



AAAI Report 1609
AAAI Project 88018

QUARTERLY NOISE MONITORING AT HOLLYWOOD BURBANK AIRPORT FOURTH QUARTER 2021

FEBRUARY 2022

Prepared for:



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QUARTERLY NOISE MONITORING AT HOLLYWOOD BURBANK AIRPORT FOURTH QUARTER 2021

I. INTRODUCTION

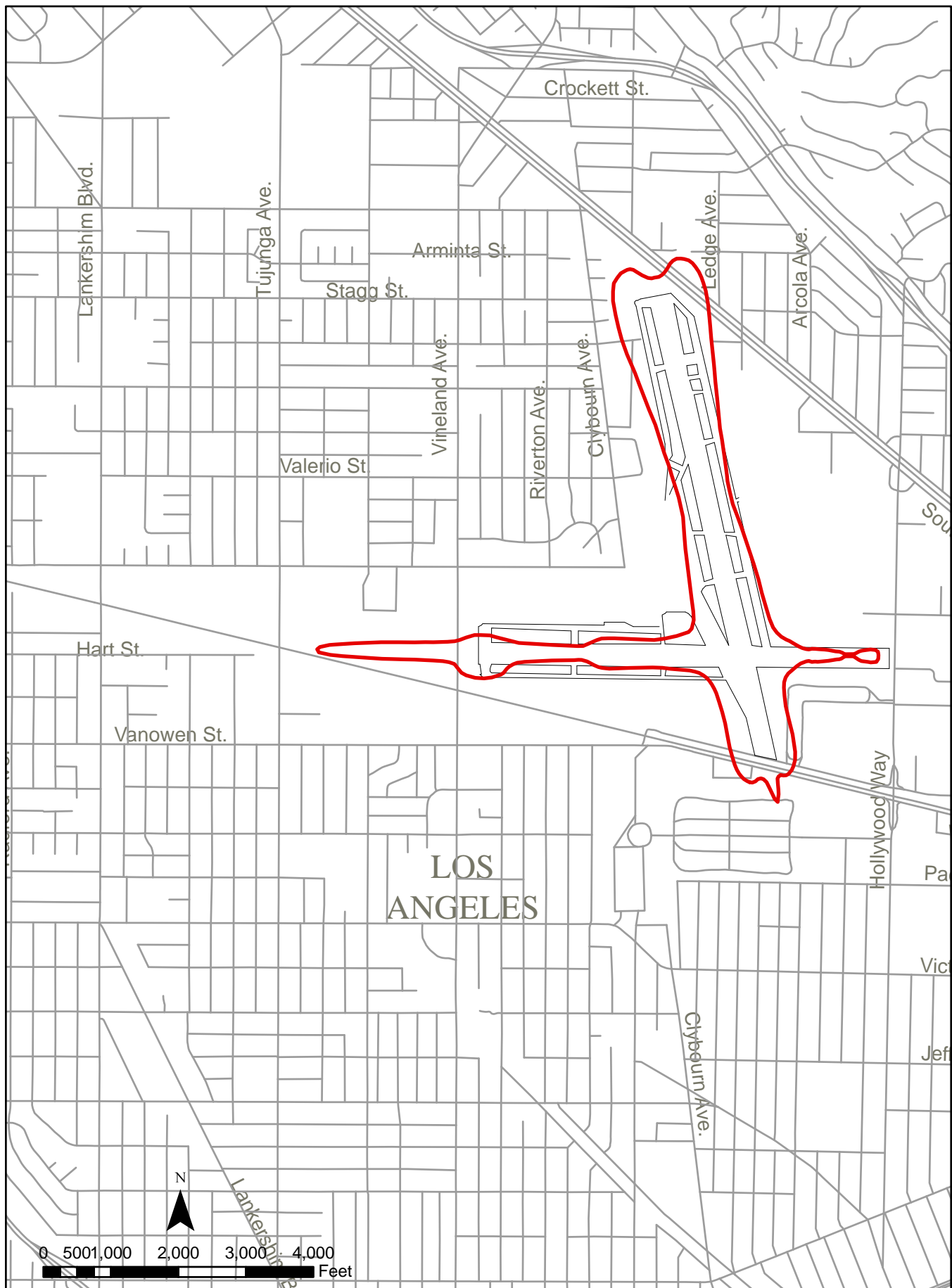
In compliance with the California Noise Standards (Reference 1) and the current variance from certain provisions of the Standards (Reference 2), the operator of the Hollywood Burbank Airport is required to perform noise monitoring in the vicinity of the airport for the purpose of establishing a noise impact boundary. The Noise Standards currently specify a community noise equivalent level (CNEL) of 65 dB for the noise impact boundary¹. The airport is required to provide, each quarter, an updated annual noise impact contour based on measurement data over the four preceding quarters.

A permanent noise monitoring system became operational in April 1980 and, with brief interruption for system expansion, maintenance, and program changes, has been operational since that time. Of the original nine noise monitor sites, eight have remained unchanged since 1980. The monitor at site 8 was removed in 1997 and replaced by a monitor at site 18. Two sites were added east of the airport in late 1980. Four sites were added south of the airport in January 1986 in response to the requirement to determine the 65 dB contour. Three more locations were added in February 1997. Two of these, identified as 16 and 17, are south of the airport, and one, 18, is to the west. These locations were added to permit monitoring closer to the 65 dB contour. The noise monitoring computer at the airport was replaced in August 1995.

