversion airports. This study evaluates the air quality effects of increased aircraft activity at the diversion airports and compares these changes to the applicable significance criteria in each location.

4.3.2 Regulatory Setting

Air quality is affected by the amount and location of pollutant emissions, and by meteorological conditions that influence movement and dispersal of pollutants. Local topography and atmospheric conditions such as wind speed, wind direction, and air temperature gradients provide the link between air pollutant emissions and air quality.

Air pollutants of concern can occur locally, near the source of emissions, or regionally, due to atmospheric interactions downwind of the source. Ozone and its precursors reactive organic gases (ROG; also known as volatile organic compounds, or VOC), and oxides of nitrogen (NOx), sulfates, visibility reducing particles, nitrogen dioxide (NO2), particulate matter of diameter 10 micrometers or less (PM10), and particulate matter of diameter 2.5 micrometers or less (PM2.5) are considered to be regional pollutants because they affect air quality on a regional scale. Ozone can be formed significantly downwind of the source of its precursors by photochemical reactions of NO2 with ROG, while PM10, PM2.5, sulfates, and decreased visibility can result from atmospheric chemical reactions involving NOx, oxides of sulfur (SOx), and ammonia. Pollutants such as carbon monoxide (CO), sulfur dioxide (SO2), lead (Pb), and particulates are considered to be local pollutants because they tend to disperse rapidly with distance from the source. Particulate matter can occur on a regional scale as a result of atmospheric interactions mentioned

above, or as direct emissions from automobile exhaust, which can accumulate in the air locally near the emission sources.

Federal, state, and local agencies have adopted rules and regulations requiring evaluation of the impact on ambient air quality of a planned project and appropriate mitigation for air pollutant emissions. Most federal programs to monitor and regulate stationary source emissions are delegated to these regional air quality management districts. State programs administered through the California Air Resources Board (CARB) provide regulatory control over air pollution emissions from mobile sources.

The federal and state laws and regulations also define a group of pollutants called hazardous air pollutants (HAPs), toxic air contaminants (TACs), or air toxics. Exposure to these pollutants can cause or contribute to cancer, birth defects, genetic damage, and other adverse health effects. The source and effects of HAPs are generally local, rather than regional. Evaluation is based on case studies, not standards for ambient concentration. Examples of air toxics include benzene, asbestos, carbon tetrachloride, ammonia, hydrogen sulfide, hydrogen cyanide, and methane.

Certain pollutants, such as carbon dioxide (CO2), are responsible for affecting the earth's climate in what is commonly known as the greenhouse effect. These gases interact with infrared radiation (heat) escaping from the earth's surface, causing a warming of the lower atmosphere. Emissions of these greenhouse gases (GHGs) from combustion of fossil fuels such as gasoline and jet fuel have resulted in an increase in the concentration of GHGs in the atmosphere and, thus, a detectible warming of the planet. Atmospheric GHG concentrations affect climate on a global scale and do not directly affect local air quality. In general, regulations involving GHGs are rare and in early stages of development. A recent California law (Assembly Bill [AB] 32, the Global Warming Solutions Act) represents the first enforceable statewide program, capping GHG emissions to 1990 levels by 2020. Although AB 32 does not amend CEQA, it has established a strong argument for addressing climate change issues at the plan level and project level through CEQA documents.

4.3.2.1 Federal Laws, Standards, and Regulations

Under the authority of the CAA, EPA has established nationwide air quality standards to protect the public health and welfare with an adequate margin of safety. The significance of a measured air pollutant concentration in a geographic region or air basin is determined by comparing it to these federal and, if applicable, state ambient air quality standards.

The federal standards, known as the National Ambient Air Quality Standards (NAAQS), defined at 40 Code of Federal Regulations (CFR) 50, represent the maximum allowable atmospheric concentrations for the following so-called criteria pollutants: ozone, NO2, SO2, PM10, CO, PM2.5, and Pb. The NAAQS are defined in terms of concentration determined over a specified time period. Based on

measured ambient criteria pollutant data, EPA designates regions as having air quality equal to or better than the NAAQS as "attainment" and those regions having worse than the NAAQS as "nonattainment." Where not enough data are available to support an attainment or nonattainment designation, the area is deemed unclassified, and treated as an attainment area.

CAA specifies future dates for achieving compliance with these standards and mandates that states submit and implement a State Implementation Plan (SIP) for local areas not meeting the NAAQS. SIPs must include pollution control measures that demonstrate how the NAAQS will be met within a time period determined by the level or classification of nonattainment.

Aircraft Emission Standards

The aircraft emission standards have a 30-year history in the U.S., with new emissions standards being set for different aspect of engines, including:

- 1974: Engine smoke and fuel venting
- 1984: Hydrocarbon emissions
- 1997: NOx and CO
- 2005: Updated NOx emission standards

The EPA standards are equivalent to the NOx emission standards of the United Nation International Civil Aviation Organization (ICAO), which is in alignment with the international standards. These standards are in effect since December 19, 2005 and apply to new aircraft engines utilized on commercial aircraft that include small jets.

Using recent FAA 2003 growth projections (68 *Federal Register* (FR) 56226), aircraft NOx emissions are projected to double by 2030. Aircraft engines produce emissions that are similar to other emissions resulting from fossil fuel combustion. However, aircraft emissions are unusual in that a significant proportion is emitted at high altitude. For the purpose of assessing the potential air quality impacts around airports, EPA suggested that the analysis of aircraft emissions should be between the ground level (airport) and the mixing height (inversion layer) of approximately 3,000 feet above ground level.

The EPA began regulating leaded fuel use in automobiles (tetraethyl lead) in the 1970s, but few restrictions are in place for aviation-use jet fuel. In 2005, EPA stated there is insufficient information to determine that aircraft lead emissions endanger public health and welfare. The EPA also stressed that because a suitable, safe, unleaded aviation fuel has not been developed, regulating leaded aviation fuel would present severe economic repercussions to general aviation businesses and operators.

Federal Climate Change Policy

Twelve U.S. states and cities (including California), in conjunction with several environmental organizations, sued to force EPA to regulate GHGs as a pollutant pursuant to the federal CAA (Massachusetts vs. EPA et al. 549 U.S. 497 (2007),]; . The Supreme Court ruled that the plaintiffs had standing to sue, that GHGs fit within the CAA's definition of a pollutant, and that EPA's reasons for not regulating GHGs were insufficiently grounded in the CAA. Despite the Supreme Court ruling, there are no promulgated federal regulations to date limiting GHG emissions. In *Center for Biological Diversity v. National Highway Traffic Safety Admin*. 508 F.3d 508 (9th Cir. 2007), a federal court ruled that GHGs must be analyzed in National Environmental Policy Act documents. There are currently no GHG emissions controls on aircraft.

4.3.2.2 State Laws, Standards, and Regulations

The California Clean Air Act (CCAA) of 1988 establishes California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress. The CCAA requires attainment of state ambient air quality standards by the earliest practicable date. Attainment plans are required for air basins in violation of the state ozone, CO, SO2, or NO2 standards. Preparation of and adherence to attainment plans are the responsibility of the local air pollution control districts or air quality management districts.

State and Federal Air Quality Standards

The state and federal air quality standards are listed in Table 4.3-1. As indicated, the averaging times for the various air quality standards (the duration over which they are measured) range from 1 hour to 1 year. The standards are read as a concentration, in parts per million (ppm), or as mass of material per a volume of air, in milligrams or micrograms of pollutant per cubic meter of air (mg/m^3 and $\mu g/m^3$, respectively). California's standard for visibility-reducing particles is measured by observation of the opacity of air under specific conditions.

Table 4.3-1. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standard	California Standard
Ozone	8-Hour	0.08 ppm (157 µg/m3)	0.07 ppm (157 µg/m3)
	1-Hour	—	0.09 ppm (180 µg/m3)
Carbon Monoxide (CO)	8-Hour	9 ppm (10 mg/m3)	9 ppm (10 mg/m3)
	1-Hour	35 ppm (40 mg/m3)	20 ppm (23 mg/m3)
Nitrogen Dioxide (NO2)	Annual	0.053 ppm (100 µg/m3)	—
	1-Hour	—	0.25 ppm (470 µg/m3)
Sulfur Dioxide (SO2)	Annual	0.03 ppm (80 µg/m3)	—
	24-Hour	0.14 ppm (365 µg/m3)	0.04 ppm (105 µg/m3)
	3-Hour	0.5 ppm (1,300 µg/m3)	—
	1-Hour	—	0.25 ppm (655 µg/m3)
Respirable Particulate Matter (PM10)	Annual	—	20 µg/m3
	24-Hour	150 µg/m3	50 µg/m3
Fine Particulate Matter (PM2.5)	Annual	15 µg/m3	12 µg/m3
	24-Hour	35 µg/m3	—
Sulfates (SO4)	24-Hour	—	25 µg/m3
Lead (Pb)	30-Day	—	1.5 µg/m3
	3-Month	1.5 µg/m3	—
Hydrogen Sulfide (H2S)	1-Hour	—	0.03 ppm (42 µg/m3)
Vinyl Chloride (chloroethene)	24-Hour	—	0.010 ppm (26 µg/m3)
Visibility Reducing Particulates	1 Observation (8-hour)	—	Extinction coefficient of 0.23 per km; less than 70% relative humidity.

Source: California Air Resources Board, February 21, 2008.

Criteria Pollutants

Ozone

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials.

Ozone is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. Ozone precursors (ROGs; equivalent to VOCs) and NOx react in the atmosphere in the presence of sunlight to form ozone. Ozone is primarily a summer air pollution problem because the photochemical reaction rates are directly related to

the intensity of ultraviolet light and air temperature. Ozone is considered a regional pollutant; high levels often occur downwind of the emission source because of the length of time between when the ROG form and when they react with light to change to ozone.

Inhalable Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled (PM10 and PM2.5). Particulates also reduce visibility and corrode materials.

Particulate emissions are generated by a wide variety of sources, including agricultural activities, industrial emissions, dust suspended by vehicle traffic and construction equipment, and secondary aerosols formed by reactions in the atmosphere.

Carbon Monoxide

CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death.

CO emissions can create so-called CO hotspots. Since motor vehicles are the dominant source of CO emissions, CO hotspots are normally located near roads and freeways with high traffic volume. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Nitrogen Oxides

NOx are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_x is emitted from the use of solvents and combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, nitrogen dioxide is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

Sulfur Dioxide

Sulfur dioxide is a colorless, pungent gas belonging to the family of SOx, formed primarily by combustion of sulfur-containing fossil fuels (mainly coal and oil), and during metal smelting and other industrial processes. Sulfur oxides can react to form sulfates, which significantly reduce visibility.

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead has the potential to cause gastrointestinal, central nervous system, kidney, and blood diseases upon prolonged exposure. Lead is also classified as a probable human

carcinogen. Lead, which was used to increase the octane rating in fuel, was phased out of automotive gasoline starting in 1973 and banned completely in a final EPA ruling in 1996, but remains in use in aviation fuel (though not in jet fuel). Since gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically in recent years.

Toxic Air Contaminants

Although NAAQS exist for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risk they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. For certain TACs, a unit risk factor can be developed to evaluate cancer risk. For acute and chronic health risks, a similar factor, called a Hazard Index, is used to evaluate risk. In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Toxic Air Contaminant Identification and Control Act (AB 1807) created California's program to reduce exposure to air toxics. The Air Toxics Hot Spots Information and Assessment Act (AB 2588) supplements the AB 1807 program by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

In August 1998, CARB identified particulate emissions from diesel-fueled engines as TACs. In September 2000, CARB approved a comprehensive diesel risk reduction plan to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce diesel PM10 emissions and the associated health risk by 75% in 2010 and by 85% by 2020. The plan identifies 14 measures that CARB will implement over the next several years. Since CARB measures are not applicable to aircraft, the current long-term strategy is to work with EPA and FAA to develop more stringent emission standards for aircraft.

Senate Bill 97 Chapter 185, Statutes of 2007

Senate Bill (SB) 97 requires the Office of Planning and Research to prepare guidelines to submit to the California Resources Agency regarding feasible mitigation of greenhouse gas emissions or the effects of greenhouse gas emissions as required by CEQA. The California Resources Agency is required to certify and adopt these revisions to the State CEQA Guidelines by January 1, 2010. The Guidelines will apply retroactively to any incomplete environmental impact report, negative declaration, mitigated negative declaration, or other related document. In the interim, OPR has released a technical advisory (*CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*, OPR, June 19, 2008). OPR offers informal guidance regarding the steps lead agencies should take to address climate change in their CEQA documents. This guidance was developed in cooperation with the Resources Agency, the California Environmental Protection Agency (CalEPA), and the CARB.

Global Warming Solutions Act of 2006 (AB 32)

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this executive order is to reduce California's GHG emissions to 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, including market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

CARB has approved 44 early actions in its October 17, 2007 report (CARB 2007):

- Group 1—Three new GHG-only regulations are proposed to meet the narrow legal definition of "discrete early action greenhouse gas reduction measures" in Section 38560.5 of the Health and Safety Code. These include the Governor's Low Carbon Fuel Standard, reduction of refrigerant losses from motor vehicle air conditioning maintenance, and increased methane capture from landfills. These actions are estimated to reduce GHG emissions between 13 and 26 million metric tons of CO2 equivalent (MMT-CO2e) annually by 2020 relative to projected levels. If approved for listing by the Governing Board, these measures will be brought to hearing in the next 12 to 18 months and take legal effect by January 1, 2010. When these actions take effect, they would influence GHG emissions associated with vehicle fuel combustion and air conditioning, but would not otherwise affect project site design or implementation.
- Group 2—CARB is initiating work on another 23 GHG emission reduction measures in the 2007 through 2009 time period, with rulemaking to occur as soon as possible where applicable. These GHG measures relate to the following sectors: agriculture, commercial, education, energy efficiency, fire suppression, forestry, oil and gas, and transportation.
- Group 3—CARB staff has identified 10 conventional air pollution control measures that are scheduled for rulemaking in the 2007 through 2009 period. These control measures are aimed at criteria and toxic air pollutants, but will have concurrent climate co-benefits through reductions in CO2 or non-Kyoto pollutants (i.e., diesel particulate matter, other light-absorbing compounds and/or ozone precursors) that contribute to global warming.

In consultation with CARB and California Public Utilities Commission, the California Energy Commission (CEC) have published a GHG emission performance standard for local, public-owned electric utilities (pursuant to Senate Bill No. 1368). This standard limits the rate of GHG emissions to a level that is no higher than the rate of emissions of GHGs for combined-cycle natural gas baseload generation, or 1,100 pounds of CO2 per megawatt-hour. (Rulemaking R.06-04-009 at CPUC and Docket # 07-OIIP-01 at CEC).

Executive Order S-03-05 (2005)

California Executive Order S-03-05, put forth by Governor Arnold Schwarzenegger, established the following GHG emission reduction targets for California's state agencies:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

The order also required that the Secretary of the California Environmental Protection Agency (CalEPA) to oversee and coordinate emission reduction efforts with the Secretary of the Business, Transportation and Housing Agency, Secretary of the Department of Food and Agriculture, Secretary of the Resources Agency, Chairperson of the Air Resources Board, Chairperson of the Energy Commission, and the President of the Public Utilities Commission. The Secretary of CalEPA is required to report to the Governor and State Legislature biannually on the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing greenhouse gas emissions to meet the targets established in this executive order.

Executive Orders are directives to state agencies from the Governor of California. They do not govern local agency actions nor do they affect the State Legislature. While S-03-05 is an indicator of state policy as interpreted by the Governor, it may or may not reflect the view of the Legislature. It is, however, one of the factors being considered by state agencies such as CARB, California Energy Commission, and the Building Standards Commission in formulating their GHG reduction strategies.

Regulation of Air Pollution Transport between Air Basins

The California Clean Air Act of 1988 directs CARB to assess the contribution of ozone and ozone precursors in upwind basins or regions to ozone concentrations that violate the state ozone standard in downwind basins or regions. The movement of ozone and ozone precursors between basins or regions is referred to as *transport*. In addition, the California Clean Air Act directs CARB to establish mitigation requirements for upwind districts commensurate with their contributions to the air quality problems in downwind basins or regions.

Over the last decade, CARB has published several transport reports that include technical assessments of transport relationships between air basins and regions in California. Along with these technical assessments, the reports have included mitigation requirements for ensuring that upwind areas do their part to limit the effects of transport on their downwind neighbors. CARB originally established mitigation requirements in 1990, which are contained in Title 17, California Code of Regulations, Sections 70600 and 70601. These regulations were amended in 1993 and more recently in 2003. The most recent amendments added two new

requirements for upwind districts. These amendments require upwind districts to 1) consult with their downwind neighbors and adopt "all feasible measures" for ozone precursors, and 2) amend their "no net increase" thresholds for permitting so that they are equivalent to those of their downwind neighbors. The amendments clarify that upwind districts are required to comply with the mitigation requirements, even if they attain the state ozone standard in their own district, unless the mitigation measures are not needed in the downwind district.

Air Quality Regions

For the purposes of the project, the potential air service area for the aviation activity consists of the southern California region, which covers the counties of Los Angeles, San Bernardino, and Ventura (Figure 2-2). This is an area generally referred to as the Greater Los Angeles Metropolitan Area and is hereinafter referred to as the Air Service Area (ASA). The proposed phaseout of the noisier and older aircraft from VNY would primarily relocate the aircraft to other airports in the ASA. Therefore, potential reallocation of aviation services must be viewed in the content of a system of airports in the ASA. For the purpose of this air quality analysis, six airports currently serve the ASA. Within the ASA for this project there are three air quality control regions: South Coast Air Basin, South Central Coast Air Basin, and Mojave Desert Air Basin. VNY is located in Los Angeles County, within the South Coast Air Basin. South Coast Air Basin includes Orange County and the non-desert portion of Los Angeles, Riverside, and San Bernardino Counties. Air quality conditions in South Coast Air Basin are under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The South Central Coast Air Basin includes Ventura, Santa Barbara, and San Luis Obispo Counties. For the South Central Coast Air Basin, each County has its own air districts. Ventura County is under the jurisdiction of Ventura County Air Pollution Control District (VCAPCD), and is the only air district in this basin affected by this project. Mojave Desert Air Basin includes the desert portion of Los Angeles County, under the jurisdiction of the Antelope Valley Air Pollution Control District (AVAPCD), which is the only air district in this basin affected by the project.

While this air quality analysis considers aircraft emissions across the three air basins, the project will involve six airports in three counties. Table 4.3-2 lists the airports, counties, air basins, and jurisdictions within the ASA study area.

Table 4.3-2. Summary of Project-related Airports in Counties and Air Basins

Airport	County	Air Basin	Jurisdiction
Van Nuys Airport – VNY	Los Angeles	South Coast	SCAQMD
Bob Hope Airport (Burbank)–BUR	Los Angeles	South Coast	SCAQMD
Los Angeles International Airport – LAX	Los Angeles	South Coast	SCAQMD
Chino Airport – CNO	San Bernardino	South Coast	SCAQMD
Camarillo Airport – CMA	Ventura	South Central Coast	VCAPCD
William J. Fox Airport (Lancaster) – WJF	Los Angeles	Mojave Desert	AVAPCD

Attainment status designations for the air basins containing the six airports relevant to this project are presented in Table 4.3-3. All six airports are in nonattainment air basins for the federal 8-hour ozone standard. South Coast Air Basin is also nonattainment for the federal PM10 and PM2.5 standards and in maintenance status for the federal CO standard as of June 11, 2007. Maintenance status means that the basin has only recently been designated as attainment, and is operating under a 10-year maintenance plan to ensure that pollutant levels are maintained below the relevant standard. All six airports are in nonattainment basins for the state ozone and PM10 standards. South Coast Air Basin and South Central Coast Air Basin are also designated as nonattainment for the state PM2.5 standard.

4.3.2.3 Local Standards and Regulations

Local air quality agencies have the authority to mange air quality and ensure that federal and state ambient air quality standards are achieved and maintained. This includes monitoring ambient air pollutant levels, development of air quality management plans that identify actions necessary to reach or maintain the standards, and implementation and enforcement of rules and regulations to improve air quality in each region.

VNY and three of the diversion airports (BUR, LAX, and CNO) fall within South Coast Air Basin and are under the regulatory jurisdiction of SCAQMD. CMA is located in the South Central Coast Air Basin and is regulated by VCAPCD. WJF is in the portion of the Mojave Desert Air Basin that is regulated by AVAQMD.

Table 4.3-3. Federal and State Attainment Designations for Regions Containing the Six Airports Potentially Affected by the Project

	Federal Designations			State Designations		
	South Coast	**Ventura**	**Mojave**	**South Coast**	**Ventura**	**Mojave**
Pollutant	**VNY, BUR, LAX, CNO**	**CMA**	**WJF**	**VNY, BUR, LAX, CNO**	**CMA**	**WJF**
Ozone (1-hour)	—	—	—	NA	NA	NA
Ozone (8-hour)	NA	NA	NA	NA	NA	NA
PM10	NA	A	A	NA	NA	NA
PM2.5	NA	A	A	NA	NA	A
CO	A*	A	A	A	A	A
NO2	A	A	A	A	A	A
SO2	A	A	A	A	A	A
Pb	A	A	A	A	A	A
Sulfates	—	—	—	A	A	A
H2S	—	—	—	A	A	A
Visibility	—	—	—	A	A	A

NA = Nonattainment
A = Attainment or Unclassified
A* = Recent attainment (maintenance status)

2007 Air Quality Management Plan

To ensure continued progress toward clean air and to comply with state and federal requirements, SCAQMD, in conjunction with CARB, SCAG, and EPA, updates its Air Quality Management Plan (AQMP) every 3 years. Each iteration of the plan is an update of the previous plan. The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007.[1] The 2007 AQMP employs the most up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2007 AQMP also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. Additionally, the 2007 AQMP builds on the approaches taken in the 2003 AQMP for South Coast Air Basin

[1] South Coast Air Quality Management District. Available: <http://www.aqmd.gov/aqmp/AQMPintro.htm >.

for the attainment of the federal ozone air quality standard. However, the 2007 AQMP highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the federal CAA. Specifically the 2007 AQMP was prepared because the federal CAA requires an 8-hour ozone nonattainment area to prepare a SIP revision by June 2007 and a PM2.5 nonattainment area by April 2008.

