

# **AIR SOURCES INITIAL STUDY**

## **APPENDICES**

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**JUNE 2004**

**MEMORANDUM**

DATE: April 30, 2003

TO: Sergio Valdez  
Los Angeles Department of Transportation

FROM: David Shender *DSS*  
Linscott, Law & Greenspan, Engineers

REFERENCE: 1-033313-1

SUBJECT: **Trip Generation Assessment for the Air Sources/Million Air Hangar Project at Van Nuys Airport**

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This trip generation assessment has been prepared for the proposed Air Sources/Million Air Hangar project located at Van Nuys Airport in the City of Los Angeles. The project site is located along the south side of Roscoe Boulevard, east of Balboa Boulevard on the northerly portion of the airport. At project build-out, a total of 252,625 square feet of hangar floor area and 45,200 square feet of office floor area will be provided.

As documented in this memorandum, the proposed project will replace existing hangar, "umbrella," and "tie down" facilities used to store aircraft, resulting in substantially fewer aircraft accommodated at the project site as compared to current conditions. Additionally, the number of aircraft operations (take offs and landings) is expected to be reduced while the number of employees at the site will only slightly increase due to improved maintenance facilities. Based on these factors, it is concluded that the proposed Air Sources/Million Air Hangar project will result in a vehicular trip generation that is equivalent, and likely less than the current amount generated by the existing facilities at the site. Therefore, no further review of potential off-site traffic impacts related to project is required.

Additional details of the trip generation assessment for the Air Sources/Million Air Hangar project are provided in the following paragraphs.

### **Project Description**

The Air Sources/Million Air Hangar project is located 16700 Roscoe Boulevard in the Van Nuys area of the City of Los Angeles. Specifically, the project site is located along the south side of Roscoe Boulevard, east of Balboa Boulevard. Figure 1 shows the project location within the general vicinity and Figure 2 provides the project site plan.

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The project applicant proposes to redevelop their current leasehold at the north side of the Van Nuys Municipal Airport. The 21.16-acre site is currently improved with numerous hangar buildings and offices. All of the existing structures will be removed and replaced with new facilities. Table 1 provides a summary of the existing and proposed facilities at the project site.

- Existing Uses. The primary use of the existing project site is the storage and minor maintenance of aircraft. Ancillary space is provided for office staff (20,140 square feet), as well as for the processing passengers and associated waiting areas. Currently, aircraft are stored in one of the following three areas: indoor hangars (64,000 square feet); covered "umbrella" areas (35,000 square feet); and open "tie down" areas (305,000 square feet). Thus, a total of 404,000 square feet of floor area (covered and uncovered) is currently devoted to the storage of aircraft at the site. A total of 144 aircraft are currently stored on the site, generating approximately 1,406 monthly aircraft operations (i.e., take offs and landings). Approximately 37 employees work at the site.
- Proposed Uses. The proposed Air Sources/Million Air Hangar project would be developed over four phases and result in the elimination of the umbrella and tie down aircraft storage areas, with all aircraft to be stored in new hangar facilities. A total of 252,625 square feet of hangar space is proposed to be provided, which results in the reduction of the existing 404,000 square feet of floor area devoted on-site to the storage of aircraft (either open air, covered, or enclosed). Coinciding with the reduction of aircraft storage floor area will be a reduction in the number of aircraft stored on site from 144 aircraft to 26 aircraft. Similarly, the number of monthly aircraft operations is expected to drop from 1,406 to 276. The number of employees at the site will increase slightly to 67 employees (43 full-time, 24 part-time) as compared to current conditions, resulting primarily to the improved aircraft maintenance facilities provided at the project.

### **Trip Generation Forecast**

A trip generation forecast was prepared for the project based on trip rates provided in the *Trip Generation* manual published by the Institute of Transportation Engineers (ITE). The potential trips were estimated over a 24-hour period during a typical weekday, as well as during the weekday AM and PM commuter peak hours.

For general aviation facilities such as Van Nuys Airport, the ITE *Trip Generation* manual provides vehicular trip rates under the land use category General Aviation Airport (Land Use Code 022) based on the following three independent variables: Employees, Average Flights Per Day, and Based Aircraft.

A comparison of trip generation forecasts has been prepared based on trip rates provided in the ITE *Trip Generation* manual under the General Aviation Airport land use category. The trip rates are based on the three independent variables provided in the ITE land use category: number of employees, average flights per day, and number of based aircraft. A slight increase in the site generated daily and commuter peak hour traffic volumes is calculated as compared to current conditions related to the anticipated increase in the number of employees at the site. However, decreases in site generated daily and commuter peak hour traffic volumes are noted due to the proposed reductions in aircraft operations and number of based aircraft as compared to current conditions. Thus, it is concluded that the proposed Air Sources/Million Air Hangar project will result in a vehicular trip generation that is equivalent, and likely less than the current amount generated by the existing facilities at the site. Therefore, no further review of potential off-site traffic impacts related to project is required.

Please call if you have any questions or comments regarding this trip generation assessment prepared for the Air Sources/Million Air project at Van Nuys Airport.

attachments

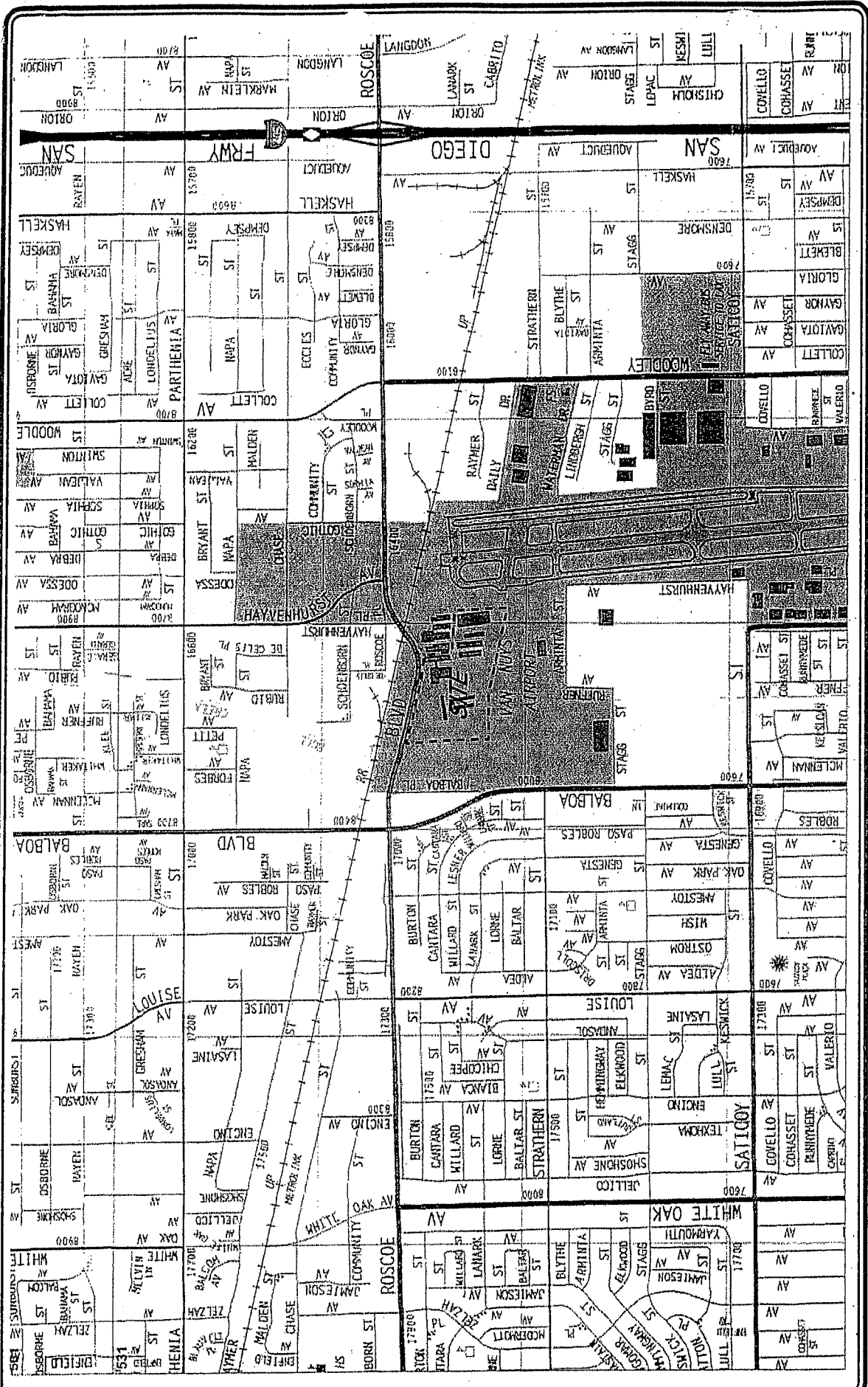


FIGURE 1  
VICINITY MAP

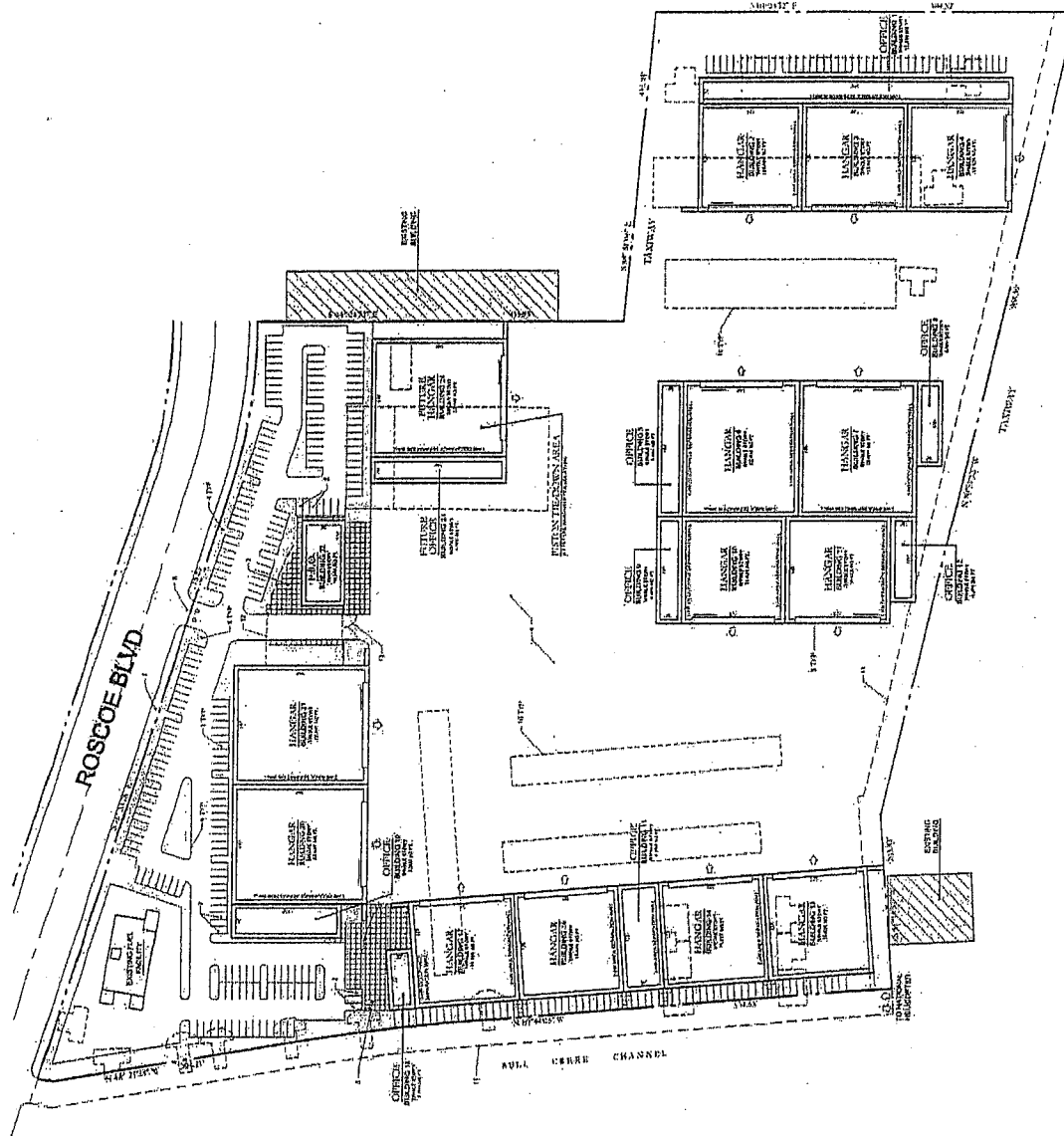
MAP SOURCE: THOMAS BROS. GUIDE



NOT TO SCALE

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ENGINEERS

AIR SOURCES/MILLION AIR HANGAR PROJECT



**FIGURE 2**  
**SITE PLAN**

SOURCE: J.R. MILLER & ASSOCIATES ARCHITECTS & ENGINEERS



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LAW &  
GREENSPAN**  
ENGINEERS

AIR SOURCES/MILLION AIR HANGAR PROJECT

**Table 1  
COMPARISON OF EXISTING  
AND PROPOSED OPERATIONS  
Air Sources/Million Air Hangar Project**

30-Apr-2003

ITEM	EXISTING	PROPOSED
Office Area	20,140 SF	45,200 SF
Hangar Area	64,000 SF	252,625 SF
Covered (Umbrella) Area	35,000 SF	0 SF
Open Tie Down Area	305,000 SF	0 SF
Aircraft Stored	144	26
Monthly Operations (Take-Offs/Landings)	1,406	276
Employees	37	67 [1]

[1] 43 full-time employees, 24 part-time employees.

**Table 2**  
**TRIP GENERATION FORECAST AND COMPARISON [1]**  
**Air Sources/Million Air Hangar Project**

30-Apr-2003

FORECAST NO. 1: EMPLOYEES			AM PEAK HOUR VOLUMES			PM PEAK HOUR VOLUMES		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Use	67 Employees	954	38	8	46	31	38	69
Existing Use	37 Employees	(526)	(22)	(4)	(26)	(17)	(21)	(38)
NET NEW TRIPS		428	16	4	20	14	17	31

FORECAST NO. 2: AVERAGE FLIGHTS PER DAY			AM PEAK HOUR VOLUMES			PM PEAK HOUR VOLUMES		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Use	9 Flights	18	2	0	2	1	2	3
Existing Use	46 Flights	(91)	(9)	(2)	(11)	(6)	(8)	(14)
NET NEW TRIPS		(73)	(7)	(2)	(9)	(5)	(6)	(11)

FORECAST NO. 3: BASED AIRCRAFT			AM PEAK HOUR VOLUMES			PM PEAK HOUR VOLUMES		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Proposed Use	26 Aircraft	130	5	1	6	5	5	10
Existing Use	144 Aircraft	(720)	(29)	(6)	(35)	(24)	(29)	(53)
NET NEW TRIPS		(590)	(24)	(5)	(29)	(19)	(24)	(43)

Source: "Trip Generation", 6th Edition, Institute of Transportation Engineers, 1997.  
Land Use Code 022 (General Aviation Airport) average trip rates.



## AIR SOURCES, INC. HANGER AND OFFICE IMPROVEMENTS PROJECT

Based on the information provided by Air Sources, Inc. in their March 27, 2003 email, the following assumptions were made:

### **Increase in Annual Operations**

<u>Aircraft Type</u>	<u>INM Aircraft Equivalent</u>	<u>Average Daily Operations</u>
Gulfstream V, Global Express	GV	3.7479
Hawker	LEAR35	2.9589
Boeing Business jet	737700	0.6575
Challenger Boy	CL601	1.1836
Citation X	CNA750	0.5260

The day/evening/night departure counts were used to increase operations based on the information provided. Arrival operations were proportionally assigned based on the existing breakdown or time of day. The stage length for all departures used in the modeling were set to stage length 1. Runway and Track assignment used in the model assumed an even distribution based on the existing distribution for each aircraft type.

To model the worst case scenario, we also assumed that all existing and proposed operations as listed in tables submitted were added to the base case. Based on the above assumptions, the following table shows the number of average daily operations added to the existing operations in the model. The base case used to represent existing operations was the calendar year 2002.

### **Operations Counts With Project and Without Project**

INM Type	Base Case 2002 Operations						Base Case 2002 Plus Project					
	Base Case Day Dep	Base Case Eve Dep	Base Case Night Dep	Base Case Day Arr	Base Case Eve Arr	Base Case Night Arr	With Project Day Arr	With Project Eve Arr	With Project Night Arr	With Project Day Dep	With Project Eve Dep	With Project Night Dep
GV	0.8155	0.0454	0.0815	0.6704	0.1975	0.07450	2.3936	0.2756	0.1471	2.0042	0.5904	0.2228
LEAR35	12.5818	0.9506	1.5440	10.6723	2.4066	1.9972	13.8966	1.1151	1.5440	11.7194	2.6428	2.1933
737700	0.6031	0.0345	0.0212	0.4948	0.1188	0.0453	0.8989	0.0674	0.0212	0.7417	0.1781	0.0679
CL601	0.2264	0.0000	0.5735	0.3009	0.0000	0.4991	0.6866	0.0987	0.6064	0.5235	0.0000	0.8683
CNA750	2.3779	0.1299	0.3070	2.1471	0.3525	0.3155	2.5751	0.1629	0.3399	2.3477	0.3855	0.3450

## **RESULTS**

To determine the impact of the additional operation on properties in close proximity to the airport, an analysis of the Community Noise Equivalent Level (CNEL) at 7 location points in the communities surrounding VNY (the 7 existing noise monitoring station locations) was performed. In addition, comparisons of the Maximum Noise Levels (Lmax) and the maximum Sound Exposure Levels (SELs) were also undertaken.

There were no significant changes in the CNEL, SEL, and Lmax levels at any of the affected location points based on the increase in operation. Changes in the noise levels of 1.5 dB within the 65 dB CNEL are deemed significant. Values of less than 3.0 dB are considered imperceptible. There was a 0.1-dB expected increase in the CNELs at two sites. The projected SELs reflected a 0.1dB increase at one site. The expected Lmax values did not change at any of the sites.

# Noise Run Data

Air Sources, Inc.

Van Nuys Municipal Airport

24 March 2003

## Current Aircraft (Existing Facility)

Existing Hangar and Covered (Umbrella) Area: 118,020 s.f.

Existing Open Tie Down Area: 305,000 s.f.

Existing Office and FBO Area: 20,140 s.f.

Aircraft Type	Aircraft (Existing)	Total Square Footage	Estimated Monthly Operations T.O. & Landings	Estimated Monthly Departure Times			Engine Type / Make	Take-Off Decibels AC36-1G
				7 am - 7 pm	7 pm - 10 pm	10 pm - 7 am		
Gulfstream III	1(1)	20,000 (Hangar)	6	3	0	0	Spey 511-8	97.3 Stage III 72dB - 82dB
Piston - SE	30	33,000 (Hangar)	240	110	8	2	Piston	72dB - 82dB
Piston - ME	6	11,000 (Hangar)	60	26	4	0	Piston	72dB - 82dB
Piston - SE	16	18,000 (Umbrella)	120	54	6	0	Piston	72dB - 82dB
Piston - ME	10	17,000 (Umbrella)	80	34	4	2	Piston	72dB - 82dB
Piston - SE	43 (2)	175,000 (Tie Down)	600 (3)	280	15	5	Piston	72dB - 82dB
Piston - SE	38 (2)	130,000 (Tie Down)	300	146	4	0	Piston	72dB - 82dB

### Notes

- (1) This aircraft under R&D by Total Aircraft Services - to be removed within 2 years, rarely flies - test run done out of Van Nuys
- (2) 17 are Port-a-Ports (Tenant Owner Portable Hangars)
- (3) Flight School Tie-Downs included in this area

## Displaced Aircraft (Option 1: Limited Tie-Down Area Aircraft to Remain)

Existing Hangar and Covered (Umbrella) Area to be removed: 118,020 s.f. (all of current Hangar and Covered Area)  
Existing Open Tie Down Area to be removed: 305,000 s.f. (all of current Tie Down Area)

Aircraft Type	Aircraft (Displaced)	Total Square Footage	Estimated Monthly Operations T.O. & Landings	Estimated Monthly Departure Times			Engine Type / Make	Take-Off Decibels AC36-1G
				7 am - 7 pm	7 pm - 10 pm	10 pm - 7 am		
Gulfstream III	1(1)	20,000 (Hangar)	6	3	0	0	Spey 511.8	97.3 Stage II 72dB - 82dB
Piston - SE	30(2)	33,000 (Hangar)	240	110	8	2	Piston	72dB - 82dB
Piston - ME	6(2)	11,000 (Umbrella)	60	26	4	0	Piston	72dB - 82dB
Piston - SE	16(2)	18,000 (Umbrella)	120	54	6	0	Piston	72dB - 82dB
Piston - ME	10(2)	17,000 (Umbrella)	80	34	4	2	Piston	72dB - 82dB
Piston - SE	28(2)	175,000 (Tie Down)	400	180	15	5	Piston	72dB - 82dB
Piston - SE	38(2)	130,000 (Tie Down)	300	146	4	0	Piston	72dB - 82dB

### Notes

- (1) This aircraft under R&D by Total Aircraft Services - to be removed within 2 years, rarely flies - test run done out of VNY  
(2) A total of 15 current piston aircraft (for all piston aircraft types) at Air Sources will remain as part of the Proposed Improvements. All other piston aircraft will be displaced. Of the displaced aircraft, approximately 50% of the will be go to another airport and approximately 50% will remain at VNY.