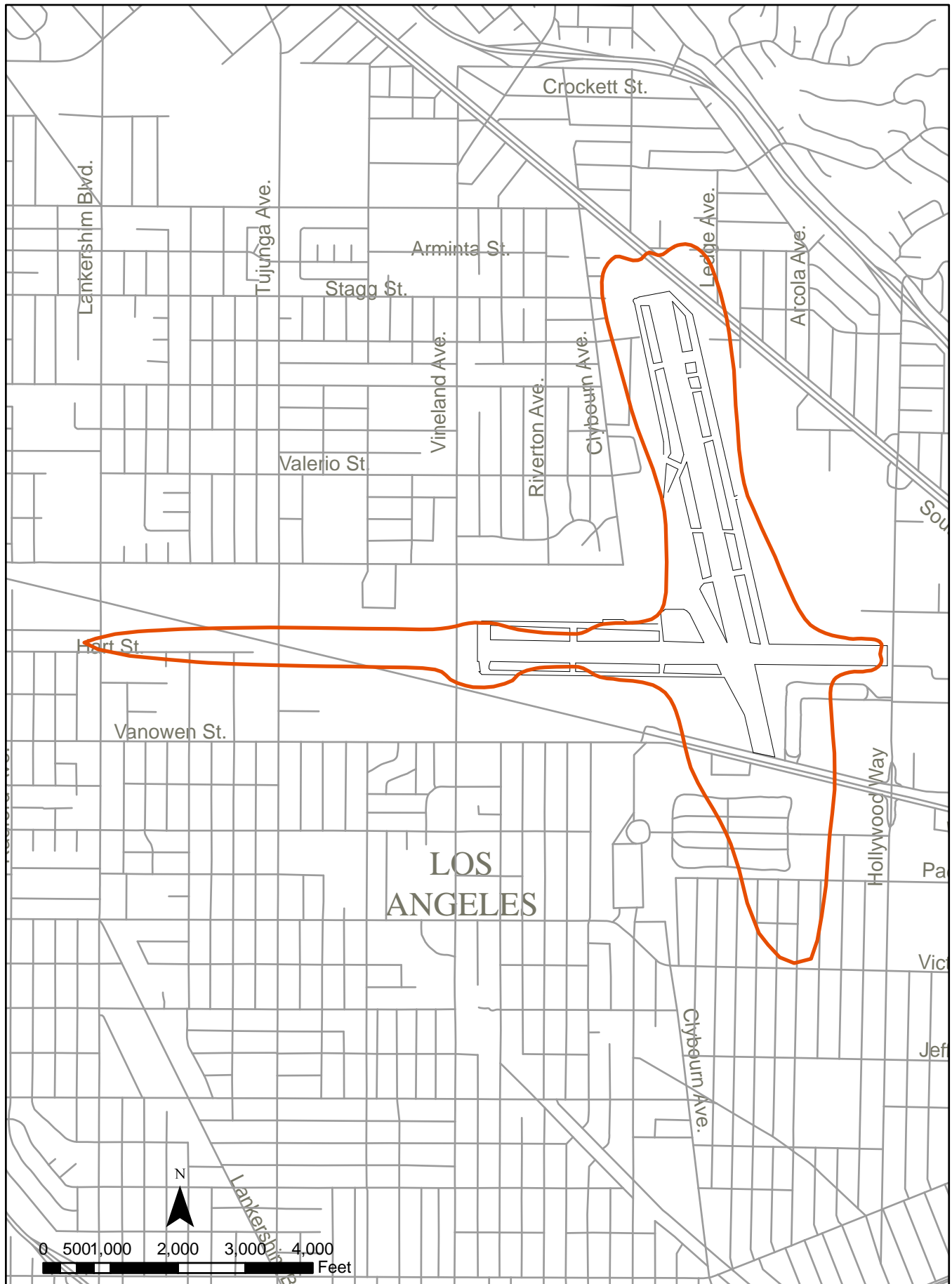
The Hollywood Burbank Airport Noise Monitoring System was modernized and augmented in late December 2012 by replacing the noise and flight track matching software, the noise monitoring hardware, and by adding sites 19, 20, 21, and 22 to allow closer monitoring to the current 65 dB CNEL contour. The old site 17 was removed as redundant with site 15, so the updated noise monitoring system contains 20 permanent microphone locations.

This report describes the data acquired by the monitoring system during the fourth quarter of 2021. Noise impact boundaries for 65 dB and 70 dB are shown based on these measurements and measurements obtained during the first, second, and third quarter of 2021 reported in References 3, 4 and 5. Figure 1 shows the 70 dB contour and Figure 2 shows the 65 dB contour, based on the measured noise data.

1 Prior to January 1, 1986, a CNEL of 70 dB defined the noise impact boundary.



BURBANK AIRPORT - 70 CNEL CONTOUR for 4th QUARTER 2021



BURBANK AIRPORT - 65 CNEL CONTOUR for 4th QUARTER 2021

II. NOISE MEASUREMENTS

A. Sites

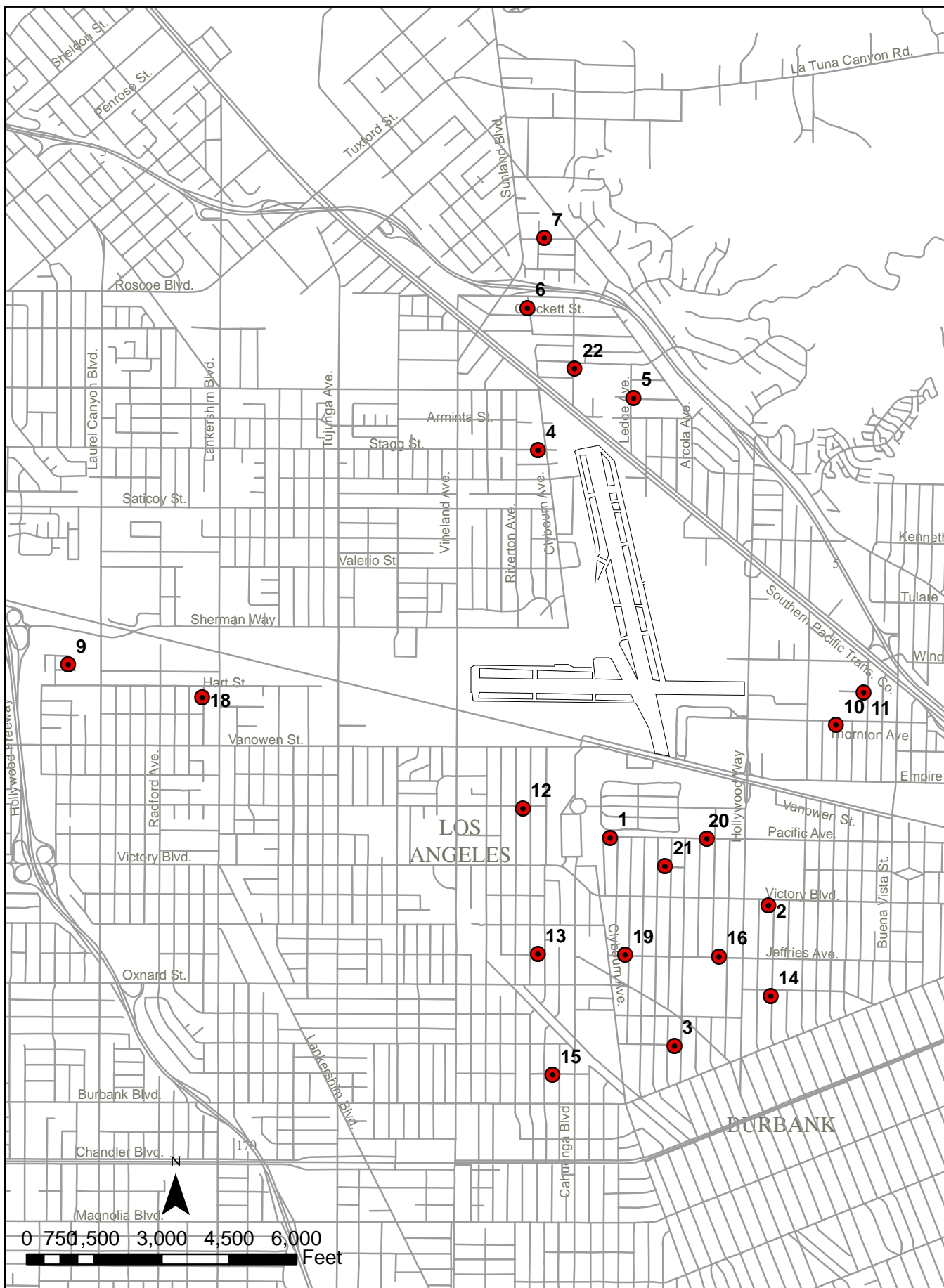
Aircraft noise levels were monitored at 15 locations prior to February, 1997. Two sites were added in February 1997, and equipment at one site west of the airport was moved to a new location. In July 2003, the monitor station at site 9 was moved 105 feet further west to accommodate new construction at the Fire Station. In December 2012, four new monitor sites were added and one existing site removed as redundant, leaving a total of twenty noise monitoring locations. The noise monitor sites are shown in Figure 3.

