



Date: November 30, 2017

To: Patrick H. West, City Manager *T.M.L.*

From: Jess L. Romo, Director, Long Beach Airport *JLR*

For: Mayor and Members of the City Council

Subject: Long Beach Airport Air Carrier Noise Budget and Flight Slot Allocations

Long Beach Municipal Code (LBMC) Chapter 16.43, *Long Beach Airport Noise Compatibility Ordinance*, requires the Long Beach Airport (Airport) to evaluate noise budgets for each of the five aircraft categories (air carriers, commuters, industrial, charter, and general aviation) to ensure compliance with the applicable budget limit and the City's overall goal of minimizing the number of incompatible land uses located within the 65 decibel (dB) Community Noise Equivalent Level (CNEL). Each year, the Airport must determine the status of the Air Carrier noise budget and whether Air Carrier flights should be added or removed to ensure compliance with the noise budgets. Based on the findings of this year's analysis, we recommend maintaining the current level of supplemental flight slots and that no changes beyond the current level of 41 minimum Air Carrier flights and 9 Supplemental Air Carrier flights be made at this time.

Airport staff's internal noise review and an independent analysis conducted by Mr. Vince Mestre of Mestre Greve Associates, a Division of Landrum & Brown, for Noise Year (NY) October 1, 2016, through September 30, 2017 (NY 16-17), revealed that the Airport operated below the Air Carrier noise budget at remote monitoring terminal (RMT) 9 and above the Air Carrier noise budget at RMT 10. Remote monitoring locations are physical points around the Airport that use highly calibrated noise monitors to record aircraft noise events. The Airport maintains a total of 18 RMTs as part of the noise monitoring system; however, two RMTs (RMT 9 and RMT 10) are specifically used to measure the Airport's noise budget. Noise levels at these monitoring locations are provided in Table 1 below.

**Table 1: Air Carrier Noise Budget Performance
(October 1, 2016 – September 30, 2017)**

Location	Allowable Budget	Budget Used	Percent Used	Budget Remaining	Percent Remaining
RMT 9	70.7	61.9	88%	8.8	12%
RMT 10	84.6	84.9	100%	-0.3	0%

Source: Air Carrier Noise Budget Analysis Report, Landrum & Brown, November 9, 2017.

As shown in Table 1, allowable budgets for the Air Carrier category at RMT 9 and RMT 10 are 70.7 and 84.6, respectively. The actual budget used by Air Carriers was 61.9 at RMT 9 and 84.9 at RMT 10. This indicates the Air Carrier category had 8.8 budget units unused at RMT 9, but was 0.3 budget units over at RMT 10.

Air Carrier operations steadily increased during the current reporting period (NY 16-17). The Airport has allocated 50 Air Carrier flight slots - 48 passenger and 2 cargo. These flight slots are comprised of 41 Permanent Air Carrier flight slots and 9 Supplemental Air Carrier flight slots. As a group, the Air Carriers operated an average of 38 flights per day at the beginning of the 12-month reporting period and operated an average of 49 flights per day at the end of the 12-month reporting period. Across the reporting period, the Air Carriers have operated an average of 46.5 flights per day.

As indicated in Mr. Mestre’s letter (Attachment A), the reason the Air Carriers were over budget for the period at RMT 10 is due to the number of late-night arrival operations. During the previous reporting period (NY 15-16), 1.5 percent of Air Carrier operations at RMT 10 were conducted during nighttime hours (10:00 p.m. – 6:59 a.m.). Data for the current year (NY 16-17) indicate that 2.5 percent of total Air Carrier operations at RMT 10 were nighttime operations, and approximately 10 percent of the noise budget at RMT 10 was attributable to these nighttime operations.

Because the Air Carriers operated above the allowable budget during the reporting period at RMT 10, additional analysis was conducted to determine aircraft noise levels and budget compliance for all five aircraft categories. This analysis was conducted independently by Acoustical Analysis Associates, Inc. The results of this analysis are shown in Table 2. The complete Acoustical Analysis Associates Inc., report is included as Attachment B.