The 2007 AQMP proposes attainment demonstration of the federal PM2.5 standards through a more focused control of SOx, directly emitted PM2.5, and NOx supplemented with volatile organic compounds (VOCs) by 2015. The 8-hour ozone control strategy builds on the PM2.5 strategy, augmented with additional NOx and VOC reductions to meet the standard by 2024, assuming a bump-up is obtained. A bump-up means that SCAQMD is considering requesting a voluntary reclassification. South Coast Air Basin is currently classified as a Severe-17 nonattainment area for the federal ambient 8-hour ozone air quality standard with an attainment date of 2021. "Bumping up" to extreme nonattainment classification for South Coast Air Basin would extend the attainment date to 2024 and allow for the attainment demonstration to rely on emission reductions from measures that anticipate the development of new technologies or improving of existing control technologies (CAA Section 182(e)(5) measures).

Aircraft emissions are of great concern to SCAQMD because federal emissions sources, such as airplanes, are essentially unregulated compared to stationary sources within the air districts. As time goes on, aircraft emissions, for some criteria pollutants, become a greater part of the total inventory. For example, according to the 2007 AQMP, NOx emissions from aircraft operations in 2005 comprised about 2% of the annual inventory (15.4 tons per day out of a total inventory of 1,030 tons per day). By 2010 NOx emissions from aircraft operations will increase to almost 4% and by the year 2020 NOx emissions from airport operations will comprise approximately 7.5% of the total inventory.

The 2007 AQMP concluded that substantial emission reductions from all sources, including airports, are necessary. Without aggressive measures to reduce emissions, particularly of NOx, SOx, VOCs, and particulate matter, attaining the federal 8-hour ozone standard by 2023 and the PM2.5 standard by 2014 will be very difficult.

Regional Transportation Plan

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties. It addresses regional issues relating to transportation, economy, community development, and the environment. SCAG is the federally designated metropolitan planning organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG prepares the Regional Transportation Plan for the SCAG region every three years, which forms the basis for the land use and

transportation components of the AQMP. These chapters are used to prepare the air quality forecasts and the consistency analysis that are included in the AQMP.

The local air districts have set significance criteria and thresholds for air pollutant emissions resulting from projects within their respective regions of jurisdiction. These criteria are presented below.

4.3.2.4 CEQA Thresholds of Significance

Section 15002(g) of the CEQA Guidelines defines "significant effect on the environment" as "a substantial adverse change in the physical conditions that exist in the area affected by the Proposed Project." When an environmental document identifies a significant environmental effect, the government agency approving the project must make findings as to whether the adverse environmental effects have been substantially reduced or if not, why they were not substantially reduced.

As based on Appendix G of the State CEQA Guidelines, the project would result in a significant air quality impact if it would:

- conflict with or obstruct implementation of the applicable AQMP;
- violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- expose sensitive receptors to substantial pollutant concentrations or toxic air contaminants; or
- create objectionable odors affecting a substantial number of people.

The first four of these criteria are quantifiable, and CEQA allows for the significance criteria established by the applicable air quality management or air pollution control district to be used to assess impacts of a project on air quality. Accordingly, the significance thresholds for the criteria listed above that are maintained by each air district related to the project formed the basis for analyzing this project's air quality impacts. These thresholds are presented below, beneath headers denoting each air district.

Additionally, in order to address the project's potential climate change and GHG emissions impacts, the project would have a significant air quality impact if it would

- result in an increase in GHG emissions.

CEQA requires that a project incorporate mitigation sufficient to reduce its impacts to levels that are not significant. If mitigation is available but does not reduce the

project's impacts to a less-than-significant level, all feasible mitigation must be incorporated, but the impact must be identified as significant and unmitigated.

South Coast Air Quality Management District: VNY, BUR, LAX, and CNO

Criteria Pollutants

SCAQMD has established regional mass daily thresholds of significance for pollutant emissions during project operation. (July 2008). These thresholds are summarized below in Table 4.3-4.

Table 4.3-4. SCAQMD Daily Significance Criteria for Pollutant Emissions

Pollutant	Threshold
Carbon Monoxide (CO)	550 pounds per day
Volatile Organic Compounds (VOC)	55 pounds per day
Nitrogen Oxides (NOx)	55 pounds per day
Sulfur Oxides (SOx)	150 pounds per day
Particulate Matter (PM10)	150 pounds per day
Fine Particulates (PM2.5)	55 pounds per day
Lead (Pb)	3 pounds per day

Toxic Air Contaminants

The SCAQMD CEQA Air Quality Handbook states that the determination of the significance of TACs will be made on a case-by-case basis, considering the following factors:

- the regulatory framework for the toxic material(s) and process(es) involved;
- the proximity of the TACs to sensitive receptors;
- the quantity, volume, and toxicity of the contaminants expected to be emitted;
- the likelihood and potential level of exposure; and
- the degree to which project design will reduce the risk of exposure.

Based on these guidelines, the project would have a significant impact from TACs if:

- onsite stationary sources emit carcinogenic or TACs that individually or cumulatively exceed the maximum individual cancer risk of 10 in 1 million

($1.0x10^{-5}$) or an acute or chronic hazard index of 1.0 (South Coast Air Quality Management District 1998);[2]

- hazardous materials associated with onsite stationary sources result in an accidental release of air toxic emissions or acutely hazardous materials posing a threat to public health and safety; or
- the project would be occupied primarily by sensitive individuals within 0.25 mile of any existing facility that emits TACs that could result in a health risk for pollutants identified in District Rule 1401 (South Coast Air Quality Management District 1993).

Thresholds for Odor Impacts

Odor issues are very subjective because of the nature of odors themselves, and because their measurements are difficult to quantify. As a result, this project will be evaluated focusing on the existing and potential surrounding uses and location of sensitive receptors.

SCAQMD Rule 402 (Nuisance) and California Health & Safety Code, Division 26, Part 4, Chapter 3, Section 541700 prohibit the emission of any material that causes nuisance to a considerable number of persons or endangers the comfort, health, or safety of the public. Projects required to obtain permits from SCAQMD, typically industrial and some commercial projects, are evaluated by SCAQMD staff for potential odor nuisance, and conditions may be applied (or control equipment required) where necessary to prevent occurrence of public nuisance.

SCAQMD suggests a threshold based on the distance of the odor source from people and complaint records for a facility or similar facility. The threshold would be more than one confirmed complaint per year averaged over a 3-year period, or three unconfirmed complaints per year averaged over a 3-year period.

Ventura County Air Pollution Control District: CMA

Criteria Pollutants

VCAPCD has established significance thresholds for criteria pollutants to safeguard against project impacts interfering with the attainment of regional air quality objectives in its VCAPCD Air Quality Assessment Guidelines (October 2003). The significance thresholds are based on daily pollutant mass thresholds. If project emissions are below these thresholds, the project is considered to conform to the Ventura County AQMP and would not have a significant air quality impact. Daily pollutant emission thresholds for Ventura County are presented in Table 4.3-5.

[2] SCAQMD Risk Assessment Procedures for Rules 1401 and 212, November 1998.

Table 4.3-5. VCAPCD Daily Significance Criteria for Pollutant Emissions

Pollutant	Threshold
Reactive Organic Compounds (ROC)	25 pounds per day
Nitrogen Oxides (NO_x)	25 pounds per day

Toxic Air Contaminants

The VCAPCD Air Quality Assessment Guidelines state that the recommended significance thresholds for TACs would be exceeded if the project would:

- increase the lifetime probability of contracting cancer to greater than 10 in 1million (as identified in a Health Risk Assessment [HRA]); or
- cause ground-level concentration of noncarcinogenic toxic air pollutants to result in a hazard index of greater than 1 (as identified in an HRA).

Thresholds for Odor Impacts

VCAPCD suggests a threshold based on the distance of the odor source from people and complaint records for a facility or similar facility. The threshold would be more than one confirmed complaint per year averaged over a 3-year period, or 3 unconfirmed complaints per year averaged over a 3-year period.

Antelope Valley Air Quality Management District: WJF

Criteria Pollutants

AVAQMD has established regional mass daily thresholds of significance for pollutant emissions during project operation in its CEQA and Federal Conformity Guidelines (May 2008). AVAQMD has set both daily and annual emission thresholds, as shown in 4-3-6.

Table 4.3-6. AVAQMD Daily and Annual Significance Criteria for Pollutant Emissions

Pollutant	Daily Threshold	Annual Threshold
Carbon Monoxide (CO)	548 pounds per day	100 tons per year
Volatile Organic Compounds (VOC)	137 pounds per day	25 tons per year
Nitrogen Oxides (NO_x)	137 pounds per day	25 tons per year
Sulfur Oxides (SO_x)	137 pounds per day	25 tons per year
Particulate Matter (PM_{10})	82 pounds per day	15 tons per year

Toxic Air Contaminants

The AVAQMD CEQA Guidelines states that the project would have a significant impact from TACs if the project would:

- expose sensitive receptors to substantial pollutant concentrations, including those resulting in a cancer risk greater than 10 in 1 million ($1.0x10^{-5}$) and/or an acute or chronic hazard index greater than or equal to 1.0.

Thresholds for Odor Impacts

Thresholds for odor impacts were not listed in the AVAQMD's CEQA and Federal Conformity Guidelines.

4.3.3 Environmental Setting

4.3.3.1 State Greenhouse Gas Emissions

Worldwide, California is the 12th to 16th largest emitter of CO2 (California Energy Commission 2006), and is responsible for approximately 2% of the world's CO2 emissions (California Energy Commission 2006).

Transportation is responsible for 41% of the state's GHG emissions, followed by the industrial sector (23%), electricity generation (20%), agriculture and forestry (8%) and other sources (8%) (California Energy Commission 2006). Emissions of CO2 and nitrous oxide are byproducts of fossil fuel combustion, among other sources. Methane, a highly potent GHG, results from off-gassing associated with agricultural practices and landfills, among other sources. Sinks of CO2 include uptake by vegetation and dissolution into the ocean. California GHG emissions in 2004 totaled approximately 492.1 MMT CO_2e.[3]

Climate change could impact the natural environment in California in the following ways, among others:

- rising sea levels along the California coastline, particularly in San Francisco and the San Joaquin Delta resulting from ocean expansion;
- extreme-heat conditions, such as heat waves and very high temperatures, which could last longer and become more frequent;
- an increase in heat-related human deaths and infectious diseases, and a higher risk of respiratory problems caused by deteriorating air quality;

[3] GHG emissions other than CO2 are commonly converted into a CO2 equivalent that expresses the global warming potential (GWP) of different gases. For example, the Intergovernmental Panel on Climate Change (IPCC) finds that NOx has a GWP of 310 and methane has a GWP of 21. The emission of 1 ton of nitrous oxide and 1 ton of methane is represented as the emission of 310 tons of CO2e and 21 tons of CO2e, respectively. This allows for the summation of different GHG emissions into a single total.

- reduced snow pack and stream flow in the Sierra Nevada mountains, affecting winter recreation and water supplies;
- an increase in the severity of winter storms, affecting peak stream flows and flooding;
- changes in growing season conditions that could affect California agriculture, causing variations in crop quality and yield; and
- changes in distribution of plant and wildlife species as a result of changes in temperature, competition from colonizing species, changes in hydrologic cycles, changes in sea levels, and other climate-related effects.

These changes in California's climate and ecosystems are occurring at a time when California's population is expected to increase from 34 million to 59 million by the year 2040 (California Energy Commission 2005). As such, both the number of people potentially affected by climate change and the amount of anthropogenic GHG emissions expected under a "business as usual" scenario are expected to increase. Similar changes as those noted above for California would also occur in other parts of the world with regional variations in resources affected and vulnerability to adverse effects. GHG emissions in California are attributable to human activities associated with the industry and manufacturing, utilities, transportation, residential, and agricultural sectors (California Energy Commission 2006) as well as natural processes.

4.3.3.2 Climate

California is divided into 15 air basins to regionally manage the state's air resources. An air basin generally has similar meteorological and geographic conditions throughout. VNY, BUR, LAX, and CNOs all lie within South Coast Air Basin, a region encompassing approximately 12,000 square miles within four counties: all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The other diversion airports (CMA and WJF) lie within the South Central Coast Air Basin and Mojave Desert Air Basin, respectively. The discussions on the climate, criteria pollutant emission background, and local air quality condition for the three air basins are provided below.

South Coast Air Basin: VNY, BUR, LAX, and CNO Airports

The distinctive climate of South Coast Air Basin is influenced by the regional geographic characteristics of a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the southwest and high mountains around its remaining perimeter. The general region lies in the semi-permanent high pressure zone of the eastern Pacific Ocean, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The usually mild climatological pattern is interrupted occasionally by periods of extremely hot weather, winter storms, or Santa Ana winds bringing hot, dry air from the desert regions to the east.

The vertical dispersion of air pollutants in South Coast Air Basin is hampered by the presence of persistent temperature inversions. High pressure systems, such as the semi-permanent high pressure system in which the South Coast Air Basin is located, are characterized by an upper layer of dry air that warms as it descends. This upper layer restricts the mobility of cooler marine-influenced air near the surface, and results in the formation of subsidence inversions, which restrict the vertical dispersion of air pollutants released into the marine layer and, together with strong sunlight, can produce conditions that result in the formation of photochemical smog.

The atmospheric pollution potential of an area is largely dependent on winds, atmospheric stability, solar radiation, and terrain. The combination of low wind speeds and persistent inversions produce the greatest concentration of air pollutants. On days without inversions, or days of wind speeds averaging 15 miles per hour or greater, smog potential is significantly reduced.

South Central Coast Air Basin (Ventura County): CMA

Ventura County is in the South Central Coast Air Basin, along with Santa Barbara and San Luis Obispo counties. Each county in the air basin has its own air pollution control agency. The Ventura County Air Pollution Control District (VCAPCD) is the air pollution control agency for Ventura County and, along with CARB, is charged by state law to protect the people and the environment of Ventura County from the harmful effects of air pollution.

The air above Ventura County often exhibits weak vertical and horizontal dispersion characteristics, which limit the dispersion of emissions and cause increased ambient air pollutant levels. Persistent temperature inversions prevent vertical dispersion. The inversions act as a "ceiling" that prevents pollutants from rising and dispersing. Mountain ranges act as "walls" that inhibit horizontal dispersion of air pollutants.

The diurnal land/sea breeze pattern common in Ventura County recirculates air contaminants. Air pollutants are pushed toward the ocean during the early morning by the land breeze and toward the east during the afternoon, by the sea breeze. This creates a "sloshing" effect, causing pollutants to remain in the area for several days. Residual emissions from previous days accumulate and chemically react with new emissions in the presence of sunlight, thereby increasing ambient air pollutant levels.

This pollutant "sloshing" effect happens most predominantly from May through October ("smog" season). Air temperatures are usually higher and sunlight more intense during the "smog" season. This explains why Ventura County experiences the most exceedances of the state and federal ozone standards during this 6-month period.

Mojave Desert Air Basin (Antelope Valley Area): WJF

The Antelope Valley Air Quality Management District (AVAQMD) covers a western portion of the Mojave Desert Air Basin. The Mojave Desert Air Basin is an assemblage of mountain ranges interspersed with long broad valleys that often contain dry lakes. Many of the lower mountains that dot the vast terrain rise from 1,000 to 4,000 feet above the valley floor. Prevailing winds out of the west and southwest result from the proximity to coastal and central regions and the blocking nature of the Sierra Nevada to the north; air masses pushed onshore in southern California by differential heating are channeled through the Mojave Desert Air Basin. The Mojave Desert Air Basin is separated from the southern California coastal and central California Valley regions by mountains (highest elevation approximately 10,000 feet), whose passes form the main channels for these air masses. The Antelope Valley is bordered in the northwest by the Tehachapi Mountains, separated from the Sierra Nevada in the north by the Tehachapi Pass (3,800-foot elevation). The Antelope Valley is bordered in the south by the San Gabriel Mountains, bisected by Soledad Canyon (3,300 feet).

During the summer the Mojave Desert Air Basin is generally influenced by a Pacific subtropical high cell that sits off the coast, inhibiting cloud formation and encouraging daytime solar heating. The Mojave Desert Air Basin is rarely influenced by cold air masses moving south from Canada and Alaska, as these frontal systems are weak and diffuse by the time the reach the desert. Most desert moisture arrives from infrequent warm, moist, and unstable air masses from the south. Precipitation averages between 3 and 7 inches per year (from 16 to 30 days with at least 0.01 inch of precipitation). The Mojave Desert Air Basin is classified as a dry-hot desert climate, with portions classified as dry-very hot desert, indicating that at least 3 months have maximum average temperatures over 100.4° F.

4.3.3.3 Local Air Quality

The local air districts measure air pollution concentrations at various locations throughout each air basin. These monitoring efforts and the data they produce establish air quality conditions in the region, and the trends in pollutant concentrations can be used to track progress toward or maintenance of attainment goals.

The relative impact of a project on regional air quality can be gauged by comparing project-related increases to the significance thresholds described in Section 4.3.2.4, or to region-wide emissions of air pollutants. CARB publishes total emissions for each air basin, and subtotals for various categories such as stationary, area-wide, mobile, and natural (nonanthropogenic) sources. The mobile source category (i.e., onroad and offroad vehicles, ships, trains, etc.) includes a line item for aircraft, the data from which can be used for direct comparison with project-related aircraft emissions.

The tables presented in the following sections summarize the air quality monitoring data and regional emissions in the vicinity of each of the six airports.

South Coast Air Basin: VNY, BUR, LAX, and CNOs

Regional emissions from aircraft, mobile sources, and all sources within the South Coast Air Basin are summarized in Table 4.3-7. Aircraft comprise roughly 1% (varying by pollutant) of the total air pollution emissions in the basin.

Table 4.3-7. Estimated Annual Average Emissions, South Coast Air Basin, 2006

	Emissions (tons per day)					
Emission Source Category	**ROG**	**CO**	**NOx**	**SOx**	**PM10**	**PM2.5**
Aircraft	6.4	46.0	13.2	1.3	0.8	0.8
Mobile Sources	425.8	3,580.0	866.5	28.1	48.4	39.0
South Coast Air Basin Total	762.4	3,909.9	955.4	49.8	296.2	117.9

Ambient air concentrations of ozone, PM2.5, CO, and NO2 near VNY are monitored at the Reseda monitoring station. Table 4.3-8 shows ozone and PM2.5 data for the past 3 years. The closest PM10 data collection point is the West Palm Avenue monitoring station (Table 4.3-9). Because concentrations of other pollutants are below the state and federal standards, the region is designated attainment for the other pollutants.

The West Palm Avenue monitoring station in Burbank is the closest to the BUR and provides data for ozone, PM10, PM2.5, CO, and NO2. Table 4.3-9 shows the ozone and particulate matter data for the past 3 years. The region is designated as an attainment area for the other pollutants because concentrations of these pollutants are lower than the state and federal standards.

Ambient air concentrations of ozone, CO, and NO2 in the vicinity of LAX are monitored at the West Los Angeles VA Hospital monitoring station. PM10 and SO2 are monitored at the Westchester Parkway monitoring station; PM2.5 is monitored at the Lynwood monitoring station. Table 4.3-10 shows ozone and particulate matter data for the past 3years. Because concentrations of other pollutants are below the state and federal standards, the region is designated attainment for the other pollutants.

Ambient air concentrations of ozone and NO2 in the vicinity of CNO are monitored at the SCAQMD's Upland monitoring station. PM10 and PM2.5 are monitored at the Ontario monitoring station at 1408 Francis Street. Table 4.3-11 shows ozone and particulate matter data for the past 3 years. Because concentrations of other pollutants are below the state and federal standards, the region is designated attainment for the other pollutants.

Table 4.3-8. Ambient Air Quality Data Measured at Monitoring Station near VNY

	Reseda		
Pollutant Standards	**2005**	**2006**	**2007**
Ozone			
Maximum 1-hour concentration (ppm)	0.138	0.158	0.129
Maximum 8-hour concentration (ppm)	0.113	0.109	0.105
Days exceeded CAAQS 1-hour (> 0.09 ppm) [a]	30	34	21
Days exceeded NAAQS 8-hour (> 0.08 ppm) [a]	12	17	28
Days exceeded CAAQS 8-hour (> 0.07 ppm) [a]	43	55	43
Particulate Matter (PM2.5)			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	39.5	44.0	43.3
State[d] maximum 24-hour concentration ($\mu g/m^3$)	39.5	44.0	43.3
National annual average concentration ($\mu g/m^3$)	13.9	—	—
State[c] annual average concentration ($\mu g/m^3$) [e]	—	—	—
Days exceeded NAAQS 24-hour (> 65 $\mu g/m^3$) [a]	0	0	0

Notes:

CAAQS = California ambient air quality standards.

NAAQS = national ambient air quality standards.

ppm = parts per million.

$\mu g/m^3$ = micrograms per cubic meter.

— = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008a.

Table 4.3-9. Ambient Air Quality Data Measured at Monitoring Station near BUR

Pollutant Standards	**West Palm Avenue, Burbank**		
	2005	**2006**	**2007**
Ozone			
Maximum 1-hour concentration (ppm)	0.142	0.166	0.116
Maximum 8-hour concentration (ppm)	0.108	0.128	0.096
Days exceeded CAAQS 1-hour (> 0.09 ppm) [a]	13	25	13
Days exceeded NAAQS 8-hour (> 0.08 ppm) [a]	2	12	13
Days exceeded CAAQS 8-hour (> 0.07 ppm) [a]	23	34	19
Particulate Matter (PM10)[b]			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	92.0	71.0	109.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	90.0	69.0	107.0
State annual average concentration ($\mu g/m^3$)[e]	33.2	—	—
Days exceeded NAAQS 24-hour (> 150 $\mu g/m^3$) [a,f]	0	0	0
Days exceeded CAAQS 24-hour (> 50 $\mu g/m^3$) [a,f]	5	10	5
Particulate Matter (PM2.5)			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	63.1	50.7	56.5
State[d] maximum 24-hour concentration ($\mu g/m^3$)	63.1	50.7	56.5
National annual average concentration ($\mu g/m^3$)	19.7	17.8	17.1
State[c] annual average concentration ($\mu g/m^3$) [e]	—	—	—
Days exceeded NAAQS 24-hour (> 65 $\mu g/m^3$) [a]	0	0	0

Notes:

CAAQS = California ambient air quality standards. ppm = parts per million.

NAAQS = national ambient air quality standards. $\mu g/m^3$ = micrograms per cubic meter.

— = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements are usually collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008a.