B. Noise Measurement Equipment

Each of the microphone locations uses an identical set of equipment connected to a central control unit. The noise level at each site is stored locally and transmitted by broad band connection to the central site once per 24-hour period. The automated noise and flight track monitoring software processes the data to produce (among other measures) the CNEL at each site. Appendix A provides a brief description of the system.

C. Noise Data

During this quarter, construction work on a DWP well adjacent to site 12 obscured aircraft noise on weekdays from October 1 through October 31, 2021. Also, equipment failure at site 7 caused loss of data from December 2 through December 14, 2021. Tables 1, 2, and 3 show the aircraft CNEL measured at each monitoring site for each day of the quarter. The dashed lines indicate days for which a monitor was operating and acquiring aircraft noise data for less than 94% of the time. The data for these days was excluded from the averages.



BURBANK AIRPORT - NOISE MONITOR LOCATIONS

D. Operational Data

Operations of air carrier, general aviation and rotary-wing aircraft are determined from the Airport ANOMS computerized flight tracking system.

III. MEASURED NOISE DATA

Daily CNEL values for the noise monitoring system are listed in Tables 1, 2, and 3. Table 4 lists the average values for each quarter together with the annual average.

IV. SCHEDULED AIRLINE AND AIR TAXI OPERATIONS

The air carrier and commuter operations for the quarter are shown in Table 5.

V. CNEL CONTOUR DEVELOPMENT

The contours shown in Figures 1 and 2 are based upon computer-generated "master" contours which are adjusted to reflect the monitoring data. Beginning with the first quarter 2009, noise contours are developed using the master contours produced by Version 7.0 of the Integrated Noise Model (INM), a sophisticated aircraft noise modeling program developed for the Federal Aviation Administration. Inputs to the program consist of aircraft types and performance data, flight paths, numbers of operations, and day/evening/night distribution of flights. The program calculates CNEL values at equally spaced grid points and produces CNEL contour lines at 1 dB intervals. The annual average CNEL values at each site were marked at the appropriate locations on the contour map and the locations of the 65 and 70 dB CNEL contours were determined in the vicinity of each measuring point. These points were then joined following the general shape of the computed contours.

The master contours used in developing the contours for this quarter are based on operations for the 12-month period from January 1, 2019 through December 31, 2019. These replaced the previous master set of CNEL Contours which were based on operations for the 12-month period from January 1, 2014 through December 31, 2014.

TABLE 1. CNEL VALUES FOR OCTOBER 2021

RMS NUMBER

Date	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	18	19	20	21	22
10/01/21	60.9	59.5	60.2	57.0	57.8	51.7	52.3	61.5	52.0	52.9	----	55.6	56.7	58.3	61.7	61.5	62.1	65.6	66.3	58.6
10/02/21	58.3	57.0	57.6	54.3	56.8	50.7	54.0	59.3	47.0	50.4	52.5	53.3	54.2	56.5	59.2	58.9	59.5	63.1	64.0	57.7
10/03/21	60.2	59.1	59.9	57.6	58.4	51.1	55.1	61.2	47.7	47.9	52.6	54.7	56.5	58.1	61.3	60.4	61.0	64.9	66.0	62.4
10/04/21	61.5	59.8	60.6	58.1	58.9	57.2	54.2	61.8	53.4	50.5	----	56.9	59.6	58.4	62.5	61.2	61.6	65.6	66.2	60.5
10/05/21	62.9	61.8	63.5	57.9	56.7	56.5	55.9	63.4	52.6	51.0	----	58.4	59.7	60.3	64.2	62.5	63.4	67.3	68.1	60.8
10/06/21	62.0	60.5	62.4	57.2	56.5	52.7	55.6	62.6	52.4	49.4	----	57.2	58.2	59.8	63.1	61.6	63.0	66.6	67.1	61.5
10/07/21	62.7	60.7	61.7	56.0	57.4	50.9	49.7	64.8	54.6	48.5	----	59.5	58.1	61.3	63.0	63.9	64.2	66.8	67.5	55.7
10/08/21	63.2	61.1	62.4	56.7	56.5	51.1	54.9	64.2	56.5	49.9	----	58.0	58.9	61.2	63.3	63.3	64.2	66.9	67.9	58.3
10/09/21	61.2	58.7	60.1	57.7	52.9	49.8	51.2	61.8	52.1	50.2	57.0	55.7	56.5	58.8	60.9	61.3	61.6	64.4	65.5	56.3
10/10/21	62.0	60.8	62.3	59.2	56.8	50.2	50.7	62.1	52.6	50.2	54.4	57.2	58.3	60.7	63.3	61.0	63.5	66.6	67.7	57.5
10/11/21	61.8	59.2	60.1	63.8	64.8	65.4	58.2	56.9	54.9	56.9	----	56.8	58.3	58.0	65.4	56.3	61.2	65.7	66.4	67.8
10/12/21	59.9	58.7	59.7	60.3	61.1	61.8	55.4	59.1	48.2	50.7	----	56.8	56.9	57.0	63.6	58.2	60.1	64.2	64.9	64.5
10/13/21	60.7	59.0	60.0	56.2	56.2	50.0	52.5	62.2	48.9	49.7	----	56.8	56.7	58.8	61.2	61.7	62.1	64.7	65.8	59.6
10/14/21	60.9	59.7	61.5	55.1	56.7	56.5	55.5	62.7	52.2	50.1	----	57.3	57.5	59.9	62.6	62.0	62.7	66.0	66.8	60.3
10/15/21	60.7	59.7	60.5	58.1	59.7	54.6	50.8	61.6	55.7	53.7	----	56.0	57.2	58.5	62.1	61.1	62.0	65.6	66.4	61.7
10/16/21	57.7	56.7	57.4	57.2	57.8	52.2	45.2	58.3	49.1	51.6	49.5	53.5	54.1	55.9	58.8	58.6	58.9	62.4	63.5	58.8
10/17/21	61.6	59.6	60.4	57.9	56.9	49.3	50.9	62.9	51.0	48.8	52.6	57.1	56.8	59.5	61.4	62.2	62.8	65.4	66.6	60.8
10/18/21	62.8	60.1	61.1	57.4	56.3	47.6	51.2	62.3	52.5	50.7	----	59.2	57.7	60.7	61.9	61.4	63.9	65.8	67.0	58.8
10/19/21	61.8	60.1	61.1	54.4	56.3	50.2	53.2	62.9	52.2	51.7	----	57.9	58.5	59.9	61.8	62.2	62.7	65.2	66.3	58.9
10/20/21	61.9	59.9	61.4	53.9	55.7	51.8	49.8	63.0	50.8	51.0	----	58.1	57.6	59.9	62.1	62.4	62.8	65.5	66.5	58.1
10/21/21	63.2	61.5	62.9	58.7	58.1	54.8	55.3	63.8	52.4	51.7	----	58.1	59.4	60.7	64.1	62.9	64.0	67.0	68.1	60.2
10/22/21	63.5	61.4	62.8	58.6	56.3	53.3	50.7	63.7	55.1	53.6	----	58.4	58.9	61.6	63.8	63.3	64.6	67.3	68.2	62.3
10/23/21	60.9	59.5	60.2	57.3	54.8	54.2	49.9	62.3	57.5	51.1	54.3	57.1	57.5	59.0	61.7	62.0	62.1	65.0	66.0	55.5
10/24/21	62.9	61.8	63.0	55.1	55.2	43.8	47.9	63.2	53.4	53.9	54.3	57.8	59.3	61.4	64.0	62.4	64.5	67.2	68.3	52.3
10/25/21	64.9	62.6	63.7	59.3	57.4	52.1	48.2	62.8	58.2	56.7	----	58.4	60.1	61.6	65.0	61.8	64.9	68.5	69.3	56.7
10/26/21	62.2	61.5	63.2	62.1	62.2	62.6	59.7	63.7	56.3	54.0	----	56.3	59.2	59.3	64.3	63.4	62.5	66.4	67.1	65.5
10/27/21	61.1	59.3	60.5	56.9	55.8	55.0	58.3	61.3	49.6	50.8	----	56.5	58.4	58.4	61.4	60.7	61.7	65.1	65.8	63.0
10/28/21	62.4	64.6	62.8	59.8	59.8	56.7	57.0	62.4	55.4	53.6	----	56.4	65.8	60.0	65.4	61.6	63.5	66.8	67.8	61.8
10/29/21	61.3	59.6	61.1	59.6	56.7	59.2	58.2	62.7	51.0	50.6	----	56.8	57.5	59.3	62.6	62.2	62.5	65.6	66.6	61.5
10/30/21	62.3	57.1	58.3	56.6	55.3	56.8	52.3	62.0	50.9	46.4	51.1	56.2	54.2	58.2	59.0	61.6	61.1	63.1	64.4	57.9
10/31/21	61.5	59.8	60.8	54.0	55.5	48.2	52.4	63.3	49.9	46.6	52.7	57.4	57.2	60.4	62.0	62.4	63.5	65.6	67.0	58.3
AVERAGE	61.9	60.3	61.3	58.2	58.1	56.3	54.4	62.4	53.4	51.8	53.5	57.2	58.6	59.6	62.8	61.7	62.7	65.9	66.8	61.0
NO. DAYS	31	31	31	31	31	31	31	31	31	31	10	31	31	31	31	31	31	31	31	31

