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

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.

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.

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.