Table 4.3-10. Ambient Air Quality Data Measured at Monitoring Station near LAX

	West Los Angeles VA Hospital		
Pollutant Standards	**2005**	**2006**	**2007**
Ozone			
Maximum 1-hour concentration (ppm)	0.114	0.099	0.117
Maximum 8-hour concentration (ppm)	0.090	0.074	0.087
Days exceeded CAAQS 1-hour (> 0.09 ppm) [a]	7	3	2
Days exceeded NAAQS 8-hour (> 0.08 ppm) [a]	1	0	0
Days exceeded CAAQS 8-hour (> 0.07 ppm) [a]	12	2	2
	Westchester Parkway		
Particulate Matter (PM10)[b]	**2005**	**2006**	**2007**
National[c] maximum 24-hour concentration ($\mu g/m^3$)	44.0	45.0	128.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	44.0	45.0	128.0
State annual average concentration ($\mu g/m^3$)[e]	—	—	—
Days exceeded NAAQS 24-hour (> 150 $\mu g/m^3$) [a,f]	0	0	0
Days exceeded CAAQS 24-hour (> 50 $\mu g/m^3$) [a,f]	0	0	3
	Lynwood		
Particulate Matter (PM2.5)	**2005**	**2006**	**2007**
National[c] maximum 24-hour concentration ($\mu g/m^3$)	54.6	55.0	48.9
State[d] maximum 24-hour concentration ($\mu g/m^3$)	54.6	55.0	48.9
National annual average concentration ($\mu g/m^3$)	17.5	16.7	16.0
State[c] annual average concentration ($\mu g/m^3$) [e]	—	—	—
Days exceeded NAAQS 24-hour (> 65 $\mu g/m^3$) [a]	20	—	—

Notes:

CAAQS = California ambient air quality standards. ppm = parts per million.

NAAQS = national ambient air quality standards. $\mu g/m^3$ = micrograms per cubic meter.

— = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008a.

Table 4.3-11. Ambient Air Quality Data Measured at Monitoring Station near CNO

		Upland	
Pollutant Standards	**2005**	**2006**	**2007**
Ozone			
Maximum 1-hour concentration (ppm)	0.149	0.166	0.145
Maximum 8-hour concentration (ppm)	0.121	0.131	0.115
Days exceeded CAAQS 1-hour (> 0.09 ppm) [a]	34	52	32
Days exceeded NAAQS 8-hour (> 0.08 ppm) [a]	15	25	35
Days exceeded CAAQS 8-hour (> 0.07 ppm) [a]	45	64	55
	Ontario 1408 Francis Street		
Particulate Matter (PM10)[b]	**2005**	**2006**	**2007**
National[c] maximum 24-hour concentration ($\mu g/m^3$)	77.0	78.0	275.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	75.0	76.0	266.0
State annual average concentration ($\mu g/m^3$)[e]	39.5	40.9	45.7
Days exceeded NAAQS 24-hour (> 150 $\mu g/m^3$) [a,f]	0	0	1
Days exceeded CAAQS 24-hour (> 50 $\mu g/m^3$) [a,f]	18	14	12
Particulate Matter (PM2.5)			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	87.7	53.6	72.8
State[d] maximum 24-hour concentration ($\mu g/m^3$)	87.7	53.6	72.8
National annual average concentration ($\mu g/m^3$)	18.8	18.4	18.3
State[c] annual average concentration ($\mu g/m^3$) [e]	—	—	—
Days exceeded NAAQS 24-hour (> 65 $\mu g/m^3$) [a]	1	0	1

Notes:

CAAQS = California ambient air quality standards. ppm = parts per million.

NAAQS = national ambient air quality standards. $\mu g/m^3$ = micrograms per cubic meter.

— = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008a.

South Central Coast Air Basin: CMA

Regional emissions from aircraft, mobile sources, and all sources in the South Central Coast Air Basin are summarized in Table 4.3-12. Aircraft comprise roughly 2% (varying by pollutant) of the total air pollution emissions in the basin.

Table 4.3-12. Estimated Annual Average Emissions, South Central Coast Air Basin, 2006

	Emissions (tons per day)					
Emission Source Category	**ROG**	**CO**	**NOx**	**SOx**	**PM10**	**PM2.5**
Aircraft	1.8	15.52	0.8	< 0.1	0.3	0.3
Mobile Sources	57.4	446.7	98.1	1.4	5.1	4.2
Total	**112.3**	**559.2**	**116.3**	**16.3**	**77.3**	**26.7**

Air quality in the vicinity of CMA is monitored at the Rio Mesa School No.1 monitoring station in El Rio, which provides data for ozone, PM10, PM2.5, and NO2. Table 4.3-13 shows the ozone and particulate matter data for the past 3 years. The region is designated as an attainment area for the other pollutants because concentrations of these pollutants are lower than the state and federal standards.

Table 4.3-13. Ambient Air Quality Data Measured at Monitoring Station near CMA

Pollutant Standards	**El Rio - Rio Mesa School #1**		
Ozone	**2005**	**2006**	**2007**
Maximum 1-hour concentration (ppm)	0.076	0.089	0.089
Maximum 8-hour concentration (ppm)	0.067	0.070	0.072
Days exceeded CAAQS 1-hour (> 0.09 ppm) [a]	0	0	0
Days exceeded NAAQS 8-hour (> 0.08 ppm) [a]	0	0	0
Days exceeded CAAQS 8-hour (> 0.07 ppm) [a]	0	0	1
Particulate Matter (PM10)[b]			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	54.0	119.4	245.5
State[d] maximum 24-hour concentration ($\mu g/m^3$)	54.4	119.1	248.0
State annual average concentration ($\mu g/m^3$)[e]	12.1	24.1	12.2
Days exceeded NAAQS 24-hour (> 150 $\mu g/m^3$) [a,f]	0	0	1
Days exceeded CAAQS 24-hour (> 50 $\mu g/m^3$) [a,f]	2	4	2
Particulate Matter (PM2.5)			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	35.2	29.8	39.9
State[d] maximum 24-hour concentration ($\mu g/m^3$)	35.2	37.9	75.0
National annual average concentration ($\mu g/m^3$)	1.5	9.8	10.6
State[c] annual average concentration ($\mu g/m^3$) [e]	1.5	9.8	10.6
Days exceeded NAAQS 24-hour (> 65 $\mu g/m^3$) [a]	0	0	0

Notes:

CAAQS = California ambient air quality standards. ppm = parts per million.

NAAQS = national ambient air quality standards. $\mu g/m^3$ = micrograms per cubic meter.

— = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[d] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008a.

Mojave Desert Basin: WJF

Regional emissions from aircraft, mobile sources, and all sources within the Mojave Desert Air Basin are summarized in Table 4.3-14. Aircraft comprise roughly 3% (varying by pollutant) of the total air pollution emissions in the basin.

Table 4.3-14. Estimated Annual Average Emissions, Mojave Desert Air Basin, 2006

	Emissions (tons per day)					
Emission Source Category	**ROG**	**CO**	**NOx**	**SOx**	**PM10**	**PM2.5**
Aircraft	4.8	21.9	3.2	0.4	3.0	3.0
Mobile Sources	66.2	422.9	221.0	4.9	13.4	11.9
MDAB Total	96.3	475.6	286.1	10.5	178.3	48.5

Air quality in the vicinity of WJF is monitored at the 43301 Division Street monitoring station in Lancaster, which provides data for ozone, PM10, PM2.5, and CO. Table 4.3-15 shows the ozone and particulate matter data for the past 3 years. The region is designated as an attainment area for the other pollutants, because concentrations of these pollutants are lower than the state and federal standards.

Table 4.3-15. Ambient Air Quality Data Measured at Monitoring Station near WJF

Pollutant Standards	**43301 Division Street, Lancaster**		
Ozone	**2005**	**2006**	**2007**
Maximum 1-hour concentration (ppm)	0.127	0.132	0.118
Maximum 8-hour concentration (ppm)	0.103	0.105	0.101
Days exceeded CAAQS 1-hour (> 0.09 ppm) a	42	22	16
Days exceeded NAAQS 8-hour (> 0.08 ppm) a	31	16	42
Days exceeded CAAQS 8-hour (> 0.07 ppm) a	73	66	63
Particulate Matter (PM10)b			
Nationalc maximum 24-hour concentration (µg/m3)	53.0	63.0	188.0
Stated maximum 24-hour concentration (µg/m3)	47.0	58.0	181.0
State annual average concentration (µg/m3)e	—	—	—
Days exceeded NAAQS 24-hour (> 150 µg/m3) a,f	0	0	1
Days exceeded CAAQS 24-hour (> 50 µg/m3) a,f	0	4	3
Particulate Matter (PM2.5)			
Nationalc maximum 24-hour concentration (µg/m3)	28.0	18.0	25.0
Stated maximum 24-hour concentration (µg/m3)	28.0	18.0	25.0
National annual average concentration (µg/m3)	8.9	7.4	8.0
Statec annual average concentration (µg/m3) e	8.9	7.4	8.0
Days exceeded NAAQS 24-hour (> 65 µg/m3) a	0	0	0

Notes:

CAAQS = California ambient air quality standards. ppm = parts per million.

NAAQS = national ambient air quality standards. µg/m3 = micrograms per cubic meter.

— = insufficient data available to determine the value.

a An exceedance is not necessarily a violation.

b Measurements usually are collected every 6 days.

c National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

d State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California-approved samplers.

e State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

f Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.

Sources: California Air Resources Board 2008b; U.S. Environmental Protection Agency 2008a.

4.3.3.4 Health Effects of Criteria Air Pollutants

Air pollutants are recognized to have a variety of health effects on humans. Research by CARB shows that exposure to high concentrations of air pollutants can trigger respiratory diseases such as asthma and bronchitis, and cardiovascular diseases. A healthy person exposed to high concentrations of air pollutants may be become nauseated or dizzy, may develop a headache or cough, or may experience eye irritation and/or a burning sensation in the chest. Ozone is a powerful irritant that attacks the respiratory system, leading to the damage of lung tissue. Inhaled particulate matter (PM10 and PM2.5), NO2, and SO2 can directly irritate the respiratory tract, constrict airways, and interfere with the mucous lining of the airways. Exposure to CO, when absorbed into the bloodstream, can endanger the hemoglobin, the oxygen-carrying protein in blood, by reducing the amount of oxygen that reaches the heart, brain, and other body tissues. When air pollutants levels are high, a common occurrence in southern California, children, elderly, and people with respiratory problems are advised to remain indoors. Outdoor exercise also is discouraged because strenuous activity may cause shortness of breath and chest pains. A brief discussion of the criteria pollutants and their effect on human health and the environment is provided in Table 4.3-16.

Table 4.3-16. Health Effects Summary of the Major Criteria Air Pollutants

Pollutants	Sources	Primary Effects
Ozone	Atmospheric reaction of organic gases with nitrogen oxides in sunlight.	Aggravation of respiratory and cardiovascular diseases. Irritation of eyes. Impairment of cardiopulmonary function. Plant leaf injury.
Nitrogen Dioxide (NO2)	Motor vehicle exhaust. High temperature stationary combustion. Atmospheric reactions.	Aggravation of respiratory illness. Reduced visibility. Reduced plant growth. Formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon containing substances, such as motor exhaust. Natural events, such as decomposition of organic matter.	Reduced tolerance for exercise. Impairment of mental function. Impairment of fetal development. Death at high levels of exposure. Aggravation of some heart diseases (angina).
Particulate Matter (PM2.5 and PM10)	Stationary combustion of solid fuels. Construction activities. Industrial processes. Atmospheric chemical reactions.	Reduced lung function. Aggravation of the effects of pollutants. Aggravation of respiratory and cardiorespiratory diseases. Increased cough and chest discomfort. Reduced visibility.
Sulfur Dioxide (SO2)	Combustion of sulfur-containing fossil fuels. Smelting of sulfur bearing metal ores. Industrial processes.	Aggravation of respiratory diseases (asthma, emphysema). Reduced lung function. Irritation of eyes. Reduced visibility. Plant injury. Deterioration of metals, textiles, coatings, etc.
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve construction. Behavioral and hearing problems in children.

Source: California Air Resources Board 2006.

TACs are gases, liquids, or particles that are emitted into the atmosphere and, under certain conditions, may cause adverse health effects such as cancer, acute non-cancer, and chronic non-cancer effects. The Office of Environmental Health Hazard Assessment (OEHHA) has compiled the health effects and health values for all toxic air pollutants into one document entitled *Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values* (Office of Environmental Health Hazard Assessment (OEHHA 2005), and has included these values in the Hot Spots Assessment and Reporting Program (HARP). Table 4.3-17 summarizes the health effects of TACs potentially emitted during typical airport operations for any of the project alternatives.

Table 4.3-17. Toxics Air Contaminants Health Effects

TAC	Cancer Unit Risk Factor $(\mu g/m3)^{-1}$	Chronic Inhalation Reference Exposure Level (µg/m3)	Chronic Hazard Index Target Organ Systems	Acute Inhalation Reference Exposure Level (µg/m3)	Acute Hazard Index Target Organ Systems
1,3-Butadiene	1.7×10^{-4}	20	Reproductive System		
Acetaldehyde	2.7×10^{-6}	9.0	Respiratory System		
Acrolein		0.06	Eyes; Respiratory System	0.19	Eyes; Respiratory System
Benzene	2.9×10^{-5}	60	Developmental; Hematopoietic System; Nervous System	1,300	Hematologic System; Immune System; Reproductive/ Developmental
Chromium		0.2	Respiratory System		
Formaldehyde	6.0×10^{-6}	3.0	Eyes; Respiratory System	94	Eyes; Immune System; Respiratory System
Lead	1.2×10^{-5}				
Naphthalene		9.0	Respiratory System		

Source: Office of Environmental Health Hazard Assessment (OEHHA 2005), Consolidated Table of OEHHA/CARB Approved Risk Assessment Health Values.

4.3.3.5 Sensitive Receptors

Air quality regulators typically define sensitive receptors as schools (preschool-12th grade), hospitals, resident care facilities, day-care centers, or other facilities that may house individuals with health conditions that would be adversely impacted by changes in air quality. Sensitive receptors were identified within a 1-mile radius of each airport using aerial photographs available in the electronic geographical information system (GIS) database from the Electric Power Research Institute (EPRI) and/or Google Earth. The locations of sensitive receptors around the airports are summarized by air basin below and shown in Figures 4.3-1 through 4.3-6. For informational purposes, these figures also show residential receptors, though residences do not necessarily qualify as sensitive receptors.

South Coast Air Basin: VNY, BUR, LAX, and CNOs

The sensitive receptors within 1 mile of VNY are shown in Figure 4.3-1 and listed below.

S4	Bassett Elementary School	0.7 mile	15756 Bassett St, Van Nuys
S5	Birmingham Senior High School	1.0 mile	17000 Haynes St, Van Nuys
S9	Cohasset Elementary School	0.7 mile	15810 Saticoy St, Van Nuys
S19	Gault Elementary School	0.8 mile	17000 Gault St, Van Nuys
S33	Mulholland Middle School	1.0 mile	17120 Vanowen St, Van Nuys
S40	Parthenia Street Elementary School	0.7 mile	16825 Napa St, Northride
S47	Saint Bridget School	0.4 mile	16711 Gault St, Van Nuys
S53	Stagg Elementary School	0.9 mile	7839 Amestoy Ave, Van Nuys
S57	Valley School	0.8 mile	15700 Sherman Way, Van Nuys

The sensitive receptors within 1 mile of BUR are shown in Figure 4.3-2 and listed below.

S7	Camellia Elementary School	1.0 mile	7451 Camelia Ave, N. Hollywood
S14	Fair Avenue Elementary School	0.7 mile	6501 Fair Ave, N. Hollywood
S20	Glenwood Elementary School	0.4 mile	8001 Ledge Ave, Sun Valley
S31	Luther Burbank Middle School	1.0 mile	3700 W. Jeffries Ave, Glendale
S39	Our Lady of the Holy Rosary School	0.6 mile	7802 Vineland Ave, Sun Valley
S43	Providencia Elementary School	0.7 mile	1919 N. Ontario St, Glendale
S44	Roscoe Elementary School	0.6 mile	10765 Strathern St, Sun Valley
S50	Saint Patrick School	1.0 mile	10626 Erwin St., N. Hollywood
S55	Sun Valley Middle School	0.6 mile	7330 Bakman Ave, Sun Valley
S60	Washington Elementary School	0.8 mile	2322 N. Lincoln Ave, Glendale
S64	Woodbury University	0.9 mile	750 Glenoaks Blvd, Burbank

The sensitive receptors within one mile of LAX are shown in Figure 4.3-3 and listed below.

S3	Arena High School	1.0 mile	641 Sheldon St, El Segundo
S6	Buford Elementary School	0.9 mile	4919 W 109th St, El Segundo
S8	Center Street Elementary School	1.0 mile	700 Center St, El Segundo
S11	El Segundo High School	1.0 mile	640 Main St, El Segundo

S12	El Segundo Middle School	0.6 mile	332 Center St, El Segundo
S13	Westchester-Emerson Community Adult School	0.3 mile	8810 Emerson Ave, Los Angeles
S15	Felton Elementary School	0.8 mile	10417 Felton Ave, Lennox
S25	Kentwood Elementary School	0.7 mile	8401 Emerson Ave, Los Angeles
S27	Lennox Middle School	0.9 mile	11033 Buford Ave, Lennox
S30	Loyola Village Elementary School	0.5 mile	8821 Villanova Ave, Los Angeles
S42	Paseo Del Rey Fundamental School	0.6 mile	7751 Paseo del Rey, Playa Del Rey
S46	Saint Bernard High School	0.4 mile	9100 Falmouth Ave, Playa Del Rey
S49	Saint Johns Lutheran Child Development Center	0.5 mile	1611 E Sycamore, El Segundo
S59	Visitation School	0.4 mile	8740 Emerson Ave, Los Angeles
S62	Westchester Senior High School	0.6 mile	7400 W Manchester Ave, Los Angeles

The sensitive receptors within 1 mile of CNO are shown in Figure 4.3-4 and listed below.

S54	Stark Youth Training School	0.5 mile	15180 Euclid Ave, Chino

South Central Coast Air Basin: CMA

The sensitive receptors within 1 mile of CMA are shown in Figure 4.3-5 and listed below.

S10	Ventura Training Center Academy	0.4 mile	425 Durley Ave, Camarillo
S17	Frontier High School	0.5 mile	545 Airport Way, Camarillo
S18	Gateway Community School	0.7 mile	200 Horizon Way, Camarillo

Mojave Desert Air Basin: WJF

There are no sensitive receptors within 1 mile of WJF. A GIS diagram of the airport and the surrounding residences is shown in Figure 4.3-6.

4.3.4 Air Quality Analysis Methodology

4.3.4.1 Construction Emissions Impact Approach

There is no construction activity associated with the project. Therefore, no construction emissions analysis was performed.

4.3.4.2 Operational Emissions Impact Approach

Criteria Pollutant Emissions

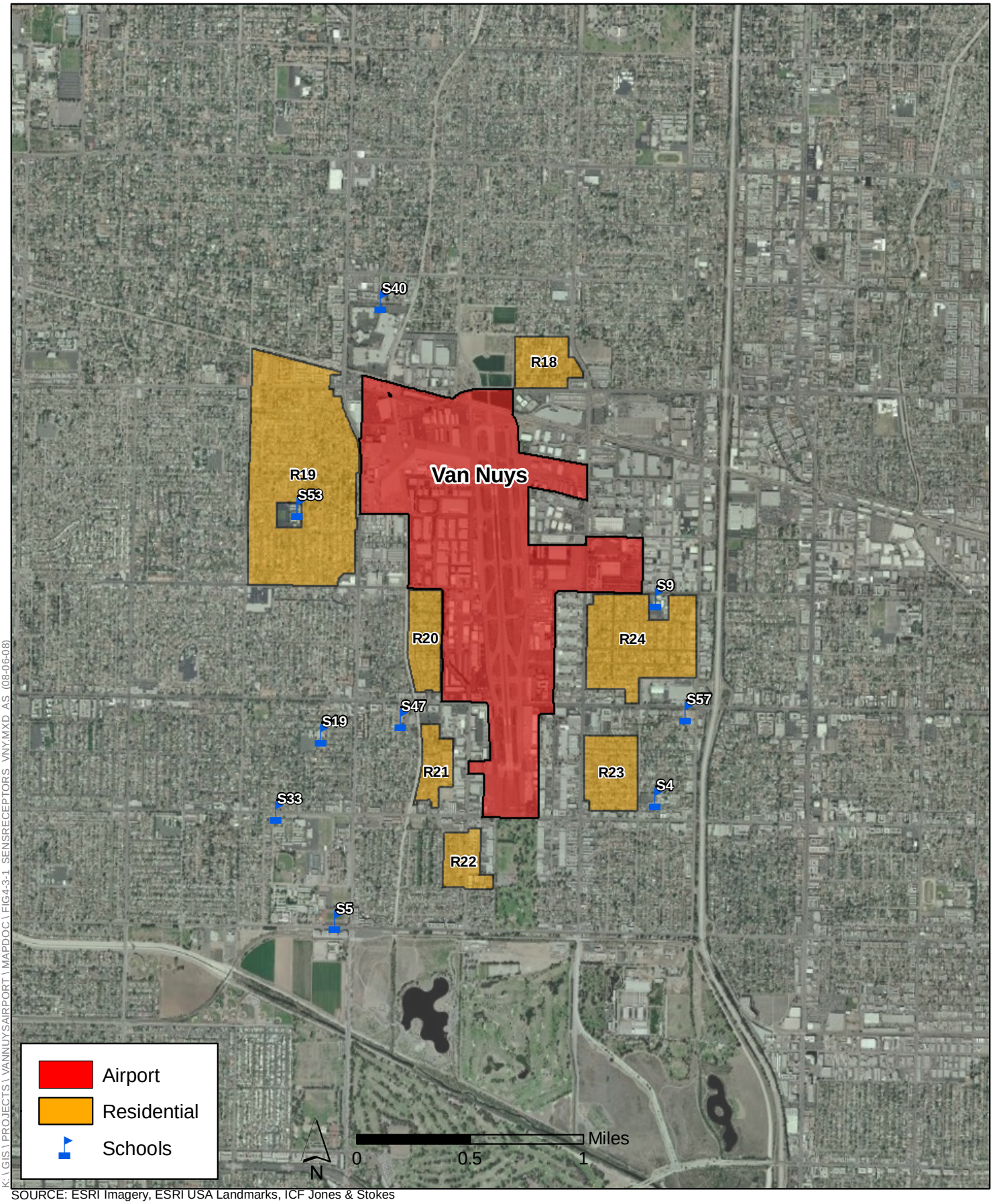
Emissions associated with aircraft flights and related support equipment are expected during operation of the project. All project-related aircraft are jet engine driven aircraft. Modern jet engine fuel is primarily composed of kerosene, and does not contain lead. In a jet engine, the fuel and an oxidizer combust (or burn) and the products of that combustion are exhausted through a narrow opening at high speed. Because leaded fuel (tetraethyl lead) is not used in jet engine aircraft, emissions of lead particles will not occur from proposed project-related aircraft activities. Criteria air pollutants associated with airport operation include CO, NO2, ozone, PM10, PM2.5, and SO2. One of these pollutants, ozone, is a photochemical oxidant that is not directly emitted, but forms from precursor compounds that react in the presence of sunlight. Therefore, the analysis of ozone is accomplished by estimating emissions of its precursors, which are VOCs and NOx. Aircraft flight data used in the analysis is based on data compiled by SH&E (SH&E 2008). Emissions from both aircraft and non-aircraft activities is estimated, as described below, for the 2014 and 2016 project scenarios.