TABLE 2. CNEL VALUES FOR NOVEMBER 2021

RMS NUMBER

Date	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	18	19	20	21	22
11/01/21	62.1	60.7	61.9	51.7	55.1	48.4	54.0	63.3	51.1	52.9		57.7	58.4	60.8	63.1	65.2	64.0	66.9	67.7	57.5
11/02/21	61.8	60.6	60.8	57.2	55.6	53.1	55.3	62.8	50.4	52.0	60.1	57.9	56.9	59.9	61.6	62.5	62.8	65.2	66.3	60.2
11/03/21	61.6	59.6	61.2	54.6	54.7	54.2	58.4	62.5	51.7	52.2	55.5	57.2	57.4	59.6	62.0	61.6	62.5	65.3	66.3	63.8
11/04/21	61.7	60.0	61.2	57.5	54.1	52.1	56.4	62.8	53.0	47.8	56.4	56.9	57.6	59.6	62.4	62.0	63.2	65.8	67.0	60.5
11/05/21	62.3	60.8	61.7	59.4	56.3	54.7	53.8	62.6	51.2	51.1	58.1	57.5	58.2	59.9	63.1	61.8	63.3	66.5	67.4	59.1
11/06/21	60.4	57.7	58.7	55.2	53.1	51.0	52.3	61.3	49.5	47.6	51.8	56.0	55.0	58.5	59.8	60.6	61.5	63.5	64.8	57.4
11/07/21	63.1	60.8	62.1	58.1	54.0	52.7	54.5	63.1	51.5	51.3	55.5	58.4	58.2	61.3	63.2	62.5	64.2	66.8	68.1	60.7
11/08/21	63.5	60.8	61.9	57.3	55.8	50.8	52.6	62.3	52.4	51.5	57.4	59.1	58.2	61.3	62.9	61.9	64.4	66.7	67.9	58.5
11/09/21	62.7	60.3	61.1	51.1	54.9	49.5	53.3	62.5	51.2	49.8	54.9	58.4	58.5	60.5	62.2	62.0	63.3	65.9	66.7	59.3
11/10/21	62.7	61.2	62.6	56.7	59.0	53.0	54.8	62.0	51.1	52.9	58.4	57.3	59.2	60.2	63.8	61.1	63.9	67.1	67.9	61.1
11/11/21	62.2	60.3	61.7	59.9	60.3	58.0	54.8	63.6	55.8	55.4	57.6	56.7	57.9	58.9	62.7	63.2	62.5	66.3	67.1	61.1
11/12/21	61.6	60.0	61.2	57.8	61.6	57.1	56.2	62.8	57.2	53.5	59.1	56.6	57.5	59.2	63.0	62.4	62.6	66.2	66.9	63.8
11/13/21	58.5	57.4	58.4	55.6	57.4	51.8	49.2	58.6	49.7	48.9	51.5	53.7	54.7	56.8	59.9	59.1	60.2	63.5	64.5	56.8
11/14/21	62.6	60.7	62.1	59.6	59.7	52.7	51.4	61.2	53.5	52.1	56.2	56.9	58.2	59.5	63.5	60.3	62.9	66.9	67.9	57.3
11/15/21	61.9	60.1	61.4	59.9	59.1	54.6	54.8	61.9	51.2	50.4	58.6	56.8	58.1	59.4	62.7	61.4	62.8	65.9	67.4	60.0
11/16/21	61.5	59.5	61.0	58.5	55.3	52.8	52.1	63.6	50.3	47.5	58.4	58.4	57.2	59.9	61.7	62.6	62.7	65.1	66.3	61.7
11/17/21	61.6	65.3	61.2	53.8	55.2	51.1	52.2	63.1	52.9	52.9	59.3	57.6	57.5	60.3	62.0	62.4	62.9	65.5	66.7	57.1
11/18/21	62.9	60.9	62.4	57.5	55.7	52.6	54.5	63.6	55.3	52.4	58.9	58.6	58.6	61.0	64.2	63.2	64.2	66.6	67.8	59.5
11/19/21	62.9	60.8	62.1	56.9	55.2	50.6	55.0	63.3	52.0	49.8	58.2	59.1	59.3	61.7	63.0	62.6	64.7	66.6	68.4	57.6
11/20/21	61.7	59.9	60.3	54.5	53.5	50.2	52.8	62.0	53.4	47.4	55.1	55.5	56.9	59.0	61.7	61.7	62.1	65.3	66.4	58.0
11/21/21	60.4	57.7	59.1	61.1	62.3	63.0	58.6	59.6	54.6	54.8	53.5	53.5	55.5	56.1	61.6	59.5	59.5	63.9	65.1	65.9
11/22/21	60.6	60.0	61.0	57.3	56.3	50.5	52.4	60.1	49.1	51.5	58.7	55.4	57.6	59.2	62.7	59.8	61.8	66.0	66.8	59.1
11/23/21	61.9	60.5	61.1	58.4	57.7	51.7	51.6	62.4	53.4	51.4	58.7	57.0	57.7	59.8	62.5	61.7	63.5	66.1	67.2	56.1
11/24/21	61.3	59.7	60.4	62.3	61.9	62.8	58.3	62.4	54.1	54.0	59.6	56.9	58.3	59.3	62.9	62.0	61.8	66.2	65.9	65.6
11/25/21	55.0	51.9	53.7	57.4	57.9	57.8	53.9	58.6	43.6	33.6	48.8	50.2	49.5	51.5	56.4	56.6	54.8	59.3	60.1	61.7
11/26/21	59.4	58.1	59.3	58.8	57.4	48.9	51.8	59.1	49.5	51.4	53.6	53.8	55.5	56.7	60.8	58.6	60.3	64.4	65.4	57.5
11/27/21	59.8	58.2	58.7	59.9	57.5	48.5	47.5	58.6	56.6	49.5	53.9	53.7	54.7	56.2	60.2	58.5	60.0	64.3	65.2	52.7
11/28/21	61.4	59.8	61.1	60.8	61.1	51.0	48.9	60.3	52.8	49.6	54.5	55.4	57.1	57.8	62.8	59.8	61.4	66.0	66.9	54.6
11/29/21	61.3	60.3	61.2	61.5	61.6	54.9	58.4	60.7	59.3	57.1	56.3	55.4	58.3	58.5	62.6	60.0	62.4	66.3	67.2	62.9
11/30/21	61.6	59.8	61.1	60.1	58.0	55.8	51.2	63.1	52.0	52.0	58.6	57.6	57.2	58.7	61.9	62.5	62.4	65.5	66.6	61.7
AVERAGE	61.6	60.2	61.0	58.4	58.1	55.2	54.5	62.0	53.3	51.9	57.0	56.9	57.5	59.4	62.3	61.6	62.6	65.7	66.7	60.7
NO. DAYS	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