## Displaced Aircraft (Option 2: All Tie-Down Area Aircraft to be Displaced)

Existing Hangar and Covered (Umbrella) Area to be removed: 118,020 s.f. (all of current Hangar and Covered Area)  
Existing Open Tie Down Area to be removed: 305,000 s.f. (all of current Tie Down Area)

Aircraft Type	Aircraft (Displaced)	Total Square Footage	Estimated Monthly Operations T.O. & Landings	Estimated Monthly Departure Times			Engine Type / Make	Take-Off Decibels AC36-1G
				7 am - 7 pm	7 pm - 10 pm	10 pm - 7 am		
Gulfstream III	1(1)	20,000 (Hangar)	6	3	0	0	Spey 511.8	97.3
Piston - SE	30(2)	33,000 (Hangar)	240	110	8	2	Piston	72dB - 82dB
Piston - ME	6(2)	11,000 (Umbrella)	60	26	4	0	Piston	72dB - 82dB
Piston - SE	16(2)	18,000 (Umbrella)	120	54	6	0	Piston	72dB - 82dB
Piston - ME	10(2)	17,000 (Umbrella)	80	34	4	2	Piston	72dB - 82dB
Piston - SE	43	175,000 (Tie Down)	600	280	15	5	Piston	72dB - 82dB
Piston - SE	38	130,000 (Tie Down)	300	146	4	0	Piston	72dB - 82dB

### Notes

- (3) This aircraft under R&D by Total Aircraft Services - to be removed within 2 years, rarely flies - test run done out of VNY  
(4) A total of 15 current piston aircraft (for all piston aircraft types) at Air Sources will remain as part of the Proposed Improvements. All other piston aircraft will be displaced. Of the displaced aircraft, approximately 50% of the will be go to another airport and approximately 50% will remain at VNY.

## Proposed Aircraft (Phases I-III: New Facility with Limited Tie-Down Area Aircraft)

Proposed Hangar Area: 230,225 s.f.

Proposed Office Area: 40,400 s.f.

Proposed Open Tie-Down Area: 44,000 s.f.

Aircraft Type	Aircraft	Total Square Footage	Estimated Monthly Operations T.O. & Landings	Estimated Monthly Departure Times			Engine Type / Make	Take-Off Decibels AC36-1G
				7 am - 7 pm	7 pm - 10 pm	10 pm - 7 am		
✓ Gulfstream V	3 (Existing-VNY) 5 (Proposed-VNY)	83,700 (Hangar)	72	30	4	2	Tay-710-b Rolls Royce	83.3 dB Stage III
✓ Hawker	4 (Existing-VNY) 2 (Proposed-VNY)	30,825 (Hangar)	90	40	5	0	PW 305	85.7 dB Stage III
✓ Global Express	1 (Existing-VNY) 1 (Proposed-VNY)	26,825 (Hangar)	30	14	1	0	TER-710	68.1 dB Stage III
✓ Boeing Business Jet	2 (Existing-VNY)	44,800 (Hangar)	20	9	1	0	CFM 56-7	83.0 dB Stage III
✓ Challenger Boy	3 (Existing-VNY)	15,625 (Hangar)	36	14	3	1	GE CF34-3B	80.9 dB Stage III
✓ Citation X	1 (Existing-VNY)	6,046 (Hangar)	16	6	1	1	AE3007C	72.3 dB Stage III
Piston - SE	15 (Existing-AS)	Tie Down Area	300	135	15	0	Piston	72dB-82dB
Maintenance	0	22,400 (Hangar)	na	na	na	na	na	na

### Notes

(Existing-VNY) – Existing Aircraft is from another tenant at VNY

(Proposed-VNY) – Proposed Aircraft is new to VNY

(Existing-AS) – Existing Aircraft is from the current Air Sources Facility at VNY

## Proposed Aircraft (Phases I-IV: New Facility with No Tie-Down Area Aircraft)

Proposed Hangar Area: 252,625 s.f.

Proposed Office Area: 45,200 s.f.

Proposed FBO Area: 10,000 s.f.

Proposed Open Tie-Down Area: none

Aircraft Type	Aircraft	Total Square Footage	Estimated Monthly Operations T.O. & Landings	Estimated Monthly Departure Times			Engine Type / Make	Take-Off Decibels AC36-1G
				7 am – 7 pm	7 pm – 10 pm	10 pm – 7 am		
Gulfstream V	3 (Existing-VNY) 8 (Proposed-VNY)	106,100 (Hangar)	84	34	6	2	Tay-710-b Rolls Royce PW 305	83.3 dB Stage III
Hawker	4 (Existing-VNY) 2 (Proposed-VNY)	30,825 (Hangar)	90	40	5	0	TER-710	85.7 dB Stage III
Global Express	1 (Existing-VNY) 1 (Proposed-VNY)	26,825 (Hangar)	30	14	1	0	CFM 56-7	68.1 dB Stage III
Boeing Business Jet	2 (Existing-VNY)	44,800 (Hangar)	20	9	1	0	GE CF34-3B	83.0 dB Stage III
Challenger Boy	3 (Existing-VNY)	15,625 (Hangar)	36	14	3	1	AE3007C	80.9 dB Stage III
Citation X	1 (Existing-VNY)	6,050 (Hangar)	16	6	1	1	na	72.3 dB Stage III
Maintenance	0	22,400 (Hangar)	na	na	na	na	na	na

### Notes

(Existing-VNY) – Existing Aircraft is from another tenant at VNY

(Proposed-VNY) – Proposed Aircraft is new to VNY

(Existing-AS) – Existing Aircraft is from the current Air Sources Facility at VNY

**MILLION AIR HANGAR**  
***AIR QUALITY TECHNICAL REPORT***

**Prepared for**

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December 2003

## TABLE OF CONTENTS

	<u>Page No.</u>
<b>1.0 SUMMARY OF FINDINGS</b>	<b>1</b>
<b>2.0 INTRODUCTION</b>	<b>2</b>
2.1 Purpose of Study	2
2.2 Project Description	2
<b>3.0 AIR QUALITY</b>	<b>3</b>
3.1 Pollutants & Effects	3
3.2 Regulatory Setting	5
3.2.1 Attainment Status	6
3.2.2 Air Quality Management Plan	6
3.2.3 National and State Ambient Air Quality Standards	8
3.3 Existing Air Quality	9
3.3.1 Air Pollution Climatology	9
3.3.2 Local Climate	9
3.3.3 Air Monitoring Data	10
3.3.4 Background Carbon Monoxide Conditions	12
3.3.5 Sensitive Receptors	12
3.4 Methodology and Significance Criteria	12
3.4.1 Methodology	12
3.4.2 Significance Criteria	13
3.5 Environmental Impacts	14
3.5.1 Construction Phase Impacts	14
3.5.2 Operational Phase Impacts	17
3.5.3 Cumulative Impacts	19
3.6 Consistency with the Air Quality Management Plan	19

## APPENDICES

Appendix A	Climate Information
Appendix B	CARB Data
Appendix C	Construction Emissions Calculations
Appendix D	SCAQMD Rule 403
Appendix E	EDMS Printouts
Appendix F	On-Road Vehicle Emissions Calculation



## LIST OF TABLES

Table 3-1	State and National Ambient Air Quality Standards .....	8
Table 3-2	2000-2002 Criteria Pollutant Violations - Reseda and Burbank Monitoring Stations .....	10
Table 3-3	SCAQMD Daily Construction Emissions Thresholds .....	13
Table 3-4	SCAQMD Daily Operational Emissions Thresholds .....	14
Table 3-5	Estimated Daily Construction Emissions .....	15
Table 3-6	SCAQMD Rule 403 - Track-Out Control Options .....	16
Table 3-7	Daily Operations Emissions (Change from Existing Conditions) .....	18

## LIST OF FIGURES

Figure 3-1	South Coast Air Basin .....	7
Figure 3-2	Air Monitoring Areas .....	11

## 1.0 SUMMARY OF FINDINGS

An air quality analysis was conducted by Terry A. Hayes Associates LLC for the proposed Million Air Hangar project at Van Nuys Airport. Key findings are as follows:

- Construction of the proposed project is anticipated to emit approximately 26 pounds per day (ppd) of CO, 29 ppd of ROG, 44 ppd of NO<sub>x</sub>, 2 ppd of SO<sub>x</sub>, and 81 ppd of PM<sub>10</sub>. Daily construction emissions are not anticipated to exceed the South Coast Air Quality Management District's (SCAQMD) significance thresholds of 550 ppd, 75 ppd, 100 ppd, 150 ppd, and 150 ppd for CO, ROG, NO<sub>x</sub>, SO<sub>x</sub>, and PM<sub>10</sub>, respectively. Thus, no significant impacts are anticipated.
- During operations of the proposed project, total CO, ROG, and NO<sub>x</sub> emissions are anticipated to decrease by approximately 74 ppd, 2 ppd, and 354 ppd, respectively, when compared to existing conditions. However, SO<sub>x</sub> and PM<sub>10</sub> emissions are anticipated to increase by approximately six and less-than-one pounds per day. The increase in SO<sub>x</sub> and PM<sub>10</sub> emissions are not anticipated to exceed the SCAQMD significance threshold of 150 ppd for the two pollutants. Thus, less-than-significant impacts are anticipated.
- The increase of 31 peak hour vehicle trips is not large enough to incrementally increase CO concentrations at roadway intersections to levels that would violate the State CO standards. Thus, less-than-significant impacts are anticipated.
- CO concentrations from aircraft are anticipated to reduce ambient one- and eight-hour CO concentrations to approximately 4.5 ppm and 3.3 ppm, respectively, at the perimeter of the project site. The one- and eight-hour ambient CO concentrations would not exceed the State one- and eight-hour CO standards of 20.0 ppm and 9.0 ppm, respectively. No significant impacts are anticipated.
- The proposed project would not violate the State one- and eight-hour CO standards. Additionally, The proposed project would be consistent with the Air Quality Management Plan (AQMP) projections. Thus, the proposed project is consistent with the AQMP.

## **2.0 INTRODUCTION**

### **2.1 Purpose of Study**

The purpose of this study is to evaluate the potential air quality impacts of the proposed Million Air Hangar project at Van Nuys Airport. Potential air quality impacts are analyzed for construction and operations of the proposed project. Mitigation measures for air quality are recommended where necessary.

### **2.2 Project Description**

The proposed project is located at 16700 Roscoe Boulevard in the Van Nuys - North Sherman Oaks Community of the City of Los Angeles. The 21.16-acre project site is primarily used for the storage and minor maintenance of aircraft. Ancillary space is provided for office staff, processing passengers, and associated waiting areas (20,140 square feet). Currently, aircraft are stored in one of the following three areas: indoor hangars (64,000 square feet), covered "umbrella" areas (35,000 square feet), and open "tie down" areas (305,000 square feet). Thus, a total of 404,000 square feet of floor area (covered and uncovered) is currently devoted to the storage of aircraft at the site. A total of 144 aircraft are currently stored on the site, generating approximately 1,406 monthly aircraft operations (i.e., take-offs and landings). Approximately 37 employees currently work at the site.

The proposed project would eliminate the umbrella and tie down aircraft storage areas. All aircraft would be stored in new hangar facilities. The proposed project will provide a total of 252,625 square feet of hangar space, which is approximately 151,375 square feet less than the existing floor area that is devoted to aircraft storage (either open air, covered, or enclosed). The number of aircraft stored on site will be reduced from 144 aircraft to 26 aircraft. Similarly, the number of monthly aircraft operations is expected to drop from 1,406 to 276. The number of employees at the site will increase from 37 employees to 67 employees. The increase in the number of employees is primarily the result of the improved aircraft maintenance facilities.

### 3.0 AIR QUALITY

This section examines the degree which the proposed project may result in significant adverse changes to air quality. Both short-term construction emissions occurring from activities such as site grading and haul truck trips, as well as long-term effects related to the ongoing operation of the proposed project, are discussed in this section. The analysis contained herein focuses on air pollution from two perspectives: daily emissions and pollutant concentrations. "Emissions" refer to the actual quantity of pollutant, measured in pounds per day (ppd). "Concentrations" refer to the amount of pollutant material per volumetric unit of air. "Concentrations" are measured in parts per million (ppm) or micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

#### 3.1 POLLUTANTS & EFFECTS

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: carbon monoxide (CO), ozone ( $\text{O}_3$ ), nitrogen dioxide ( $\text{NO}_2$ ), sulfur dioxide ( $\text{SO}_2$ ), and respirable particulate matter ( $\text{PM}_{10}$ ).

**Carbon Monoxide.** Carbon monoxide, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. In urban areas, CO is emitted by motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. Automobile exhausts release most of the CO in urban areas. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient carbon monoxide concentrations generally follows the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions, primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas between November and February.<sup>1</sup> The highest CO concentrations measured in the South Coast Air Basin (SCAB) are typically recorded during the winter.

**Ozone.**  $\text{O}_3$ , a colorless toxic gas, is the chief component of urban smog.  $\text{O}_3$  enters the blood stream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen.  $\text{O}_3$  also damages vegetation by inhibiting their growth. Although  $\text{O}_3$  is not directly emitted, it forms in the atmosphere through a chemical reaction between reactive organic gas (ROG) and nitrogen oxides ( $\text{NO}_x$ ) under sunlight.<sup>2</sup>  $\text{O}_3$  is present in relatively high concentrations within the Basin, and the damaging effects of photochemical smog are generally related to the concentration of  $\text{O}_3$ . Meteorology and terrain play major roles in ozone formation. Ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. The greatest source of smog-producing gases is the automobile.

**Nitrogen Dioxide.**  $\text{NO}_2$ , a brownish gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like  $\text{O}_3$ ,  $\text{NO}_2$  is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and  $\text{NO}_2$  are collectively referred to as nitrogen

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<sup>1</sup> Inversion is an atmospheric condition in which a layer of warm air traps cooler air near the surface of the earth, preventing the normal rising of surface air. See Section 3.3.1.

<sup>2</sup> ROG and  $\text{NO}_x$  are emitted from automobiles and industrial sources.

oxides ( $\text{NO}_x$ ) and are major contributors to ozone formation.  $\text{NO}_2$  also contributes to the formation of  $\text{PM}_{10}$  (see discussion of  $\text{PM}_{10}$  below). At atmospheric concentration,  $\text{NO}_2$  is only potentially irritating. In high concentrations, the result is a brownish-red cast to the atmosphere and reduced visibility. There is some indication of a relationship between  $\text{NO}_2$  and chronic pulmonary fibrosis. Some increase in bronchitis in children (two and three years old) has also been observed at concentrations below 0.3 parts per million (ppm).

**Sulfur Dioxide.**  $\text{SO}_2$  is a product of high-sulfur fuel combustion. Main sources of  $\text{SO}_2$  are coal and oil used in power stations, in industries, and for domestic heating. Industrial chemical manufacturing is another source of  $\text{SO}_2$ .  $\text{SO}_2$  is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children.  $\text{SO}_2$  can also cause plant leaves to turn yellow, as well as erode iron and steel. In recent years,  $\text{SO}_2$  concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of  $\text{SO}_2$  and limits on the sulfur content of fuels.  $\text{SO}_2$  concentrations have been reduced to levels well below the state and national standards, but further reductions in emissions are needed to attain compliance with standards for sulfates and  $\text{PM}_{10}$ , of which  $\text{SO}_2$  is a contributor.

**Suspended Particulate Matter.** Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere.  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  represent fractions of particulate matter. Respirable particulate matter ( $\text{PM}_{10}$ ) refers to particulate matter less than 10 microns in diameter, about one-seventh the thickness of a human hair. Fine particulate matter ( $\text{PM}_{2.5}$ ) refers to particulate matter that is 2.5 microns or less in diameter, roughly 1/28th the diameter of a human hair. Major sources of  $\text{PM}_{10}$  include motor vehicles; wood burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning, industrial sources, windblown dust from open lands; and atmospheric chemical and photochemical reactions.  $\text{PM}_{2.5}$  result from fuel combustion (from motor vehicles, power generation, industrial facilities), residential fireplaces, and wood stoves. In addition,  $\text{PM}_{2.5}$  can be formed in the atmosphere from gases such as sulfur dioxide, nitrogen oxides, and volatile organic compounds.

$\text{PM}_{10}$  and  $\text{PM}_{2.5}$  pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract.  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$  can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates can cause lung damage directly. These substances can be absorbed into the blood stream and cause damage elsewhere in the body. These substances can transport absorbed gases, such as chlorides or ammonium, into the lungs and cause injury. Whereas, particles 2.5 to 10 microns in diameter tend to collect in the upper portion of the respiratory system, particles 2.5 microns or less are so tiny that they can penetrate deeper into the lungs and damage lung tissues.<sup>3</sup> Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility.

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<sup>3</sup> The NAAQS for  $\text{PM}_{2.5}$  was adopted in 1997. Presently, no methodologies for determining impacts relating to  $\text{PM}_{2.5}$  have been developed or adopted by federal, state, or regional agencies. Additionally, no strategies or mitigation programs for  $\text{PM}_{2.5}$  have been developed or adopted by Federal, State, or regional agencies. Currently, this standard is not enforceable. However, the standard may be reinstated in the future. Thus, this air quality analysis does not analyze  $\text{PM}_{2.5}$ .

### 3.2 REGULATORY SETTING

Air quality in the United States is governed by the Federal Clean Air Act (CAA). In addition to being subject to the requirements of the CAA, air quality in California is also governed by more stringent regulations under the California Clean Air Act (CCAA). At the federal level, the CAA is administered by the United States Environmental Protection Agency (USEPA). In California, the CCAA is administered by the California Air Resources Board (CARB) at the state level and by the Air Quality Management Districts at the regional and local levels.

**United States Environmental Protection Agency.** The USEPA is responsible for enforcing the Federal CAA. USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS are required under the 1977 CAA and subsequent amendments. USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by CARB.

**California Air Resources Board.** In California, CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting the state requirements of the Federal CAA, administering the CCAA, and establishing the California Ambient Air Quality Standards (CAAQS). The CCAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the California Ambient Air Quality Standards (CAAQS). The CAAQS are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB established passenger vehicle fuel specifications, which became effective on March 1996. CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

**South Coast Air Quality Management District.** SCAQMD monitors air quality within the project area. The 1977 Lewis Air Quality Management Act created SCAQMD to coordinate air quality planning efforts throughout southern California. This Act merged four county air pollution control agencies into one regional district to better address the issue of improving air quality in southern California. Under the Act, renamed the Lewis-Presley Air Quality Management Act in 1988, SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin (SCAB). Specifically, SCAQMD is responsible for monitoring air quality, as well as planning, implementing and enforcing programs designed to attain and maintain state and federal ambient air quality standards in the district. Programs that were developed include air quality rules and regulations that regulate stationary source, area source, point source and certain mobile source emissions. SCAQMD is also responsible for establishing permitting requirements for stationary sources and ensuring that new, modified or relocated stationary sources do not create net emission increases and therefore, are consistent with the region's air quality goals.