Toxic Air Contaminants

Potential TAC impacts are evaluated by conducting a review of the TACs of concern around typical airports in southern California, as guided by CARB's Air Quality and Land Use Handbook: A Community Health Perspective (April 2005). The screening-level evaluation consists of reviewing the project location to identify any new or modified TAC emission sources, and downwind sensitive receptor locations within 1 mile. If it is determined that the project would significantly increase TACs, or modify an existing TAC exposure on the nearby sensitive receptors, then a HRA would be required to determine project impacts.

For the TAC emission inventories, the chemicals of potential concern generated by sources located on airport property will be included. The chemicals of potential concern will consist of those TACs that are known or expected to be emitted by sources at the airport which are also listed federal HAPs identified in the federal CAA and/or California's AB 2588 Toxic Hot Spots program. Hydrocarbon and particulate matter emissions will be use to estimate TAC emissions for both aircraft and nonaircraft sources, including both metals and diesel exhaust particulate matter. The emission rates of specific chemicals of potential concern will then be estimated using speciation profiles suitable for each source/pollutant.

Eight TACs of concern for aircraft-related sources were selected: acetaldehyde; acrolein; benzene; 1,3-butadiene; chromium; formaldehyde; lead; and naphthalene. In combination, these TACs are expected to account for about 99% of all potency-weighted emissions that could be associated with aircraft operations.



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SOURCE: ESRI Imagery, ESRI USA Landmarks, ICF Jones & Stokes

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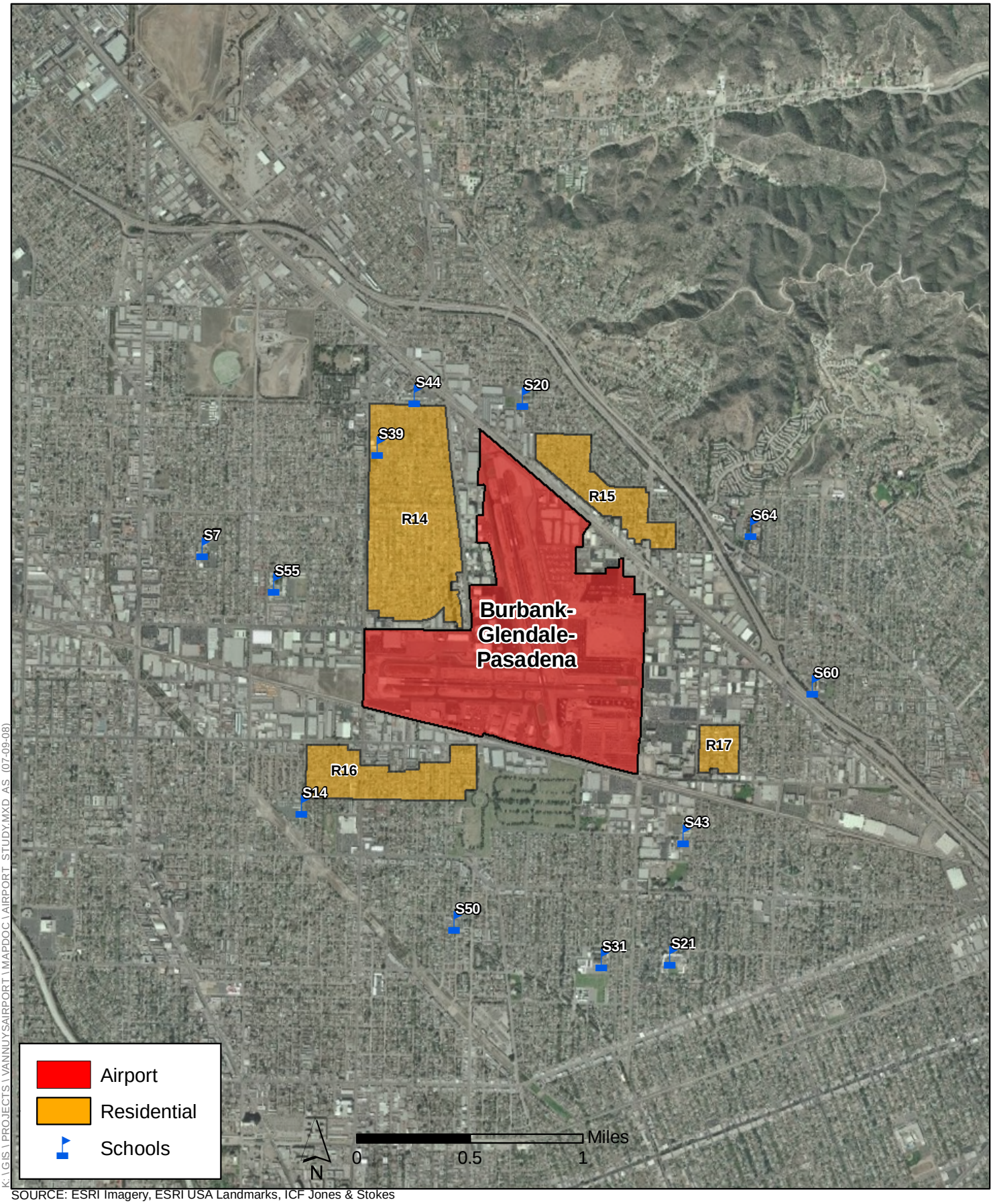
Figure 4.3-1
Receptors within one mile of VNY airport
Van Nuys Airport Noisier Aircraft Phaseout EIR



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SOURCE: ESRI Imagery, ESRI USA Landmarks, ICF Jones & Stokes

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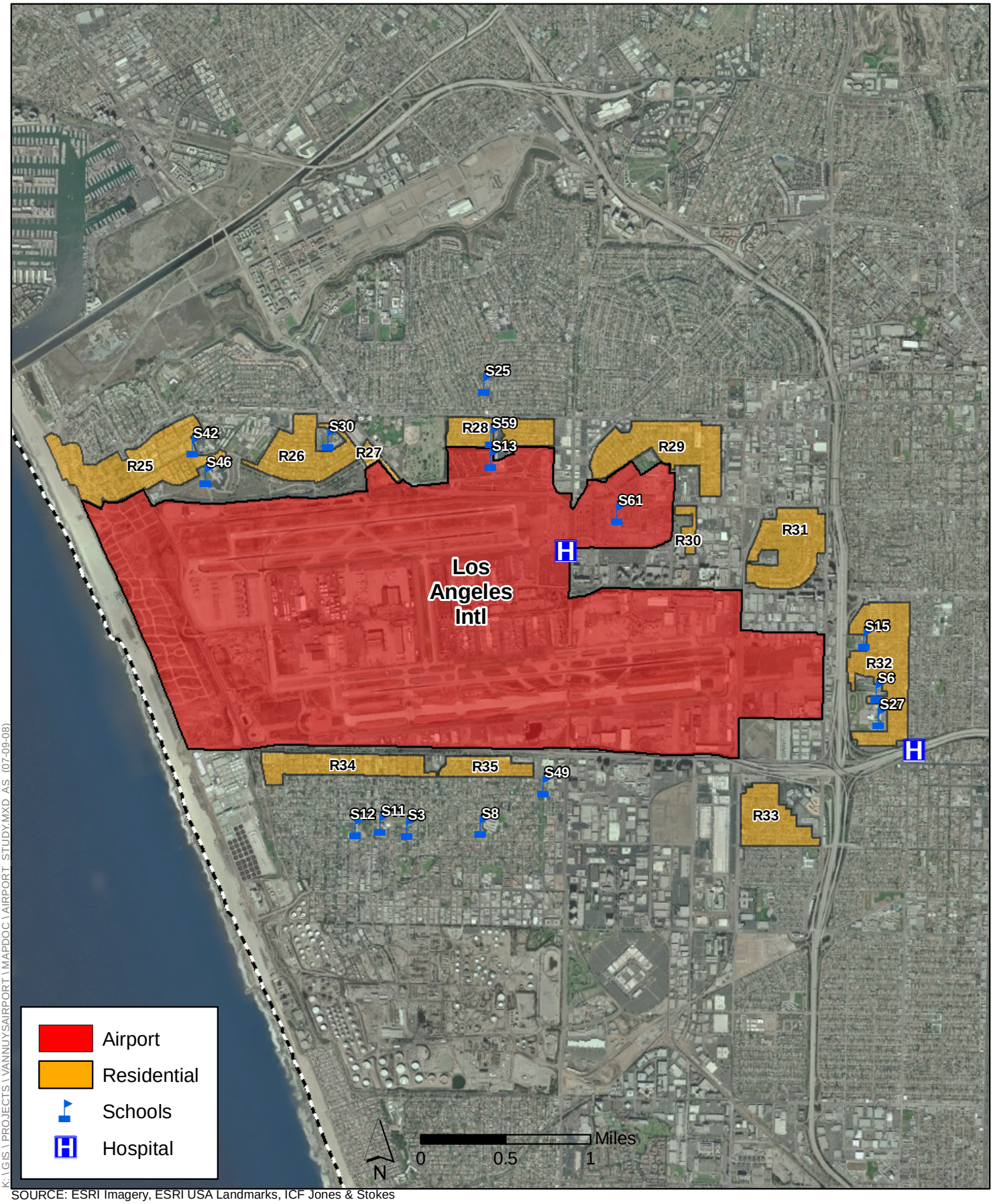
Figure 4.3-2
Receptors within one mile of BUR airport
Van Nuys Airport Noisier Aircraft Phaseout EIR



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SOURCE: ESRI Imagery, ESRI USA Landmarks, ICF Jones & Stokes

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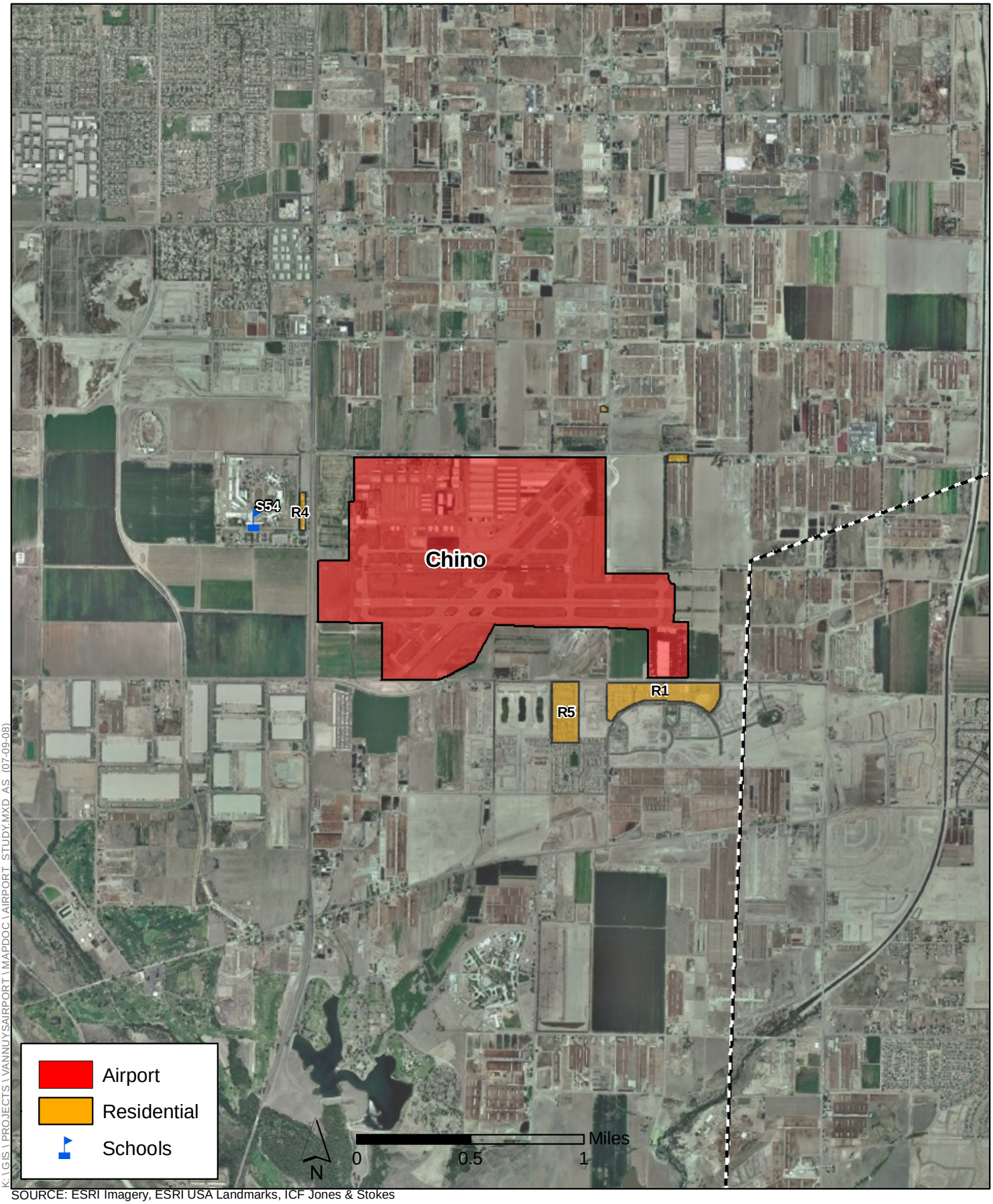
Figure 4.3-3
Receptors within one mile of LAX airport
Van Nuys Airport Noisier Aircraft Phaseout EIR



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SOURCE: ESRI Imagery, ESRI USA Landmarks, ICF Jones & Stokes

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Figure 4.3-4
Sensitive receptors within one mile of CNO airport
Van Nuys Airport Noisier Aircraft Phaseout EIR

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SOURCE: ESRI Imagery, ESRI USA Landmarks, ICF Jones & Stokes

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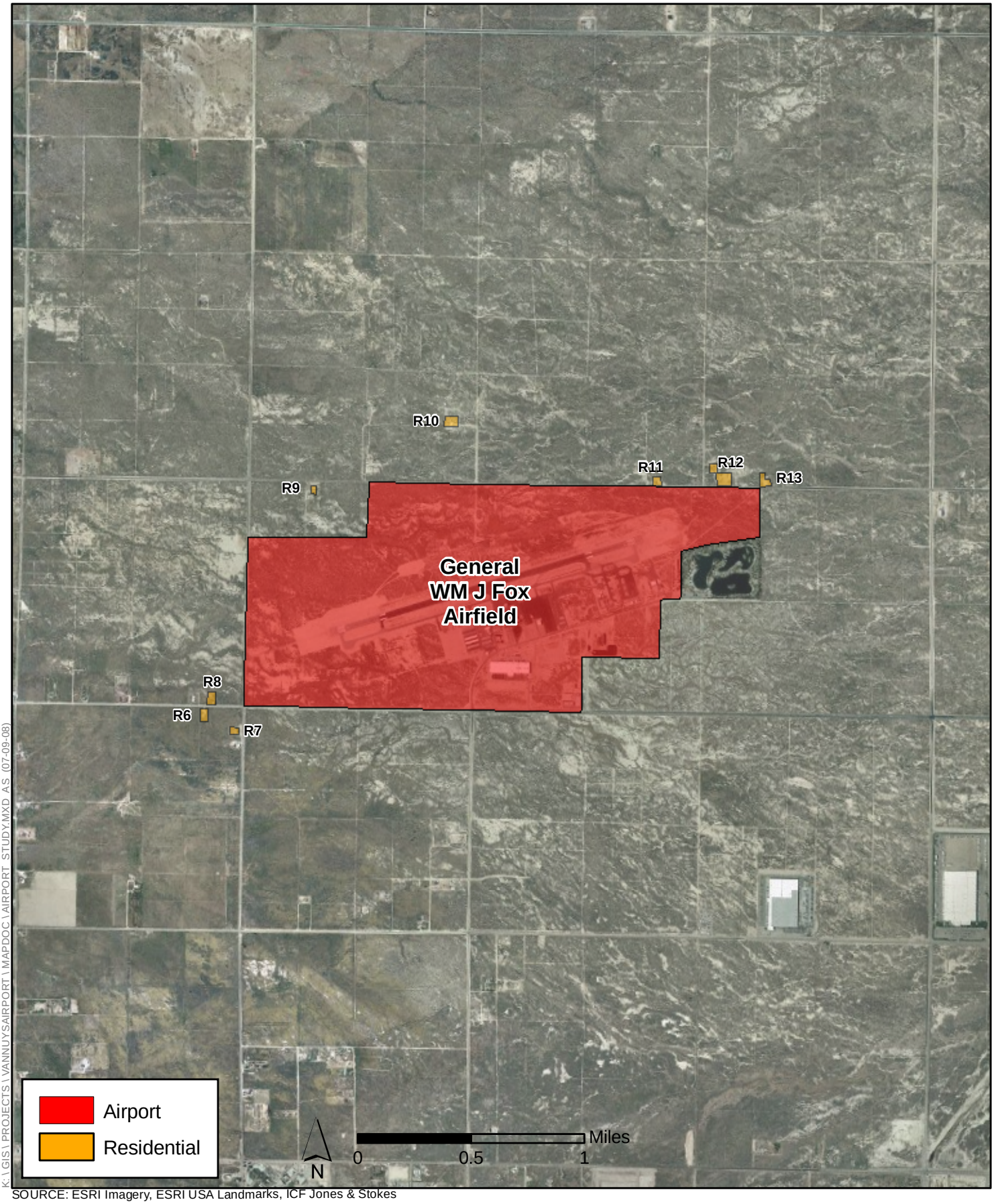
Figure 4.3-5
Receptors within one mile of CMA airport
Van Nuys Airport Noisier Aircraft Phaseout EIR



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SOURCE: ESRI Imagery, ESRI USA Landmarks, ICF Jones & Stokes

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Figure 4.3-6
Sensitive receptors within one mile of WJF airport
Van Nuys Airport Noisier Aircraft Phaseout EIR

Climate Change and Greenhouse Gas Emissions

No federal, state or regional air quality agency has adopted a methodology or quantitative threshold that can be applied to evaluate the significance of an individual project's contribution to GHG emissions, such as the quantitative thresholds that exist for criteria pollutants. Based on the threshold prescribed above, for the purpose of determining the impacts from GHG emissions for this project, any increase in GHG emissions would be considered a significant impact. Since the proposed project would result in reallocation of existing aircraft (and associated emissions) to different airports and no new emissions sources would result from the proposed project, there would be no adverse climate change or GHG impacts.

4.3.4.3 Analysis Scenarios

The primary air quality-related concern with the project is the potential air quality effects of the project on the potential diversion airports. As operations shift from VNY to the five diversion airports, the emissions of air pollutants by the planes during take-offs and landings would be relocated as well.

Additionally, with the conversion of selected noisy aircraft to quieter and more modern aircraft that would continue operations at VNY, it is possible that emissions of some pollutants may actually increase at VNY because of the different characteristics and emission profiles of the newer engines.

In this section, the air pollutant emissions by aircraft moving from VNY to the diversion airports, or aircraft staying at VNY with aircraft and/or engine conversions, are estimated under the project. Emissions at diversion airports are expected to increase in proportion to the number of aircraft operations being transferred to each airport and the emission levels per operation for each type of aircraft. Emissions at VNY would drop to zero for aircraft that are being phased out, and would either increase or decrease for aircraft that are converting and staying at VNY.

Project scenarios are for the years 2014 and 2016, as appropriate for each diversion airport. Emissions at diversion airports are evaluated as project-related increases only, without consideration for aircraft that are already operating at these airports. The emissions calculated for the year 2014 for aircraft moving to BUR, LAX, and CMA under the With Project scenario would directly increase in proportion to the number of operations and the emission profiles for each aircraft and associated power units and ground support equipment. The emissions calculated for the year 2016 for aircraft moving to CNO and WJFs would increase in a similar fashion. The No Project scenario for these diversion airports would be zero emissions for all aircraft in the study, and the calculated increases would be compared to significance thresholds for each region, as outlined in Section 4.3.2.4.

Emissions at VNY, on the other hand, are calculated for the years 2014 and 2016 under the With Project scenario (with aircraft converting in-place at VNY and vacating from VNY), and then compared to the emissions calculated for the No

Project scenario. The differences in emissions between the two scenarios would be compared to the significance thresholds for the region, as outlined in Section 4.3.2.4. The analysis scenarios are summarized in Table 4.3-18 for each airport and each year.

Table 4.3-18. Analysis Scenarios of Project-Related Aircraft Emission Changes by Airport and Year

Airport	Analysis Year	No Project	With Project
VNY	2014 and 2016	X	X
BUR	2014	(all zero)	X
LAX	2014	(all zero)	X
CMA	2014	(all zero)	X
CNO	2016	(all zero)	X
WJF	2016	(all zero)	X

X = denotes the scenarios where emissions were evaluated for the respective airports.

4.3.4.4 Aircraft Emissions

Aircraft emissions were estimated using the Emissions and Dispersion Modeling System (EDMS) version 5.0.2, released by FAA on June 29, 2007. EDMS is the model required by EPA and FAA for evaluating emissions from airports, and provides estimates for hydrocarbons, CO, NOx, SOx, and PM10.

EDMS is a combined emissions inventory and dispersion model used for assessing air quality at civilian airports and military air bases. The model incorporates both EPA-approved emissions inventory methodologies and dispersion models to ensure that analyses performed with the application conform to EPA guidelines. The model includes emissions and dispersion calculations, a rather comprehensive list of aircraft engines, aerospace ground support equipment, auxiliary power units, and vehicular and stationary source emission factor data. The model incorporates options for modifying some data to accurately represent unique characteristics at airfield locations, and also allows the user to add customized aircraft types to the system database.

The pollutants currently included in the emission inventory are CO, VOC, NOx, SOx, PM10, and PM2.5. Emissions of TACs may be estimated using VOC and particulate matter emissions and speciation factors based on the proportions of each TAC in the criteria pollutants for each emission source category and/or fuel characteristics. The model also provides fuel consumption data, which can be used to estimate CO2 emissions for analysis of Greenhouse Gas and climate change effects.