TABLE 3. CNEL VALUES FOR DECEMBER 2021

RMS NUMBER																					
Date	1	2	3	4	5	6	7	9	10	11	12	13	14	15	16	18	19	20	21	22	
12/01/21	60.9	58.8	59.6	58.4	56.7	53.7	52.7	62.1	57.1	52.3	59.1	56.0	56.2	57.7	60.9	61.5	61.0	64.8	65.6	58.8	
12/02/21	62.3	59.6	60.8	59.5	53.6	50.9	----	63.5	58.8	59.5	58.8	58.9	57.4	60.4	62.1	62.5	63.3	65.3	66.7	57.1	
12/03/21	62.5	60.5	61.6	57.3	53.1	48.3	----	63.1	56.4	47.5	58.9	57.6	57.8	60.5	62.8	62.2	63.7	66.3	67.6	51.8	
12/04/21	59.7	58.1	58.8	51.3	52.4	53.1	----	60.0	59.8	48.5	52.9	54.8	55.8	57.9	60.1	59.2	61.0	63.8	65.0	56.4	
12/05/21	61.8	59.7	60.5	60.0	58.3	50.9	----	61.9	55.3	52.6	55.5	56.5	57.3	59.3	62.0	60.9	62.7	65.1	66.7	53.8	
12/06/21	62.7	60.8	61.9	58.6	59.2	50.1	----	63.1	56.1	54.1	57.1	58.0	58.3	60.4	63.0	62.4	63.7	66.2	67.6	56.8	
12/07/21	63.0	63.7	60.7	55.9	55.9	52.8	----	63.8	53.8	51.3	56.6	58.8	57.0	60.2	61.3	63.0	63.2	65.0	66.3	58.1	
12/08/21	62.2	60.4	61.5	57.0	57.6	54.6	----	62.2	55.2	55.6	58.9	58.4	57.9	60.5	62.7	61.7	63.5	65.9	67.2	61.9	
12/09/21	60.3	58.2	59.1	62.8	64.4	65.1	----	59.8	53.1	53.8	57.0	56.6	56.5	56.6	62.8	58.5	60.1	63.8	64.7	67.3	
12/10/21	63.2	61.3	62.3	58.7	59.2	58.4	----	63.4	54.6	53.6	60.0	58.3	58.7	60.7	63.4	62.5	64.0	66.8	67.8	61.1	
12/11/21	59.8	58.2	58.4	52.3	54.5	55.0	----	59.7	54.8	52.2	54.5	55.0	55.3	57.3	59.8	59.5	60.4	63.5	64.6	58.8	
12/12/21	63.4	62.0	62.3	60.5	60.0	53.7	----	61.7	54.8	55.5	56.2	59.0	59.2	61.2	63.9	61.1	64.5	67.3	68.5	59.5	
12/13/21	62.3	59.6	60.3	60.1	56.0	50.8	----	63.2	51.8	51.0	56.5	58.8	57.4	60.1	61.6	62.2	63.0	65.2	66.6	55.0	
12/14/21	61.5	58.9	59.1	60.5	58.8	51.8	----	61.5	56.0	51.6	57.7	57.6	56.0	58.4	61.1	61.7	61.1	64.3	65.0	56.7	
12/15/21	62.3	60.7	61.5	57.3	57.3	51.4	54.4	62.6	53.6	53.5	60.0	57.8	58.1	60.0	63.0	61.8	63.3	66.4	67.3	58.9	
12/16/21	63.6	61.9	63.2	54.5	58.1	53.0	49.5	64.3	55.9	52.1	58.9	59.8	59.6	62.2	64.4	63.9	65.3	67.7	68.7	56.0	
12/17/21	63.5	61.5	62.4	58.5	59.1	54.7	52.8	64.3	55.0	54.9	62.0	57.6	58.8	60.6	63.7	64.3	63.7	67.2	68.1	59.4	
12/18/21	60.7	58.8	59.3	57.0	56.2	53.8	52.8	61.6	54.5	51.0	54.8	56.0	55.9	58.2	61.1	60.2	61.6	64.9	65.8	58.5	
12/19/21	63.3	61.1	61.6	60.2	61.0	52.6	53.4	63.8	57.0	52.7	57.4	58.4	58.1	60.3	63.3	62.5	63.6	66.9	67.9	56.4	
12/20/21	62.2	60.5	61.6	56.2	54.3	52.8	52.2	61.8	51.6	49.5	56.7	57.1	58.3	59.6	63.1	60.8	62.8	70.9	67.3	57.9	
12/21/21	62.0	60.2	61.2	58.9	57.2	54.0	53.7	62.6	51.6	51.0	59.4	57.7	57.7	60.1	62.5	62.0	63.2	66.0	67.1	60.3	
12/22/21	62.3	60.8	61.8	54.7	55.0	51.1	49.6	63.2	53.8	53.0	58.1	59.1	58.5	60.0	63.3	62.4	63.2	66.6	67.6	59.0	
12/23/21	66.6	61.6	61.8	64.2	60.9	49.2	52.9	67.2	57.0	55.8	59.0	62.2	58.7	63.1	62.9	66.4	65.7	67.2	68.8	55.4	
12/24/21	63.5	61.1	62.1	58.0	63.0	49.8	49.2	64.4	58.5	49.0	55.7	59.6	58.6	60.6	63.0	65.2	63.7	66.4	67.6	51.1	
12/25/21	60.8	58.1	58.6	57.8	54.5	51.2	42.9	61.8	56.0	44.1	51.7	56.4	55.1	58.5	59.7	61.4	61.2	63.8	65.1	38.3	
12/26/21	62.2	60.5	61.7	55.9	57.5	49.5	52.6	63.8	54.1	51.2	54.6	57.8	57.9	60.5	62.8	62.6	63.3	66.1	67.3	58.0	
12/27/21	63.9	61.9	62.6	60.2	59.0	47.8	49.5	64.2	55.9	52.7	59.2	59.6	59.2	61.5	64.2	63.2	64.8	67.4	68.9	50.6	
12/28/21	63.8	61.9	62.9	60.5	59.3	53.5	57.2	64.6	54.4	51.0	59.8	60.0	59.3	61.6	63.9	63.5	64.7	67.2	68.4	60.8	
12/29/21	65.3	60.7	61.4	63.0	58.4	51.2	50.7	66.4	54.8	49.2	60.7	61.3	58.0	62.2	62.7	65.7	64.9	66.3	67.9	54.7	
12/30/21	66.1	62.2	63.0	63.3	58.3	50.0	49.4	66.7	57.4	53.0	59.6	61.5	59.5	62.8	63.9	66.1	65.8	67.9	69.3	50.4	
12/31/21	62.6	60.1	62.3	61.7	61.3	61.3	57.3	63.5	58.3	52.1	56.4	57.5	58.0	59.4	63.4	62.7	62.5	66.1	67.7	63.2	
AVERAGE	62.9	60.6	61.4	59.5	58.7	55.1	52.9	63.5	55.9	53.0	58.1	58.5	57.9	60.3	62.7	62.8	63.4	66.4	67.3	59.0	
NO. DAYS	31	31	31	31	31	31	18	31	31	31	31	31	31	31	31	31	31	31	31	31	