SCAQMD has jurisdiction over an area of 10,743 square miles. This area includes all of Orange County, Los Angeles County (except for Antelope Valley), the nondesert portion of west San Bernardino County, and the western and Coachella Valley portions of Riverside County. The SCAB is a subregion of the SCAQMD and covers an area of 6,745 square miles. SCAB includes all of Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties.

SCAB is bounded by Pacific Ocean to the west; the San Gabriel, San Bernardino and San Jacinto mountains to the north and east; and the San Diego County line to the south (**Figure 3-1**). Ambient pollution concentrations recorded in the Los Angeles County are among the highest in the four counties comprising the SCAB.

### 3.2.1 Attainment Status

The CCAA requires CARB to designate areas within California as either attainment or non-attainment for each criteria pollutant based on whether the CAAQS have been achieved. Under the CCAA, areas are designated as non-attainment for a pollutant if air quality data shows that a State standard for the pollutant was violated at least once during the previous three calendar years. Exceedances that are affected by highly irregular or infrequent events are not considered violations of a State standard, and are not used as a basis for designating areas as non-attainment.

Under the CCAA, the Los Angeles County portion of SCAB is designated as a non-attainment area for  $O_3$ , CO, and  $PM_{10}$ . The air basin is designated as an attainment area for  $NO_2$ ,  $SO_2$ , sulfates, and lead.<sup>4</sup>

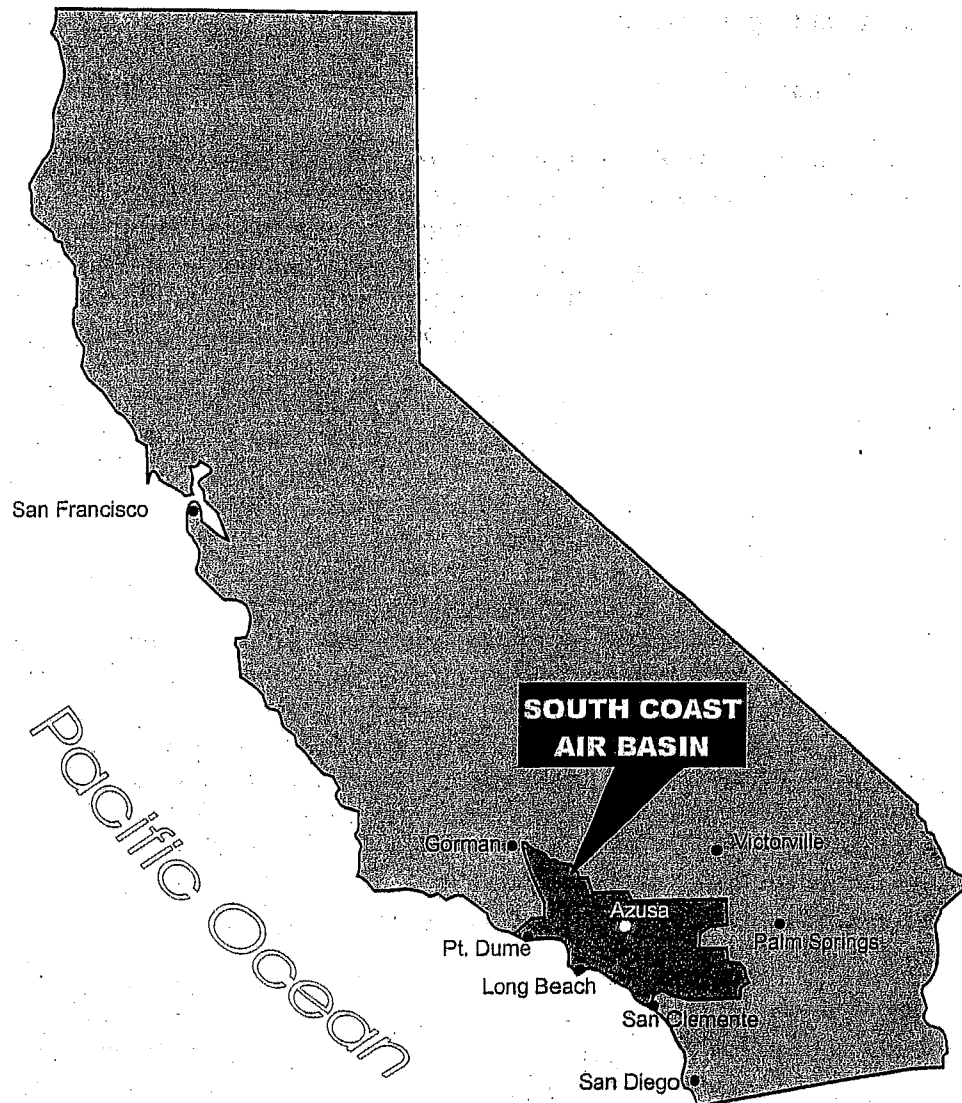
### 3.2.2 Air Quality Management Plan

All areas designated as non-attainment under the CCAA are required to prepare plans showing how the area would meet the state air quality standards by its attainment dates. The Air Quality Management Plan (AQMP) is the region's plan for improving air quality in the region. It addresses the CAA and CCAA requirements and demonstrates attainment with ambient air quality standards. The AQMP is prepared by SCAQMD and the Southern California Association of Governments (SCAG). The AQMP provides policies and control measures that reduce emissions to attain both state and federal ambient air quality standards by their applicable deadlines. Environmental review of individual projects within the SCAB must demonstrate that daily construction and operational emissions thresholds, as established by the SCAB, would not be exceeded. The environmental review must also demonstrate that individual projects would not increase the number or severity of existing air quality violations.



The 2003 AQMP is the most recent air quality plan adopted by the SCAQMD. The SCAQMD adopted the 2003 AQMP on August 1, 2003. The 2003 AQMP updates the attainment demonstration for the federal standards for  $O_3$  and  $PM_{10}$ , replaces the 1997 attainment demonstration for the federal CO standard, provides a basis for a CO maintenance plan for the future, and updates the maintenance plan for the federal  $NO_2$  standard that the SCAB has met since 1992. The 2003 AQMP also addresses several state and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes and new air quality modeling tools. The 2003 AQMP is consistent with and builds upon the approaches taken in the 1997 AQMP and the 1999 Amendments to the Ozone SIP for SCAB.

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<sup>4</sup> California Air Resources Board, *Proposed Area Designations and Maps*, September 2002.

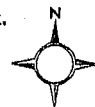


**LEGEND:**

-  South Coast Air Basin
-  State of California

SOURCE: California Air Resources Board, California Air Quality Data, "Summary of 1990 Air Quality Data" Volume XXII, Frontispiece-California Air Basins.

APPROX.  
SCALE



Million Air Hangar  
Air Quality Study  
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taha 2003-35

**FIGURE 3-1**

**SOUTH COAST AIR BASIN**



### 3.2.3 National and State Ambient Air Quality Standards

As required by the Federal CAA, the NAAQS have been established for six major air pollutants: CO, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and lead. Pursuant to the CCAA, the State of California has established the CAAQS. The CAAQS are generally more stringent than the corresponding federal standards (NAAQS) and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles. Since the CAAQS are more stringent than the NAAQS, the CAAQS are used as the comparative standard in the air quality analysis contained in this report.

Both State and Federal standards are summarized in **Table 3-1**. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation and other aspects of the general welfare.

<b>TABLE 3-1: STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS</b>				
Pollutant	Averaging Period	California Standard	Federal Standards	
			Primary	Secondary
Ozone (O <sub>3</sub> )	1 hour	0.09 ppm (180 µg/m <sup>3</sup> )	0.12 ppm (235 µg/m <sup>3</sup> )	Same as Primary Standard
	8 hour	--	0.08 ppm (157 µg/m <sup>3</sup> )	
Respirable Particulate Matter (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	
Carbon Monoxide(CO)	8 hour	9.0 (10 mg/m <sup>3</sup> )	9.0 (10 mg/m <sup>3</sup> )	--
	1 hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	--	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary Standard
	1 hour	0.25 ppm (470 µg/m <sup>3</sup> )	--	
Sulfur Dioxide (SO <sub>2</sub> )	Annual Arithmetic Mean	--	0.03 ppm (80 µg/m <sup>3</sup> )	--
	24 hour	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (365 µg/m <sup>3</sup> )	--
	3 hour	--	--	0.5 ppm (1300 µg/m <sup>3</sup> )
	1 hour	0.25 ppm (655 µg/m <sup>3</sup> )	--	--
SOURCE: California Air Resources Board, Federal and State Air Quality Standards (1/9/2003).				

### 3.3 EXISTING AIR QUALITY

#### 3.3.1 Air Pollution Climatology

The proposed project is located within the Los Angeles County portion of SCAB. Ambient pollution concentrations recorded in Los Angeles County are among the highest in the four counties comprising the Basin.

SCAB is an area of high air pollution potential due to its climate and topography. The general region lies in the semi-permanent high pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. SCAB experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usual mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. SCAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of its perimeter. The mountains and hills within the area contribute to the variation of rainfall, temperature, and winds throughout the region.

SCAB experiences frequent temperature inversions. Temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward. Additionally, hydrocarbons and  $\text{NO}_2$  react under strong sunlight, creating pollution, commonly referred to as smog. Light, daytime winds, predominantly from the west, further aggravate the condition by driving air pollutants inland, toward the mountains.

During the fall and winter, air quality problems are created due to CO and  $\text{NO}_2$  emissions. CO concentrations are generally worse in the morning and late evening (around 10:00 p.m.). Morning levels are relatively high due to the large number of cars during the commute and colder temperatures. The high levels during the late evenings are a result of stagnant atmospheric conditions trapping CO in the area. Since CO is produced almost entirely from automobiles, the highest CO concentrations in SCAB are associated with heavy traffic.  $\text{NO}_2$  levels are also generally higher during autumn or winter days. High levels of  $\text{NO}_2$  in the fall and winter usually occur on days with summer-like conditions.

#### 3.3.2 Local Climate

The mountains and hills within SCAB contribute to the variation of rainfall, temperature, and winds throughout the region. Within the project site and its vicinity, the average wind speed, as recorded at the Reseda Wind Monitoring Station, is approximately 4.0 miles per hour, with calm winds occurring approximately 13 percent of the time. Wind in the vicinity of the project site predominately blows from the southeast.<sup>5</sup>

The annual average temperature in the project area is approximately 64 degrees Fahrenheit. The project area experiences an average winter temperature of approximately 54 degrees Fahrenheit and an average summer temperature of approximately 74 degrees Fahrenheit. Total precipitation in the project area averages approximately 16.5 inches annually. Precipitation occurs mostly during

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<sup>5</sup> Based on data from the Reseda wind monitoring station. See Appendix A.

the winter and relatively infrequently during the summer. Precipitation averages approximately 9.7 inches during the winter and approximately 0.2 inches during the summer.<sup>6</sup>

### 3.3.3 Air Monitoring Data

The SCAQMD monitors air quality conditions at 37 locations throughout SCAB. The proposed project is located in the SCAQMD's West San Fernando Valley Air Monitoring Area (No. 6), which is served by the Reseda Monitoring Station, located at 18330 Gault Street, in the City of Los Angeles (Figure 3-2). The station is approximately 2.3 miles southwest of the project site. The Reseda Monitoring Station monitors O<sub>3</sub>, CO, and NO<sub>2</sub>. The monitoring station, however, does not monitor PM<sub>10</sub> and SO<sub>2</sub>. The Burbank Monitoring Station, which is approximately 10.7 miles southeast of the project site, monitors PM<sub>10</sub> and SO<sub>2</sub>. This station is in the same general forecast area as the proposed project site.<sup>7</sup> Thus, historical data from the Reseda Monitoring Station (O<sub>3</sub>, CO, and NO<sub>2</sub>) and Burbank Monitoring Station (PM<sub>10</sub> and SO<sub>2</sub>) were used to characterize existing conditions within the vicinity of the proposed project area and to establish a baseline for estimating future conditions with and without the proposed project.

A summary of the data recorded at the Reseda and Burbank Monitoring Stations are located in Appendix B. Table 3-2 shows the number of violations recorded at the two monitoring stations during the 2000-2002 period. The CAAQS for the criteria pollutants are also shown in the table. As Table 3-2 indicates, criteria pollutants NO<sub>2</sub> and SO<sub>2</sub> did not exceed the CAAQS during the 2000-2002 period. However, O<sub>3</sub> exceeded the State standard 8 to 42 times, CO exceeded the State standard once, and PM<sub>10</sub> exceeded the State standard 42 to 84 times in the last three years.

**TABLE 3-2: 2000-2002 CRITERIA POLLUTANT VIOLATIONS - RESEDA & BURBANK MONITORING STATIONS /a/**

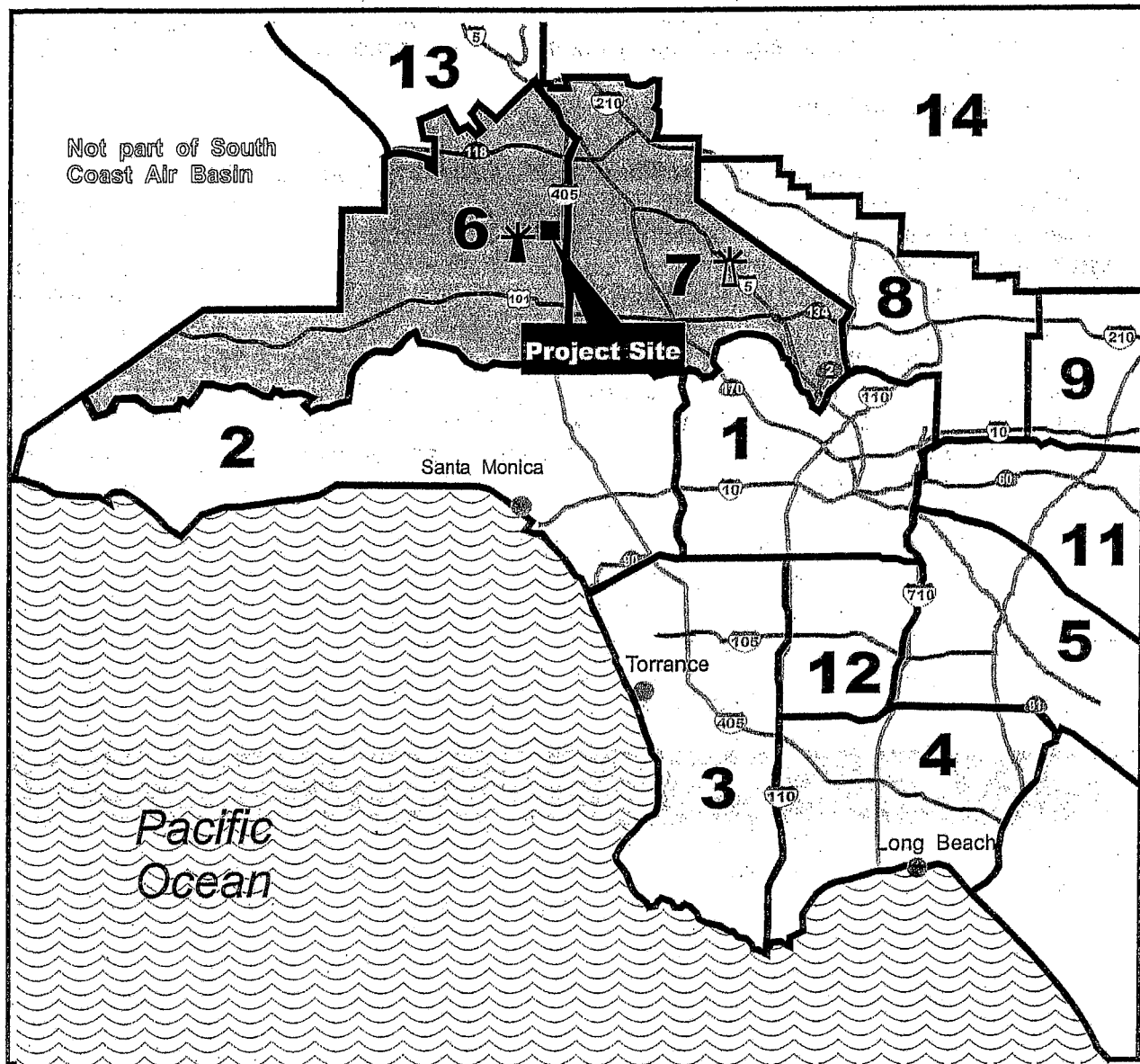
Pollutant	State Standard	Number of Days Above State Standard		
		2000	2001	2002
Ozone	0.09 ppm (1-hour)	8	27	42
Carbon Monoxide	9.0 ppm (8-hour average)	1	0	0
Nitrogen Dioxide	0.25 ppm (1-hour)	0	0	0
Sulfur Dioxide	0.04 ppm (24-hour average)	0	0	0
PM <sub>10</sub>	50 µg/m <sup>3</sup> (24-hour average)	84	83	42

/a/ Data for ozone, carbon monoxide, and nitrogen dioxide were taken from the Reseda Monitoring Station. Data for PM<sub>10</sub> and sulfur dioxide were taken from the Burbank Monitoring Station, which is within the same general forecast area as the proposed project site.

SOURCE: California Air Resources Board, see Appendix B.

<sup>6</sup> Western Regional Climate Center, 2003.

<sup>7</sup> The general forecast area is a larger grouping of the more specific air monitoring area.



LEGEND: \* Reseda Monitoring Station \* Burbank Monitoring Station

Air Monitoring Areas in Los Angeles County:

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Central Los Angeles          | 9. East San Gabriel Valley    |
| 2. Northwest Coastal            | 10. Pomona/Walnut Valley      |
| 3. Southwest Coastal            | 11. South San Gabriel Valley  |
| 4. South Coastal                | 12. South Central Los Angeles |
| 5. Southeast Los Angeles County | 13. Santa Clarita Valley      |
| 6. West San Fernando Valley     | 14. Antelope Valley           |
| 7. East San Fernando Valley     | 15. San Gabriel Mountains     |
| 8. West San Gabriel Valley      |                               |

SOURCE: South Coast Air Quality Management District Air Monitoring Areas Map, 1989

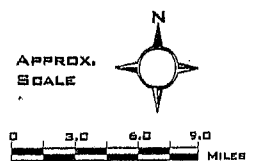


FIGURE 3-2

AIR MONITORING AREAS



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### 3.3.4 Background Carbon Monoxide Conditions

CO concentrations are typically used as an indicator of conformity with CAAQS because CO levels are directly related to vehicular traffic volumes, the main source of air pollutants, and localized CO concentrations and characteristics can be modeled using USEPA and SCAQMD methods. In other words, operational air quality impacts associated with a project are generally best reflected through the estimated changes in related CO concentrations.

For purposes of this assessment, the ambient, or background, concentration of CO is first established. SCAQMD defines the background level as the highest eight-hour reading over the past three years. A review of data from the Reseda Monitoring Station for the 2000-2002 period indicates that the average eight-hour background concentration is approximately 9.8 ppm.<sup>8</sup> Assuming a typical persistence factor of 0.7, the estimated one-hour background concentration is approximately 14.0 ppm.<sup>9</sup> The existing one-hour background concentration does not exceed the State one-hour CO standard of 20.0 ppm. However, the existing eight-hour background concentration exceeds the State eight-hour CO standard of 9.0 ppm.

### 3.3.5 Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. The following people are most likely to be affected by air pollution, as identified by CARB: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. Locations that may contain a high concentration of these sensitive population groups are called sensitive receptors and include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks. Sensitive receptors within a quarter-mile of the project site include residential uses. The residential uses are located approximately 0.2 miles west of the project site.

## 3.4 METHODOLOGY AND SIGNIFICANCE CRITERIA

### 3.4.1 Methodology

This air quality analysis is consistent with the methods described in the *SCAQMD California Environmental Quality Act (CEQA) Handbook* (1993 edition).

The following calculation methods and estimation models were used to determine air quality impacts: SCAQMD construction emissions calculation formulas, the CARB's EMFAC2002 emissions factor models, the Federal Aviation Administration's (FAA) Emissions and Dispersion Modeling System (EDMS), and USEPA's Industrial Source Complex - Short Term (ISCST) dispersion model.

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<sup>8</sup> Appendix B.