**Table 2: Overall Noise Budget Performance
(October 1, 2016 – September 30, 2017)**

Location	Allowable Budget	Budget Used	Percent Used	Budget Remaining	Percent Remaining
RMT 9	102.7	71.9	70%	30.8	30%
RMT 10	120.9	103.0	85%	17.9	15%

Source: Analysis of Long Beach Municipal Airport Noise Monitoring Data, Acoustical Analysis Associates, Inc., November, 2017.

As shown in Table 2, the Airport achieved compliance with the overall noise budgets and is in conformance with the City’s goal of minimizing the number of incompatible land uses located within the 65 CNEL. CNEL is a cumulative noise metric based on the loudness of noise events and the time of day noise events occur. CNEL incorporates weighting penalties to account for the increased intrusiveness of noise that occurs during the evening and nighttime periods. Evening is defined as the period from 7:00 p.m. to 9:59 p.m. Noise events

occurring during the evening period are weighted by approximately 5 dBA. Nighttime is defined as the period from 10:00 p.m. to 6:59 a.m. Noise events occurring during the nighttime period are weighted by 10 dBA. Historically, approximately 75 percent of the Airport's Air Carrier operations occur during the daytime (7:00 a.m. to 6:59 p.m.) period, 24 percent occur during the evening (7:00 p.m. to 9:59 p.m.) period, and approximately 1 percent occur during the nighttime (10:00 p.m. to 6:59 a.m.) period. The budget numbers are calculated based on the evening and nighttime weighting penalties and the loudness of each individual aircraft noise event as measured by the Airport's noise monitoring system.

As indicated earlier, the Air Carriers' exceeded their allowable budget for the reporting period at RMT 10; however, the Airport achieved compliance with the overall budget levels at both RMT 9 and RMT 10. The Noise Ordinance specifies that retraction of Supplemental Air Carrier slots will occur only if both the Air Carrier and the Overall budgets are exceeded. Accordingly, we recommend no changes to the Airport's Air Carrier slot allocation at this time.

If you have any questions or require additional information, please contact Airport Director Jess L. Romo at (562) 570-2605.

JR:RR:KM

ATTACHMENTS (2)

CC: CHARLES PARKIN, CITY ATTORNEY
MICHAEL J. MAIS, ASSISTANT CITY ATTORNEY
TOM MODICA, ASSISTANT CITY MANAGER
KEVIN JACKSON, DEPUTY CITY MANAGER
REBECCA GARNER, ASSISTANT TO THE CITY MANAGER



November 9, 2017

Mr. Mike Mais
Assistant City Attorney
Long Beach Airport
4100 Donald Douglas Drive
Long Beach, CA 90808

Subject: Long Beach Airport Air Carrier Noise Budget Analysis For Noise Year October 1, 2016 to September 30, 2017

Dear Mike,

Mestre Greve Associates, a Division of Landrum & Brown, has completed the analysis of the Air Carrier Noise Budget for Noise Year October 1, 2016 through September 30, 2017 (NY '16-17).

As discussed in more detail below, the data indicate that the air carriers operated below the allowed budget at RMT 9 and above the allowed budget limit RMT 10 for the NY '16-17. Based on these data, we recommend that the Airport maintain the current level of allocated permanent and supplemental flight slots.

This recommendation is based on a number of factors including, but not limited to, the requirements of Long Beach Municipal Code (LBMC) Section 16.43.060(E) the number of flight slots currently allocated, the noise budget actually used during the NY '16-17, and the projected noise budget that would have been used during the NY '16-17 if the supplemental flight slots allocated during the NY '16-17 had been flown for the entire Noise Year. Table 1 compares the allowed budget with the actual budget used:

Table 1
Noise Budget Status For Noise Year 2016/17

<u>Location</u>	<u>Allowed Budget</u>	<u>Actual Budget Used</u>
RMT 9	70.7	61.9
RMT 10	84.6	84.9

The airport averaged 47 flights per day. This is below the permitted number of 50 daily air carrier flights (minimum 41 permanent flights plus 9 supplemental flights).



LBMC Section 16.43.060(E) states that if the air carrier operations are above the allowable noise budget and the overall aircraft noise level exceeds the level allowed by LBMC 16.43.050(A), the Airport Director shall revoke such of the supplemental flight slot awards to achieve compliance with LBMC 16.43.050(A).