TABLE 4. AVERAGE CNEL VALUES

Site No.	1st Quarter 2021	2nd Quarter 2021	3rd Quarter 2021	4th Quarter 2021	4 Quarter Average
1	58.0	60.4	61.4	62.1	60.7
2	55.7	58.5	59.8	60.3	59.6
3	56.8	59.8	61.0	61.2	60.0
4	55.9	56.0	57.0	58.7	57.1
5	56.1	55.8	56.5	58.3	56.8
6	55.7	52.7	53.0	55.6	54.5
7	55.1	54.5	55.6	54.1	54.8
9	58.0	60.9	62.2	62.6	61.3
10	51.9	53.1	53.0	54.3	53.2
11	51.9	50.6	51.1	52.2	51.8
12	51.5	52.8	53.7	57.2	54.4
13	53.9	55.8	56.7	57.5	56.2
14	53.9	56.5	57.5	58.0	56.7
15	55.2	58.0	59.1	59.8	58.3
16	58.9	61.0	62.3	62.5	61.4
18	57.4	60.4	62.2	62.0	60.9
19	58.1	61.2	62.6	62.9	61.6
20	61.4	64.3	65.7	65.9	64.7
21	62.2	65.3	66.7	66.9	65.6
22	59.5	60.0	61.2	60.3	60.3

**Table 5. WEEKLY AIR CARRIER AND AIR TAXI
FLIGHTS FOR THE FOURTH QUARTER 2021**

AIRCRAFT	AS EMB175		OPERATIONS FROM AS B7377		10/1/2021 AS A319	to	10/31/2021 AS B7378	31 DAYS AS B7379		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	58	59	0	0	0	0	21	24	69	62
EVENING	2	1	0	0	0	0	4	0	26	15
NIGHT	0	0	0	0	0	0	0	1	1	19
TOTAL	60	60	0	0	0	0	25	25	96	96
	AS A320		OPERATIONS FROM AS A21N		10/1/2021 US CRJ9	to	10/31/2021 AA B350	AA A320		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	25	1	0	0	101	103	5	5	7	7
EVENING	1	25	0	0	2	0	1	1	0	0
NIGHT	0	0	0	0	0	0	0	0	0	0
TOTAL	26	26	0	0	103	103	6	6	7	7
	AA B7378		OPERATIONS FROM WN B38M		10/1/2021 WN B7377	to	10/31/2021 WN B7378	UA A320		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	91	36	22	19	1110	989	114	92	2	2
EVENING	2	51	0	2	230	308	14	24	0	0
NIGHT	0	6	0	1	38	81	3	15	0	0
TOTAL	93	93	22	22	1378	1378	131	131	2	2
	UA B752		OPERATIONS FROM UA B738		10/1/2021 UA E175	to	10/31/2021 UA CRJ	UA CRJ7		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	0	0	0	0	10	5	77	80	25	25
EVENING	0	0	0	0	0	5	6	3	0	0
NIGHT	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	10	10	83	83	25	25
	FE A300		OPERATIONS FROM UPS B752		10/1/2021 UPS A300	to	10/31/2021 DL E175	DL CRJ		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	10	16	0	0	10	17	118	117	0	0
EVENING	21	0	0	0	21	0	30	29	0	0
NIGHT	1	16	0	0	3	17	0	2	0	0
TOTAL	32	32	0	0	34	34	148	148	0	0
	DL CRJ7		OPERATIONS FROM FL B38M		10/1/2021 DL B752	to	10/31/2021 B6 A320	VXP B7377		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	0	0	0	0	3	3	3	3	80	75
EVENING	0	0	0	0	1	1	0	0	0	6
NIGHT	0	0	0	0	0	0	0	0	1	0
TOTAL	0	0	0	0	4	4	3	3	81	81
	NKS A319		OPERATIONS FROM B6 A321		10/1/2021 B6 A21N	to	10/31/2021 NKS A320	NKS A21N		
	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR	DEP	ARR
DAY	0	0	3	3	25	27	7	7	0	0
EVENING	0	0	1	1	12	15	0	0	0	0
NIGHT	0	0	0	0	5	0	0	0	0	0
TOTAL	0	0	4	4	42	42	7	7	0	0
									TOTALS	
									DEP	ARR
									1858	1627
									302	458
									48	123
									2208	2208

**Table 5. WEEKLY AIR CARRIER AND AIR TAXI
FLIGHTS FOR THE FOURTH QUARTER 2021**

AIRCRAFT	AS EMB175	OPERATIONS FROM				11/1/2021 AS A319	to	11/30/2021 AS B7378	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	45	52	3	3	0	0		11	11	88
EVENING	12	5	0	0	0	0		1	0	15
NIGHT	0	0	0	0	0	0		0	1	3
TOTAL	57	57	3	3	0	0		12	12	106
	AS A320	OPERATIONS FROM				11/1/2021 US CRJ9	to	11/30/2021 AA B350	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	3	1	0	0	56	49		1	0	30
EVENING	0	2	0	0	2	8		0	0	24
NIGHT	0	0	0	0	0	1		0	1	1
TOTAL	3	3	0	0	58	58		1	1	55
	AA B7378	OPERATIONS FROM				11/1/2021 WN B7377	to	11/30/2021 WN B7378	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	61	32	27	25	1186	1039		123	105	5
EVENING	0	28	6	7	211	334		32	48	1
NIGHT	0	1	1	2	12	36		1	3	0
TOTAL	61	61	34	34	1409	1409		156	156	6
	UA B752	OPERATIONS FROM				11/1/2021 UA E175	to	11/30/2021 UA CRJ	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	0	1	1	30	1		59	59	0
EVENING	0	0	0	0	0	29		0	0	0
NIGHT	0	0	0	0	0	0		0	0	0
TOTAL	0	0	1	1	30	30		59	59	0
	FE A300	OPERATIONS FROM				11/1/2021 UPS A300	to	11/30/2021 DL E175	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	12	19	0	1	8	18		87	86	0
EVENING	21	0	1	0	21	0		29	26	0
NIGHT	0	14	0	0	3	14		0	4	0
TOTAL	33	33	1	1	32	32		116	116	0
	DL CRJ7	OPERATIONS FROM				11/1/2021 DL B752	to	11/30/2021 B6 A320	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	0	3	3	0	0		1	2	27
EVENING	0	0	0	0	0	0		1	0	1
NIGHT	0	0	0	0	0	0		0	0	1
TOTAL	0	0	3	3	0	0		2	2	29
	NKS A319	OPERATIONS FROM				11/1/2021 B6 A21N	to	11/30/2021 NKS A320	30 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	0	2	2	26	26		14	14	0
EVENING	0	0	0	0	19	23		0	0	0
NIGHT	0	0	0	0	4	0		0	0	0
TOTAL	0	0	2	2	49	49		14	14	0
TOTALS										ARR
DEP										1576
1802										506
325										68
23										2150