<sup>9</sup> Persistence factor is the ratio between the eight- and one-hour second annual maximum CO concentrations measured at a continuous air monitoring station. A persistence factor of 0.7 is typically used in urban areas.

### 3.4.2 Significance Criteria

The following are the significance criteria that SCAQMD has established to determine project impacts.

#### **Construction Phase Significance Criteria**

The proposed project would have a significant impact if:

- Daily construction emissions were to exceed the SCAQMD construction emissions thresholds for CO, ROG, NO<sub>x</sub>, SO<sub>x</sub>, or PM<sub>10</sub>. The SCAQMD significance thresholds for construction activities appear in **Table 3-3**.

<b>TABLE 3-3: SCAQMD DAILY CONSTRUCTION EMISSIONS THRESHOLDS</b>	
<b>Criteria Pollutant</b>	<b>Pounds Per Day</b>
Carbon Monoxide (CO)	550
Reactive Organic Gas (ROG)	75
Nitrogen Oxides (NO <sub>x</sub> )	100
Sulfur Oxides (SO <sub>x</sub> )	150
Particulates (PM <sub>10</sub> )	150
<b>SOURCE:</b> South Coast Air Quality Management District.	

#### **Operations Phase Significance Criteria**

The proposed projects would have a significant impact if:

- Daily operational emissions were to exceed the SCAQMD operational emissions thresholds for CO, ROG, NO<sub>x</sub>, SO<sub>x</sub>, or PM<sub>10</sub>. The SCAQMD significance thresholds for operational emissions appear in **Table 3-4**.
- Project-related traffic causes CO concentrations at study intersections to violate the CAAQS for either the one- or eight-hour period. The CAAQS for the one- and eight-hour period are 20.0 ppm and 9.0 ppm, respectively. If CO concentrations currently exceed the CAAQS, then, an incremental increase of 1.0 ppm over "no project" conditions for the one-hour period would be considered a significant impact. An incremental increase of 0.45 ppm over the "no project" conditions for the eight-hour period would be considered significant.<sup>10</sup>

<sup>10</sup> Consistent with the SCAQMD Regulation XIII definition of a significant impact.

**TABLE 3-4: SCAQMD DAILY OPERATIONAL EMISSIONS THRESHOLDS**

Criteria Pollutant	Pounds Per Day
Carbon Monoxide (CO)	550
Reactive Organic Gas (ROG)	55
Nitrogen Oxides (NO <sub>x</sub> )	55
Sulfur Oxides (SO <sub>x</sub> )	150
Particulates (PM <sub>10</sub> )	150
SOURCE: South Coast Air Quality Management District.	

### 3.5 ENVIRONMENTAL IMPACTS

#### 3.5.1 Construction Phase Impacts

Construction for the proposed Million Air Hangar project would generate pollutant emissions from the following construction activities: (1) demolition of existing structures, (2) grading, (3) construction workers traveling to and from project sites, (4) delivery and hauling of construction supplies and debris to and from project sites, (5) fuel combustion by on-site construction equipment, and (6) architectural coating. These construction activities would temporarily create emissions of dusts, fumes, equipment exhaust, and other air contaminants. However, PM<sub>10</sub> is the most significant source of air pollution from construction, particularly during site preparation and grading.

Construction of the proposed project would occur in four phases. Construction for each phase would last from approximately nine to 12 months. Construction for Phases I, II, and III consists of demolition of existing buildings and building construction/improvements. Construction for Phase IV also consist of building construction/improvements but demolition are not anticipated. Phase I would disturb the most amount of land and would demolish and construct more square feet of building space than the other three phases. Thus, construction scenario for Phase I was used to estimate worst-case daily construction emissions.

**Table 3-5** shows the estimated daily emissions associated with construction of the proposed project. Daily emissions were derived using the applicable emission factors and formulas found in the *SCAQMD CEQA Air Quality Handbook*, Appendix to Chapter 9. As shown, estimated daily construction emissions are not anticipated to exceed any of the SCAQMD thresholds, and a less-than-significant impact is anticipated.

**TABLE 3-5: ESTIMATED DAILY CONSTRUCTION EMISSIONS**

Construction Phase	Pounds Per Day				
	CO	ROG	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub> /a/
Demolition	26	4	44	2	81
Grading	19	3	38	2	78
Foundation	12	2	19	1	18
Finishing	<1	29	<1	<1	<1
Maximum	26	29	44	2	81
SCAQMD Threshold	550	75	100	150	150
Exceed Threshold?	No	No	No	No	No

/a/ Assumes proper implementation of SCAQMD Rule 403.  
SOURCE: Terry A. Hayes Associates LLC, see Appendix C.

Daily PM<sub>10</sub> emissions identified in **Table 3-5** assume proper implementation of SCAQMD Rule 403 (see discussion on "Fugitive Dust Abatement", below).<sup>11</sup> Implementation of mitigation measures **AQ1** through **AQ10** (see "Construction Phase Mitigation Measures," below) would ensure proper implementation of Rule 403 such that a less-than-significant impact is anticipated.

**Fugitive Dust Abatement.** The proposed project is subject to the provisions of SCAQMD Rule 403-Fugitive Dust. Rule 403 applies to any activity or man-made condition capable of generating fugitive dust. Rule 403 requires the use of best available control measures to suppress fugitive dust emissions. The requirements of Rule 403 that are applicable to the proposed project are as follows:

- (1) A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source.
- (2) A person conducting active operations within the boundaries of the South Coast Air Basin shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.
- (3) Any person in the South Coast Air Basin shall:
  - (A) prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations; or
  - (B) take at least one of the actions listed in **Table 3-6** and:

<sup>11</sup> Implementation of Rule 403 is estimated to reduce dust and PM<sub>10</sub> emissions by approximately 23 percent during the demolition phase and by approximately 66 percent during the grading phase. The larger reduction in PM<sub>10</sub> emissions during the grading phase is due to the heightened level of activity that would occur during this phase, which includes the use of construction vehicles, earthmoving activities, and haul truck trips. The resulting daily PM<sub>10</sub> emissions, shown in **Table 3-5**, would not exceed the SCAQMD significance threshold of 150 ppd.



(i) prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations; and

(ii) remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.<sup>12</sup>

**TABLE 3-6: SCAQMD RULE 403 - TRACK-OUT CONTROL OPTIONS**

Control Options	
(1)	Pave or apply chemical stabilization and sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that existing vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the USEPA as equivalent to the methods specified in Table 2-7 may be used.
SOURCE: South Coast Air Quality Management District, Rule 403 - Fugitive Dust, Table 3, Appendix D.	

### Construction Phase Mitigation Measures

The following is a list of feasible control measures that SCAQMD recommends for construction emissions of PM<sub>10</sub>. These mitigation measures shall be implemented for all areas (both on-site and off-site) where construction for the proposed project would occur.

- AQ1** The construction area and vicinity (500-foot radius) shall be swept (preferably with water sweepers) and watered at least twice daily. Site wetting shall occur often enough to maintain a 10 percent surface soil moisture content throughout all earth-moving activities.
- AQ2** All unpaved roads, parking and staging areas shall be watered at least once every two hours of active operations.
- AQ3** Site access points shall be swept/washed within thirty minutes of visible dirt deposition.
- AQ4** On-site stockpiles of debris, dirt or rusty material shall be covered or watered at least twice daily.
- AQ5** All haul trucks hauling soil, sand, and other loose materials shall either be covered or maintain two feet of freeboard.
- AQ6** All haul trucks shall have a capacity of no less than twelve and three-quarter (12.75) cubic yard.

<sup>12</sup> See Appendix D for the complete text of SCAQMD Rule 403.

- AQ7** At least 80 percent of all inactive disturbed surface areas shall be watered on a daily basis when there is evidence of wind-driven fugitive dust.
- AQ8** Operations on any unpaved surfaces shall be suspended when winds exceed 25 mph.
- AQ9** Traffic speeds on unpaved roads shall be limited to 15 miles per hour.
- AQ10** Operations on any unpaved surfaces shall be suspended during first and second stage smog alerts.

### ***Impacts After Mitigation***

Implementation of the above mitigation measures (**AQ1** through **AQ10**) is estimated to reduce dust and PM<sub>10</sub> emissions by approximately 23 percent during the demolition phase and by approximately 66 percent during the grading phase. The resulting daily PM<sub>10</sub> emissions, shown in **Table 3-5**, would not exceed the SCAQMD significance threshold of 150 ppd. Thus, no significant impacts are anticipated during construction of the proposed project.

### **3.5.2 Operational Phase Impacts**

#### ***Regional Impacts***

The proposed project would generate emissions from aircraft operations and motor vehicles. Aircraft operations and motor vehicles would be the predominate source of long-term project emissions. According to the traffic analysis conducted by Linscott, Law & Greenspan, Engineers, the proposed project is anticipated to generate approximately 428 additional daily vehicle trips than the existing conditions. Additionally, monthly aircraft operations (i.e., take offs and landings) would be reduced from 1,406 to 276.

Mobile emissions were estimated using trip generation statistics, average trip length statistics, and CARB emission factors. Aircraft emissions were estimated using FAA EDMS 4.11. The results, shown in **Table 3-7**, indicate that emissions from aircraft would be less than existing conditions for CO, ROG, and NO<sub>x</sub>. However, emissions of SO<sub>x</sub> would increase. Although aircraft operations would decrease, the types of aircraft that would operate on the project site would change. The change in aircraft fleet would result in an increase of SO<sub>x</sub> when compared to existing conditions.

When aircraft and mobile emissions are added together, total CO, ROG, and NO<sub>x</sub> emissions are anticipated to decrease from existing conditions. However, SO<sub>x</sub> and PM<sub>10</sub> emissions are anticipated to increase. The increase in SO<sub>x</sub> and PM<sub>10</sub> emissions are not anticipated to exceed the SCAQMD significance thresholds. Thus, less-than-significant impacts are anticipated.

**TABLE 3-7: DAILY OPERATIONS EMISSIONS (CHANGE FROM EXISTING CONDITIONS)**

Pollutants	Pounds per Day				
	CO	ROG	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>
Aircraft Emissions	-763	-5	-359	6	0
Mobile Emissions	23	3	5	<1	<1
Total Net Emissions	-74	-2	-354	6	<1
SCAQMD Threshold	550	55	55	150	150
Exceed SCAQMD Threshold?	No	No	No	No	No

SOURCE: Terry A. Hayes Associates LLC, Appendix E.

### Localized Impacts (CO Hotspot Analysis)

**Motor Vehicles.** The proposed project is anticipated to generate an additional 428 daily vehicle trips. The traffic study indicates that, under worse case scenario, the proposed project would generate an additional 31 peak hour vehicle trips, which is not likely to affect the level of service (LOS) at nearby roadways.<sup>13</sup> A project typically would increase CO concentrations if the project increases traffic congestion by adding more traffic to the roadways. An increase in traffic congestion would typically result in an increase in LOS. Ambient one- and eight-hour CO concentrations for year 2011 (the build-out year of the proposed project) in the vicinity of the project area are anticipated to be 7.6 ppm and 5.4 ppm, respectively.<sup>14</sup> CO concentrations would have to incrementally increase by 12.4 ppm for the one-hour period and by 3.6 ppm for the eight-hour period in order for CO concentrations to exceed the one- and eight-hour State standards of 20.0 ppm and 9.0 ppm, respectively. The increase of 31 peak hour vehicle trips is not large enough to incrementally increase CO concentrations to levels that would violate the State standards. Thus, less-than-significant impacts are anticipated.

**Aircraft Operations.** As discussed above, aircraft operations are anticipated to decrease from 1,406 to 276 per month. CO emissions from aircraft operations are also anticipated to decrease (Table 3-7). Using USEPA's ISCST3 dispersion model, it is estimated that the decrease in aircraft operation would incrementally reduce one-hour and eight-hour CO concentrations by approximately 3.1 and 2.1 parts per million, respectively, at the perimeter of the project site. One- and eight-hour ambient CO concentrations would decrease to approximately 4.5 ppm and 3.3 ppm, respectively, in year 2011. The one- and eight-hour ambient CO concentrations would not exceed the State one- and eight-hour CO standards of 20.0 ppm and 9.0 ppm, respectively. As such, no significant impact is anticipated.

<sup>13</sup> Level of service is used to indicate the quality of traffic flow on roadway segments and at intersections. Level of service ranges from LOS A (free flow, little congestion) to LOS F (forced flow, extreme congestion).

<sup>14</sup> Ambient CO concentrations for year 2011 are calculated based on estimated future emission factors for CO and daily vehicle trips from CARB's emissions inventory. This method is consistent with the California Department of Transportation's method for estimating ambient CO concentrations for the project build-out year (California Department of Transportation, "Transportation Project-Level Carbon Monoxide Protocol," 1997).

### **Operational Phase Mitigation Measures**

Mitigation measures are not required since pollutant emissions and concentrations during operations of the proposed project would not exceed any of the SCAQMD thresholds or State standards.

### **Impacts After Mitigation**

The proposed project would not increase pollution emissions and concentrations to levels that would exceed the SCAQMD thresholds or the State standards. Thus, operations of the proposed project would result in less-than-significant impacts.

### **3.5.3 Cumulative Impacts**

As discussed above, the proposed project would reduce emissions of CO, ROG, and NO<sub>x</sub>. Incremental increase of SO<sub>x</sub> and PM<sub>10</sub> emissions are anticipated to be approximately six and less-than-one pounds per day, respectively. The 2003 AQMP estimates future emissions in the region. The emission forecasts are based on demographic and economic growth projections of the region provided by the Southern California Association of Governments (SCAG). According to the 2003 AQMP, SO<sub>x</sub> emissions in the region is anticipated to be approximately 60 tons per day and PM<sub>10</sub> emissions is anticipated to be approximately 301 tons per day in year 2010. The proposed project would contribute to less-than-one percent of regional emissions, which is considered negligible. Thus, the proposed project would not significantly contribute to cumulative emissions.

## **3.6 CONSISTENCY WITH THE AIR QUALITY MANAGEMENT PLAN**

Criteria for determining consistency with the AQMP is defined in Chapter 12, Section 12.2 and Section 12.3 of the South Coast Air Quality Management District's CEQA Air Quality Handbook. There are two key indicators of consistency. These indicators are discussed below.

- **Consistency Criterion No. 1:** *The proposed project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.*

The violations that Consistency Criterion No. 1 refers to are the CAAQS. SCAQMD has identified CO as the best indicator pollutant for determining whether air quality violations would occur since it is most directly related to automobile traffic. The CO hotspot analysis in **Section 3.5.2** indicates that the proposed project would not exacerbate existing violations of the State one- and eight-hour CO standards. Therefore, the proposed project complies with Consistency Criterion 1.

- **Consistency Criterion No. 2:** *The proposed project will not exceed the assumptions in the AQMP in 2010 or increments based on the year of project build-out phase.*

AQMP growth assumptions are generated by SCAG. SCAG derives its assumptions, in part, based on the General Plans of cities located within the SCAG region. Therefore, if a project does not exceed the growth projections in the General Plan, then it is consistent with the growth assumptions in the AQMP.

The proposed project is not growth inducing. The proposed project is estimated to create approximately 30 jobs, which is not sufficiently large to call into question the employment forecasts for the subregion adopted by SCAG. The project site is zoned M2-Light Industrial and is designated as Light Manufacturing in the Reseda - West Van Nuys Community Planning Area of the City of Los Angeles General Plan. The zoning and General Plan designations allow for the use of aircraft landing field. Given that the proposed project consists of reconfiguring the existing aircraft landing field, which would be consistent with the City of Los Angeles General Plan and zoning designation for the project site. Since the proposed project is consistent with the City of Los Angeles General Plan land use and zoning designations, it can be concluded that the proposed project would be consistent with the AQMP projections. Thus, the proposed project can be considered to comply with Consistency Criterion 2.

The proposed project complies with Consistency Criteria 1 and 2. Therefore, the proposed project is consistent with the AQMP.

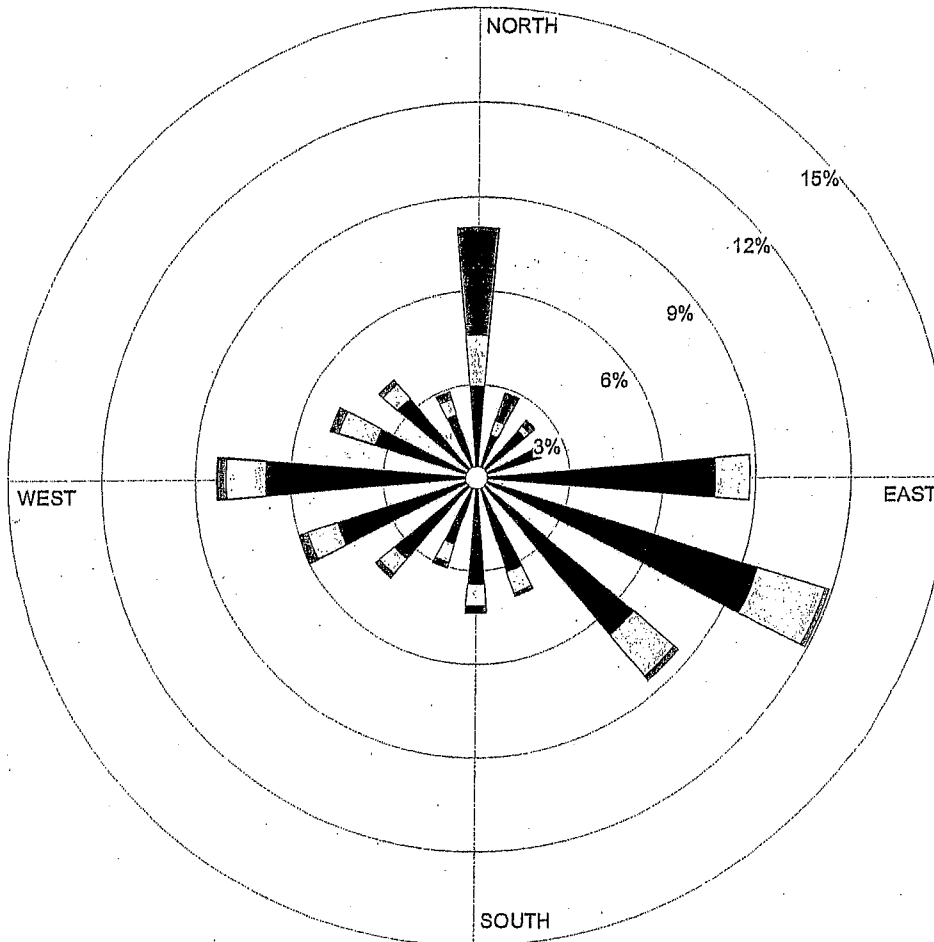


# **APPENDIX A**

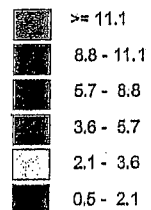
## **Climate Information**

WIND ROSE PLOT:  
Station #51107

DISPLAY:  
Wind Speed  
Direction (blowing from)



WIND SPEED  
(m/s)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	1981 Jan 1 - Dec 31 00:00 - 23:00	MODELER:	
	CALM WINDS:	TOTAL COUNT:	
	12.84%	8760 hrs.	
AVG. WIND SPEED:	DATE:	PROJECT NO.:	
1.79 m/s	6/16/2003		



Station ID: 51107  
 Year: 1981  
 Date Range: Jan 1 - Dec 31  
 Time Range: 00:00 - 23:00

Run ID: Reseda

Frequency Distribution  
 (Count)

Wind Direction (Blowing From) / Wind Speed (m/s)							
	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	260	140	191	98	12	0	701
11.25-33.75	128	40	60	19	4	0	251
33.75-56.25	174	18	17	3	2	0	214
56.25-78.75	214	20	3	0	0	0	237
78.75-101.25	672	96	2	0	0	0	770
101.25-123.75	835	194	13	0	0	0	1042
123.75-146.25	580	152	16	0	0	0	748
146.25-168.75	278	62	9	1	0	0	350
168.75-191.25	300	61	18	2	0	0	381
191.25-213.75	197	54	13	2	0	0	266
213.75-236.25	300	54	15	1	0	0	370
236.25-258.75	410	85	19	9	2	0	525
258.75-281.25	594	108	22	3	3	0	730
281.25-303.75	300	107	24	2	0	0	433
303.75-326.25	293	52	15	2	0	0	362
326.25-348.75	187	46	14	8	0	0	255
Total	5722	1289	451	150	23	0	8760