EDMS was used in accordance with the guidelines set forth in the FAA's Air Quality Procedures for Civilian Airport and Air Force Bases (Federal Aviation Administration 1997). According to the FAA's guidance, the aircraft emission inventory should be based on emissions occurring within the portion of the atmosphere that is completely mixed, beginning at the ground surface and extending to the mixing height. In general, the mixing height is assumed to have a default height above ground level of 3,000 feet. As used throughout this EIR, an aircraft operation is generally defined as a takeoff or a landing. As these relate to the FAA analysis procedures, these operations occur in the "landing and takeoff (LTO) cycle." The standard LTO cycle begins when the aircraft enters the mixing zone as it approaches the airport on its descent from cruising altitude, lands, and taxis to the gate. The cycle continues as the aircraft taxis back out to the runway, takes off, and climbs out of the mixing zone and back up to cruising altitude. The five specific operating modes in a standard LTO cycle are approach, taxi or idle in, taxi or idle out, takeoff, and climb-out. The approach, taxi, and idle-in modes relate to landing operations; the taxi, idle-out, takeoff, and climb-out modes relate to takeoff operations.

For each aircraft type involved in the action, the following steps were taken to calculate the emissions.

1. Determine the number of each type of aircraft and the number and type of engines per aircraft.
2. Determine the annual number of operations conducted per aircraft.
3. Determine the power settings for each operating mode in order to determine the fuel flow per engine and appropriate emission factors (usually given as pounds of pollutant per 1,000 pounds of fuel used).
4. Determine the time-in-mode for each operating mode.
5. Multiply the number of operations per aircraft for each operating mode by the number of aircraft, fuel flow rate per engine, number of engines, emission factor, time-in-mode and appropriate conversion factors to obtain the total emissions in tons per year for each operating mode.
6. Sum the emissions for all operating modes to obtain the total daily and annual emissions for the aircraft type.

EDMS default settings were used for engine emission factors, power settings, time-in-mode data, auxiliary power units, ground support equipment, and other parameters for each aircraft taking off and landing at the various airports. The data used in the model, including the aircraft-engine combinations and the number of operations by each type of aircraft at each airport for each of the study years and scenarios, were based on data compiled by SH&E (Phaseout of Noisy Aircraft at Van Nuys Regional Airport, 3/13/2008; SH&E Memorandum from LAWA: CEQA Airports Baseline Business Jet Fleet Forecast, 10/3/2007; personal communications with SH&E). In some cases, EDMS engines did not match the engine specified for a particular aircraft, in which case the EDMS default aircraft-engine pair was used instead. In the case of the L-39 Czech-made Albatross trainer, no data were available in EDMS so

the emissions were calculated based on engine data for the T-38 aircraft in place of the L-39. The aircraft-engine combinations used in the EDMS model for each type of aircraft are shown in Table 4.3-19.

Table 4.3-19. Aircraft-Engine Combinations Used in Emissions Modeling

Aircraft Code	Aircraft Name	Engine Specification	Aircraft used in EDMS	Engine used in EDMS
B721	Boeing 727-100	JT8D-9	Boeing 727-100 Series	JT8D-9 Series Smoke Fix
B722	Boeing 727-200	JT8D-17	Boeing 727-200 Series	JT8D-17 Smoke Fix
B727	Boeing 727	JT8D-17	Boeing 727-200 Series	JT8D-17 Smoke Fix
F5	US-made military F-5	(no data)	Northrup F-5E/F Tiger II	J85-GE-5F
GLF2	Gulfstream II/G200	(no data)	Gulfstream II	SPEY MK.511-8
GLF3	Gulfstream III/G300	GIIB/GIII	Gulfstream G300	SPEY MK.511-8
H25A	BAe HS 125-600A	Viper 601-22	Hawker HS-125 Series 600	TFE731-2-2B
L39	Czech L39 Albatros trainer	(no data)	T-38 Talon	J85-GE-5H (w/AB)
LJ24	Bombadier Learjet 24D	CJ610-6	Bombadier Learjet 24D	CJ610-6
L25	Bombadier Learjet 25D	CJ610-8A	Bombadier Learjet 25	CJ610-6
L28	Bombadier Learjet 28	(no data)	Bombadier Learjet 28	CJ610-6
L35	Bombadier Learjet 35/36	(no data)	Bombadier Learjet 35	TFE731-2-2B
SBR1	Rockwell Sabre 60	JT12A-8	Rockwell Sabreliner 60	CF700-2D
T38	US-made military T-38	(no data)	T-38 Talon	J85-GE-5H (w/AB)

One aircraft operation is considered either a take-off or a landing, so, for each aircraft, the annual number of operations was divided by two for entry of LTO cycles (takeoffs and landings) into the model.

Peak daily operations at VNY were estimated using the assumption that operations are distributed evenly throughout the year. That is, the annual operations for each of the project-related aircraft types were divided by 365.25 (the number of days in a year, averaged to account for leap years) and rounded up, so that the minimum number of flights per day for each aircraft type based at VNY would be one flight per day, rather than a fractional number (in accordance with EDMS input requirements). For example, projections for the year 2014 under the No Project scenario predict 624 annual take-offs and 624 annual landings of GLF2 aircraft during 2014 at VNY. Dividing by 365.25 and rounding up to the nearest whole number results in a prediction that there would be a daily average of two take-offs and two landings of GLF2 aircraft during 2014 at VNY. By this method, each project-related aircraft type yields at least a fraction of a daily flight at VNY, and therefore the analysis assumed that all aircraft types would be operating on the same day. That is, the peak

daily emissions for each aircraft type are summed to determine the peak daily emissions at VNY for a given year.

For the diversion airports, reliance on annual averages to determine daily peak emissions would yield unrealistically conservative results, because it would assume that in one day all aircraft types that are diverted to a particular airport would go through one LTO cycle. To provide a more realistic depiction of peak days at the diversion airports, SH&E reviewed the available 2006 data to determine the single day at VNY with the most operations by noise ordinance-affected aircraft, for each of the two analysis years. The busiest day at VNY for aircraft affected by the proposed 2014 noise limits was identified as having multiple operations of Gulfstream 2, Gulfstream 3, and H25, and a single operation of a Boeing 727; these operations would be diverted to LAX, BUR, and CMA, in accordance with the diversion methodology established by SH&E. The busiest day at VNY for aircraft affected by the 2016 expiration of the maintenance and historic-aircraft exemptions was identified as having multiple operations of Gulfstream 2, Gulfstream 3, and T34, and a single operation of a Lear 39; these operations would be diverted to CNO and WJF, in accordance with the diversion methodology established by SH&E.

The EDMS modeling method, required by the FAA policy (FAA Orders 1050 and 5050), does not allow fractions of LTO cycles to be input, and as a result can yield a very conservative estimate of project impacts, especially where the number of additional operations at a particular airport is small, because it can end up counting the same diverted LTO cycle multiple times. For example, one Boeing 727 operation occurring at VNY on a peak day would be transferred to three diversion airports (according to the diversion methodology established by SH&S), equating to an estimated 0.6 operation per day at BUR, 0.3 operation per day at CMA, and 0.1 operation per day at LAX. For input into the EDMS model, which allows a minimum of one flight per day, these numbers were divided by two and rounded up, resulting in one LTO at each of the three airports. Thus, the resulting modeled emissions are elevated and can be considered conservative. Actual project-related emissions are expected to be lower.

Table 4.3-20 shows the annual number of aircraft LTOs (i.e., one LTO equals one take-off and one landing, or two aircraft operations) used in the EDMS model for each type of aircraft at each airport. The numbers of operations shown in this table include only those aircraft types that have been identified as "noisy" aircraft and either are being converted to quieter aircraft and staying at the VNY or are moving to diversion airports by 2014 or 2016 as dictated by stricter noise ordinances at VNY. Projections for anticipated natural decreases in these populations under the No Project scenario are indicated in the first three columns under VNY for calendar years 2009, 2014, and 2016. The remaining columns show the expected number of landings and take-offs of noisy aircraft or converted aircraft at each airport under the With Project (WP) scenario.

Table 4.3-20. Annual Landing and Take-Off Cycles at Each Airport (Noisy or Converted Aircraft)

	VNY					BUR	LAX	CMA	CNO	WJF
	2009	**2014**	**2016**	**2014**	**2016**	**2014**	**2014**	**2014**	**2016**	**2016**
Aircraft		**NP**								
B721	7	6	4	—	—	—	6	—	—	—
B722	3	3	2	—	—	—	3	—	—	—
B727	9	8	5	—	—	—	8	—	—	—
F5	2	2	2	2	—	—	—	—	2	—
GLF2	624	383	316	65	—	12	2	7	—	65
GLF3	835	461	364	696	508	37	6	22	—	65
H25A	5	2	2	—	—	2	1	1	—	—
L39	29	29	29	29	—	—	—	—	29	—
LJ24	47	16	10	—	—	9	2	6	—	—
LJ25	371	245	207	—	—	38	6	23	—	—
LJ28	5	1	1	—	—	1	1	1	—	—
LJ35	—	—	—	179	152	—	—	—	—	—
SBR1	6	2	1	—	—	1	1	1	—	—
T38	19	19	19	19	—	—	—	—	19	—
Total per Year	**1,962**	**1,177**	**962**	**990**	**660**	**100**	**36**	**61**	**50**	**130**

NP = No Project; WP = Project

Source: SH&E, Phaseout of Noisy Aircraft at Van Nuys Regional Airport, 3/13/2008.

Table 4.3-21 shows the peak daily number of aircraft LTO cycles used in the EDMS model for a single day under the No Project and With Project scenarios for each type of aircraft at each airport. The numbers of operations shown in this table include only those aircraft types that have been identified as noisy aircraft and either are being converted to quieter aircraft and staying at the VNY or are moving to diversion airports by 2014 or 2016 as dictated by stricter noise ordinances at VNY. Projections for anticipated natural decreases in these populations under the No Project scenario are indicated in the first three columns under VNY for calendar years 2009, 2014, and 2016. The remaining columns show the expected number of landings and take-offs of noisy aircraft or converted aircraft at each airport under the Project scenario. Aircraft types that are not being moved or converted and will continue to operate at these airports are not included in this table.

Table 4.3-21. Peak Daily Landings and Take-Offs at Each Airport (Noisy or Converted Aircraft)

	Number of LTO (Landings and Take-Offs)									
	VNY					BUR	LAX	CMA	CNO	WJF
	2009	2014	2016	2014	2016	2014	2014	2014	2016	2016
Aircraft	NP					WP				
B721	1	1	1	—	—	—	—	—	—	—
B722	1	1	1	—	—	—	—	—	—	—
B727	1	1	1	—	—	1	1	1	—	—
F5	1	1	1	1	—	—	—	—	—	—
GLF2	2	2	1	1	—	2	1	1	—	1
GLF3	3	2	1	2	2	2	1	1	—	2
H25A	1	1	1	—	—	1	1	1	—	—
L39	1	1	1	1	—	—	—	—	1	—
LJ24	1	1	1	—	—	—	—	—	—	—
LJ25	2	1	1	—	—	—	—	—	—	—
LJ28	1	1	1	—	—	—	—	—	—	—
LJ35	—	—	—	1	1	—	—	—	—	—
SBR1	1	1	1	—	—	—	—	—	—	—
T38	1	1	1	1	—	—	—	—	1	—
Total Per Day	**17**	**15**	**13**	**7**	**3**	**6**	**4**	**4**	**2**	**3**

NP = No Project; WP = Project

Source: SH&E, Phaseout of Noisy Aircraft at Van Nuys Regional Airport, 3/13/2008; SH&E, personal communications, 9/17/2008

4.3.5 Impact Analysis

The project involves only aircraft emissions and emissions from auxiliary power units (APU) and ground support equipment (GSE) that are directly related to aircraft operations. No construction activities or changes in any other operational activities are expected to occur as a result of the implementation of the project. In other words, no indirect vehicular activity, no aircraft maintenance, and no additional energy consumption related to increases in building occupancy or other physical changes would result from the project.

4.3.5.1 Projected Emissions and Levels of Significance

South Coast Air Basin: VNY, BUR, LAX, and CNOs

Van Nuys Airport

Consistency with Regional Air Quality Management Plan

SCAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the South Coast Air Basin is in nonattainment (i.e., ozone, PM10, and PM2.5). The project would be subject to the SCAQMD's AQMP. The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by SCAG.

The project site is consistent with the City of Los Angeles General Plan. The project site is classified as public airport, consistent with the General Industrial in the Land Use Element of the General Plan. The project is consistent with this classification, as the whole of the project would consist of aircraft operations and supporting land uses.

Because the project is consistent with the local general plan, pursuant to SCAQMD guidelines, it is also considered consistent with the region's AQMP. As such, aircraft–related emissions are accounted for in the AQMP, which is crafted to bring the South Coast Air Basin into attainment for all criteria pollutants. Accordingly, the project would be consistent with the projections in the AQMP, and would have a less-than-significant impact.

A project is consistent with the AQMP if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. The 2007 AQMP, the most recent AQMP adopted by the SCAQMD, incorporates SCAG's 2004 Regional Transportation Plan socioeconomic forecasts of regional population and employment growth. The project would reallocate aircraft within the ASA region. It is expected that under the project aircraft operations reallocated from VNY to other airports would remain at the same level currently projected in the AQMP. Such levels of aircraft operation growth and aircraft fleet turnover are consistent with the aircraft forecasts for the region as adopted by SCAG. Because SCAQMD has incorporated these same projections into the AQMP, it can be concluded that the project would be consistent with the projections in the AQMP. In summary, the reduction in emissions that will occur at VNY would not conflict with or obstruct implementation of the AQMP. No mitigation is required.

Violation of any Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

The transfer of aircraft away from VNY and the conversion of noisy aircraft to quieter models staying at VNY would result in a change in aircraft-related emissions at VNY that would be proportional to the changes in operational activity for each aircraft type and the emission factors for each aircraft and related support equipment, as outlined in the methodology section, above. SCAQMD evaluates the significance of project impacts based on daily emissions only (i.e., significance is not based on

annual project-related emissions) of CO, ROGs (equivalent to VOCs), NOx, SOx, PM10, and PM2.5, as delineated in Table 4.3-4. The changes in peak daily emissions that would result from the project in calendar years 2014 and 2016 are summarized and compared to SCAQMD's daily significance thresholds in Tables 4-22 and 4-23, respectively. As shown in the two tables, the project would result in decreases in aircraft-related emissions at VNY for all six pollutants in 2014, relative to the No Project scenario based on the peak daily operational data shown in Table 4.3-21. In 2016, emissions would be even lower due to the retirement of older aircraft that is expected to occur independent of the project. Because the emissions at VNY would be lower under the With Project scenario than under the No Project scenario, emissions from the project would remain below the significance thresholds. Therefore, the VNY emissions impact is considered less than significant in 2014 and 2016 planning years.

Table 4.3-22. Changes in Aircraft-Related Peak Daily Emissions at VNY Resulting from the Project (Calendar Year 2014)

	Changes in Peak Daily Emissions (pounds per day)					
Aircraft	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**
B721	-58	-31	-23	-4	-1	-1
B722	-58	-36	-30	-5	-2	-2
B727	-58	-36	-30	-5	-2	-2
LJ24	-83	-12	-1	-1	—	—
LJ25	-83	-12	-1	-1	—	—
LJ28	-83	-12	-1	-1	—	—
LJ35	12	5	1	—	—	—
GLF3	—	—	—	—	—	—
GLF2	-32	-7	-17	-2	-1	-1
H25A	-12	-5	-1	—	—	—
F-5	—	—	—	—	—	—
SBR1	-81	-15	-2	-1	—	—
L-39	—	—	—	—	—	—
T-38	—	—	—	—	—	—
Peak Daily Total	**-536**	**-161**	**-105**	**-20**	**-6**	**-6**
Significance Threshold	*550*	*75*	*55*	*150*	*150*	*55*
Threshold Exceeded?	*No*	*No*	*No*	*No*	*No*	*No*

Table 4.3-23. Changes in Aircraft-Related Peak Daily Emissions at VNY Resulting from the Project (Calendar Year 2016)

	Changes in Peak Daily Emissions (pounds per day)					
Aircraft	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**
B721	-58	-31	-23	-4	-1	-1
B722	-58	-36	-30	-5	-2	-2
B727	-58	-36	-30	-5	-2	-2
LJ24	-83	-12	-1	-1	—	—
LJ25	-83	-12	-1	-1	—	—
LJ28	-83	-12	-1	-1	—	—
LJ35	+12	+5	+1	—	—	—
GLF3	+31	+7	+17	+2	+1	+1
GLF2	-32	-7	-17	-3	—	—
H25A	-12	-5	-1	—	—	—
F-5	-102	-32	-2	-1	-1	-1
SBR1	-81	-15	-2	-1	—	—
L-39	-101	-13	-2	-1	—	—
T-38	-101	-13	-2	-1	—	—
Peak Daily Total	**-809**	**-212**	**-94**	**-22**	**-5**	**-5**
Significance Threshold	*550*	*75*	*55*	*150*	*150*	*55*
Threshold Exceeded?	No	No	No	No	No	No

Objectionable Odors from Aircraft and Related Support Equipment

Aircraft operations can generate potential odors and gaseous fumes by evaporative emissions and tailpipe emissions from aircraft, GSE, and APU during operations. Because the project would reduce operations at VNY, it would result in a reduction in odor emissions at VNY. Therefore, odor impacts would be less than significant. No mitigation is required.

Bob Hope Airport, Burbank (BUR)

Consistency with Regional Air Quality Management Plan

Refer to the discussion on consistency with AQMP under the VNY section. In summary, the project would not conflict with or obstruct implementation of the AQMP. This impact is less than significant at BUR, and no mitigation is required.

Violation of any Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

The transfer of aircraft to BUR would result in an increase in aircraft-related emissions at BUR that would be proportional to the increase in operational activity

for each aircraft type and the emission factors for each aircraft and related support equipment, as outlined in the methodology section, above. SCAQMD evaluates significance of project impacts based on daily emissions only (i.e., significance is not based on annual project-related emissions) of CO, ROGs (equivalent to VOCs), NOx, SOx, PM10, and PM2.5, as delineated in Table 4.3-4. As discussed in Section 4.3.2, ROG (equivalent to VOC) and NOx are regional pollutants, contributing to elevated ozone levels due to atmospheric photochemical reactions occurring significantly downwind of the source of the emissions. Therefore, when emission sources (i.e., aircraft) are transferred from one location within the South Coast Air Basin to another, as they are when aircraft are diverted from VNY to BUR, no changes in regional air pollution are expected to occur. On the other hand, pollutants such as CO, SOx, Pb, and PM are considered local pollutants because they tend to accumulate near the emissions source, and then disperse rapidly with distance. Because no new emissions of the regional pollutants ROG and NOx would occur within the South Coast Air Basin as a result of diverting operations from VNY to BUR, analysis of these pollutants is not presented. Analysis of CO, SOx, PM10, and PM2.5 are included in order to evaluate local emissions of these pollutants at BUR.

The peak daily emissions that would result from aircraft being transferred to BUR in calendar year 2014 are summarized and compared to the SCAQMD's daily significance thresholds in Table 4.3-24. As shown in the table, the increase in peak daily emissions at BUR resulting from the transfer of aircraft from VNY to BUR in 2014, based on the peak daily operational data shown in Table 4.3-21, is expected to be below the significance thresholds. The diversions occurring in 2016 would be fewer than in 2014, and would also be below the significance thresholds. Therefore, the impact is considered less than significant. No mitigation is required.

Table 4.3-24. Aircraft-Related Peak Daily Emission Increases at BUR Resulting from the Project (Calendar Year 2014)

	Peak Daily Emissions Increases (pounds per day)			
Aircraft	**CO**	**SOx**	**PM10**	**PM2.5**
GLF3	63	5	1	1
GLF2	63	5	1	1
H25A	12	< 1	< 1	< 1
B727	57	5	2	2
Peak Daily Total	**195**	**15**	**4**	**4**
Significance Threshold	*550*	*150*	*150*	*55*
Exceeding Threshold?	*No*	*No*	*No*	*No*

Objectionable Odors from Aircraft and Related Support Equipment

Aircraft have the potential to introduce objectionable odors and/or noxious fumes that could impact on- and off-site receptors. Under the peak-day scenario, the 6 LTO cycles per day would not generate a substantial amount of new odors that would

result in such an impact. Odor impacts would be less than significant at BUR. No mitigation is required.

Los Angeles International Airport

Consistency with Regional Air Quality Management Plan

Refer to the discussion on consistency with AQMP under the VNY section. In summary, the project would not conflict with or obstruct implementation of the AQMP. This impact is less than significant, and no mitigation is required.

Violation of any Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

The transfer of aircraft to LAX would result in an increase in aircraft-related emissions at LAX that would be proportional to the increase in operational activity for each aircraft type and the emission factors for each aircraft and related support equipment, as outlined in the methodology section, above. SCAQMD evaluates significance of project impacts based on daily emissions only (i.e., significance is not based on annual project-related emissions) of CO, ROG (equivalent to VOC), NOx, SOx, PM10, and PM2.5, as delineated in Table 4.3-4. As discussed in Section 4.3.2 and in the BUR section, above, the regional pollutants ROG and NOx are not included in the analysis because diverting aircraft from VNY to LAX would redistribute these regional pollutants within the South Coast Air Basin, and would not result in new emissions. Because the emissions are shifting from VNY to LAX, which are both within the South Coast Air Basin, no changes in regional air pollution are expected to occur as a result of the proposed project. The local pollutants CO, SOx, and PM are included in order to evaluate their local impacts near LAX.

The peak daily emissions resulting from aircraft being transferred to LAX in calendar year 2014 are summarized and compared to SCAQMD's daily significance thresholds in Table 4.3-25. As shown in the table, the increase in peak daily emissions at LAX resulting from the transfer of aircraft from VNY to LAX in 2014, based on the peak daily operational data shown in Table 4.3-21, is expected to be below the significance thresholds. The diversions occurring in 2016 would be fewer than in 2014, and would also be below the significance thresholds. Therefore, the impact is considered less than significant. No mitigation is required.

Table 4.3-25. Aircraft-Related Peak Daily Emission Increases at LAX Resulting from the Project (Calendar Year 2014)

	Peak Daily Emission Increases (pounds per day)			
Aircraft	**CO**	**SOx**	**PM10**	**PM2.5**
B727	57	5	2	2
GLF3	31	2	< 1	< 1
GLF2	31	2	< 1	< 1
H25A	12	< 1	< 1	< 1
Peak Daily Total	**131**	**9**	**2**	**2**
Significance Threshold	*550*	*150*	*150*	*55*
Exceeding Threshold?	*No*	*No*	*No*	*No*

Objectionable Odors from Aircraft and Related Support Equipment

Aircraft have the potential to introduce objectionable odors and/or noxious fumes that could impact on- and off-site receptors. Under the peak-day scenario, the 4 LTO cycles per day would not generate a substantial amount of new odors that would result in such an impact. Odor impacts would be less than significant at LAX. No mitigation is required.