Although the Noise Budget for RMT 10 was exceeded by 0.3 units, the overall aircraft noise levels are predicted to be well below the overall maximum allowable noise budgets.

The reason that the actual budget used exceeds the budget at RMT 10 is the number of nighttime operations. The vast majority of these operations are arrival operations. The Noise Budgets are calculated using the Community Noise Equivalent Level (CNEL) cumulative noise metric. CNEL is based on three daily time periods, daytime (7:00 a.m. – 6:59 p.m.), evening (7:00 p.m. – 9:59 p.m.) and night (10:00 p.m. – 6:59 a.m.). In calculating the CNEL, Evening operations are equivalent to three daytime operations and nighttime operations are equivalent to ten daytime operations. Because of these weighting factors, nighttime operations are especially critical to the noise budgets as one nighttime operation is equivalent to ten daytime operations. During the prior year (Noise Year '15/16), 1.5% of aircraft operations at RMT 10 were conducted during the nighttime hours. Data for the current year indicate that 2.5% of total air carrier operations at RMT 10 were nighttime operations. Approximately 10% of the noise budget at RMT 10 is attributable to nighttime operations.

Because the results for budget year 2015/2016 were below the allowable budget, the Airport allocated 9 supplemental flights above the minimum 41 flights for budget year 2016/2017. Additional flight slots cannot be allocated at this time, and if the number night operations does not decrease in the next budget year (Noise Year '17/18) and the number of permitted flights is fully realized the airport will exceed the air carrier budget for Noise Year 2017/2018.

Noise Budget Methodology

The noise budget status was computed from individual flight data collected from the Long Beach Airport's permanent airport noise monitoring system (ANOMS). Individual data were provided for each of the air carrier flights arriving and departing from Long Beach Airport during the budget year. The following paragraphs describe the computation methodology.

An example of 5 flights recorded at RMT 9 are as follows:

<u>Max Date Time</u>	<u>Aircraft Type</u>	<u>Airline</u>	<u>A/D/O</u>	<u>Runway</u>	<u>RMT</u>	<u>SEL</u>
10/1/02 7:06	MD80	AAL	D	30	9	99.7
10/1/02 7:09	A320	JBU	D	30	9	89.8
10/1/02 7:11	A320	AWE	D	30	9	88.2
10/1/02 7:17	A320	JBU	D	30	9	94.7
10/1/02 8:02	A320	JBU	D	30	9	90



The first column lists the date and time of the flight. The time used for noise budget calculations is the time that the noise event was recorded at the monitoring site, not the scheduled flight time. Subsequent data include the aircraft type, airline, departure/arrival/overflight, runway utilized, noise monitor measurement site, and the Sound Exposure Level (SEL), in decibels, as measured at the RMT (remote monitoring terminal).

It is interesting to note that 4 of the 5 aircraft in the above example are Airbus A-320's, and there is a substantial range in the measured noise level. There are many factors that contribute to this range, but the most significant is aircraft weight. Aircraft weight is a function of the number of passengers and the distance to the destination. A flight of 2000 miles carries substantially more fuel than a flight of 250 miles.

More importantly, these data show how much louder an MD80 is on departure than the Airbus A320. Note that the MD80 is no longer a part of the Long Beach fleet and is included here only as an example.

Noise Budget Calculations and Analysis

The conversion of the measured SEL at RMT 9 and RMT 10, is done according to the budget definitions and as prescribed in the City's Noise Compatibility Ordinance (LBMC 16.43).

The first step in analyzing the data is to convert the noise measurements made at RMT 9 and RMT 10 to the noise level at the nearest residences to Runway 12/30. For RMT 9, the noise level is increased by 1.1 dB, and at RMT 10 the noise level is increased by 0.9 dB to account for the fact that the nearest homes are closer to the runway than the actual monitoring stations.

The next step is to convert the noise level at the nearest home to an equivalent number of daytime flights of the 'standard' aircraft that is built into the budget. This equivalent number of daytime flights is termed "budget units." The 'standard' aircraft noise level is the SEL that 100 daytime flights would have to have to produce a CNEL of 65 dB at the nearest residence.