Frequency of Calm Winds: 1125

Average Wind Speed: 1.79 m/s

Station ID: 51107  
 Year: 1981  
 Date Range: Jan 1 - Dec 31  
 Time Range: 00:00 - 23:00

Run ID: Reseda

Frequency Distribution  
 (Normalized)

	Wind Direction (Blowing From) / Wind Speed (m/s)						
	0.5 - 2.1	2.1 - 3.6	3.6 - 5.7	5.7 - 8.8	8.8 - 11.1	>= 11.1	Total
348.75-11.25	0.029680	0.015982	0.021804	0.011187	0.001370	0.000000	0.080023
11.25-33.75	0.014612	0.004566	0.006849	0.002169	0.000457	0.000000	0.028653
33.75-56.25	0.019863	0.002055	0.001941	0.000342	0.000228	0.000000	0.024429
56.25-78.75	0.024429	0.002283	0.000342	0.000000	0.000000	0.000000	0.027055
78.75-101.25	0.076712	0.010959	0.000228	0.000000	0.000000	0.000000	0.087900
101.25-123.75	0.095320	0.022146	0.001484	0.000000	0.000000	0.000000	0.118950
123.75-146.25	0.066210	0.017352	0.001826	0.000000	0.000000	0.000000	0.085388
146.25-168.75	0.031735	0.007078	0.001027	0.000114	0.000000	0.000000	0.039954
168.75-191.25	0.034247	0.006963	0.002055	0.000228	0.000000	0.000000	0.043493
191.25-213.75	0.022489	0.006164	0.001484	0.000228	0.000000	0.000000	0.030365
213.75-236.25	0.034247	0.006164	0.001712	0.000114	0.000000	0.000000	0.042237
236.25-258.75	0.046804	0.009703	0.002169	0.001027	0.000228	0.000000	0.059932
258.75-281.25	0.067808	0.012329	0.002511	0.000342	0.000342	0.000000	0.083333
281.25-303.75	0.034247	0.012215	0.002740	0.000228	0.000000	0.000000	0.049429
303.75-326.25	0.033447	0.005936	0.001712	0.000228	0.000000	0.000000	0.041324
326.25-348.75	0.021347	0.005251	0.001598	0.000913	0.000000	0.000000	0.029110
Total	0.653196	0.147146	0.051484	0.017123	0.002626	0.000000	0.871575

Frequency of Calm Winds: 12.84%  
 Average Wind Speed: 1.79 m/s

# CANOGA PARK PIERCE COLL, CALIFORNIA (041484)

## Period of Record Monthly Climate Summary

Period of Record : 7/ 1/1949 to 12/31/2002

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	67.8	70.0	72.2	76.9	80.8	87.4	94.7	95.3	91.6	84.0	74.8	68.8	80.4
Average Min. Temperature (F)	39.2	40.7	41.8	44.6	48.9	52.9	56.9	57.3	54.6	48.9	42.6	38.7	47.3
Average Total Precipitation (in.)	3.71	3.71	2.83	1.11	0.25	0.05	0.01	0.11	0.16	0.42	1.87	2.25	16.48
Average Total SnowFall (in.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average Snow Depth (in.)	0	0	0	0	0	0	0	0	0	0	0	0	0

Percent of possible observations for period of record.

Max. Temp.: 99.9% Min. Temp.: 99.9% Precipitation: 99.7% Snowfall: 99.9% Snow Depth: 99.9%

Check [Station Metadata](#) or [Metadata graphics](#) for more detail about data completeness.

Western Regional Climate Center, [wrcc@dri.edu](mailto:wrcc@dri.edu)

# CANOGA PARK PIERCE COLL, CALIFORNIA

## Period of Record General Climate Summary - Precipitation

Station:(041484) CANOGA PARK PIERCE COLL													
From Year=1949 To Year=2003													
	Precipitation										Total Snowfall		
	Mean	High	Year	Low	Year	1 Day Max.	>=	>=	>=	>=	Mean	High	Year
	in.	in.	-	in.	-	in. dd/yyyy or yyyymmdd	# Days	# Days	# Days	# Days	in.	in.	-
January	3.71	16.80	95	0.00	72	4.62 11/2001	6	5	2	1	0.0	0.0	50
February	3.71	18.02	98	0.00	61	5.07 10/1992	6	4	2	1	0.0	0.5	89
March	2.83	12.39	83	0.00	56	6.06 01/1983	5	4	2	1	0.0	0.0	50
April	1.11	6.76	65	0.00	62	2.49 14/1988	3	2	1	0	0.0	0.0	50
May	0.25	4.06	98	0.00	50	2.00 08/1977	1	1	0	0	0.0	0.0	50
June	0.05	0.67	99	0.00	50	0.52 05/1993	0	0	0	0	0.0	0.0	50
July	0.01	0.17	95	0.00	49	0.17 16/1995	0	0	0	0	0.0	0.0	49
August	0.11	2.49	77	0.00	49	2.35 17/1977	1	0	0	0	0.0	0.0	49
September	0.16	2.26	76	0.00	49	1.12 10/1976	1	0	0	0	0.0	0.0	49
October	0.42	5.93	87	0.00	49	3.20 31/1987	2	1	0	0	0.0	0.0	49
November	1.87	12.60	65	0.00	56	6.57 29/1970	4	3	1	1	0.0	0.0	49
December	2.25	7.74	92	0.00	58	4.98 29/1965	5	3	2	1	0.0	0.0	49
Annual	16.48	38.48	83	3.92	53	6.57 19701129	34	22	10	5	0.0	0.5	89
Winter	9.67	30.13	93	1.94	64	5.07 19920210	16	12	6	3	0.0	0.5	89
Spring	4.19	15.67	83	0.00	97	6.06 19830301	10	6	3	1	0.0	0.0	50
Summer	0.16	2.49	77	0.00	50	2.35 19770817	1	0	0	0	0.0	0.0	50
Fall	2.46	12.78	65	0.00	80	6.57 19701129	6	4	2	1	0.0	0.0	49

Table updated on May 20, 2003

For monthly and annual means, thresholds, and sums:  
Months with 5 or more missing days are not considered  
Years with 1 or more missing months are not considered  
Seasons are climatological not calendar seasons

# CANOGA PARK PIERCE COLL, CALIFORNIA

## Period of Record General Climate Summary - Temperature

Station:(041484) CANOGA PARK PIERCE COLL														
From Year=1949 To Year=2003														
Monthly Averages			Daily Extremes			Monthly Extremes			Max. Temp.		Min. Temp.			
Max.	Min.	Mean	High	Date	Low	Date	Highest Mean	Year	Lowest Mean	Year	>=	<=	>=	<=
F	F	F	F	dd/yyyy or yyyymmdd	F	dd/yyyy or yyyymmdd	F	-	F	-	# Days	# Days	# Days	# Days
January	67.8	39.2	53.5	93	14/1975	19	07/1950	60.3	103	45.6	***	0.1	0.0	5.8
February	70.0	40.7	55.4	94	26/1986	18	06/1989	61.5	63	48.2	***	0.2	0.0	3.2
March	72.2	41.8	57.0	101	26/1988	26	13/1954	63.6	72	50.1	***	0.7	0.0	1.7
April	76.9	44.6	60.8	105	06/1989	30	09/1953	67.4	89	51.3	67	3.6	0.0	0.4
May	80.8	48.9	64.9	113	29/1984	33	04/1950	72.7	84	57.6	98	5.8	0.0	0.0
June	87.4	52.9	70.1	113	15/1961	36	07/1950	77.8	81	63.0	52	13.2	0.0	0.0
July	94.7	56.9	75.8	115	16/1960	42	01/1952	81.0	85	71.7	49	24.0	0.0	0.0
August	95.3	57.3	76.3	116	24/1985	42	06/1950	81.7	92	70.3	54	24.7	0.0	0.0
September	91.6	54.6	73.1	115	06/1955	38	20/1954	79.6	84	67.8	50	17.7	0.0	0.0
October	84.0	48.9	66.5	110	01/1980	27	30/1971	71.5	91	61.3	54	8.9	0.0	0.2
November	74.8	42.6	58.7	99	03/1975	23	17/1958	63.3	76	52.0	94	1.7	0.0	1.2
December	68.8	38.7	53.8	96	03/1958	20	29/1954	58.8	58	49.0	71	0.1	0.0	5.4
Annual	80.4	47.3	63.8	116	19850824	18	19890206	66.3	84	60.5	52	100.7	0.0	17.9
Winter	68.9	39.5	54.2	96	19581203	18	19890206	57.6	86	49.4	50	0.4	0.0	14.4

Spring	76.6	45.1	60.9	113	19840529	26	19540313	65.5	93	56.1	98	10.1	0.0	2.1	0.0
Summer	92.5	55.7	74.1	116	19850824	36	19500607	77.6	81	69.8	52	61.9	0.0	0.0	0.0
Fall	83.5	48.7	66.1	115	19550906	23	19581117	70.0	91	62.4	94	28.3	0.0	1.4	0.0

Table updated on May 20, 2003

For monthly and annual means, thresholds, and sums:

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

*Western Regional Climate Center, [wrcc@dri.edu](mailto:wrcc@dri.edu)*

## **APPENDIX B**

### **CARB Data**



California

Air Resources Board

ARB Home

AQD Home

Search

Site Map

Contact Us

View this  
page for  
another  
pollutant:

Hourly O<sub>3</sub>8-Hour O<sub>3</sub>

PM 10

PM 2.5

CO

NO<sub>2</sub>SO<sub>2</sub>H<sub>2</sub>S

Start Over:

Data  
Statistics  
Home

## Highest 4 Daily Maximum Hourly Ozone Measurements and Number of Days Above the Hourly Standards at Reseda parts per million

	2000			2001			2002		
High	Aug 16	0.109		Aug 26	0.140		May 30	0.152	
2nd High	Jul 30	0.106		Aug 12	0.125		Jul 10	0.147	
3rd High	Sep 17	0.106		Jul 02	0.121		Sep 24	0.138	
4th High	Aug 13	0.104		Aug 16	0.120		Sep 14	0.134	
*Days > State Standard	8			27			42		
*Days > National Standard	0			2			9		
**Year Coverage	100			100			99		

← Go Backward a Year

Go Forward a Year →

Make a New Request

\* The number of days at least one measurement was greater than the level of the state hourly standard (0.09 parts per million) or the national hourly standard (0.12 parts per million). The number of days above the standard is not necessarily the number of violations of the standard for the year.

\*\* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.





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[ARB Home](#)[AQD Home](#)[Search](#)[Site Map](#)[Contact Us](#)

View this  
page for  
another  
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[Hourly O<sub>3</sub>](#)[8-Hour O<sub>3</sub>](#)[PM<sub>10</sub>](#)[PM<sub>2.5</sub>](#)[CO](#)[NO<sub>2</sub>](#)[SO<sub>2</sub>](#)[H<sub>2</sub>S](#)

## Highest 4 Daily Maximum 8-Hour Ozone Averages and Number of Days Above the 8-Hour Standard at Reseda

parts per million

		2000		2001		2002	
High	Aug 13	0.084		Aug 26	0.116	Jul 10	0.121
2nd High	Sep 17	0.083		Aug 05	0.094	Aug 11	0.116
3rd High	Jul 30	0.082		Jul 02	0.091	Jul 09	0.113
4th High	May 28	0.080		Jul 27	0.090	Sep 24	0.111
*Days > Nat'l Standard		0		7		27	
**Year Coverage		100		100		99	

Start Over:

[Data](#)  
[Statistics](#)  
[Home](#)
[Go Backward a Year](#)[Make a New Request](#)

\* The number of days at least one overlapping 8-hour average was greater than the level of the national 8-hour standard (0.08 parts per million). The number of days above the standard is not the number of violations of the standard for the year.

\*\* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.



California

Air Resources Board

ARB Home

AQD Home

Search

Site Map

Contact Us

View this  
page for  
another  
pollutant:

Hourly O<sub>3</sub>8-Hour O<sub>3</sub>

PM 10

PM 2.5

CO

NO<sub>2</sub>SO<sub>2</sub>

Start Over:

Data  
Statistics  
Home

### Highest 4 Daily PM10 Measurements and Annual PM10 Statistics at Burbank-W Palm Avenue micrograms per cubic meter

		2000	2001	2002
High	Dec 20	74.0	Jan 07 86.0	Feb 07 71.0
2nd High	Jan 07	70.0	Jan 01 85.0	Feb 13 71.0
3rd High	Mar 13	62.0	May 01 85.0	Jan 14 66.0
4th High	Apr 06	60.0	Oct 22 79.0	Apr 14 62.0
Measured:				
*Days > State Standard	14		14	7
*Days > Nat'l Standard	0		0	0
Calculated:				
*Days > State Standard	84.0		83.0	42.0
*Days > Nat'l Standard	0.0		0.0	0.0
***State Annual Average	36		36	35
***Nat'l Annual Average	39		40	37
**3-Year Nat'l Average	40		41	39
****Year Coverage	99		100	95

[← Go Backward a Year](#)
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\* Measured days are those days that an actual measurement was greater than the level of the state daily standard (50 micrograms per cubic meter) or the national daily standard (150 micrograms per cubic meter). Measurements are typically collected every six days. Calculated days are the estimated number of days that a measurement would have been greater than the level of the standard had measurements been collected every day. The number of days above the standard is not necessarily the number of violations of the standard for the year.

\*\* The 3-year statistics include data from the listed year and the two years before the listed year.

\*\*\* The state annual average is a geometric mean of all measurements. The national annual average is an arithmetic average of the 4 arithmetic quarterly averages.

\*\*\*\* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.



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[ARB Home](#)
[AQD Home](#)
[Search](#)
[Site Map](#)
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View this  
page for  
another  
pollutant:

[Hourly O<sub>3</sub>](#)
[8-Hour O<sub>3</sub>](#)
[PM<sub>10</sub>](#)
[PM<sub>2.5</sub>](#)
[CO](#)
[NO<sub>2</sub>](#)
[H<sub>2</sub>S](#)

Start Over:

[Data  
Statistics  
Home](#)

## Highest 4 Daily Maximum 8-Hour Carbon Monoxide Averages and Number of Days Above the 8-Hour Standards at Reseda

parts per million

		2000		2001		2002	
High	Dec 01	9.83		Jan 04	6.13	Jan 13	4.83
2nd High	Jan 07	6.09		Jan 01	5.64	Dec 05	4.65
3rd High	Dec 20	5.93		Dec 26	4.48	Nov 21	4.61
4th High	Dec 30	5.69		Jan 05	4.34	Dec 25	4.54
*Days > State Standard		1		0		0	
*Days > Nat'l Standard		1		0		0	
**Year Coverage		99		98		97	

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\* The number of days at least one non-overlapping 8-hour average was greater than the level of the state 8-hour standard (9.0 parts per million) or the national 8-hour standard (9 parts per million). The number of days above the standard is not necessarily the number of violations of the standard for the year.

\*\* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.



California

Air Resources Board

ARB Home

AQD Home

Search

Site Map

Contact Us

View this  
page for  
another  
pollutant:

Hourly O<sub>3</sub>8-Hour O<sub>3</sub>PM<sub>10</sub>PM<sub>2.5</sub>

CO

NO<sub>2</sub>SO<sub>2</sub>H<sub>2</sub>S

Start Over:

Data  
Statistics  
Home

## Highest 4 Daily Maximum Hourly Nitrogen Dioxide Measurements and Number of Days Above the Hourly Standard

at Reseda  
parts per million

		2000	2001	2002
High	Dec 01	0.112	Oct 15 0.090	Sep 24 0.093
2nd High	Apr 27	0.100	Oct 13 0.087	Oct 08 0.084
3rd High	Nov 28	0.096	Oct 25 0.083	Feb 12 0.079
4th High	Dec 22	0.095	Oct 16 0.083	Sep 25 0.076
*Days > State Standard		0	0	0
Annual Average		0.028	0.026	0.024
**Year Coverage		100	100	99

[← Go Backward a Year](#)
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\* The number of days at least one measurement was greater than the level of the state hourly standard (0.25 parts per million). The number of days above the standard is not necessarily the number of violations of the standard for the year.

\*\* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.



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Start Over:

[Data  
Statistics  
Home](#)

### Highest 4 Daily Maximum 24-Hour Sulfur Dioxide Averages and Number of Days Above the 24-Hour Standards at Burbank-W Palm Avenue

parts per million

	2000		2001		2002	
High	Jan 15	0.004	Mar 04	0.005	Oct 08	0.007
2nd High	Jan 14	0.004	Mar 03	0.005	Oct 09	0.006
3rd High	Jan 29	0.003	Mar 02	0.005	Oct 07	0.006
4th High	Jan 16	0.003	Mar 01	0.005	Sep 24	0.005
*Days > State Standard		0		0		0
*Days > Nat'l Standard		0		0		0
Annual Average		0.001		0.001		0.002
**Year Coverage		100		100		97

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\* The number of days at least one non-overlapping 24-hour average was greater than the level of the state 24-hour standard (0.04 parts per million) or the national 24-hour standard (0.14 parts per million). The number of days above the standard is not necessarily the number of violations of the standard for the year.

\*\* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations are expected. Year coverage ranges from 0 to 100. For example, a Year Coverage of 75 indicates that monitoring occurred 75% of the time when high pollutant concentrations are expected. For the current year, Year Coverage will be 0 at the beginning of the year and will increase as the data for the year become available. Year Coverage is blank when the data history at the site is insufficient to determine when high concentrations are expected.