Chino Airport

Consistency with Regional Air Quality Management Plan

Refer to the discussion on consistency with AQMP under the VNY section. In summary, the project would not conflict with or obstruct implementation of the AQMP. This impact is less than significant, and no mitigation is required.

Violation of any Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

The transfer of aircraft to CNO would result in an increase in aircraft-related emissions at CNO that would be proportional to the increase in operational activity for each aircraft type and the emission factors for each aircraft and related support equipment, as outlined in the methodology section, above. SCAQMD evaluates the significance of project impacts based on daily emissions only (i.e., significance is not based on annual project-related emissions) of CO, VOC, NOx, SOx, PM10, and PM2.5, as delineated in Table 4.3-4. As discussed in Section 4.3.2 and in the BUR section, above, the regional pollutants ROG (equivalent to VOC) and NOx are not included in the analysis because diverting aircraft from VNY to CNO would redistribute these regional pollutants within the South Coast Air Basin, and would not result in new emissions. Because the emissions are shifting from VNY to CNO, which are both within the South Coast Air Basin, no changes in regional air pollution are expected to occur as a result of the proposed project. The local pollutants CO, SOx, and PM are included in order to evaluate their local impacts near CNO.

Diversions to CNO would not occur until 2016. The peak daily emissions resulting from aircraft being transferred to CNO in calendar year 2016 are summarized and compared to the SCAQMD's daily significance thresholds in Table 4.3-26. As shown in the table, the increase in peak daily emissions at CNO resulting from the transfer of aircraft from VNY to CNO in 2016, based on the peak daily operational data shown in Table 4.3-21, is expected to be below the significance thresholds. Therefore, the impact is considered less than significant. No mitigation is required.

Table 4.3-26. Aircraft-Related Peak Daily Emission Increases at CNO Resulting from the Project (Calendar Year 2016)

	Peak Daily Emission Increases (pounds per day)			
Aircraft	**CO**	**SOx**	**PM10**	**PM2.5**
L-39	100	1	< 1	< 1
T-38	100	1	< 1	< 1
Peak Daily Total	**200**	**2**	**< 1**	**< 1**
Significance Threshold	*550*	*150*	*150*	*55*
Exceeding Threshold?	*No*	*No*	*No*	*No*

Objectionable Odors from Aircraft and Related Support Equipment

Aircraft have the potential to introduce objectionable odors and/or noxious fumes that could impact on- and off-site receptors. Under the peak-day scenario, the 2 LTO cycles per day would not generate a substantial amount of new odors that would result in such an impact. Odor impacts would be less than significant at CNO. No mitigation is required.

South Central Coast Air Basin: CMA

Camarillo Airport

Consistency with Regional Air Quality Management Plan

VCAPCD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the South Central Coast Air Basin is in nonattainment (i.e., ozone, PM10, and PM2.5). The project would be subject to the VCAPCD's 2007 AQMP. The AQMP contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by SCAG.

The project site is consistent with the City of Camarillo General Plan. The project site is classified as public airport, consistent with the General Industrial in the Land Use Element of the General Plan. The project is consistent with this classification, as the whole of the project would consist of aircraft operations and maintenance land uses.

Because the project is consistent with the local general plan, pursuant to VCAPCD guidelines, the project is also considered consistent with the region's AQMP. As such, aircraft-related emissions are accounted for in the AQMP, which is crafted to bring the South Central Coast Air Basin into attainment for all criteria pollutants. Accordingly, the project would be consistent with the projections in the AQMP, and would have a less-than-significant impact.

A project is consistent with the AQMP if it is consistent with the population, housing, and employment assumptions that were used in the development of the AQMP. The 2007 AQMP, the most recent AQMP adopted by VCAPCD, incorporates SCAG's 2004 Regional Transportation Plan socioeconomic forecasts of regional population and employment growth. The project would reallocate aircraft within the ASA region. Under the project, aircraft operations reallocated from VNY to CMA and other airports would remain at the same level currently projected in the AQMP. Such levels of aircraft operation growth and aircraft fleet turnover are consistent with the aircraft forecasts for the region as adopted by SCAG. Because VCAPCD has incorporated these same projections into the AQMP, it can be concluded that the project would be consistent with the projections in the AQMP. In summary, the project would not conflict with or obstruct implementation of the AQMP. This impact is less than significant, and no mitigation is required.

Violation of any Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

The transfer of aircraft to CMA would result in an increase in aircraft-related emissions at CMA that is proportional to the increase in operational activity for each aircraft type and the emission factors for each aircraft and related support equipment, as outlined in the methodology section, above. VCAPCD evaluates the significance of project impacts based on daily emissions only (i.e., significance is not based on annual project-related emissions) of VOC and NOx, as delineated in Table 4.3-5. Diverting aircraft from VNY to CMA represents a transfer of emissions from the South Coast Air Basin to the South Central Coast Air Basin; therefore, the regional pollutants VOC and NOx were analyzed for this airport, along with the pollutants that would have an effect on local air quality.

The peak daily emissions resulting from aircraft being transferred to CMA in calendar year 2014 are summarized and compared to the VCAPCD's daily significance thresholds in Table 4.3-27. As shown in the table, the increases in emissions at CMA resulting from the transfer of aircraft from VNY to CMA in 2014, based on the operational data shown in Table 4.3-21, would exceed the emissions thresholds for VOC and NOx. Because the peak daily emissions for VOC and NOx would be exceeded at CMA, the project would result in a significant air quality impact at CMA. The project-related diversions occurring at CMA in 2016 and beyond would be fewer than in 2014, and fewer emissions would result, but VOC and NOx emissions would still likely exceed the respective thresholds.

Table 4.3-27. Aircraft-Related Peak Daily Emission Increases at CMA Resulting from the Project (Calendar Year 2014)

	Peak Daily Emission Increases (pounds per day)					
Aircraft	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**
GLF3	32	7	16	3	< 1	< 1
GLF2	32	7	16	3	< 1	< 1
H25A	12	5	1	< 1	< 1	< 1
B727	58	36	28	5	2	2
Peak Daily Total	**58**	**55**	**61**	**11**	**2**	**2**
Significance Threshold	*None*	*25*	*25*	*None*	*None*	*None*
Threshold Exceeded?	—	*Yes*	*Yes*	—	—	—

Significant Impact AQ-1: Exceedance of Ventura County Air Quality Management District Daily Emissions Thresholds at CMA

The project would result in emissions of VOC and NOx at CMA that exceed VCAQMD daily thresholds.

Mitigation Measures

There are no feasible measures to mitigate the project's exceedance of VCAQMD thresholds for VOC and NOx. To avoid or reduce this impact to a less-than-significant level, emissions from the project-related diversions to CMA would have to be eliminated or reduced in individual aircraft. Technology to reduce these aircraft emissions is not available, and cannot be imposed on the operating aircraft. Therefore, mitigation is infeasible and this is a significant and unavoidable impact.

Emissions at CMA represent pollutants that are being transferred to the South Central Coast Air Basin from the South Coast Air Basin. Therefore, they are new pollutants that are not accounted for in the 2007 AQMP. Because the South Central Coast Air Basin is in nonattainment for ozone and particulate matter and project-related emissions would contribute to this, the project would contribute to a significant cumulative impact. This issue is further discussed in Chapter 5 of this EIR.

Objectionable Odors from Aircraft and Related Support Equipment

The project would generate potential increases in odors and gaseous fumes by evaporative emissions and tailpipe emissions from aircraft, GSE, and APU. Odor impacts would be limited to the airport circulation routes and apron parking areas. Operation of the project may create a nuisance when located in close proximity to sensitive receptors. However, these potential increases in odors are not expected to affect a substantial number of sensitive receptor land uses for an extended period of time. Therefore, odor impacts would be less than significant. No mitigation is required.

Mojave Desert Air Basin: WJF

William J. Fox Airport in Lancaster

Consistency with Regional Air Quality Management Plan

AVAQMD is required, pursuant to the CAA, to reduce emissions of criteria pollutants for which the Mojave Desert Air Basin is in nonattainment (i.e., ozone, PM10, and PM2.5). The project would be subject to the AVAQMD's Ozone Attainment Plan, which contains a comprehensive list of pollution control strategies directed at reducing emissions and achieving ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by SCAG.

The project site is consistent with the City of Lancaster General Plan. The project site is classified as public airport, consistent with the General Industrial in the Land Use Element of the General Plan. The project is consistent with this classification, as the whole of the project would consist of aircraft operations and maintenance land uses.

Because the project is consistent with the local general plan, pursuant to AVAQMD guidelines, the project is also considered consistent with the region's Ozone Attainment Plan. As such, aircraft–related emissions are accounted for in the Ozone Attainment Plan, which is crafted to bring the Mojave Desert Air Basin into attainment for all criteria pollutants. Accordingly, the project would be consistent with the projections in the Ozone Attainment Plan, and would have a less-than-significant impact.

A project is consistent with the Ozone Attainment Plan if it is consistent with the population, housing, and employment assumptions that were used in the development of the Ozone Attainment Plan. The most recent Ozone Attainment Plan adopted by the AVAQMD incorporates SCAG's 2004 Regional Transportation Plan socioeconomic forecasts of regional population and employment growth. The project would reallocate aircraft within the ASA region. The aircraft operations reallocated from VNY in Los Angeles County to WJF and other airports would remain at the same level currently projected in the AQMP. Such levels of aircraft operation growth and aircraft fleet turnover are consistent with the aircraft forecasts for the region as adopted by SCAG. Because AVAQMD has incorporated these same projections into the OAP, the project would be consistent with the projections in the Ozone Attainment Plan. In summary, project development would not conflict with or obstruct implementation of the Ozone Attainment Plan. No mitigation is required.

Violation of any Air Quality Standard or Substantial Contribution to an Existing or Projected Air Quality Violation

The transfer of aircraft to WJF would result in an increase in aircraft-related emissions at WJF (and the Mojave Desert Air Basin) that is proportional to the increase in operational activity for each aircraft type and the emission factors for each aircraft and related support equipment, as outlined in the methodology section, above. AVAQMD evaluates significance of project impacts based on peak daily and annual emissions of CO, VOC, NOx, SOx, and PM10, as delineated in Table 4.3-6. Diverting aircraft from VNY to WJF represents a transfer of emissions from the

South Coast Air Basin to the Mojave Desert Air Basin; therefore, VOC and NOx were analyzed along with the pollutants that would have an effect on local air quality.

Diversions to WJF would not occur until 2016. The peak daily and annual emissions resulting from aircraft being transferred to WJF in calendar year 2016 are summarized and compared to AVAQMD's daily and annual significance thresholds in Tables 4-28 and 4-29, respectively. As shown in the tables, the increases in peak daily and annual emissions at WJF resulting from the transfer of aircraft from VNY to WJF in 2016, based on the peak daily operational data shown in Tables 4.3-20 and 4.3-21, respectively, are expected to be below the significance threshold. Therefore, the impact is considered less than significant.

Table 4.3-28. Aircraft-Related Peak Daily Emission Increases at WJF Resulting from the Project (Calendar Year 2016)

	Peak Daily Emission Increases (pounds per day)					
Aircraft	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**
GLF3	63	14	35	5	1	1
GLF2	32	7	17	3	< 1	< 1
Peak Daily Total	**95**	**21**	**52**	**8**	**1**	**1**
Significance Threshold	*548*	*137*	*137*	*137*	*82*	*None*
Threshold Exceeded?	*No*	*No*	*No*	*No*	*No*	—

Table 4.3-29. Aircraft-Related Annual Emission Increases at WJF Resulting from the Project (Calendar Year 2016)

	Annual Emission Increases (pounds per year)					
Aircraft	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**
GLF3	2,048	450	1,132	163	20	20
GLF2	2,048	450	1,132	163	20	20
Peak Annual Total (lbs)	**4,097**	**901**	**2,263**	**326**	**40**	**40**
Peak Annual Total (tons)	**2.0**	**0.5**	**1.1**	**0.2**	**< 0.1**	**< 0.1**
Significance Threshold (tons)	*100*	*25*	*25*	*25*	*15*	*None*
Threshold Exceeded?	*No*	*No*	*No*	*No*	*No*	—

Emissions at WJF represent pollutants that are being transferred to the Mojave Desert Air Basin from the South Coast Air Basin. Therefore, they are new pollutants that are not accounted for in the 2007 AQMP. Because the Mojave Desert Air Basin is in nonattainment for ozone and particulate matter and project-related emissions would contribute to this, the project would contribute to a significant cumulative impact. This issue is further discussed in Chapter 5 of this EIR.

Objectionable Odors from Aircraft and Related Support Equipment

The project would generate potential increases in odors and gaseous fumes by evaporative emissions and tailpipe emissions from aircraft, GSE, and APU during operations. Odor impacts would be limited to the airport circulation routes and apron parking areas. Operation of the project may create a nuisance when located in close proximity to sensitive receptors. However, these increases in potential odors are not expected to affect a substantial number of sensitive receptor land uses for an extended period of time. Therefore, odor impacts would be less than significant. No mitigation is required.

4.3.5.2 Health Risk Associated with Airport Emissions

Based on CARB guidelines for determining the need for preparing Health Risk Assessments (HRA) for toxic air contaminants, a detailed OEHHA-methodology HRA is not warranted for this project due to the fact that all identified sensitive receptors are beyond one-quarter mile from diversion airports (California Air Resources Board, Air Quality and Land Use Handbook: A Community Health Perspective, April 2005). Therefore, a screening level HRA analysis was performed based on CARB guidance.

The screening level HRA evaluation was conducted in the following steps:

1. Estimation of chemical emissions from operational sources;
2. Calculation of possible impacts to air quality using emissions estimates;
3. Selection of TACs of concern for airport operations;
4. Evaluation of possible exposures to TACs; and,
5. Review of the Health Risk Assessment performed for the LAX Master Plan EIS/EIR.

CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* (April 2005) provides recommendations for siting new sensitive land uses near major emission sources such as airports that may emit TACs.

Speciation profiles have been developed by CARB for various types of sources. Speciation profiles provide a breakdown of individual components of hydrocarbon emissions and particulate emissions. For aircraft engines, CARB had developed both an organic speciation profile and particulate matter speciation profile for aircraft engines. The speciation profile for organics was based on data presented in a report prepared in 1984. Since that time, other environmental planning documents (Oakland Airport Master Plan SEIR, LAX Master Plan EIS/EIR) have evaluated the applicability of that speciation profile and other source test data for aircraft engines.

It should be noted that the methods used in conducting an HRA are conservative; as a result, they are more likely to overestimate than underestimate possible health risks. For example, risks and hazards are calculated for individuals that are likely to be

exposed at locations where TAC concentrations are predicted to be highest. Further, individuals are assumed to be exposed for 250 days of the year 24 hours per day, and for as many as (70) years to maximize estimates of possible exposure. It should also be noted that the estimated peak daily aircraft flights are very conservative for the proposed project. Consequently, the resulting incremental cancer risk estimates represent upper-range predictions of exposure, and therefore health risk, which may be associated with living near or working near and breathing emissions from the airports.

Peak daily and annual changes in TAC emissions that would occur at each airport as a result of the project are presented in Tables 4-30 and 4-31, respectively.

Table 4.3-30. Peak Daily Aircraft-Related Emission Changes in Toxic Air Contaminant Emissions at VNY and Diversion Airports as a Result of the Project

	Peak Daily Emission Increases (pounds per day)							
Toxic Air Contaminant	**Aircraft Total***	**VNY 2014**	**VNY 2016**	**BUR 2014**	**LAX 2014**	**CMA 2014**	**CNO 2016**	**WJF 2016**
1,3-Butadiene	309.6	-3.4	-4.4	1.5	1.2	1.2	0.6	0.4
Formaldehyde	2,541.2	-28.9	-37.7	12.4	9.8	9.8	4.8	3.7
Acetaldehyde	790.3	-8.9	-11.7	3.8	3.0	3.0	1.5	1.2
Acrolein	-	-4.4	-5.7	1.9	1.5	1.5	0.7	0.6
Benzene	388.7	-3.7	-4.9	1.6	1.3	1.3	0.6	0.5
Naphthalene	97.2	-1.1	-1.4	0.5	0.4	0.4	0.2	0.1
Chromium	—	—	—	—	—	—	—	—
Lead	3.99	—	—	—	—	—	—	—

Note:

Negative values denote decreases in emissions as a result of the project.

*Source: SCAQMD MATES III Study, Appendix VIII, 2005 Emissions by Major Source Category.

Table 4.3-31. Annual Aircraft-Related Changes in Toxic Air Contaminant Emissions at VNY and Diversion Airports as a Result of the Project

	Annual Emission Increases (tons per year)							
Toxic Air Contaminant	**LA County Total****	**VNY 2014**	**VNY 2016**	**BUR 2014**	**LAX 2014**	**CMA 2014**	**CNO 2016**	**WJF 2016**
1,3-Butadiene	437	-0.04	-0.04	0.01	0.01	0.01	0.01	0.01
Formaldehyde	3,350	-0.31	-0.37	0.09	0.07	0.05	0.06	0.08
Acetaldehyde	1,343	-0.10	-0.12	0.03	0.02	0.02	0.02	0.02
Acrolein	-	-0.05	-0.06	0.01	0.01	0.01	0.01	0.01
Benzene	2,143	-0.04	-0.05	0.01	0.01	0.01	0.01	0.01
Naphthalene	—	-0.01	-0.01	—	—	—	—	—
Chromium	0.07*	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—

Note:

* Includes only hexavalent chromium, which is a subset of total chromium emissions.

**Source: California Air Resources Board, 2008 California Almanac, Appendix C, Emissions, Air Quality, and Health Risk for Ten Toxic Air Contaminants.

As indicated in Tables 4.3-30 and 4.3-31, under the project, the aircraft TAC emissions would be reallocated to different airports within the ASA region. The reduction in aircraft TAC emissions at VNY and WJM airports would offset the TAC emission increases at BUR, LAX, CMA, and CNOs. Table 4.3-30 presents the total daily TAC emissions for all aircraft in the South Coast Air Basin, as estimated in SCAQMD's *Multiple Air Toxics Exposure Study III* (South Coast Air Quality Management District 2008). The table also presents the net changes in the project's daily TAC emissions to the MATES III values using the same toxic speciation factors. Table 4.3-31 compares the net change in the annual project TAC emissions to the total annual TAC emissions from all sources in Los Angeles County, as provided by CARB in their *2008 California Almanac*. The reallocated aircraft operations and the net changes in TAC emissions from the project were already accounted for in the MATES III study. Therefore, impacts from regional TACs would be less than significant. No mitigation is required.

On the local level, the increase in TAC emissions at BUR, LAX, CMA, and CNO resulting from the project's phaseout at VNY may be a subject of concern to local communities. CARB's Air *Quality and Land Use Handbook: A Community Health Perspective* (April 2005) provides CARB for the siting of new sensitive land uses near major sources of emissions. CARB's air pollution studies indicate that sensitive receptors close to major sources of emissions may lead to adverse health effects beyond those associated with regional TAC emissions. There are five carcinogenic TACs that constitute the majority of the known health risk from aircraft: 1,3-butadiene, formaldehyde, acetaldehyde, benzene, and lead.

For the purpose of further evaluating the potential health risks on sensitive receptors near the diversion airports, a review of the HRA study from the LAX Master Plan (April 2004) was conducted. In April 2004, LAWA certified the LAX Master Plan EIR/EIS (LAWA 2004). The study contained the forecasted flight operations from 763,866 annual operations in 1996 to an unconstrained and conservative forecast of 1,004,591 annual operations in 2015. The addition of aircraft operations to the diversion airports as a result of the VNY phaseout under consideration in this EIR is far smaller than the addition of operations studied at LAX.

Due to changes in activity levels at airports associated with implementation of the proposed project, increased emissions of TAC are possible. According to the LAX Master Plan EIR/EIS under the No Project Scenario for year 2015, the predicted incremental cancer risks for residents would be 330 in ten million. The risk estimate was derived from a mathematical model that calculates risks to a hypothetically maximally exposed individual (MEI). The value represents an estimate of the greatest possible impact for any person on location near LAX. For the sensitive receptors, the LAX Master Plan EIR report also found that the incremental cancer risks would be lower for the MEI school child. The greatest incremental cancer risk would be 1 in 1 million, compared to the year 2000 condition. The largest incremental non-cancer hazard for the MEI school child would be 0.4 when compared to the year 2000 condition. Based on the LAX Master Plan EIR/EIS, the resultant health risks impacts on school children were found to be less than significant. The increases at the proposed VNY phaseout does not propose operations beyond the conservative estimate reviewed in the LAX Master Plan EIR/EIS; therefore, the project's impacts at LAX would also be less than significant.

CARB studies show that TAC levels can be significantly higher within 0.25 mile of major emission sources such as airports and then diminish rapidly as distance from the source increases. Actual concentrations of TAC will vary at a particular location depending on total aircraft volume, type of aircraft, prevailing winds and other variables. Based on the information provided in Section 4.3.3.5, Sensitive Receptors, all sensitive receptors were found to be located more than 0.25 mile from the airports. Therefore, it is unlikely that sensitive receptors downwind of more than 0.25 mile from the airport site would experience any significant cancer risk directly associated with aircraft TAC emissions from the project. As stated above in Section 4.3.3.5, there are no sensitive receptors located within 0.25 mile of the diversion airports that would receive additional emissions. In comparison to the LAX Master Plan EIR/EIS, which estimated a less-than-significant health-risk assessment for large-scale increases in operational traffic at LAX, it can be inferred that the proposed project related aircraft operations at BUR, LAX, CMA, and CNO would not incrementally increase the MEI cancer risk to above the 10 in 1 million threshold, nor would it exceed the 1.0 non-cancer hazard index for the MEI school child. Impacts would also be less than significant at WJF, because there are no sensitive receptors in the vicinity of that airport. Therefore, the impacts from local TACs associated with the project would be considered less than significant. No mitigation is required.

4.3.6 Summary of Significant Impacts and Mitigation Measures

Significant Impact AQ-1: Exceedance of Ventura County Air Quality Management District Daily Emissions Thresholds at CMA

The project would result in emissions of VOC and NOx at CMA that exceed VCAQMD daily thresholds.

Mitigation Measures

There are no feasible measures to mitigate the project's exceedance of VCAQMD thresholds. To avoid or reduce this impact to a less-than-significant level, emissions from the project-related diversions to CMA would have to be eliminated or reduced in individual planes. Technology to reduce these aircraft emissions is not available, and cannot be imposed on the operating aircraft. Therefore, mitigation is infeasible and this is a significant and unavoidable impact.