The resulting numbers of equivalent budget units are then compared to the budget allocations of 70.7 budget units at RMT 9, and 84.6 at RMT 10. The budget allocations were based on the 1989/90 baseline actual noise level and industrial aircraft forecast as prescribed in the federal court approved and federal code-grandfathered Long Beach Airport Noise Compatibility Ordinance (LBMC 16.43).



If you have any questions please do not hesitate to call.

Yours very truly,

Mestre Greve Associates Division of Landrum & Brown

A handwritten signature in black ink, appearing to read 'Vincent Mestre'.

Vincent Mestre, P.E.

Attachment B



AAAI Report 1518

Analysis of Long Beach Municipal Airport Noise Monitoring Data to Determine CNEL Contributions for the Third Quarter 2017

November 2017

Submitted to:

Mr. Ron Reeves

Noise & Environmental Affairs Officer

Long Beach Municipal Airport

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**ANALYSIS OF LONG BEACH MUNICIPAL AIRPORT NOISE MONITORING DATA TO
DETERMINE CNEL CONTRIBUTIONS FOR THE THIRD QUARTER OF 2017****Executive Summary**

This report presents an analysis of noise data for the third quarter of 2017. The analysis reflects information from the Long Beach Airport monitoring system relating noise data with operations and aircraft types.

The analysis has been undertaken for the following major purposes:

- A. To compare measured CNEL values with noise goals;
- B. To compare the CNEL contributions by different Runway 30 users.

Our analysis is based upon the noise data provided by Stations 9 and 10 of the airport noise monitoring system. Table A provides a summary of our analysis. Sections 1 through 3 of this report provide further, more detailed information.

The upper portion of Table A compares the current quarter CNEL values at the two monitoring stations with the previous quarter measurements. It also compares the current quarter CNEL values to the CNEL required to achieve a 65 dB CNEL at the nearest residential area. The lower portion of the table compares the aircraft noise contributions with the budget and enforcement figures adopted as part of City Ordinance Chapter 16.43.

Please note that comparisons are presented in terms of the "Adjusted CNEL" which is the total aircraft CNEL less the noise contributions from military and U.S. government aircraft operations on Runway 30/12. Life flights are included in government flights.

The estimated CNEL values at the nearest residential areas listed in Table A are based only upon analysis of the noise data from Stations 9 and 10. These values may not agree with those estimated from the quarterly CNEL contours which are drawn on the basis of noise information from additional monitor positions.

Compared to the 2nd quarter of 2017, the adjusted CNEL increased by 0.3 dB at Station 9 and remained constant at Station 10. The increase in adjusted CNEL value at Station 9 is caused by increased air carrier contributions.

TABLE A

**AIRCRAFT CNEL AND NOISE CONTRIBUTION COMPARISONS FOR
3rd Quarter 2017**

A. CNEL Comparisons at the Takeoff End of Runway 30

Period	CNEL at Monitor Station 9		Adjusted CNEL at Nearest Residential Area	
	Measured	(1) Adjusted	(1) Adjusted	CNEL re 65 dB Goal
2nd Qtr 17	64.0 dB	62.7 dB	63.8 dB	-1.2 dB
3rd Qtr 17	63.3 dB	63.0 dB	64.1 dB	-0.9 dB

B. CNEL Comparisons at the Approach End of Runway 30

Period	CNEL at Monitor Station 10		Adjusted CNEL at Nearest Residential Area	
	Measured	(1) Adjusted	(1) Adjusted	CNEL re 65 dB Goal
2nd Qtr 17	65.4 dB	64.5 dB	65.4 dB	0.4 dB
3rd Qtr 17	65.2 dB	64.5 dB	65.4 dB	0.4 dB

C. Aircraft Noise Contributions (2)**Station 9**

	2nd Qtr 2017	3rd Qtr 2017	Budget (3)	Enforcement (3)
Air Carrier	64.7	70.0	70.7	89.1
Non-Air Car.	11.0	8.7	32.0	40.3
Total	75.7	78.6	102.7	129.4
RW 30/12 (4)				
Mil. & Gov.	26.4	6.4		
Total -- All	102.1	87.0		