APPROXIMATELY 1000 TO 1100 HOURS

1000 HOURS, APPROXIMATELY 1000 TO 1100 HOURS

1000 HOURS, APPROXIMATELY 1000 TO 1100 HOURS

1000 HOURS, APPROXIMATELY 1000 TO 1100 HOURS

1000 HOURS, APPROXIMATELY 1000 TO 1100 HOURS

1000 HOURS, APPROXIMATELY 1000 TO 1100 HOURS

## **APPENDIX C**

### **Construction Emissions Calculation**

**TERRY A. HAYES ASSOCIATES**  
**CONSTRUCTION EMISSIONS MODEL**

<b>DATE</b>	<b>November 18, 2003</b>
<b>PROJECT NAME</b>	<b>Million Air Hangar</b>
<b>DEMOLITION PHASE</b>	
DURATION OF DEMOLITION PHASE (Work Days)	30
SF OF BUILDINGS TO BE DEMOLISHED	53,195
AVERAGE FLOOR HEIGHT OF BUILDINGS TO BE DEMOLISHED	25.0
SF OF PAVEMENT AREA TO BE REMOVED	58,515
THICKNESS OF PAVEMENT TO BE REMOVED	0.50
HOURS IN WORK DAY FOR THIS PHASE	8
HAUL TRUCK ROUND TRIP LENGTH	20
WORKER ROUND TRIP LENGTH	16
<b>GRADING AND/OR EXCAVATION PHASE</b>	
DURATION OF EXCAVATION PHASE (Work Days)	42
SITE AREA (ACRES)	6.98
HOURS IN WORK DAY FOR THIS PHASE	8
HAUL TRUCK ROUND TRIP LENGTH	20
WORKER ROUND TRIP LENGTH	16
DEPTH OF GRADING (Feet)	0.5
DEPTH OF EXCAVATION (Feet)	1.0
SURFACE AREA OF EXCAVATION IN SF	304,000
<b>FOUNDATION PHASE</b>	
DURATION OF FOUNDATION PHASE (Work Days)	54
SIZE OF FOUNDATION SLAB IN SF	110,725
SLAB THICKNESS IN SF	1
HOURS IN WORK DAY FOR THIS PHASE	8
CEMENT MIXER ROUND TRIP LENGTH	20
WORKER ROUND TRIP LENGTH	16
<b>FINISHING (ARCHITECTURAL COATING) PHASE</b>	
DURATION OF FINISHING PHASE (Work Days)	10
SF NON-RESIDENTIAL USE	110,725
NUMBER OF SINGLE FAMILY UNITS	-
NUMBER OF MULTI-FAMILY UNITS	-
WORKER ROUND TRIP LENGTH	16
<b>TRUCK CHARACTERISTICS</b>	
HAUL TRUCK CAPACITY IN CUBIC YARDS	14.00
TRUCK TRAVEL PERCENTAGE ON LOCAL STREET	10%
TRUCK TRAVEL PERCENTAGE ON MAJOR STREET	20%
TRUCK TRAVEL PERCENTAGE ON FREEWAY	70%
<b>WORKER AUTO CHARACTERISTICS</b>	
PERCENT WORKER AUTO TRAVEL ON LOCAL STREET	10%
PERCENT WORKER AUTO TRAVEL ON MAJOR STREET	30%
PERCENT WORKER AUTO TRAVEL ON FREEWAY	60%
<b>SITE CONDITIONS</b>	
PREDOMINANT WIND SPEED in MPH	4.0
NATIVE SOIL MOISTURE CONTENT	3%
SOIL MOISTURE CONTENT (MITIGATED)	10%



# TERRY A. HAYES ASSOCIATES

## CONSTRUCTION EMISSIONS MODEL

EMFAC2002 v:2.08 (grams per mile)					
Vehicle Type	CO	ROG	NO <sub>2</sub>	SO <sub>2</sub>	PM <sub>10</sub>
Haul Truck	7.356	0.734	12.59	0.14	0.319
Worker Vehicle	5.207	0.199	0.686	0.003	0.031
<b>Assumptions:</b>					
Construction Year	2004				
Season	Winter				
Temperature	45°F				
Speed	35 mph				

EQUIPMENT EMISSION FACTORS (pounds per hour)					
Equipment Type	CO	ROG	NO <sub>2</sub>	SO <sub>2</sub>	PM <sup>10</sup>
Crane/Dozer	0.675	0.15	1.7	0.143	0.14
Source: Table A9-8-A, SCAQMD CEQA Handbook					

OTHER EMISSION FACTORS		
ROG from Architectural Coating (with 25% transfer efficiency)	18.5	lb/1,000 ft <sup>2</sup>
ROG from Architectural Coating (with 65% transfer efficiency)	4.62	lb/1,000 ft <sup>2</sup>
Dry Film Thickness	17.5	Mils
Source: Table A9-10 and A9-13, SCAQMD CEQA Handbook		

PAVED ROAD PM10 EMISSIONS (per VMT)		
Road Type	PM <sup>10</sup> / VMT	
	Worker Vehicle	Haul Truck
Local Street	0.018000	0.2139583
Major Street/Highway	0.006400	0.1490958
Freeway	0.000650	0.0621706
Composite Factor**	0.004110	0.0947344
Source: Tables A9-9-B-1 and A9-9-C, SCAQMD CEQA Handbook **Note: Weighted average based on travel characteristics		

HAUL TRUCK ON UNPAVED SURFACE EMISSIONS	
<b>FORMULA:</b>	
$E = V \times F$	
<b>WHERE:</b>	
E = Emissions	
V = Vehicle Miles of Travel	
$F = \text{Emissions Factor } (2.1)(G/12)(H/30)((J/3)^{0.7})((I/4)^{0.5})((365-K)/365)$	
<b>VARIABLES</b>	
G = Surface silt loading in percent	
H = Mean vehicle speed in miles per hour	
I = Mean number of wheels on vehicles	
J = Mean vehicle weight in tons	
K = Mean number of days per year with at least 0.01 inches of precipitation	
EMISSIONS FACTOR = 5.55 pounds per vehicle miles traveled	
Source: Table A9-9-D, SCAQMD CEQA Handbook	

**TERRY A. HAYES ASSOCIATES  
CONSTRUCTION EMISSIONS MODEL**

<b>DAILY CONSTRUCTION EMISSIONS (POUNDS/DAY)</b>					
Million Air Hangar					
CONSTRUCTION PHASE	CO	ROG	NO <sub>2</sub>	SO <sub>2</sub>	PM <sup>10</sup> (with Rule 403)
DEMOLITION	26	4	44	2	81
GRADING/EXCAVATION	19	3	38	2	78
FOUNDATION	12	2	19	1	18
FINISHING	0	29	0.053	0.000	0.002
<b>MAXIMUM</b>	<b>26</b>	<b>29</b>	<b>44</b>	<b>2</b>	<b>81</b>
<b>SCAQMD THRESHOLD</b>	<b>550</b>	<b>75</b>	<b>100</b>	<b>150</b>	<b>150</b>
<b>EXCEED THRESHOLD?</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>	<b>NO</b>
SOURCE: TERRY A. HAYES ASSOCIATES LLC.					

# TERRY A. HAYES ASSOCIATES CONSTRUCTION EMISSIONS MODEL

## DEMOLITION PHASE EMISSIONS (in pounds per day)

Activity Emissions	Daily Unit Volume	PM <sup>10</sup> Factor **	PM <sup>10</sup>	(Rule 403) PM <sup>10</sup>
Building Wrecking	44,329 ft <sup>3</sup>	0.00042 per ft <sup>3</sup>	18.62	9.31
Pavement Breaking	975 ft <sup>3</sup>	0.00042 per ft <sup>3</sup>	0.41	0.20
Truck Loading	456 tons	0.02205 per ton	10.05	5.02
Trucks on Unpaved Surface	3.02 miles	5.55141 per vmt	16.77	8.38
** Source: Table A9-9, SCAQMD CEQA Handbook				

Equipment Emissions	Source Population	Activity Hours	CO	ROG	NOX	SOX	PM <sup>10</sup>
Dozer/Crane	2	8	10.80	2.40	27.20	2.29	2.24

Mobile Emissions	Daily VMT	CO	ROG	NOX	SOX	PM <sup>10</sup>
Haul Trucks	579	9.37	0.94	16.04	0.17	55.21
Worker Vehicles	534	6.12	0.23	0.81	0.00	2.23

TOTAL DAILY EMISSIONS (without Rule 403)	CO	ROG	NOX	SOX	PM <sup>10</sup>
Daily Area Source Emissions	10.80	2.40	27.20	2.29	48.08
Daily Mobile Emissions	15.50	1.17	16.85	0.18	57.45
<b>TOTAL</b>	<b>26.30</b>	<b>3.57</b>	<b>44.05</b>	<b>2.46</b>	<b>105.53</b>

TOTAL DAILY EMISSIONS (with Rule 403)	CO	ROG	NOX	SOX	PM <sup>10</sup>
Daily Area Source Emissions	10.80	2.40	27.20	2.29	24.04
Daily Mobile Emissions	15.50	1.17	16.85	0.18	57.45
<b>TOTAL</b>	<b>26.30</b>	<b>3.57</b>	<b>44.05</b>	<b>2.46</b>	<b>81.49</b>

## UNDERLING DEMOLITION PHASE CALCULATIONS

Bldg Vol CF	1,329,875
Bldg Vol CY	49,255
Pavement CF	29,257
Pavement CY	1,084
Total Debris CF	295,232
Total Debris CY	10,935
Numer of Haul Load @ 14.00 CY/load	868
Loads Per Hour	3.6
Number of Haul Loads per Day	29
CF Building Disturbed/Day	44,329
CF/Day Demolished	45,304
CY/Day Demolished	1,678
Tons of Debris Loaded per Day	456
Number of Dozers to Load @ 6 loads/hr/dozer	1
Numer of Diesel Equipment @ 900 CY/Piece	2
Total Man Hours Required	8,809
Total Work Crew Size	37
HDV Off Site VMT	579
HDV VMT on Unpaved Site (miles)	3.02
Number of Work Crew Vehicles @ 1.1 AVR	33
Work Crew Vehicle VMT - Local (miles)	534

# TERRY A. HAYES ASSOCIATES

## CONSTRUCTION EMISSIONS MODEL

### GRADING/EXCAVATION PHASE EMISSIONS (in pounds per day)

Activity Emissions (without Rule 403)	Silt Content	Moisture Content	Activity Hours	Wind Speed	Pounds per Day	PM <sup>10</sup>
Site Grading	15	3%	8	n/a	n/a	99.04
Earth Excavation	n/a	3%	n/a	4	536,155	80.35

Note: Calculation formulas are located in Tables A9-9-F and 9-9-G of the SCAQMD CEQA Handbook

Activity Emissions (with Rule 403)	Silt Content	Moisture Content	Activity Hours	Wind Speed	Pounds per Day	PM <sup>10</sup>
Site Grading	15	10%	8.0	n/a	n/a	18.36
Earth Excavation	n/a	10%	n/a	4	536,155	14.89

Note: Calculation formulas are located in Tables A9-9-F and 9-9-G of the SCAQMD CEQA Handbook

Activity Emissions	Daily VMT	Emissions Factor	PM <sup>10</sup>	PM <sup>10</sup> (with Rule 403)
Haul Truck on Unpaved Surface	2.00	5.55	11.10	5.55

Equipment Emissions	Source Population	Daily Hours	CO	ROG	NOX	SOX	PM <sup>10</sup>
Dozer/Shovel	2	8	10.80	2.40	27.20	2.29	2.24

Mobile Emissions	Daily VMT	CO	ROG	NOX	SOX	PM <sup>10</sup>
Haul Trucks	383	6.21	0.62	10.62	0.11	36.55
Worker Vehicles	204	2.34	0.09	0.31	0.00	0.85

TOTAL DAILY EMISSIONS (without Rule 403)	CO	ROG	NOX	SOX	PM <sup>10</sup>
Daily Area Source Emissions	10.80	2.40	27.20	2.29	192.72
Daily Mobile Emissions	8.54	0.71	10.93	0.12	37.40
TOTAL	19.34	3.11	38.13	2.40	230.12

TOTAL DAILY EMISSIONS (with Rule 403)	CO	ROG	NOX	SOX	PM <sup>10</sup>
Daily Area Source Emissions	10.80	2.40	27.20	2.29	41.04
Daily Mobile Emissions	8.54	0.71	10.93	0.12	37.40
TOTAL	19.34	3.11	38.13	2.40	78.44

## TERRY A. HAYES ASSOCIATES CONSTRUCTION EMISSIONS MODEL

### UNDERLING GRADING/EXCAVATION PHASE CALCULATIONS

Total Earth Export CY	11,259
Total Haul Truck Trips @ 14.00 CY	804
Total Earth Export Weight (in tons)	11,259
Daily Earth Export CY	268
Daily Haul Truck Trips @ 14.00 CY	19
Daily Earth Export Weight (in tons)	268
Haul Truck VMT on Unpaved Surface	2.00
HDV Off Site VMT	383
Total Work Crew Size	14
Number of Work Crew Vehicles @ 1.1 AVR	13
Work Crew Vehicle VMT - Local (miles)	204

### EQUIPMENT NEEDED FOR GRADING

Site Area in Acres	6.98
Grading Average Depth	0.50
Cubic Yards Graded	5,630
CY Graded/Day	134.04
D7 Dozer Output in CY/Day	216.00
Dozers Needed	1.00

### EQUIPMENT NEEDED FOR EXCAVATION

CY Exported	11,259
CY Exported/Day	268
Power Shovel Output in CY /Day	800
Power Shovels Needed	1.00

TOTAL EQUIPMENT NEEDED	2.00
------------------------	------

# **TERRY A. HAYES ASSOCIATES**

## **CONSTRUCTION EMISSIONS MODEL**

### **FOUNDATION PHASE EMISSIONS (in pounds per day)**

<b>Equipment</b>	<b>Source Population</b>	<b>Daily Hours</b>	<b>CO</b>	<b>ROG</b>	<b>NOX</b>	<b>SOX</b>	<b>PM<sup>10</sup></b>
Idling Cement Trucks	1.05	8	5.70	1.27	14.34	1.21	1.18

<b>Mobile</b>	<b>Daily VMT</b>	<b>CO</b>	<b>ROG</b>	<b>NOX</b>	<b>SOX</b>	<b>PM<sup>10</sup></b>
Cement Trucks	168.76	2.73	0.27	4.68	0.05	16.11
Worker Vehicles	279.61	3.21	0.12	0.42	0.00	1.17

<b>TOTAL DAILY EMISSIONS</b>	<b>CO</b>	<b>ROG</b>	<b>NOX</b>	<b>SOX</b>	<b>PM<sup>10</sup></b>
Daily Area Source Emissions	5.70	1.27	14.34	1.21	1.18
Daily Mobile Emissions	5.94	0.40	5.10	0.05	17.27
<b>TOTAL</b>	<b>11.64</b>	<b>1.66</b>	<b>19.45</b>	<b>1.26</b>	<b>18.46</b>

### **UNDERLING FOUNDATION PHASE CALCULATIONS**

CF of Cement Required	110,725
CY of Cement Required	4,101
No. of Cement Haul Loads @ 9CY/Load	456
Labor Hours Required	8,304
Total Worker Requirement	19
Number of Work Crew Vehicles @ 1.1 AVR	17
Number of Cement Loads per Day	8.44
Cement Loads Per Hour	1.05
CF/Day Poured	2,050.46
CY/Day Poured	75.94
HDV Off Site VMT	168.76
Work Crew Vehicle VMT	279.61

# TERRY A. HAYES ASSOCIATES

## CONSTRUCTION EMISSIONS MODEL

FINISHING (ARCHITECTURAL COATING) PHASE EMISSIONS (in pounds per day)

Activity Emissions (without mitigation)	Total Area to be Coated (sq. ft.)		CO	ROG	NOX	SOX	PM <sup>10</sup>
Architectural Coating- Nonresidential	Exterior Wall	22,145	-	7.17	-	-	-
	Interior Wall	66,435	-	21.51	-	-	-
Architectural Coating-Single Family Units	Exterior Wall	-	-	-	-	-	-
	Interior Wall	-	-	-	-	-	-
Architectural Coating-Multi Family Units	Exterior Wall	-	-	-	-	-	-
	Interior Wall	-	-	-	-	-	-
<b>TOTAL</b>			<b>0.00</b>	<b>28.68</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Activity Emissions (with mitigation)	Total Area to be Coated (x1,000 sf)		CO	ROG	NOX	SOX	PM <sup>10</sup>
Architectural Coating	Exterior Wall	22,145	-	1.79	-	-	-
	Interior Wall	66,435	-	5.37	-	-	-
Architectural Coating-Single Family Units	Exterior Wall	-	-	-	-	-	-
	Interior Wall	-	-	-	-	-	-
Architectural Coating-Multi Family Units	Exterior Wall	-	-	-	-	-	-
	Interior Wall	-	-	-	-	-	-
<b>TOTAL</b>			<b>0.00</b>	<b>7.16</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Mobile	Daily VMT	CO	ROG	NOX	SOX	PM <sup>10</sup>
Worker Vehicles	35	0.40	0.02	0.05	0.000	0.002

TOTAL DAILY EMISSIONS (without mitigation)	CO	ROG	NOX	SOX	PM <sup>10</sup>
Daily Area Source Emissions	0.00	28.68	0.00	0.00	0.00
Daily Mobile Emissions	0.40	0.02	0.05	0.000	0.002
<b>TOTAL</b>	<b>0.40</b>	<b>28.69</b>	<b>0.05</b>	<b>0.000</b>	<b>0.002</b>

### UNDERLING FINISHING PHASE CALCULATIONS

Total Non-Residential Building SF	110,725
SF Non-Residential Building Coated per Day	11,073
Number of SFU	-
Number of MFU	-
Total Number of SFU Building Coated per Day (dwelling units)	-
SF SFU per day	-
Total Number of MFU Building Coated per Day (dwelling units)	-
SF MFU per day	-
Total Work Crew Size	2
Number of Work Crew Vehicles @ 1.1 AVR	2
Worker Crew Vehicle VMT	35





# **APPENDIX D**

## **SCAQMD Rule 403**

*(Adopted May 7, 1976)(Amended November 6, 1992)*  
*(Amended July 9, 1993)(Amended February 14, 1997)*  
*(Amended December 11, 1998)*

## **RULE 403. FUGITIVE DUST**

### **(a) Purpose**

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

### **(b) Applicability**

The provisions of this rule shall apply to any activity or man-made condition capable of generating fugitive dust.

### **(c) Definitions**

- (1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.
- (2) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.
- (3) BEST AVAILABLE CONTROL MEASURES represent fugitive dust control actions which are required to be implemented within the boundaries of the South Coast Air Basin. A detailed listing of best available control measures for each fugitive dust source type shall be as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.
- (4) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.
- (5) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.
- (6) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading, crushing, cutting, planing, shaping or ground breaking.
- (7) CONTINGENCY NOTIFICATION means that the U.S. EPA has determined and notified the District in writing that  $PM_{10}$  contingency requirements must be implemented based on a finding that: (1)  $PM_{10}$  and  $PM_{10}$  precursor emissions reductions were less than required at any three-year

milestone reporting interval, or (2) the region failed to attain the PM<sub>10</sub> standards within the time frames allotted under the Federal Clean Air Act, or (3) if as part of an Attainment/Maintenance Plan, the region is no longer in attainment of the PM<sub>10</sub> standards.

(8) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.

(9) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

(A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) been paved or otherwise covered by a permanent structure; or

(C) sustained a vegetative ground cover over at least 95 percent of an area for a period of at least 6 months.

(10) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(11) EARTH-MOVING ACTIVITIES shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.

(12) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

(13) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.

(14) LARGE OPERATIONS means any active operations on property which contains in excess of 100 acres of disturbed surface area; or any earth-moving operation which exceeds a daily earth-moving or throughput volume of 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period.

(15) MEDIUM OPERATIONS means any active operations on property which contains between 50 and 100 acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of between 3,850 cubic meters (5,000 cubic yards) and 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period.

(16) NON-ROUTINE means any non-periodic active operation which occurs no more than three times per year, lasts less than 30 cumulative days per year, and is scheduled less than 30 days in advance.

(17) OPEN STORAGE PILE is any accumulation of bulk material with 5 percent or greater silt content which is not fully enclosed, covered or chemically stabilized, and which attains a height of

three feet or more and a total surface area of 150 or more square feet. Silt content level is assumed to be 5 percent or greater unless a person can show, by sampling and analysis in accordance with ASTM Method C-136 or other equivalent method approved in writing by the Executive Officer, the California Air Resources Board, and the U. S. EPA, that the silt content is less than 5 percent. The results of ASTM Method C-136 or equivalent method are valid for 60 days from the date the sample was taken.

(18) PARTICULATE MATTER means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

(19) PAVED ROAD means an improved street, highway, alley, public way, or easement that is covered by typical roadway materials excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

(20) PM<sub>10</sub> is particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(21) PROPERTY LINE means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

(22) REASONABLY AVAILABLE CONTROL MEASURES are appropriate techniques and procedures used to prevent or reduce the emission and airborne transport of fugitive dust, outside the boundaries of the South Coast Air Basin. These include, but are not limited to, application of dust suppressants, use of coverings or enclosures, paving, enshrouding, planting, reduction of vehicle speeds, and other measures as specified by the Executive Officer. A detailed listing of reasonably available control measures for each fugitive dust source type shall be as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(23) SILT means any aggregate material with a particle size less than 74 micrometers in diameter which passes through a No. 200 Sieve.

(24) SIMULTANEOUS SAMPLING means the operation of two PM<sub>10</sub> samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.

(25) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

(26) STABILIZED SURFACE means:

(A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;

(B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.

(27) UNPAVED ROADS are any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by one of the following: concrete, asphaltic concrete, recycled asphalt, asphalt or other materials with equivalent performance as determined by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

(28) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(29) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.

(30) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.

#### (d) Requirements

(1) A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source.

(2) A person conducting active operations within the boundaries of the South Coast Air Basin shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.

(3) A person conducting active operations outside the boundaries of the South Coast Air Basin may utilize reasonably available control measures in lieu of best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.

(4) A person shall not cause or allow  $PM_{10}$  levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for  $PM_{10}$  monitoring. If sampling is conducted, samplers shall be:

(A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for  $PM_{10}$ .

(B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.

(5) Any person in the South Coast Air Basin shall:

(A) prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations; or

(B) take at least one of the actions listed in Table 3 and:

(i) prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations; and

(ii) remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.

**(e) Contingency Requirements**

When a contingency notification has occurred, the requirements of this subdivision shall become effective in the county subject to the notification 60 days after the first publication date in newspapers of general circulation in that county. Such publication shall specify that a contingency notification has occurred, and that any person who conducts or authorizes the conducting of a medium operation shall be required to comply with the provisions of subdivision (f), in addition to the requirements of subdivision (d).