5.0

OTHER CEQA CONSIDERATIONS ALTERNATIVES ANALYSIS

Section 15126.6 of the State CEQA Guidelines requires an EIR to evaluate a "…range of reasonable alternatives to the project, or to the location of the project, which could feasibly attain the basic objectives of the project." Alternatives discussion should focus on those "capable of eliminating any significant adverse impacts or reducing them to below a level of significance, even if these alternatives could impede to some degree the attainment of the project objectives or would be more costly." Alternatives are to include a "no project" alternative that would allow decision makers to compare a project's impacts to those that would result from not approving the project. The guidelines further direct that alternatives' environmental impacts "shall be discussed, but in less detail than the significant effects of the project as proposed." An EIR must identify an "environmentally superior" alternative; if the "no project" alternative is the environmentally superior alternative, then the EIR must identify which of the other alternatives is environmentally superior.

Alternatives are intended to be feasible, as determined by such factors as site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and the availability of potential alternative sites. However, inclusion of an alternative in an EIR does not constitute definitive evidence that the alternative is in fact feasible.[1] Rather, the final decision regarding alternatives' respective feasibility lies with the project's decision-making body, which must make the necessary findings addressing the potential feasibility of reducing the severity of significant environmental impacts. (Public Resources Code, §21081; see also CEQA Guidelines, §15091)

This alternatives analysis considers the environmental implications of implementing the No Project Alternative (Alternative 1) and the Phaseout with Stage 3 and Stage 4

[1] CEQA Guidelines define *feasible* to mean "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." When making the decision as to whether an alternative is feasible or infeasible, the decision-making body may consider the stated project objectives in an EIR in light of any relevant economic, environmental, social, and technological factors.

Exemptions Alternative (Alternative 2). The latter alternative represents a variation in the project's phase-out program for noise reduction, adding an exemption for all Stage 3 and Stage 4, allowing them to continue to operate at VNY despite their takeoff noise levels.

5.1.1 Alternatives Determined to Be Infeasible

For this project, the range of potential alternatives is fairly limited. Project alternatives cannot include alternative locations in this instance, as the project is inherent to reducing noise at VNY, the first project objective. Alternative diversion airports cannot be selected, because the list of diversion airports analyzed in this Draft EIR was determined by qualified professionals' best estimates of how aircraft operations will redistribute themselves, and not by any authority that LAWA has or will have for redirecting flights and specifying diversion airports. Therefore, there are legal factors that make this alternative infeasible, and it is not analyzed in detail in this EIR.

Another prospective alternative would be implementing a phaseout ordinance similar to that proposed by the project, but adding to it the requirement that the planes prohibited from operating at VNY under the ordinance be grounded and retired. This would preclude their shifting to any diversion airports. The noise and air quality effects of this alternative would be identical to those of the project at VNY. Because aircraft operations would not be diverted to the five diversion airports, this alternative would not result in any air quality impacts at the diversion airports. Significant project-level impacts assessed at CMA (see Section 4.3 above) would be avoided, as would considerable contributions to significant cumulative impacts assessed at CMA and WJF (see Section 5.2.3 below.) However, LAWA has no authority to ground aircraft that depart from VNY. Therefore, there are legal factors that make this alternative infeasible, and it is not analyzed in detail this EIR.

5.1.2 Alternative 1 – No Project

Under Alternative 1, the phased program of noise limitations proposed in the project would not be imposed. Flight activity would generally continue to increase at VNY and the diversion airports as they are anticipated to occur under forecast conditions, though certain types of operations at some airports are anticipated to remain the same or decrease between the baseline and forecast timeframes.[2] Tables 5.1-1 though 5.1-6 present estimates of operations at VNY and the diversion airports, comparing the 2007 baseline to anticipated increases or decreases under forecast conditions.[3]

[2] Alternative 1 assumes that the U. S. Senate Bill S.1300 and House Bill H. R. 2881—two legislative proposals to phase out Stage 2 aircraft nationwide—would not be approved, as neither of those bills had passed at the time of this EIR's publication, and the assumption of those bills' approval would be speculative. The proposed legislation would impose a nation-wide phaseout of Stage 2 aircraft operations. As currently proposed, the House version of the bill would prohibit Stage 2 aircraft effective December 31, 2012, allowing an exemption for "transport of

Table 5-1. Baseline and Forecast Operations at VNY: 2007, 2014, and 2016

Activity Type	2007 Baseline	2014 Forecast	2016 Forecast
Air Carrier/Commuter	0	0	0
Business Jet	48,143	83,449	97,335
GA Non-Jet Itinerant	166,169	212,026	219,945
GA Non-Jet Local	98,715	90,354	92,485
Military	980	952	952
Total	314,007	386,781	410,717

Source: SH&E, personal communication, 2008

Table 5-2. Baseline and Forecast Operations at BUR: 2007, 2014, and 2016

Activity Type	2007 Baseline	2014 Forecast	2016 Forecast
Air Carrier/Commuter	70,448	79,086	81,741
Business Jet	18,863	32,744	37,439
GA Non-Jet Itinerant	26,174	30,626	31,446
GA Non-Jet Local	5,060	5,332	5,413
Military (active and former)	265	265	265
Total	**120,810**	**148,053**	**156,303**

Source: HMMH & SH&E, 2008

persons and goods in relieve of emergency situations," and does not include an option for airports to opt out of the Stage 2 prohibition. The Senate version of the bill would prohibit Stage 2 aircraft three years following enactment of the bill, with no exemption for emergency-related operations, and including an opt-out option for airports desiring to allow Stage 2 aircraft to continue.

[3] Anticipated changes in operations at the subject airports were determined by SH&E's forecasting analysis that utilized FAA tower counts and local and industry-wide trends to project future increases or decreases in various types of aircraft operations. The tables presenting the diversion airport forecasts are based on information provided in Appendix B. The VNY table is based on email communication with SH&E. In the tables provided in this section, "itinerant" operations include aircraft that arrive from or depart to airports located beyond a 20-mile radius of the respective airport; "local" operations arrive from and depart to airports within that radius. "Military" operations in these tables include those of active military aircraft and former, privately-owned military aircraft.

Table 5-3. Baseline and Forecast Operations at LAX: 2007, 2014, and 2016

Activity Type	2007 Baseline	2014 Forecast	2016 Forecast
Air Carrier/Commuter	642,337	808,002	856,874
Business Jet	21,013	28,454	31,131
GA Non-Jet Itinerant	11,981	13,035	13,352
GA Non-Jet Local	—	—	—
Military (active and former)	2,573	2,502	2,482
Total	**677,904**	**851,992**	**903,839**

Source: HMMH & SH&E, 2008

Table 5-4. Baseline and Forecast Operations at CMA: 2007, 2014, and 2016

Activity Type	2007 Baseline	2014 Forecast	2016 Forecast
Air Carrier/Commuter	—	—	—
Business Jet	4,883	8,764	10,395
GA Non-Jet Itinerant	74,601	90,386	92,157
GA Non-Jet Local	63,860	64,781	64,781
Military (active and former)	1,740	1,740	1,740
Total	**145,083**	**165,671**	**169,073**

Source: HMMH & SH&E, 2008

Table 5-5. Baseline and Forecast Operations at CNO: 2007, 2014, and 2016

Activity Type	2007 Baseline	2014 Forecast	2016 Forecast
Air Carrier/Commuter	—	—	—
Business Jet	2,037	2,132	2,349
GA Non-Jet Itinerant	67,590	74,983	76,567
GA Non-Jet Local	96,376	101,121	101,121
Military (active and former)	594	594	594
Total	**166,596**	**178,830**	**180,631**

Source: HMMH & SH&E, 2008

Table 5-6. Baseline and Forecast Operations at WJF: 2007, 2014, and 2016

Activity Type	2007 Baseline	2014 Forecast	2016 Forecast
Air Carrier/Commuter	—	—	—
Business Jet	508	583	606
GA Non-Jet Itinerant	31,738	35,048	35,304
GA Non-Jet Local	32,291	32,394	32,716
Military (active and former)	1,513	1,513	1,513
Total	**66,049**	**69,537**	**70,139**

Source: HMMH & SH&E, 2008

As shown in the tables, aircraft operations are anticipated to increase at VNY and all of the diversion airports between 2007 and the forecast years. The noise and air quality implications of implementing Alternative 1, compared with those of the project, are discussed below, including impacts at VNY and the diversion airports. As discussed in section 4.1, the project is anticipated to have no impact or a less than significant impact on aesthetics, agricultural resources, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, mineral resources, population/housing, public services, recreation, transportation/traffic, and utilities/service systems. There is little or no difference between project impacts and Alternative 1 impacts for these environmental issue areas.

Alternative 1 would not attain the main project objective listed in Section 2.3 of this EIR, which is to reduce aircraft noise near VNY, primarily for residential receptors. The other objectives would be met. Without the proposed ordinance, there would be no limit on takeoff noise, thereby eliminating the burden on aircraft owners and operators; and there would be no burden on maintenance providers. Without the proposed ordinance, there would be no program of penalties for violators. Without the proposed ordinance, military aircraft older than 1950 would continue to be accommodated at VNY, supporting the objective for achieving this accommodation stated in the VNY Master Plan.

Alternative 1 would avoid both of the significant project-level air quality impact identified for the project and all three of the significant cumulative air quality impacts identified for the project. Alternative 1 is the environmentally superior alternative, but because it is the No Project Alternative, CEQA requires that another alternative be identified as such.

5.1.2.1 Noise

Section 4.2 includes a comparison of the project's noise impacts to Alternative 1 noise impacts. This comparison is summarized below.

Under Alternative 1, increases in aircraft operations—which will occur with or without the project—are estimated to increase the community noise equivalent level (CNEL) in the vicinity of VNY by 0.8 decibels (dB) between the 2007 baseline conditions and the 2014 forecast conditions, as shown in Table 4.2-48 of this EIR. This is 0.4 dB greater than the 0.4-dB increase that would result if the project's noise limits were imposed. The area within the airport's 65-dB contour is anticipated to increase by 13.3% during that same timeframe, 6.7% greater than estimated for the project. Noise increases and expansion of the noise contours by 2014 under Alternative 1 would require noise insulation for an estimated 2,497 additional residences within the 65- to 70-dB contour, and 61 additional residences within the 70- to 75-dB contour, compared to 2,399 and 1, respectively, under the project. Increases in operations are also anticipated to continue at VNY between 2014 and 2016 without implementation of the project. If the proposed phaseout program is not put in place, then aircraft noise at VNY would be higher in 2016 than it would under the proposed project. Therefore, Alternative 1 would result in greater noise impacts at VNY than the project, however these impacts would be less than significant.

At BUR, future increases in aircraft operations under Alternative 1 are anticipated to increase the CNEL by 0.9 dB over existing conditions and increase the 65-dB contour area by 14.6% in 2014, as shown in Table 4.2-53 of this EIR. This is less than the 1.0 dB CNEL increase and the 16.3% increase that was assessed for the project. Without the addition of project-related diversion operations in 2016, noise levels at BUR would also be lower in 2016 under Alternative 1 than they would be under the project. Therefore, BUR noise impacts of Alternative 1 would be less than those of the project and would be less than significant.

At LAX, future increases in aircraft operations under Alternative 1 are anticipated to increase the CNEL in 2014 by 1 dB over existing conditions and increase the 65-dB contour area by 6.0%, as shown in Table 4.2-57 of this EIR. These numbers are the same as assessed for the project, indicating the imperceptible noise change between the estimated project conditions and no-project conditions. Noise under Alternative 1 is anticipated to continue beyond 2014, through the 2016 planning year and beyond. The Alternative 1 numbers in 2016 would generally be the same as those of the project. Therefore, LAX noise impacts of Alternative 1 would be the same as those of the project and would be less than significant.

At CMA, future increases in aircraft operations under Alternative 1 are anticipated to increase the CNEL by 0.8 dB over existing conditions and increase the 65-dB contour area by 13.8% in 2014, as shown in Table 4.2-60 of this EIR. This is less than the 1.1 dB CNEL increase and the 19.8% increase that was assessed for the project. Without the addition of project-related diversion operations in 2016, noise levels at CMA would also be lower in 2016 under Alternative 1 than they would be under the project. Therefore, CMA noise impacts of Alternative 1 would be less than those of the project, and would be less than significant.

At CNO, future reductions in aircraft operations under Alternative 1 are anticipated to *decrease* the CNEL by 0.1 dB over existing conditions and *decrease* the 65-dB contour area by 1.5% in 2016, as shown in Table 4.2-63 of this EIR. The project is anticipated to increase both of these measurements, by 0.4 dB and 5.9%, respectively.

Therefore, CNO noise impacts of Alternative 1 would be less than those of the project, and would be less than significant.

At WJF, future reductions in aircraft operations under Alternative 1 are also anticipated to *decrease* the CNEL by 0.5 dB and the 65-dB contour area by 8.5%, in 2016, as shown in Table 4.2-66. The project would also reduce the CNEL and the 65-dB contour area, but the reduction would be less, at 0.3 dB and 4.9%, respectively. Therefore, WJF noise impacts of Alternative 1 would be less than those of the project, and would be less than significant.

In summary, when compared to the proposed project, Alternative 1 would have a greater noise impact at VNY and lesser noise impacts at the five diversion airports. The lesser impacts of Alternative 1 at the diversion airports would be beneficial but very minor; furthermore, significant impacts were not identified at any of the diversion airports for the project, so implementing Alternative1would not serve to avoid any significant impacts.

5.1.2.2 Air Quality

Under Alternative 1, increases in aircraft operations would continue to occur as they would without project implementation at VNY and all diversion airports, as described above and shown in Tables 5.1-1 through 5.1-6. Air-pollutant emissions would increase at VNY and the diversion airports between the 2007 and the 2014 and 2016 forecast years due to the overall increase in operations activity that is anticipated to occur. Because Alternative 1 would preclude the phased restrictions at VNY, more aircraft operations would occur at VNY under Alternative 1 than under the proposed project, and emissions would be slightly higher at VNY under Alternative 1 than they would be under the project. Because no aircraft operations would be added to the diversion airports, the project-related increases in pollutant emissions would not occur at the five diversion airports under Alternative 1, and Alternative 1 would result in fewer air pollutant emissions at the diversion airports than under the proposed project.

Alternative 1 would avoid the significant project-level air quality impact identified for the project: Significant Impact AQ-1, the excess at CMA of VCAQMD standards for VOC and NOx. Alternative 1 would also avoid the three significant cumulative impacts identified for the project: Significant Impact CAQ-1, new contribution at WJF of air pollutants to the Mojave Desert Air Basin; Significant Impact CAQ-2, new contribution at CMA of air pollutants to the South Central Coast Air Basin; and Significant Impact CAQ-3, excess at CMA of VCAPCD thresholds.

5.1.3 Alternative 2 – Phaseout with Stage 3 and Stage 4 Exemptions

Alternative 2 would implement a phased program of noise limitations similar to that proposed in the project, but would also include an exemption (in addition to the maintenance and former military aircraft exemptions) allowing continued operation at VNY of Stage 3 and Stage 4 aircraft. The version of the phaseout ordinance proposed in Alternative 2 is included as Appendix A.1 of this EIR. Under Alternative 2, all aircraft certified as either Stage 3 or Stage 4, regardless of their takeoff noise levels, would be allowed to operate out of VNY. In terms of the aircraft types forecast to operate at VNY, Alternative 2 would only affect Boeing 727 models. This alternative was included in response to a scoping comment submitted on behalf of the National Business Aviation Association, which noted that the 77-dBA limit proposed for 2016 might unfairly restrict some recertified Stage 3 aircraft, and is consistent with the BOAC's original intent, as defined in its September 27, 1989 request that the Executive Director investigate and prepare proposals to phase out Stage 2 aircraft from VNY.

Operations under Alternative 2 would be the same as in the project up to December 31, 2013, the day before the allowable takeoff noise level limit is reduced to 80 dB. In 2014, the additional exemption would allow an estimated 32 more business-jet operations at VNY than under the project during the same planning year. All 32 of these operations were anticipated to shift to LAX under the project, and would remain at VNY under Alternative 2 because of the proposed exemption. Aircraft operations activity would also continue to increase at VNY and the diversion airports as they would under the project's estimated forecast conditions, which would result in increases in non-project-related noise and air pollutant emissions. The noise and air quality implications of implementing Alternative 2, compared with those of the project, are discussed below, including impacts at VNY and the diversion airports. As discussed in section 4.1 for the project, Alternative 2 is anticipated to have no impact or negligible less-than-significant impact on aesthetics, agricultural resources, biological resources, cultural resources, geology/soils, hazards and hazardous materials, hydrology/water quality, land use/planning, mineral resources, population/ housing, public services, recreation, transportation/traffic, and utilities/service systems.

Alternative 2 would attain the main project objective of reducing aircraft noise near VNY, although slightly less successfully than the project, and would meet all other objectives of reducing burden on various existing operators, providing a feasible penalty program for violators, and allowing military aircraft older than 1950 to be accommodated at VNY, in support of the VNY Master Plan goal for achieving this accommodation.

Alternative 2 does not completely avoid any significant project-level or cumulative impacts identified for the project; however, it would result in lower noise levels and fewer pollutant emissions at LAX. Therefore, Alternative 2 is considered the environmentally superior alternative—though it should be noted that the benefit is limited, because Alternative 2's lower noise and emissions levels at LAX, when

compared to those of the project, equate to higher noise and emissions levels at VNY than in the project.

5.1.3.1 Noise

Section 4.2 includes a comparison of the project's noise impacts to Alternative 2 noise impacts. This comparison is summarized below.

Under Alternative 2, increases in aircraft operations—which will occur with or without the project—are estimated to increase the CNEL in the vicinity of VNY by 1.1 dB between the 2007 baseline conditions and the 2014 planning-year conditions. Noise levels in 2016 would be greater than in 2007 at VNY, but these would be slightly less than the 2014 levels due to anticipated, non-project-related retirement of older aircraft. This is the same as was assessed to the project. Under Alternative 2, the area within the airport's 65-dB contour is anticipated to increase by 19.8% during that same timeframe, also the same as in the project. Generally speaking, the difference between the noise increases at VNY for the project and Alternative 2 would be imperceptible. Noise increases and expansion of the noise contours by 2014 under Alternative 2 would require noise insulation for an estimated 2,400 additional residences within the 65- to 70-dB contour (one more than under the project), and 1 additional residence within the 70- to 75-dB contour (the same as under the project). Figure 4.2-4 depicts the imperceptible difference between the project CNEL contour and that of Alternative 2. Overall, Alternative 2 would result in very similar—although slightly greater—noise impacts at VNY than under the project by allowing an additional 32 annual operations (estimated) to continue at VNY that otherwise would have been restricted by the 2014 noise limitation. As under the proposed project, Alternative 2 noise impacts at VNY would be less than significant.

The only diversion airport anticipated to be affected by the Alternative 2 exemption is LAX, where approximately 32 aircraft operations per year—all associated with privately owned Boeing 727s—would not occur. LAX was determined to be the likely recipient of these Boeing 727 operations because LAX possesses appropriate facilities for accommodating operations at servicing for these types of aircraft, and because its close proximity and short driving distance to VNY make it the most convenient alternative to the affected operators. At LAX, future increases in aircraft operations under Alternative 2 are anticipated to increase the CNEL by 1 dB over existing conditions and increase the 65-dB contour area by 6.0% in 2014. As with the project, this change is imperceptible when compared to the estimated 2014 baseline conditions, as the amount of air traffic generated by Alternative 2 (and the project) is inconsequential when viewed in light of the heavy commercial air traffic LAX accommodates on a daily basis. Therefore, LAX noise impacts of Alternative 2 would be virtually identical to those of the project, and would be less than significant. Impacts at the other four diversion airports under Alternative 2 would be identical to those of the proposed project, and would also be less than significant.

In summary, Alternative 2 would have noise impacts that are almost the same as those of the project. Comparing Alternative 2 and the project, there is no perceptible difference in CNEL levels or in the percentage increase in 65-dB contour area. Alternative 2's noise impacts would be slightly greater because the minimally larger 65-dB contour would include one residence not included under the project. Neither Alternative 2 nor the project would result in significant noise impacts, but the project's level of noise impact would be slightly less than that of Alternative 2.

5.1.3.2 Air Quality

Under Alternative 2, increases in aircraft operations would continue to occur as they would regardless of project implementation at VNY and all diversion airports; Alternative 2 would contribute to this increase at the diversion airports, but would result in a smaller emissions increase at VNY than without project implementation. Air-pollutant emissions would increase at VNY and the diversion airports between the 2007 and the 2014 and 2016 forecast years due to the overall increase in operations activity that is anticipated to occur. Implementing the Alternative 2 phase-out plan would keep an estimated 32 Boeing 727 operations at VNY that are anticipated to transfer to LAX from VNY under the proposed project. No other diversion airports are affected by the Alternative 2 exemption. According to estimations presented in Section 4.3, Boeing 727 operations in the 2014 peak day analyzed for project impacts would emit 57 pounds per day of carbon monoxide (CO), 5 pounds per day of sulfur oxides (SOx), 2 pounds per day of particulate matter of 10 microns or less (PM10), and 2 pounds per day of particulate matter of 2.5 microns or less (PM2.5). Under Alternative 2, emissions of these local pollutants would occur at VNY instead of LAX, and VNY emissions would be higher than they would be under the project. Even with these additional emissions, however, levels at VNY under Alternative 2 would still be less than emissions estimated for no-project conditions because of the ordinance-related diversion to other identified airports. LAX emissions would be lower with Alternative 2 in comparison to the project, as shown below in Table 5-7.

Table 5-7. Aircraft-Related Peak Daily Emission Increases at LAX under the Project and Alternative 2 (2014)

	Peak Daily Emission Increases (pounds per day)			
	CO	**SOx**	**PM10**	**PM2.5**
Project	131	9	2	2
Significance Threshold	550	150	150	55
Threshold Exceeded?	No	No	No	No
Alternative 2	74	4	<1	<1
Significance Threshold	550	150	150	55
Threshold Exceeded?	No	No	No	No

As with the project, the Alternative 2 diversions from VNY to LAX would result in transferring emissions from one location within the South Coast Air Basin to another; therefore, Alternative 2 would have no effect on the emissions of the regional pollutants VOC and NOx, and they are not specifically addressed in Table 5-7 above. The analysis concentrates on the local pollutants CO, SOx, PM10, and PM2.5, as the effects of those pollutants are experienced closer to the emissions source, and transferring them from one location to another within a particular air basin would be relevant. As Table 5-7 shows, Alternative 2 emissions of the local pollutants do not exceed the respective emissions thresholds established by SCAPCD; therefore, the impact is less than significant.