Station 10

	2nd Qtr 2017	3rd Qtr 2017	Budget (3)	Enforcement (3)
Air Carrier	90.4	92.4	84.6	106.5
Non-Air Car.	18.2	18.4	36.3	45.6
Total	108.5	110.8	120.9	152.1
RW 30/12 (4)				
Mil. & Gov.	26.7	16.8		
Total -- All	135.2	127.6		

(1) Excludes noise from military & government aircraft flights

(2) Noise contributions total 100 for 65 dB at nearest residential areas

(3) Long Beach City Ordinance Chapter 16.43

(4) Excludes noise from military & government flights, and non-Runway 30/12 flights

1.0 Introduction

This section of the report provides an analysis of airport noise monitoring information. The analysis has been undertaken for the following purposes:

- A. To compare measured CNEL values with noise goals;
- B. To compare the CNEL contributions by different Runway 30/12 users;
- C. To provide information on the average noise levels produced by major aircraft using Runway 30/12.

The basic data are provided by Stations 9 and 10 of the airport noise monitoring system augmented by information from other sources as to numbers of operations. The first such analysis of this type was undertaken for May and July 1986 data.

Please note that the analysis is limited to noise information provided by Stations 9 and 10 which are located directly under the takeoff and approach flight paths to Runway 30/12. Noise information from other monitor stations located to the sides of the flight paths influence the breadth of the CNEL contours and may modify the conclusions given in this analysis regarding the location of the 65 dB CNEL contour with respect to the nearest residential areas.

2.0 Description of Tables

Table 1 - This table lists the average numbers of daily flights on Runway 30/12 for the current and previous quarters. The numbers are based upon information from the airport noise monitoring system and from other airport information. The information on numbers of flights shown in Table 1 is used in calculating the CNEL noise contributions.

Table 2 - This table compares the average aircraft noise levels for the two quarters. Noise level information is provided for Station 9 or 13 departures and Station 10 arrivals since these operations are the most important contributors to the total CNEL values at these two stations. The table also lists the change in average noise levels between the two periods. Typically, the air carrier averages should show relatively small changes from quarter to quarter. The average for business jet, military, government and charter operations may sometimes show larger variations because of large changes in the numbers and types of aircraft in these categories.

3.0 CNEL Calculation Summary

Table 3 summarizes the noise contributions for Stations 9 and 10 for the 3rd quarter of 2017.

Table 4 summarizes the cumulative noise contributions for Stations 9 (13) and 10 for the four quarter period of October 1, 2016 to September 30, 2017.

The first row at the top of each table lists the measured aircraft CNEL. The second row lists the "Adjusted CNEL" which is the measured CNEL less the noise contributions from military and U.S. government aircraft flights. The third row shows the adjusted CNEL at the nearest residential area to the airport, which is higher than at the more distant noise monitor location. The fourth row compares that value with the 65 dB CNEL goal for the nearest residential area.

In the lower portion of the tables, noise contributions for air carriers and non-air carriers are listed, summed and compared with the budget and enforcement values established in City Ordinance Chapter 16.43. The noise budget is based on noise due to departures and arrivals on Runway 30 and 12 only. Calculated noise contributions are in terms of equivalent flights (where 100 equivalent flights total 65 dB CNEL at nearest residential area). Expressed in this way, the number of equivalent flights equals the noise contribution in percent, where 100 percent equals 65 dB CNEL.