**Table 5. WEEKLY AIR CARRIER AND AIR TAXI
FLIGHTS FOR THE FOURTH QUARTER 2021**

AIRCRAFT	AS EMB175	OPERATIONS FROM				12/1/2021 AS A319	to	12/31/2021 AS B7378	31 DAYS	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	41	45	0	0	0	0	0	11	10	79
EVENING	15	13	0	0	0	0	0	1	1	4
NIGHT	3	1	0	0	0	0	0	0	1	0
TOTAL	59	59	0	0	0	0	0	12	12	83
	AS A320	OPERATIONS FROM				12/1/2021 US CRJ9	to	12/31/2021 AA B350	AA A320	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	9	0	0	41	42	1	0	16	26
EVENING	21	12	0	0	1	0	0	0	15	5
NIGHT	1	1	0	0	0	0	0	1	0	0
TOTAL	22	22	0	0	42	42	1	1	31	31
	AA B7378	OPERATIONS FROM				12/1/2021 WN B7377	to	12/31/2021 WN B7378	UA A320	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	66	34	29	28	1151	1080	113	106	14	16
EVENING	0	32	8	7	306	316	41	49	2	0
NIGHT	0	0	0	2	19	80	8	7	0	0
TOTAL	66	66	37	37	1476	1476	162	162	16	16
	UA B752	OPERATIONS FROM				12/1/2021 UA E175	to	12/31/2021 UA CRJ	UA CRJ7	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	0	0	0	38	24	54	53	1	0
EVENING	0	0	0	0	3	16	0	1	0	1
NIGHT	0	0	0	0	0	1	0	0	0	0
TOTAL	0	0	0	0	41	41	54	54	1	1
	FE A300	OPERATIONS FROM				12/1/2021 UPS A300	to	12/31/2021 DL E175	DL CRJ	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	23	24	7	11	26	33	102	85	0	0
EVENING	21	1	4	0	23	1	16	21	0	0
NIGHT	1	20	0	0	3	18	0	12	0	0
TOTAL	45	45	11	11	52	52	118	118	0	0
	DL CRJ7	OPERATIONS FROM				12/1/2021 DL B752	to	12/31/2021 B6 A320	VXP B7377	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	0	12	10	0	0	1	1	5	4
EVENING	0	0	1	3	0	0	0	0	0	1
NIGHT	0	0	0	0	0	0	0	0	0	0
TOTAL	0	0	13	13	0	0	1	1	5	5
	NKS A319	OPERATIONS FROM				12/1/2021 B6 A21N	to	12/31/2021 NKS A320	NKS A21N	
		ARR	DEP	ARR	DEP				ARR	DEP
DAY	0	0	0	0	21	20	3	3	21	21
EVENING	0	0	0	0	8	17	0	0	0	0
NIGHT	0	0	0	0	10	2	0	0	0	0
TOTAL	0	0	0	0	39	39	3	3	21	21
									TOTALS	
									DEP	ARR
									1718	1582
									426	494
									41	109
									2185	2185

Table 5. (continued)PERIOD TOTALS FOR
AIR CARRIERS AND COMMUTERS

AIR CARRIERS

	<u>DEP</u>	<u>ARR</u>
DAY	25801	23009
EVE	5393	6970
NIGHT	625	1920
TOTAL	<u>31819</u>	<u>31819</u>

COMMUTERS

	<u>DEP</u>	<u>ARR</u>
DAY	1719	1417
EVE	346	476
NIGHT	0	92
TOTAL	<u>2065</u>	<u>2065</u>

AIR CARRIERS AND COMMUTERS

	<u>DEP</u>	<u>ARR</u>
DAY	27520	24426
EVE	5739	7446
NIGHT	625	2012
TOTAL	<u>33884</u>	<u>33884</u>

VI. INCOMPATIBLE LAND USE

The contours shown in Figures 1 and 2 were digitized and overlaid on a digital land use map of the area around the Airport. The total areas enclosed by the 65 and 70 dB CNEL contours were 532.4 and 234.2 acres, respectively. The areas of incompatible land uses enclosed by the contours were then computed. The incompatible land use areas were 5.52 acres within the 65 dB contour of which 0 acres were also within the 70 dB contour.

It should be noted that the above incompatible land areas do not include the soundproofed schools in the vicinity of the Airport (the Luther Burbank Middle School, St. Patrick and Glenwood Schools). The above incompatible land use areas also do not include those residences to which the Airport has acquired avigation easements. Within the 65 dB contour, the Airport has acquired avigation easements, through its ongoing residential sound insulation program, to 130 parcels of land. These parcels total 18.78 acres. No parcels are also located within the 70 dB contour. The Airport has acquired avigation easement to a number of parcels under California law pursuant to the Baker v. Burbank-Glendale-Pasadena Airport Authority line of legal decisions. Four of these "Baker" parcels remain within the Airport's current 65 dB CNEL contour.

It should be noted that the Airport Authority has made repeated attempts over the past several years to acoustically treat and obtain avigation easement at 37 single family residential parcels, totaling approximately 5.37 acres of the incompatible land use area within the 65 dB contour. Owners of these parcels have either refused to respond to notices regarding the sound insulation program, have withdrawn from the program, or own property with major building code deficiencies that prevent them from participating.

The estimated numbers of incompatible residences is 40 within the 65 dB contour, of which 0 are also within the 70 dB contour. The estimated numbers of people residing within the 65 and 70 dB CNEL contours are 108 and 0, respectively.

REFERENCES

1. California Department of Transportation, Division of Aeronautics, "Noise Standards", California Code of Regulations, Title 21, Chapter 2.5, Subchapter 6.
2. L-30488, Department of Transportation, State of California, 27 June 1984.
3. "Quarterly Noise Monitoring at Hollywood Burbank Airport, First Quarter 2021", AAAI Report 1590.
4. "Quarterly Noise Monitoring at Hollywood Burbank Airport, Second Quarter 2021", AAAI Report 1596.
5. "Quarterly Noise Monitoring at Hollywood Burbank Airport, Third Quarter 2021", AAAI Report 1601.

APPENDIX A
NOISE MONITOR INSTRUMENTATION

APPENDIX A

NOISE MONITOR INSTRUMENTATION

The permanent noise monitor system, manufactured by Bruel & Kjaer, consists of 20 noise monitoring terminals (NMT) connected to a central site by DSL or wireless connections. The system block diagram showing the major elements is shown in Figure A-1. The electrical signal generated by the microphone/preamplifier assembly at each site is processed and saved locally in the B & K sound level meter. The signal is passed through an A-weighting filter and is then detected and converted to a digital level signal in decibels with a resolution of 0.1 dB.