**(f) Special Requirements for Large Operations, and Medium Operations Under a Contingency Notification**

(1) Any person who conducts or authorizes the conducting of either a large operation which is subject to the requirements of this rule, or a medium operation under a contingency notification as set forth in subdivision (e), shall either:

(A) take the actions specified in Tables 1 and 2 for each applicable source of fugitive dust within the property lines and shall:

(i) notify the Executive Officer not more than 7 days after qualifying as a large operation or as a medium operation under a contingency notification;

(ii) include, as part of the notification, the items specified in subparagraphs (f)(3)(A) and (f) (3)(B);

(iii) maintain daily records to document the specific actions taken;

(iv) maintain such records for a period of not less than 6 months; and

(v) make such records available to the Executive Officer upon request; or

(B) obtain an approved fugitive dust emissions control plan (plan).

(2) Any person subject to paragraph (f)(1) who elects to obtain an approved fugitive dust emission control plan must submit the plan to the Executive Officer no later than 30 days after the activity becomes a large operation.

(3) Any plan prepared pursuant to subparagraph (f)(1)(B) shall include:

(A) The name(s), address(es), and phone number(s) of the person(s) responsible for the preparation, submittal, and implementation of the plan;

(B) A description of the operation(s), including a map depicting the location of the site;

- (C) A listing of all sources of fugitive dust emissions within the property lines;
  - (D) A description of the required control measures as applied to each of the sources identified in subparagraph (f)(3)(C). The description must be sufficiently detailed to demonstrate that the applicable best available control measures or reasonably available control measures will be utilized and/or installed during all periods of active operations.
- (4) In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of the required control measure for any of the sources identified in subparagraph (f)(3)(C), a justification statement must be provided in lieu of the description required in subparagraph (f)(3)(D). The justification statement must explain the reason (s) why the required control measures cannot be implemented.
- (5) Within 30 calendar days of the receipt of a plan submitted pursuant to subparagraph (f)(1)(B), the Executive Officer will either approve, conditionally approve, or disapprove the plan, in writing. For a plan to be approved or conditionally approved, three conditions must be satisfied:
- (A) All sources of fugitive dust emissions must be identified (e.g., earth-moving, storage piles, vehicular traffic on unpaved roads, etc.).
  - (B) For each source identified, at least one of the required control measures must be implemented, or an acceptable justification statement pursuant to paragraph (f)(4) must be provided; and
  - (C) If, after implementation of the required control measures, visible dust emissions are crossing the property line(s), then high wind measures (e.g., increased watering) must be specified for immediate implementation.
- (6) Conditional approval will be made if conditions are met, but the stated measures do not satisfactorily conform to the guidance contained in the applicable Rule 403 Implementation Handbook. If a plan is conditionally approved, the conditions necessary to modify the plan will be provided in writing to the person(s) identified in subparagraph (f)(3)(A). Such modifications must be incorporated into the plan within 30 days of the receipt of the notice of conditional approval, or the plan shall be disapproved. A letter to the Executive Officer stating that such modifications will be incorporated into the plan shall be deemed sufficient to result in approval of the plan.
- (7) If a plan is disapproved by the Executive Officer:
- (A) The reasons for disapproval shall be given to the applicant in writing.
  - (B) Within 7 days of the receipt of a notice of a disapproved plan, the applicant shall comply with the actions specified in Tables 1 and 2 for each applicable source of fugitive dust within the property lines.
  - (C) The applicant may resubmit a plan at any time after receiving a disapproval notification, but will not be relieved of complying with subparagraph (f)(7)(B) until such time as the plan has been approved.
- (8) Failure to comply with any of the provisions in an approved or conditionally approved plan shall be a violation of subdivision (f).
- (9) Any approved plan shall be valid for a period of one year from the date of approval or

conditional approval of the plan. Plans must be resubmitted annually, at least 60 days prior to the expiration date, or the plan shall become disapproved as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously approved plan, the resubmittal may contain a simple statement of no-change. Otherwise, a resubmittal must contain all the items specified in subparagraphs (f)(3)(A through D).

(10) Any person subject to the requirements of paragraph (f)(1) who no longer exceeds, and does not expect to exceed for a period of at least one year, the criteria for a large operation or a medium operation under a contingency notification may request a reclassification as a non-large operation not subject to subparagraph (f). To obtain this reclassification, a person must submit a request in writing to the Executive Officer specifying the conditions which have taken place to reduce the disturbed surface area and/or the earth-moving or throughput conditions to levels below the criteria for large operations. A person must further indicate that the criteria for large operations are not expected to be exceeded during the subsequent 12-month period. The Executive Officer shall either approve or disapprove the reclassification within 60 days from receipt of the reclassification request. The Executive Officer will disapprove the request if the indicated changes can not be verified to be below the criteria for large operations or a medium operation under a contingency notification. If approved, the person shall be relieved of all requirements under subdivision (f). Any person so reclassified would again be subject to the requirements of subdivision (f) if at any time subsequent to the reclassification the criteria for large operations or a medium operation under a contingency notification are met.

(11) A person responsible for more than one operation subject to subparagraph (f) at non-contiguous sites may submit one plan covering multiple sites provided that:

(A) the contents of the plan apply similarly to all sites; and

(B) specific information is provided for each site, including, map of site location, address, description of operations, and a listing of all sources of fugitive dust emissions within the property lines.

#### **(g) Compliance Schedule**

All the newly amended provisions of this rule shall become effective upon adoption of this Rule Amendment. Pursuant to subdivision (f), any fugitive dust emission control plan which has been approved or conditionally approved prior to the date of adoption of these amendments shall remain in effect and the plan approval date and annual resubmittal date shall remain unchanged. If any changes to such plans are necessary as a result of these amendments, such changes shall not be required until the annual resubmittal date, pursuant to paragraph (f)(9).

#### **(h) Exemptions**

(1) The provisions of this rule shall not apply to:

(A) Agricultural operations outside the boundaries of the South Coast Air Basin, agricultural operations directly related to the raising of fowls or animals, and agricultural operations conducted within the boundaries of the South Coast Air Basin provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(B) Agricultural operations within the South Coast Air Basin, until June 30, 1999, whose combined disturbed surface area includes more than 10 acres. All provisions of this Rule



shall become applicable to agricultural operations exceeding 10 acres beginning July 1, 1999, excluding those listed in (h)(1)(A), unless the person responsible for such operations voluntarily implements the conservation practices contained in the most recent Rule 403 Agricultural Handbook, now or hereafter adopted by the Governing Board. The person responsible for such operations must complete and maintain the self-monitoring form documenting sufficient conservation practices, as described in the Rule 403 Agricultural Handbook, and must make it available to the Executive Officer upon request.

(C) Any disturbed surface area less than one-half (1/2) acre on property zoned for residential uses.

(D) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

(E) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.

(F) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.

(G) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.

(H) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

(i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; or

(ii) any disking or similar operation which cuts into and disturbs the soil is used and meets the following conditions:

[a] A determination is made by the issuing agency of the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (h)(1)(H)(i); and

[b] Such determination is made in writing and provided to the person conducting the weed abatement operation prior to beginning such activity; and

[c] Such written determination is provided to the Executive Officer upon request from the person conducting the weed abatement operation.

(Note: The provisions of clause (h)(1)(H)(ii) do not exempt the owner of any property from controlling fugitive dust emissions emanating from disturbed surface areas which have been created as a result of the weed abatement actions.)

(I) sandblasting operations.

(2) The provisions of paragraphs (d)(1) and (d)(4) shall not apply:

- (A) When wind gusts exceed 25 miles per hour, provided that:
- (i) The required control measures for high wind conditions are implemented for each applicable fugitive dust source type, as specified in Table 1, and;
  - (ii) Records are maintained in accordance with clauses (f)(1)(A)(iii), (f)(1)(A)(iv) and (f)(1)(A)(v); and
  - (iii) In the event there are technical (e.g., non-economic) reasons, including safety, why any of the required control measures in Table 1 cannot be implemented for one or more fugitive dust source categories, a person submits a "High Wind Fugitive Dust Control Plan" (HW-Plan). The HW-Plan must further provide an alternative measure of fugitive dust control, if technically feasible. Such plan will be subject to the same approval conditions as specified in subparagraphs (f)(5) and (f)(6).
- (B) To unpaved roads, provided such roads:
- (i) are used solely for the maintenance of wind-generating equipment; or
  - (ii) are unpaved public alleys as defined in Rule 1186; or
  - (iii) meet all of the following criteria:
    - [a] are less than 50 feet in width at all points along the road;
    - [b] are within 25 feet of the property line; and
    - [c] have a traffic volume less than 20 vehicle-trips per day.
- (C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act.
- (D) To non-routine or emergency maintenance of flood control channels and water spreading basins.
- (3) The provisions of paragraphs (d)(1), (d)(2), and (d)(4) shall not apply to:
- (A) Blasting operations which have been permitted by the California Division of Industrial Safety; and
  - (B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.
- (4) The provisions of paragraph (d)(4) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for each applicable fugitive dust source type. To qualify for this exemption, a person must:
- (A) maintain records to document the dates of active operations, all applicable fugitive dust source types, and the actions taken consistent with Table 2;
  - (B) retain such records for a period of at least six months; and

(C) make such records available to the Executive Officer upon request.

(5) The provisions of paragraph (d)(5) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles.

(6) The provisions of subdivision (f) shall not apply to:

(A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks;

(B) any construction and/or earth-moving activity in which the completion date is expected to be less than 60 days after the beginning date. To qualify for this exemption, a person must:

(i) notify the Executive Officer not more than 7 days after qualifying as a large operation or a medium operation under a contingency notification;

(ii) include, as part of the notification, the items specified in subparagraphs (f)(3)(A) and (f)(3)(B); and

(iii) take the actions specified in Tables 1 and 2 at such time as the construction and/or earth-moving activities extend more than 60 days after qualifying as a large operation or a medium operation under a contingency notification.

(C) any large operation or a medium operation under a contingency notification which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance. To qualify for this exemption, a person must submit a copy of the city- or county-approved dust control plan to the Executive Officer within 30 days of the effective date of this rule or within 30 days of receiving approval from the city or county government, whichever is later.

(D) any large operation or a medium operation under a contingency notification subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.

**(i) Fees**

(1) Any person subject to a plan submittal pursuant to subparagraph (f)(1)(B) or clause (h)(2)(A)(iii) or subparagraph (h)(1)(B) shall be assessed applicable filing and evaluation fees pursuant to Rule 306. Any person who simultaneously submits a plan pursuant to subparagraph (f)(1)(B) and clause (h)(2)(A)(iii) shall, for the purpose of this rule, be deemed to submit one plan.

(2) The submittal of an annual statement of no-change, pursuant to paragraph (f)(9), shall not be considered as an annual review, and therefore shall not be subject to annual review fees, pursuant to Rule 306.

(3) The owner/operator of any facility for which the Executive Officer conducts upwind/downwind monitoring for PM<sub>10</sub> pursuant to paragraph (d)(4) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(4) or meets the requirements of paragraph (d)(4).

**TABLE 1**  
**BEST [REASONABLY] AVAILABLE CONTROL MEASURES FOR HIGH WIND**  
**CONDITIONS**

<b>FUGITIVE DUST SOURCE CATEGORY</b>		<b>CONTROL MEASURES</b>
<b>Earth-moving</b>	(1A)	Cease all active operations; OR
	(2A)	Apply water to soil not more than 15 minutes prior to moving such soil.
<b>Disturbed surface areas</b>	(0B)	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR
	(1B)	Apply chemical stabilizers prior to wind event; OR
	(2B)	Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR
	(3B)	Take the actions specified in Table 2, Item (3c); OR
	(4B)	Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
<b>Unpaved roads</b>	(1C)	Apply chemical stabilizers prior to wind event; OR
	(2C)	Apply water twice [once] per hour during active operation; OR
	(3C)	Stop all vehicular traffic.
<b>Open storage piles</b>	(1D)	Apply water twice [once] per hour; OR
	(2D)	Install temporary coverings.
<b>Paved road track-out</b>	(1E)	Cover all haul vehicles; OR
	(2E)	Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
<b>All Categories</b>	(1F)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 1 may be used.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

**TABLE 2**  
**DUST CONTROL ACTIONS FOR EXEMPTION FROM PARAGRAPH (d)(4)**

<b>FUGITIVE DUST SOURCE CATEGORY</b>		<b>CONTROL ACTIONS</b>
<b>Earth-moving (except construction)</b>	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources

cutting and filling areas, and mining operations)		Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 [70] percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 [70] percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to

		maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 [30] days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

<b>FUGITIVE DUST SOURCE CATEGORY</b>		<b>CONTROL ACTIONS</b>
<b>Unpaved Roads</b>	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
<b>Open storage piles</b>	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 [70] percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
<b>All Categories</b>	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

\* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

**TABLE 3**  
**TRACK-OUT CONTROL OPTIONS**  
**PARAGRAPH (d)(5)(B)**

**CONTROL OPTIONS**

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
-----	--

(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.





# **APPENDIX E**

## **EDMS Printouts**

## EDMS 4.11 Model Inputs for Study existing

Date: Tuesday, December 02, 2003

Study Created: Monday, November 17, 2003

Study Pathname: C:\\_LI-TEMP\million air\Existing\existing\existing.EDM

Airport: VAN NUYS

CA VNY

Airport Location (lat / lon): 34-12-35.316N 118-29-23.904W

Field elevation: 799 (feet MSL)

Average temperature: 59.0

Mixing Height: 3000 (feet)

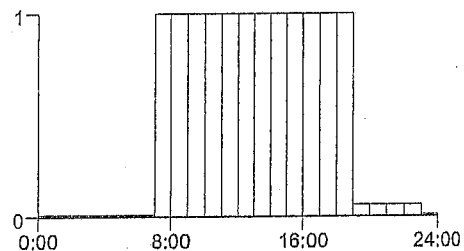
Year being studied: 2011

This study is an analysis of Emissions only.  
GSE are modeled based upon aircraft LTO.

### Hourly Operational Profiles

Name: DEFAULT

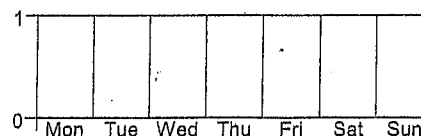
Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.0100	9	1.0000	17	1.0000
2	0.0100	10	1.0000	18	1.0000
3	0.0100	11	1.0000	19	1.0000
4	0.0100	12	1.0000	20	0.0600
5	0.0100	13	1.0000	21	0.0600
6	0.0100	14	1.0000	22	0.0600
7	0.0100	15	1.0000	23	0.0600
8	1.0000	16	1.0000	24	0.0100



## Daily Operational Profiles

Name: DEFAULT

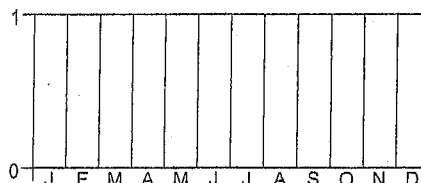
Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.0000	Friday	1.0000
Tuesday	1.0000	Saturday	1.0000
Wednesday	1.0000	Sunday	1.0000
Thursday	1.0000		



## Monthly Operational Profiles

Name: DEFAULT

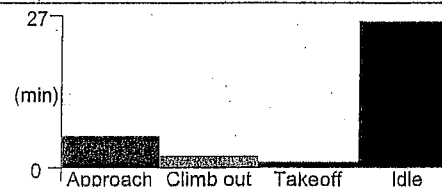
Month	Fraction of Peak	Month	Fraction of Peak
January	1.0000	July	1.0000
February	1.0000	August	1.0000
March	1.0000	September	1.0000
April	1.0000	October	1.0000
May	1.0000	November	1.0000
June	1.0000	December	1.0000



## Aircraft

Aircraft Name:	Annual LTOs:	72
Gulfstream III	Annual TGO:	0
Engine Type:	Hourly Operational Profile:	DEFAULT
SPEY MK511-8	Daily Operational Profile:	DEFAULT
Identification:	Monthly Operational Profile:	DEFAULT
Gulfstream III	Category:	LCJP

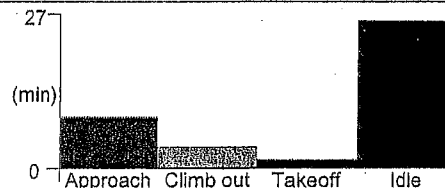
Takeoff weight (lbs):	46500
Approach angle (°):	3
Takeoff Time (minutes):	1.08
Climb out Time (minutes):	2.03
Approach Time (minutes):	5.65
Total Idle Time (minutes):	26.34
Taxi & Queue Time (minutes):	26.00



Assigned APU:	APU GTCP 36 (80HP)	Op Time (mins):	26.00
No GSE assigned.			

Aircraft Name:	Annual LTOs:	15120
Cessna 172 Skyhawk	Annual TGO:	0
Engine Type:	Hourly Operational Profile:	DEFAULT
TSIO-360C	Daily Operational Profile:	DEFAULT
Identification:	Monthly Operational Profile:	DEFAULT
Piston-SE	Category:	SGPP

Takeoff weight (lbs):	2200
Approach angle (°):	3
Takeoff Time (minutes):	1.68
Climb out Time (minutes):	3.72
Approach Time (minutes):	9.06
Total Idle Time (minutes):	26.11
Taxi & Queue Time (minutes):	26.00

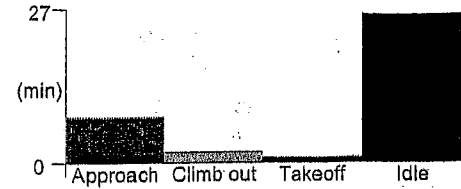


No APU assigned.  
No GSE assigned.

Aircraft Name:	Annual LTOs:	1680
Cessna 441 Conquest2	Annual TGO:	0
Engine Type:	Hourly Operational Profile:	DEFAULT
TPE331-8	Daily Operational Profile:	DEFAULT
Identification:	Monthly Operational Profile:	DEFAULT
Piston-ME	Category:	SGTP

existing

Takeoff weight (lbs): 3000  
Approach angle (°): 3  
Takeoff Time (minutes): 1.03  
Climb out Time (minutes): 1.87  
Approach Time (minutes): 8.09  
Total Idle Time (minutes): 26.09  
Taxi & Queue Time (minutes): 26.00



No APU assigned.  
No GSE assigned.

### User-Created Aircraft

\*\*My Airplane  
Category: HCJP  
# of Engines: 2  
Flight Profile: A340-300 CFM56-5C4  
Times in mode are default EPA values.  
Engines Emissions Data Source: TRENT-890

### User-Created GSE

\*\*My Gse  
Default Operating Time per LTO (minutes): 7.00  
Default Annual Operating Time (hours): 333  
Default Power Rating (Horsepower): 425  
Default Load Factor: 0.9000  
Emissions data is based upon the following system GSE type operating in the specified year.  
Gse Type: Air Start, 180 PPM  
Operating Year: 2009  
Default Fuel: Diesel

### User-Created APUs

\*\*My APU  
Default Operating Time per LTO (minutes): 26.00  
Emissions Data Source: APU WR27-1

End of Report

## EDMS 4.11 Emissions Inventory Report

*Airport: VAN NUYS*

*Study Name: existing*

*Report Date: 12/01/03*

### *SUMMARY* *(Tons/Year)*

NAME	CO	HC	NOx	SOx	PM10
Aircraft	169.886	6.952	77.784	.276	.000
GSE/AGE/APU	.007	.001	.035	.003	.000
Total	169.893	6.953	77.819	.279	.000

# AIRCRAFT EMISSIONS

(Tons/Year)

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
Gulfstream III	SPEY MK511-8	APCH	.040	.003	.108	.015	.000
		CLMB	.009	.002	.243	.014	.000
		TKOF	.001	.001	.208	.009	.000
		TAXI	1.012	.118	.115	.032	.000
		TOTAL	1.062	.124	.674	.070	.000
		APU	.007	.001	.035	.003	.000
		GSE	.000	.000	.000	.000	.000
Cessna 172 Skyhawk Piston-SE	TSIO-360C	APCH	69.325	.766	31.422	.008	.000
		CLMB	44.687	.442	20.274	.005	.000
		TKOF	30.483	.259	13.858	.003	.000
		TAXI	22.413	5.225	10.184	.004	.000
		TOTAL	166.908	6.692	75.738	.020	.000
		APU	.000	.000	.000	.000	.000
		GSE	.000	.000	.000	.000	.000
Cessna 441 Bismarck	TPE331-8	APCH	.295	.013	.643	.068	.000
		CLMB	.034	.001	.239	.022	.000
		TKOF	.018	.000	.144	.013	.000
		TAXI	1.570	.124	.345	.083	.000
		TOTAL	1.917	.138	1.371	.186	.000
		APU	.000	.000	.000	.000	.000
		GSE	.000	.000	.000	.000	.000

## EDMS 4.11 Model Inputs for Study millionair\_hangar

---

Date: Tuesday, December 02, 2003

Study Created: Monday, November 17, 2003

Study Pathname: C:\\_LI-TEMP\million air\millionair\_hangar\millionair\_hangar.EDM

Airport: VAN NUYS

CA VNY

Airport Location (lat / lon): 34-12-35.315N 118-29-23.904W

Field elevation: 799 (feet MSL)

Average temperature: 64.0

Mixing Height: 3000 (feet)

Year being studied: 2011

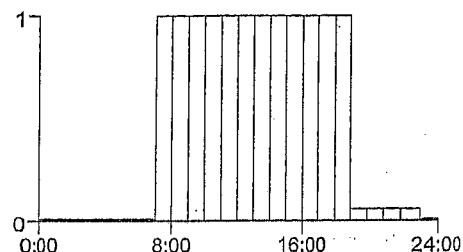
This study is an analysis of Emissions only.  
GSE are modeled based upon aircraft LTO.