Alternative 2 would have no bearing on the emissions at any of the other diversion airports, and Significant Impact AQ-1—the excess of VCAQMD thresholds for VOC and NOx—would occur with implementation of this alternative; and Alternative 2 would also not avoid the significant cumulative impacts CAQ-1, CAQ-2, and CAQ3, as discussed below in Section 5.2.3. Although Alternative 2 would slightly reduce emissions at LAX, there is no considerable air quality benefit to implementing Alternative 2 because pollutants not transferring to LAX would continue to be emitted at VNY.

5.1.4 Alternatives Impact Comparison

Table 5-8 lists the significant project-level and cumulative air quality impacts that have been identified for the project (see Section 4.3 and 5.2.3), and compares how implementing the two alternatives would affect these impacts. Instances where the alternatives would avoid the respective impacts are shown in italicized text.

Table 5-8. Comparison of Significant Impacts Occurring Under the Project and Alternatives

Significant Impact	Alternative	Level of Significance
AQ-1: Exceedance of Ventura County Air Quality Management District Daily Emissions Thresholds at CMA	Proposed Project	Significant
	Alternative 1	*No Impact*
	Alternative 2	Significant
CAQ-1: Contribution of air pollutants to the Mojave Desert Air Basin	Proposed Project	Significant
	Alternative 1	*No Impact*
	Alternative 2	Significant
CAQ-2: Contribution of air pollutants to the South Central Coast Air Basin	Proposed Project	Significant
	Alternative 1	*No Impact*
	Alternative 2	Significant
CAQ-3: Exceedance of Ventura County Air Pollution Control District Thresholds at CMA	Proposed Project	Significant
	Alternative 1	*No Impact*
	Alternative 2	Significant

5.2 Cumulative Impacts

Section 15130 of the State CEQA Guidelines provides guidance for analyzing a project's cumulative impacts, or those impacts of a project that may not be considerable when viewed individually, but that combine with the impacts of other projects to produce more substantial effects on the environment. According to this section, the discussion of cumulative impacts "...need not provide as great a detail as is provided for the effects attributable to the project alone. The discussion should be guided by the standards of practicality and reasonableness." The discussion should also focus only on significant effects resulting from the project's incremental effects and the effects of other projects. If the environmental conditions would essentially be the same with or without the proposed project's contribution, then it may be concluded that the effect is not significant. According to Section 15130(a)(1), "an EIR should not discuss impacts which do not result in part from the project evaluated in the EIR." The basis for the analysis of cumulative impacts is dependent on the nature of the issue. Cumulative impact analysis may be conducted and presented by either of two methods: 1) itemizing past, present, and probable activities producing related or cumulative impacts; or 2) summarizing projections contained in an adopted general plan or related planning document. .

5.2.1 Cumulative Methodology

Cumulative analysis for this project relied on the projections method. Cumulative growth at VNY and the five diversion airports was estimated based on growth projections published in the FAA's Terminal Area Forecasts (December 2006), and augmented by information from several available data sources, including the U.S. Department of Transportation's T100 database and Aircraft Situation Display to Industry data stream; the FAA's Air Traffic Activity Data System and Enhanced Traffic Management System Counts; modeling inputs in the FAA's Integrated Noise Model (for LAX); and individual airport master plans.[4] Using these tools, forecasts for future growth at the project-related airports were estimated for 2014 and 2016, the years in which the proposed phaseout would have the greatest impact. These forecast projections were an integral part of the noise analysis provided in Section 4.2 of this Draft EIR, which considers the project's incremental effects as noise limits are phased in and compares project conditions to non-project-related forecast conditions in 2014 and 2016. Detail on the cumulative growth in aircraft operations at the project-related airports is presented above in Section 5.1.2.

Though the project does not propose structural development or land use modification at VNY or any of the diversion airports, it is important to note that the environmental effects associated with the project would occur within areas that are developed (to varying degrees) and that, as a result, currently experience varying degrees of urban conditions due to past projects. The area surrounding VNY is built out—developed with a combination of residential, commercial, industrial, and public uses. BUR is located in an area that is primarily developed, and the airport is immediately surrounded by industrial and commercial development to the east, residential development to the west, industrial development and a cemetery to the south, and industrial and residential development to north. LAX is located in a primarily built out area, with the surrounding lands developed with a mixture of residential, commercial, industrial, and public uses, and with the undeveloped Los Angeles/El Segundo dunes and the Pacific Ocean located west of the airport. CMA is located just outside the City of Camarillo, southwest of the city's incorporated boundaries. Land surrounding the airport is primarily used for agricultural and industrial purposes, though residential and commercial development within the city is located further northeast. CNO is located approximately three miles southeast of central Chino, within an area characterized by open space, active agricultural land, and industrial development, with some scattered residential development located south of the airport. Land south and southeast of CNO is designated for future residential and commercial development. WJF is located in a primarily undeveloped area approximately 3 miles northeast of the developed center of Lancaster, with a few scattered residential uses located closer to the airport.

The Southern California Association of Governments (SCAG) compiles and publishes population forecasts for the growing Southern California region, including growth projections within the jurisdictional boundaries each city and county. The latest SCAG population forecasts for cities and counties are the 2008 Regional

[4] See Section 8.1 of the Noise Report (Appendix B) for additional explanation.

Transportation Growth Forecasts, which are available on the SCAG website.[5] To depict how the areas around each of the project-related airports are anticipated to accommodate future growth, Table 5-9 shows SCAG's latest population projections for the city and county jurisdictional areas within which the airports are located.

[5] http://www.scag.ca.gov/forecast/index.htm

Table 5-9. Population Growth Projections in Areas Surrounding Project-Related Airports

Relevant Airport	Jurisdiction	2005	2010	2015	2020	2025	2030	2035
VNY	City of Los Angeles	3,955,392	4,057,484	4,128,125	4,204,329	4,277,732	4,348,281	4,415,772
BUR	City of Burbank	106,493	112,103	116,430	120,890	125,213	129,390	133,391
BUR	City of Glendale	206,047	210,950	214,200	217,744	221,154	224,431	227,561
BUR	City of Pasadena	145,726	149,854	152,719	155,786	158,759	161,648	164,433
LAX	City of El Segundo	16,944	17,268	17,495	17,500	17,505	17,510	17,515
LAX	City of Inglewood	117,789	118,466	120,185	120,678	121,065	121,669	122,200
CMA	City of Camarillo	63,302	68,622	73,030	75,072	76,800	78,311	79,284
CNO	City of Chino	77,146	81,998	87,313	93,823	100,142	106,220	112,038
WJF	City of Lancaster	135,672	160,650	181,493	202,406	222,761	242,523	261,501
WJF	Unincorporated Northern LA County	132,797	194,704	244,463	294,120	342,578	389,595	434,773

As the table shows, population is expected to increase in the areas surrounding each of the project-related airports. Population increases will accompany additional development, leading the jurisdictions to expand the limits of their built area and increase the density within existing developed areas. This in turn will bring the increases in traffic, noise, air pollutant emissions, and demand on public services and utilities that generally accompany urban growth.

Discussion of the project's contribution to cumulative impacts on noise, air quality, hazards and hazardous materials, public services, traffic and transportation, and utilities and service systems is provided below. As stated in Section 4.1, the project would have no impact on aesthetics, agricultural resources, biological resources, cultural resources, geology/soils, hydrology/water quality, land use/planning, mineral resources, population and housing, and recreation. Therefore, the project would not contribute to any cumulative impacts related to those issue areas, and a cumulative discussion for those areas is not warranted.

5.2.2 Cumulative Noise

Existing aircraft operational noise at VNY and the diversion airports currently contributes to noise conditions received in the vicinity of the airports. Around the airports that are located within densely developed urban settings (VNY, BUR, and LAX), this aircraft noise combines with other sources of common urban noise—primarily vehicular traffic noise—to create cumulatively noisy conditions. Around the airports located less developed areas (CMA, CNO, and WJF), there are fewer cumulative noise sources and, therefore, less cumulative noise. Anticipated growth in the areas surrounding all of the project-related airports is likely to increase this urban noise.

As discussed in Section 4.2, the project's proposed phaseout plan would decrease noise levels generated at VNY and increase noise levels generated at the diversion airports, though the project's effect is very minor and were found to be less than significant on a project level. . At VNY, the project would lead to smaller increases in future aircraft noise received by the surrounding area than is anticipated without the implementation of the project's noise-reduction program. As shown in Table 4.2-48, the 2014 project conditions, including noise from project-specific and cumulative operations, are anticipated to increase noise by 0.4 dB compared to 2007 baseline conditions. This is 0.4 dB lower than the 0.8 dB that would occur if the project were not implemented. Therefore, the project would have a beneficial contribution to cumulative noise by reducing future noise levels emitted by aircraft at VNY, and reducing the cumulative noise received by residents of the densely developed surrounding area. The project's contribution would not be cumulatively considerable.

Table 5-10 shows the estimated increases or decreases due to cumulative operations, including a comparison of the project conditions to depict the project's contribution to these cumulative conditions. Noise levels at three of the five diversion airports—BUR, LAX, and CMA— are anticipated to rise between the 2007 baseline and the 2014 forecast years due to project-related and cumulative increases in aircraft

operations. Increases would continue into the 2016 forecast year due to expected increases in non-project-related aircraft. These cumulative aircraft-related noise increases would add to increases in vehicular noise and noise from other urban sources that are likely to occur in the areas surrounding each of the project-related airports. At CNO and WJF, noise levels are anticipated to lower between the 2007 baseline and the 2016 forecast years, despite the fact that the numbers of cumulative and project-related aircraft operations are expected to increase. This is due to the retirement of older, noisier aircraft that is anticipated to occur independent of the project. As with the areas near BUR, LAX, and CMA, non-aircraft noise is likely to increase in these areas due to the growth that is anticipated to occur.

Table 5-10. Changes in Cumulative Noise at Diversion Airports (in), Compared to 2007 Baseline

Airport	2014/2016 Forecast Conditions (Cumulative without project)	2014/2016 Project Conditions (Cumulative with project)	Project Contribution
BUR (2014)	+0.9 dB	+1.0 dB	+0.1 dB
LAX (2014)	+0.4 dB	+0.4 dB	+0.0 dB
CMA (2014)	+0.8 dB	+1.1 dB	+0.3 dB
CNO (2016)	-0.1 dB	+0.4 dB	+0.5 dB
WJF (2016)	-0.5 dB	-0.3	+0.2 dB

As shown in the table, the cumulative increases in aircraft operational noise are all well below 1.5 dB, the threshold used to indicate significant noise impacts for this project (as explained in Section 4.2.4.1 of this EIR). Therefore, there are no significant cumulative impacts to which the project would contribute.

5.2.3 Cumulative Air Quality

As with noise, air pollutant emissions are anticipated to increase in the areas surrounding the project-related airports due to projected growth, and emissions from aircraft operations at the project-related airports generally contribute to this. As discussed in Section 4.3, the project would reduce emissions at VNY and increase emissions at BUR, LAX, CMA, CNO, and WJF. When considered on a regional level, the project would neither add new emissions nor reduce existing emissions, but rather would transfer emissions from one location to another. This includes emissions transfers within the South Coast Air Basin (VNY, BUR, LAX, and CNO) and reallocation of emissions from the South Coast Air Basin to the Mojave Desert Air Basin (new operations at WJF) and South Central Coast Air Basin (new operations at CMA).

Generally speaking, air pollutant emissions are expected to increase at all three of these affected air basins due to the cumulative growth depicted above in Table 5-9,

and anticipated increases in aircraft operations at the project-related airports—independent of the project—play a role in this growth. All of the project-related air basins have non-attainment status for ozone and particulate matter, and future increases (independent of the project) are anticipated to exacerbate these conditions. Therefore, significant cumulative impacts occur in each of these air basins. For this cumulative analysis, any project-related net increase in emissions in these non-attainment air basins would be a considerable contribution to significant cumulative impacts.

Section 4.3.2.4 discusses the significance thresholds established by the three air pollution control districts potentially affected by the project. These districts have established their respective thresholds in acknowledgement of a cumulative impact within their respective basins and in an attempt at future reduction of these cumulative impacts. Where the project would transfer emissions from the South Coast Air Basin to other basins (South Central Coast and Mojave Desert), any exceedance of the respective districts' thresholds (Tables 4.3-5 and 4.3-6), would constitute the project's considerable contribution to significant cumulative emissions impacts in the respective basins.

By diverting aircraft from VNY to BUR, LAX, and CNO, the project would transfer emissions to different locations within the South Coast Air Basin. Therefore, the project would not result in a net increase in pollutants within the South Coast Air Basin and would not contribute to cumulative impacts in this basin.

By diverting aircraft from VNY to WJF and CMA, however, the project would transfer emissions from the South Coast Air Basin to the Mojave Desert Air Basin and South Central Coast Air Basin, respectively. The respective air quality management districts have established air quality management plans for each of the basins in an attempt to reduce emissions and achieve attainment of the relevant standards. Airport emissions and projected increases in aircraft operations are factored into these air quality management plans, but the project would increase emissions in the Mojave Desert and South Central Coast Air Basins beyond the growth factored into the plans. The project would contribute to cumulative impacts because these emissions are not accounted for in the respective air quality management plans.

Significant Impact CAQ-1: New Cumulatively Considerable Contribution of Air Pollutants to the Mojave Desert Air Basin

The project would add emissions of ozone precursors (VOCs and NOx) and particulate matter into the Mojave Desert Air Basin as a result of diversions to WJF, contributing to the basin's continued non-attainment status for ozone and particulate matter. The basin's existing and future non-attainment status is the result of past, present, and future regional pollutant emissions, and represents a significant cumulative impact. As shown in Tables 4.3-28 and 4.3-29, project-related increases in this basin are not considered significant on a project level. However, the project's minor additions are significant on a cumulative level because of the project's cumulatively considerable contribution to non-attainment status, causing an excess of levels incorporated into the respective air quality

management plan. There is no feasible mitigation that would reduce these impacts to less-than-significant levels, as further discussed below.

Alternative 1 would avoid this significant contribution to air quality impacts by avoiding the project-related increase in emissions to the Mojave Desert Air Basin. However, because these operations would remain at VNY, the pollutant emissions that would be transferred as part of the project would continue to be emitted in the South Coast Air Basin under Alternative 1, continuing to contribute to that basin's pollutant non-attainment status. Therefore, there is no overall air quality benefit to implementing Alternative 1. Alternative 2 would not affect the project's transfer of emissions to the Mojave Desert Air Basin because the alternative's exemption would have no bearing on operational diversions to WJF. Therefore, Alternative 2 would result in a considerable contribution to a significant air quality impact in the Mojave Desert Air Basin.

Significant Impact CAQ-2: New Cumulatively Considerable Contribution of Air Pollutants to the South Central Coast Air Basin

The project would add emissions of ozone precursors (VOCs and NOx) and also add particulate matter into the South Central Coast Air Basin as a result of diversions to CMA, contributing to the basin's continued non-attainment status for ozone and particulate matter. The basin's existing and future non-attainment status is the result of past, present, and future regional pollutant emissions, and represents a significant cumulative impact. Project-related increases are shown in Table 4.3-27 and described in text below the table. A significant project-level and cumulative impact was identified for these increases, as they exceed the thresholds established by the VCAQMD. There is no feasible mitigation that would reduce these impacts to less-than-significant levels, as further discussed below.

Alternative 1 would avoid this significant contribution to air quality impacts by avoiding the project-related increase of emissions to the South Central Coast Air Basin. However, the pollutant emissions that would be transferred as part of the project would remain in the South Coast Air Basin under Alternative 1, continuing to contribute to that basin's pollutant non-attainment status. Therefore, there is no overall air quality benefit to implementing Alternative 1. Alternative 2 would not affect the project's shift of emissions to the South Central Coast Air Basin. Therefore, Alternative 2 would result in a considerable contribution to a significant air quality impact in the South Central Coast Air Basin.

Table 4.3-27 shows that, in addition to presenting new pollutants to the South Central Coast Air Basin, the project-related emissions of VOC and NOx at CMA would exceed VCAQMD thresholds for those pollutants. Therefore, the project would result in a considerable contribution to the significant cumulative impact for these pollutants within the basin.

Significant Impact CAQ-3: Cumulatively Considerable Emissions at CMA, Causing Exceedance of Ventura County Air Pollution Control District Thresholds

The project would result in emissions of VOC and NOx at CMA that exceed VCAQMD daily thresholds, thereby presenting a cumulatively considerable contribution to significant cumulative impacts in the South Central Coast Air Basin. There is no feasible mitigation that would reduce these impacts to less-than-significant levels, as further discussed below.

Alternative 1 would avoid this significant contribution to air quality impacts by avoiding the project-related increase in emissions to the South Central Coast Air Basin. However, the pollutant emissions that would be transferred as part of the project would remain in the South Coast Air Basin under Alternative 1, continuing to contribute to that basin's pollutant non-attainment status. Therefore, there is no overall air quality benefit to implementing Alternative 1. Alternative 2 would not affect the project's shift of emissions to the South Central Coast Air Basin. Therefore, Alternative 2 would result in a considerable contribution to a significant air quality impact in the South Central Coast Air Basin.

Mitigation Measures

There are no feasible measures to mitigate the project's cumulative contribution to emissions within these air basins. To mitigate this impact, emissions from the project-related diversion would have to be eliminated. Technology to accomplish this elimination is not available, and cannot be imposed on the operating aircraft. Therefore, mitigation is not feasible and these are significant and unavoidable impacts.

5.2.4 Cumulative Hazards and Hazardous Materials

As discussed in Section 4.1.6, the project would result in less than significant impacts with respect to routine use of hazardous materials at the project-related airports—namely the small amounts of fuel and other common petroleum products used to power and maintain aircraft. Generally speaking, cumulative development that is likely to occur in the areas surrounding the airports would also increase the transport, use, and storage of similarly common hazardous materials. This cumulative usage would not combine to create a significant hazard, as all such usage is regulated by federal, state, and local law, and would keep these materials from posing a combined health risk. Therefore, there is no significant cumulative impact to which the project would contribute.

5.2.5 Cumulative Public Services

Growth that is anticipated to occur in the areas surrounding each of the project-related airports would increase demand on fire, police, schools, parks, and other government buildings and services. Cumulative aircraft operations at the project-related airports represent a very small contribution to demands on fire, police, and solid waste by increasing the activity in the area in and around the airports. The

project would contribute to this increase in services demand at the diversion airports, but contribute to a reduction in services demand at VNY. Proper land use and facilities planning, as undertaken by the respective jurisdictions within which the airports are located, identifies future needs for the relevant service providers, and prevents significant cumulative impacts from occurring to these services. There is no significant cumulative impact to which the project would contribute.

5.2.6 Cumulative Traffic and Transportation

Growth that is anticipated to occur in the areas surrounding each of the project-related airports would increase vehicular traffic by adding cars to the road and by adding traffic sources and destinations. The road systems surrounding VNY, BUR, and LAX are highly congested due to past development, and future growth is likely to worsen these conditions. Traffic is less congested at CMA, CNO, and WJF. Cumulative growth in aircraft operations at the project-related airports would continue to contribute to the future increase in traffic congestion. At VNY, the project would reduce the amount of cumulative vehicle traffic by reducing the number of flights operating out of that airport. At the diversion airports, the project would add vehicle trips; however, the project's contribution of ground-based traffic would be so small that it would not be noticeable. As shown in Table 2-5 (Chapter 2 of this EIR), project-related diversions to BUR, LAX, and CMA in 2014 average one half of one operation per day or less—or one trip every two or more days. As shown in Table 2-6, the daily average of 2016 diversion operations is 0.3 at CNO and 0.7 at WJF. Adding such a small amount of traffic to the local roadways, even those roads that are already congested, would not be considered a significant contribution to cumulative traffic impacts.

5.2.7 Cumulative Utilities and Service Systems

Growth that is anticipated to occur in the areas surrounding each of the project-related airports would increase demand on water, wastewater, storm water, and solid waste facilities. Cumulative aircraft operations at the project-related airports represent a small contribution to demands on these facilities. The project would contribute to this increase in infrastructure demand at the diversion airports, but contribute to a reduction in services demand at VNY. Proper land use and facilities planning, as undertaken by the respective jurisdictions within which the airports are located, identifies future needs for the relevant facilities, and prevents significant cumulative impacts from occurring to these services. There is no significant cumulative impact to which the project would contribute.

5.3 Growth-Inducing Impacts

The project-related transfer of airport operations would result in minor increases in air traffic at the five identified diversion airports, accompanied by a similarly minor

increase in ground-based activity at those airports. No permanent physical changes are proposed at the diversion airports, and the increase in activity would not be of a scale that would require substantial physical changes at the airports or the respective areas surrounding the airports. The diversion airports are subject to their own airport land use plans, and project-related activity is not anticipated to substantially affect the implementation of those plans.

The diversion airports are variously located in areas that range from fully developed to vacant, undeveloped land. Land use and future development in these areas is subject to the planning guidance provided by the local jurisdictions, and in some cases growth in the vicinity of the airports may be planned by the respective jurisdictions. In all cases, the project-related increase in activity at the diversion airports would not directly or indirectly affect the rate, type, or amount of growth already approved for land beyond the airports. The project proposes no infrastructure into new, unserved areas, and would not require new or expanded infrastructure, housing, or other similar permanent physical changes to the environment to accommodate the increased operations at the diversion airports. Therefore, the project is not growth inducing, and no further analysis is required with respect to growth.

5.4 Significant Unavoidable Impacts

The proposed project would result in significant unavoidable impacts related to its emissions at CMA and its contribution to cumulative air pollutant emissions at CMA and WJF. The project would shift emissions from the South Coast Air Basin to the Mojave Desert Air Basin and the South Central Coast Air Basin, both of which are in non-attainment of criteria for ozone and particulate matter. Alternative 1 would avoid these impacts, but would continue to emit the pollutants at VNY. Alternative 2 would not avoid these impacts. There is no feasible mitigation to address these impacts, and they are considered significant and unavoidable, as discussed in Section 4.3.5 and 5.2.3.

5.5 Irreversible Commitment of Resources

The project would not result in irreversible commitment of resources. With project implementation, usage of fossil fuel that is currently related to certain VNY operations would be shifted to the diversion airports, resulting in no net-gain in the amount of fuel used. The project entails no construction or land development; therefore, no resources will be used for building materials or extracted from the ground, and no undisturbed land will be converted to developed uses. There are no other aspects of the project that would affect natural resources.

6.0

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