The stored sound level data at each site is dumped once every 24-hour period via wireless or DSL connection to the central site. The data received by the central site are processed by the ANOMS computer software. According to preset parameters, the noise is separated into two categories--aircraft noise and community noise. Each event attributed to an aircraft is saved in a noise event file. Computations are made of hourly noise level, community noise equivalent level, runway use, and other parameters. A wide variety of data presentations is available by exercising a number of routines provided by B & K, as well as special-purpose routines that can be generated by the user.

The locations of the remote sites (shown in Figure 3) are listed by latitude and longitude in Table A-1.

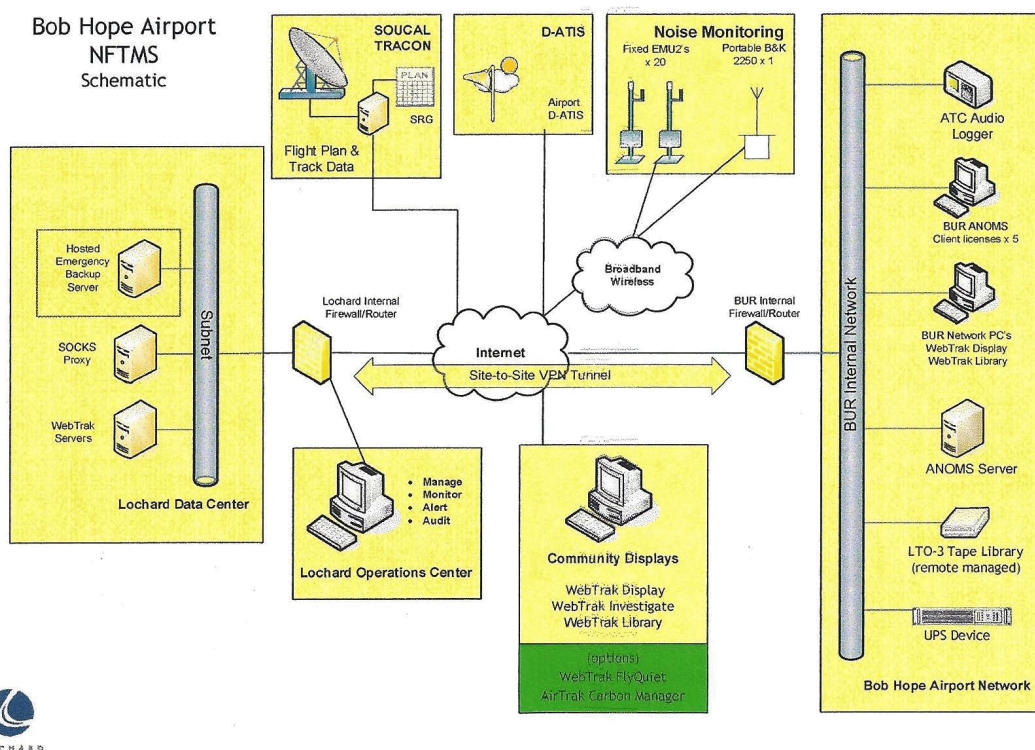


Figure A-1. Permanent Noise Monitor System Schematic

TABLE A-1
NOISE MONITOR SITE LOCATIONS

NMT	Latitude	Longitude
1	34.188424	-118.358983
2	34.184296	-118.347330
3	34.175731	-118.354197
4	34.212022	-118.364391
5	34.215261	-118.357381
6	34.220705	-118.365214
7	34.224979	-118.363989
9	34.198871	-118.398889
10	34.195336	-118.342392
11	34.197321	-118.340376
12	34.190175	-118.365404
13	34.181303	-118.345270
14	34.178786	-118.347134
15	34.173922	-118.363157
16	34.181185	-118.350949
18	34.196899	-118.389014
19	34.181277	-118.357866
20	34.188378	-118.351878
21	34.186700	-118.354939
22	34.217035	-118.361725

**APPENDIX B
CALIBRATION**

APPENDIX B CALIBRATION

The system was calibrated during setup using a Bruel and Kjaer acoustic calibrator. Acoustic calibrations are performed annually. Electrical calibrations are performed automatically four times per 24-hour day. Figure B-1 shows the calibration summary for January 2013 and Figure B-2 shows the detailed electrical calibration report for Noise Monitor Site 1.



Devices Report

RMT Calibration Results

Bob Hope Airport

Start Date: 04-Jan-2013

End Date: 31-Jan-2013

Monitor Location: 1 - 1, (Fixed)

Seven Day Period Commencing: Friday January 04, 2013

Calibrated with Sound Calibrator : Never

Number of Calibrations: 27

Average adjustment for this RMT over this period: 0.10 dB

Date Time	Expected Result	Value Measured	Calibration Error
04-Jan-2013 0:00	87.1	87.2	0.1
04-Jan-2013 6:00	87.1	87.2	0.1
04-Jan-2013 12:00	87.1	87.2	0.1
04-Jan-2013 18:00	87.1	87.2	0.1
05-Jan-2013 0:00	87.1	87.2	0.1
05-Jan-2013 6:00	87.1	87.2	0.1
05-Jan-2013 12:00	87.1	87.2	0.1
05-Jan-2013 18:00	87.1	87.2	0.1
06-Jan-2013 0:00	87.1	87.2	0.1
06-Jan-2013 6:00	87.1	87.2	0.1
06-Jan-2013 12:00	87.1	87.2	0.1
06-Jan-2013 18:00	87.1	87.2	0.1
07-Jan-2013 0:00	87.1	87.2	0.1
07-Jan-2013 6:00	87.1	87.2	0.1
07-Jan-2013 12:00	87.1	87.2	0.1
07-Jan-2013 18:00	87.1	87.2	0.1
08-Jan-2013 0:00	87.1	87.2	0.1
08-Jan-2013 6:00	87.1	87.2	0.1
08-Jan-2013 12:00	87.1	87.3	0.2
08-Jan-2013 18:00	87.1	87.2	0.1
09-Jan-2013 0:00	87.1	87.2	0.1
09-Jan-2013 6:00	87.1	87.2	0.1
09-Jan-2013 12:00	87.1	87.2	0.1
09-Jan-2013 18:00	87.1	87.2	0.1
10-Jan-2013 0:00	87.1	87.2	0.1
10-Jan-2013 6:00	87.1	87.2	0.1
10-Jan-2013 12:00	87.1	87.2	0.1



Devices Report

RMT Calibration Results

Bob Hope Airport

Start Date: 04-Jan-2013

End Date: 31-Jan-2013

Monitor Location		04-Jan-2013	11-Jan-2013	18-Jan-2013	25-Jan-2013
1	1	0.1	0.1	0.1	0.1
2	2	0.4	0.4	0.3	0.3
3	3	0.5	0.0	0.0	0.0
4	4	0.3	0.3	0.3	0.3
5	#5	0.2	0.2	0.2	0.2
6	6	0.0	0.0	0.0	0.0
7	7	0.3	0.3	0.3	0.3
9	9	0.2	0.2	0.2	0.2
10	10	0.2	0.2	0.2	0.2
11	11	0.6	0.0	0.0	0.0
12	12	0.3	0.3	0.3	0.3
13	13	0.0	0.0	0.0	0.0
14	14	0.0	0.0	0.0	0.0
15	15	0.0	0.0	0.0	0.0
16	16	0.4	0.4	0.4	0.4
18	18	0.0	0.0	0.1	0.1
19	19	0.0	0.0	0.0	0.0
20	20	0.1	0.0	0.1	0.1
21	21	0.0	0.0	0.0	0.0
22	22	0.0	0.0	0.0	0.0