---

## Hourly Operational Profiles

Name: DEFAULT

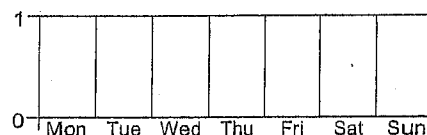
Hour	Fraction of Peak	Hour	Fraction of Peak	Hour	Fraction of Peak
1	0.0100	9	1.0000	17	1.0000
2	0.0100	10	1.0000	18	1.0000
3	0.0100	11	1.0000	19	1.0000
4	0.0100	12	1.0000	20	0.0600
5	0.0100	13	1.0000	21	0.0600
6	0.0100	14	1.0000	22	0.0600
7	0.0100	15	1.0000	23	0.0600
8	1.0000	16	1.0000	24	0.0100



## Daily Operational Profiles

Name: DEFAULT

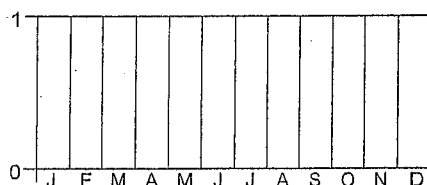
Day	Fraction of Peak	Day	Fraction of Peak
Monday	1.0000	Friday	1.0000
Tuesday	1.0000	Saturday	1.0000
Wednesday	1.0000	Sunday	1.0000
Thursday	1.0000		



## Monthly Operational Profiles

Name: DEFAULT

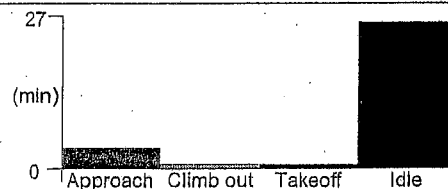
Month	Fraction of Peak	Month	Fraction of Peak
January	1.0000	July	1.0000
February	1.0000	August	1.0000
March	1.0000	September	1.0000
April	1.0000	October	1.0000
May	1.0000	November	1.0000
June	1.0000	December	1.0000



## Aircraft

Aircraft Name: Gulfstream V  
 Engine Type: BR700-710A1-10 GulfV  
 Identification: GV  
 Annual LTOs: 1008  
 Annual TGO: 0  
 Hourly Operational Profile: DEFAULT  
 Daily Operational Profile: DEFAULT  
 Monthly Operational Profile: DEFAULT  
 Category: LCJP

Takeoff weight (lbs): 71700  
 Approach angle (°): 3  
 Takeoff Time (minutes): 0.78  
 Climb out Time (minutes): 0.68  
 Approach Time (minutes): 3.65  
 Total Idle Time (minutes): 26.22  
 Taxi & Queue Time (minutes): 26.00

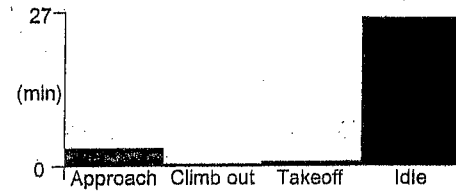


Assigned APU: APU GTCP 36 (80HP)  
 No GSE assigned.  
 Op Time (mins): 26.00

Aircraft Name: A-4M SKYHAWK  
 Engine Type: J52-P-408  
 Identification: Hawker  
 Annual LTOs: 1080  
 Annual TGO: 0  
 Hourly Operational Profile: DEFAULT  
 Daily Operational Profile: DEFAULT  
 Monthly Operational Profile: DEFAULT  
 Category: SMJA



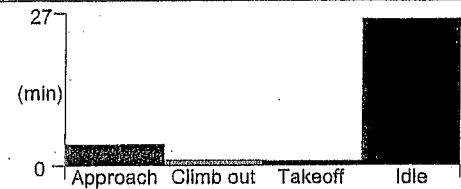
Takeoff weight (lbs): 25000  
 Approach angle (°): 3  
 Takeoff Time (minutes): 0.94  
 Climb out Time (minutes): 0.31  
 Approach Time (minutes): 3.22  
 Total Idle Time (minutes): 26.36  
 Taxi & Queue Time (minutes): 26.00



No APU assigned.  
 No GSE assigned.

Aircraft Name: B737-800  
 Engine Type: CFM56-7B26  
 Identification: Boeing Business Jet  
 Annual LTOs: 240  
 Annual TGO: 0  
 Hourly Operational Profile: DEFAULT  
 Daily Operational Profile: DEFAULT  
 Monthly Operational Profile: DEFAULT  
 Category: LCJP

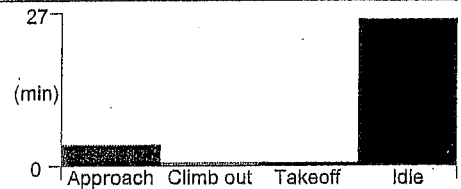
Takeoff weight (lbs): 122000  
 Approach angle (°): 3  
 Takeoff Time (minutes): 0.90  
 Climb out Time (minutes): 0.90  
 Approach Time (minutes): 3.79  
 Total Idle Time (minutes): 26.38  
 Taxi & Queue Time (minutes): 26.00



Assigned APU: APU 131-9  
 No GSE assigned. Op Time (mins): 26.00

Aircraft Name: Bombardier Global Ex  
 Engine Type: BR700-710A2-20  
 Identification: Global Express  
 Annual LTOs: 360  
 Annual TGO: 0  
 Hourly Operational Profile: DEFAULT  
 Daily Operational Profile: DEFAULT  
 Monthly Operational Profile: DEFAULT  
 Category: LCJB

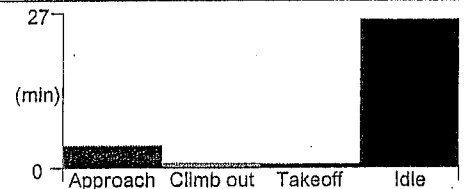
Takeoff weight (lbs): 131021  
 Approach angle (°): 3  
 Takeoff Time (minutes): 0.65  
 Climb out Time (minutes): 0.55  
 Approach Time (minutes): 3.73  
 Total Idle Time (minutes): 26.28  
 Taxi & Queue Time (minutes): 26.00



Assigned APU: APU GTCP 85 (200 HP)  
 No GSE assigned. Op Time (mins): 26.00

Aircraft Name: CITATION X  
 Engine Type: AE3007C  
 Identification: Citation X  
 Annual LTOs: 192  
 Annual TGO: 0  
 Hourly Operational Profile: DEFAULT  
 Daily Operational Profile: DEFAULT  
 Monthly Operational Profile: DEFAULT  
 Category: SGJB

Takeoff weight (lbs): 36000  
 Approach angle (°): 3  
 Takeoff Time (minutes): 0.75  
 Climb out Time (minutes): 0.74  
 Approach Time (minutes): 3.95  
 Total Idle Time (minutes): 26.25  
 Taxi & Queue Time (minutes): 26.00

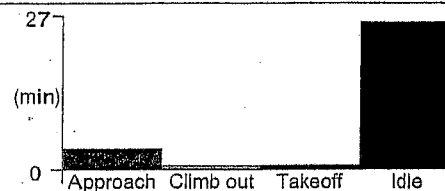


No APU assigned.

No GSE assigned.

Aircraft Name:	Annual LTOs:	432
CL604	Annual TGO:	0
Engine Type:	Hourly Operational Profile:	DEFAULT
CF34-3B	Daily Operational Profile:	DEFAULT
Identification:	Monthly Operational Profile:	DEFAULT
Challenger Boy	Category:	LGJB

Takeoff weight (lbs):	43100
Approach angle (°):	3
Takeoff Time (minutes):	0.85
Climb out Time (minutes):	0.68
Approach Time (minutes):	3.78
Total Idle Time (minutes):	26.26
Taxi & Queue Time (minutes):	26.00



No APU assigned.

No GSE assigned.

## User-Created Aircraft

**My Airplane	Category:	HCJP	
	# of Engines:	2	
	Flight Profile:	A340-300	CFM56-5C4
	Times in mode are default EPA values.		
	Engines Emissions Data Source:	TRENT-890	

## User-Created GSE

**My Gse	Default Operating Time per LTO (minutes):	7.00
	Default Annual Operating Time (hours):	333
	Default Power Rating (Horsepower):	425
	Default Load Factor:	0.9000
	Emissions data is based upon the following system GSE type operating in the specified year.	
	Gse Type:	Air Start, 180 PPM
	Operating Year:	2009
	Default Fuel:	Diesel

## User-Created APUs

**My APU	Default Operating Time per LTO (minutes):	26.00
	Emissions Data Source:	APU WR27-1

End of Report

## EDMS 4.11 Emissions Inventory Report

*Airport: VAN NUYS*

*Study Name: millionair\_hangar*

*Report Date: 12/01/03*

### *SUMMARY* *(Tons/Year)*

NAME	CO	HC	NOx	SOx	PM10
Aircraft	30.186	6.577	11.651	1.300	.000
GSE/AGE/APU	.494	.031	.663	.080	.000
Total	30.680	6.608	12.314	1.380	.000

# AIRCRAFT EMISSIONS

(Tons/Year)

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
Gulfstream V GV	BR700-710A1-10 GulfV	APCH	.498	.005	.800	.104	.000
		CLMB	.050	.001	.812	.054	.000
		TKOF	.077	.001	1.393	.074	.000
		TAXI	8.656	.339	1.459	.311	.000
		TOTAL	9.281	.346	4.464	.543	.000
		APU	.099	.007	.487	.048	.000
		GSE	.000	.000	.000	.000	.000
A-4M SKYHAWK Hawker	J52-P-408	APCH	.821	.103	.455	.040	.000
		CLMB	.044	.014	.232	.012	.000
		TKOF	.118	.046	.988	.043	.000
		TAXI	10.347	5.238	.440	.100	.000
		TOTAL	11.330	5.401	2.115	.195	.000
		APU	.000	.000	.000	.000	.000
		GSE	.000	.000	.000	.000	.000
B737-800 Boeing Business Jet	CFM56-7B26	APCH	.065	.004	.439	.041	.000
		CLMB	.017	.003	.642	.029	.000
		TKOF	.007	.003	1.005	.035	.000
		TAXI	1.779	.180	.445	.095	.000
		TOTAL	1.868	.190	2.531	.200	.000
		APU	.065	.005	.088	.013	.000
		GSE	.000	.000	.000	.000	.000
Bombardier Global Ex Global Express	BR700-710A2-20	APCH	.183	.002	.292	.038	.000
		CLMB	.014	.000	.234	.016	.000
		TKOF	.023	.000	.414	.022	.000
		TAXI	3.119	.125	.520	.111	.000
		TOTAL	3.339	.127	1.460	.187	.000
		APU	.330	.019	.087	.018	.000
		GSE	.000	.000	.000	.000	.000
CITATION X Citation X	AE3007C	APCH	.041	.008	.061	.009	.000
		CLMB	.005	.001	.064	.004	.000
		TKOF	.005	.002	.090	.005	.000
		TAXI	.777	.152	.084	.026	.000
		TOTAL	.828	.163	.299	.044	.000
		APU	.000	.000	.000	.000	.000
		GSE	.000	.000	.000	.000	.000
CL604 Challenger Boy	CF34-3B	APCH	.047	.003	.166	.025	.000
		CLMB	.000	.001	.124	.013	.000
		TKOF	.000	.001	.219	.019	.000
		TAXI	3.492	.344	.273	.073	.000
		TOTAL	3.539	.349	.782	.130	.000
		APU	.000	.000	.000	.000	.000
		GSE	.000	.000	.000	.000	.000

Aircraft	Engine	Mode	CO	HC	NOx	SOx	PM10
		GSE	.000	.000	.000	.000	.000



## **APPENDIX F**

### **On-Road Vehicle Emissions Calculation**

Title : Los Angeles County Subarea 2011 Winter Default Title  
 Version : Emfac2002 V2.2 Sept 23 2002  
 Run Date : 11/18/03 13:12:52  
 Run Year: 2011 -- Model Years: 1966 to 2011  
 Season : Winter  
 Area : Los Angeles (SC)  
 I/M Stat : I and M program in effect  
 Emissions: Tons Per Day

Light Duty Passenger Cars										Medium Duty Trucks										Heavy Duty Trucks										Motorcycles	
Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	HD Trucks	Urban Buses										
28764	3598820	7953	3635530	17692	1542600	11722	1572020	4405	453936	23384	453725	3567	63914	67480	97238	164719	8554	71147	5905690	8554	71147										
VMT/1000	449	123180	179	123807	463	52570	380	53413	104	14902	996	16002	35	1295	1330	8765	10095	931	514	204762	931	514									
Trips	114895	22474700	41160	22630800	71833	9595330	71261	9738420	37618	4055300	235781	4332700	68274	786818	855092	1487280	2342380	34216	142281	39220800	34216	142281									
Reactive Organic Gas Emissions																															
Run Exh	3.03	9.12	0.05	12.20	3.17	6.12	0.05	9.54	0.81	2.43	0.20	3.44	0.21	0.96	1.17	3.21	4.38	1.65	1.67	32.88	1.65	1.67									
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.04	0.04	0.40	0.44	0.00	0.00	0.52	0.00	0.52									
Start Ex	0.65	12.07	0.00	12.72	0.40	6.22	0.00	6.61	0.26	3.32	0.00	3.58	0.79	1.58	2.38	0.00	2.38	0.08	0.36	25.73	0.08	0.36									
Total Ex	3.68	21.19	0.05	24.92	3.56	12.54	0.05	16.15	1.07	5.82	0.20	7.09	1.01	2.58	3.58	3.61	7.20	1.73	2.03	59.13	1.73	2.03									
Carbon Monoxide Emissions																															
Run Exh	34.40	314.76	0.16	349.32	35.81	224.69	0.25	260.75	12.52	63.80	0.78	77.10	6.29	19.83	26.11	15.75	41.87	12.96	17.91	759.91	12.96	17.91									
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.44	0.46	0.02	0.22	0.24	2.40	2.64	0.00	0.00	3.10	0.00	3.10									
Start Ex	3.74	140.11	0.00	143.85	2.37	80.24	0.00	82.61	1.31	36.82	0.00	38.62	7.26	25.88	33.14	0.00	33.14	1.01	1.53	300.77	1.01	1.53									
Total Ex	38.14	454.87	0.16	493.17	38.18	304.93	0.25	343.36	14.33	101.05	0.80	116.18	13.56	45.93	59.49	18.16	77.65	13.97	19.44	1063.78	13.97	19.44									
Oxides of Nitrogen Emissions																															
Run Exh	2.36	34.17	0.28	36.82	2.36	29.49	0.59	32.44	0.75	12.63	4.42	17.00	0.21	5.31	5.52	87.46	92.99	13.89	0.76	184.69	13.89	0.76									
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	7.37	7.37	0.00	0.00	7.42	0.00	7.42									
Start Ex	0.18	8.65	0.00	8.83	0.11	5.91	0.00	6.01	0.05	5.24	0.00	5.29	0.11	3.25	3.37	0.00	3.37	0.11	0.05	23.65	0.11	0.05									
Total Ex	2.54	42.82	0.28	45.64	2.47	35.39	0.59	38.45	0.80	17.87	4.46	23.14	0.33	8.57	8.89	94.83	103.72	14.00	0.81	225.76	14.00	0.81									
Carbon Dioxide Emissions (000)																															
Run Exh	0.25	50.21	0.07	50.53	0.26	26.60	0.15	27.01	0.07	10.33	0.52	10.92	0.02	0.85	0.88	19.23	20.11	1.90	0.08	110.55	1.90	0.08									
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.01	0.01	0.37	0.38	0.00	0.00	0.13	0.00	0.13									
Start Ex	0.03	1.81	0.00	1.83	0.02	0.95	0.00	0.97	0.01	0.39	0.00	0.40	0.02	0.03	0.05	0.00	0.00	0.00	0.00	0.26	0.00	0.26									
Total Ex	0.28	52.01	0.07	52.36	0.28	27.56	0.15	27.98	0.08	10.74	0.52	11.34	0.04	0.89	0.93	19.60	20.54	1.91	0.09	114.21	1.91	0.09									
PM10 Emissions																															
Run Exh	0.02	1.69	0.03	1.74	0.02	1.33	0.03	1.38	0.00	0.43	0.05	0.48	0.00	0.01	0.01	0.01	0.01	0.20	0.02	5.53	0.02	5.53									
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
Start Ex	0.00	0.17	0.00	0.17	0.00	0.12	0.00	0.12	0.00	0.04	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
Total Ex	0.02	1.86	0.03	1.91	0.02	1.46	0.03	1.50	0.00	0.48	0.05	0.53	0.00	0.01	0.01	0.01	0.01	0.20	0.02	6.01	0.20	6.01									
TireWear	0.00	1.09	0.00	1.09	0.00	0.46	0.00	0.47	0.00	0.14	0.01	0.15	0.00	0.02	0.02	0.28	0.30	0.01	0.00	2.03	0.01	2.03									
BrakeW	0.01	1.70	0.00	1.71	0.01	0.73	0.01	0.74	0.00	0.21	0.01	0.22	0.00	0.02	0.02	0.12	0.14	0.01	0.01	2.83	0.01	2.83									
Total	0.03	4.65	0.03	4.71	0.03	2.65	0.03	2.71	0.01	0.83	0.07	0.90	0.00	0.05	0.05	2.24	2.29	0.23	0.03	10.87	0.23	10.87									
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
SOx	0.00	0.51	0.00	0.51	0.00	0.27	0.00	0.27	0.00	0.10	0.00	0.11	0.00	0.01	0.01	0.19	0.20	0.02	0.00	1.11	0.02	1.11									
Fuel Consumption (000 gallons)																															
Gasoline	35.69	5405.85	0.00	5441.54	35.64	2874.88	0.00	2910.52	10.58	1117.49	0.00	1128.07	6.50	99.77	106.27	0.00	106.27	37.09	12.91	9636.41	37.09	12.91									
Diesel	0.00	0.00	6.46	6.46	0.00	0.00	13.10	13.10	0.00	0.00	46.98	46.98	0.00	0.00	0.00	1764.24	1764.24	141.05	0.00	1971.82	141.05	0.00									



# **Year 2011 Los Angeles County (South Coast Air Basin) Burden Emission Factor**

Daily VMT 204,762,000  
Daily Starts 39,220,800  
Average Trip Length 5.22 (Daily VMT/Daily Starts)

	Tons/Day	Pounds/Mile
CO	1,063.78	0.010390
ROG	119.82	0.001170
NOX	225.76	0.002205
SOX	1.11	0.000011
PM10	10.87	0.000106

SOURCE: EMFAC2002

## DAILY OPERATIONAL EMISSIONS

	<i>Daily Trips</i>	<i>VMT</i>
Million Air Hangar	428	2,234

Mobile Emissions				
CO	ROG	NO <sub>x</sub>	SO <sub>x</sub>	PM <sub>10</sub>
23.22	2.62	4.93	0.02	0.24