TABLE 1
COMPARISON OF AVERAGE NUMBERS OF FLIGHTS
PER DAY FOR 2nd Quarter 2017
and 3rd Quarter 2017

		AVERAGE NO. OF FLIGHTS/DAY (1)		
AIRLINE/AIRCRAFT		Previous Qtr	Present Qtr	CHANGE
FDX	A300/A310	0.7	0.7	0.0
JBU	A320	36.0	34.9	-1.1
ASH	CRJ9	3.0	2.8	-0.2
SKW	CRJ9	3.8	3.8	0.0
SWA	B737	5.4	6.2	0.8
UPS	B76S	0.7	0.7	0.0
AIR CARRIERS		49.6	49.1	-0.5
GLF	G5	0.0	0.1	0.1
INDUSTRIAL		0.1	0.4	0.3
CHARTER		0.27	0.48	0.21
CRJ	200	0.0	0.0	0.0
CRJ	700	0.1	0.1	0.0
COMMUTER		0.2	0.1	-0.1
BUSJETS		10.8	10.7	-0.1
GA PROP		15.6	14.0	-1.6
ALL GEN. AV.		26.5	24.7	-1.8
MILITARY		0.3	0.2	-0.1
GOVERN.		0.5	0.3	-0.2
ALL MIL & GOV		0.8	0.5	-0.3
TOTAL ALL		77.4	75.2	-2.2

(1) As based upon airport monitor data

**TABLE 2
COMPARISON OF AVERAGE AIRCRAFT NOISE LEVELS
FOR 2nd QUARTER 2017 and 3rd QUARTER 2017**

SOUND EXPOSURE LEVEL, dB

AIRLINE/AIRCRAFT	STATION 9 DEPARTURES			STATION 10 ARRIVALS		
	Previous Qtr	Present Qtr	Change	Previous Qtr	Present Qtr	Change
FDX A300/A310	95.4	95.7	0.3	97.0	96.8	-0.2
JBU A320	92.5	92.6	0.1	93.9	93.6	-0.3
AWE CRJ9	90.9	90.8	-0.1	92.2	91.9	-0.3
SKW CRJ9	92.2	92.2	0.0	91.4	91.3	-0.1
SWA B737	91.4	91.0	-0.4	94.5	94.0	-0.5
UPS B76S	95.4	95.6	0.2	97.7	97.4	-0.3
AIR CARRIERS	92.4	92.4	0.0	93.9	93.6	-0.3
GLF G5	81.6	86.9	5.3	88.9	87.9	-1.0
INDUSTRIAL	85.2	87.5	2.3	93.0	88.5	-4.5
CHARTER	95.9	95.4	-0.5	95.3	95.8	0.5
SKW CRJ2	83.2	0.0	---	91.3	0.0	---
ASH CRJ2	0.0	0.0	---	0.0	0.0	---
ALL CRJ7	91.1	90.7	-0.4	91.0	91.0	0.0
COMMUTER	90.8	90.7	-0.1	91.1	91.0	-0.1
BUSJETS	88.9	88.6	-0.3	89.7	89.5	-0.2
GA PROP	86.4	84.9	-1.5	87.2	86.4	-0.8
ALL GEN. AV.	88.0	87.5	-0.5	88.4	88.0	-0.4
MILITARY	113.9	112.4	-1.5	113.6	112.8	-0.8
GOVERN.	98.9	98.1	-0.8	94.3	95.2	0.9
ALL MIL & GOV	109.5	106.5	-3.0	109.6	109.1	-0.5

TABLE 3
NOISE CONTRIBUTION SUMMARY FOR THE
3rd Quarter 2017

		<u>STATION 9</u>			<u>STATION 10</u>		
MEASURED CNEL		63.3 dB			65.2 dB		
ADJ. CNEL (1)		63.0 dB			64.5 dB		
ADJ. CNEL at Res. Area		64.1 dB			65.4 dB		
ADJ. CNEL re 65 dB GOAL		-0.9 dB			0.4 dB		
<u>AIRLINE/AIRCRAFT</u>		<u>TOTAL</u>	<u>(2) BUDGET</u>	<u>(2) ENFORCEMENT</u>	<u>TOTAL</u>	<u>(2) BUDGET</u>	<u>(2) ENFORCEMENT</u>
FDX	A300/A310	2.4			1.5		
JBU	A320	54.3			69.1		
ASH	CRJ9	2.0			3.6		
SKW	CRJ9	3.0			4.1		
SWA	B737	4.5			12.3		
UPS	B76S	3.5			1.7		
AIR CARRIERS		70.0	70.7	89.1	92.4	84.6	106.5
GLF	G5	0.02			0.02		
GLF	G6	0.08			0.11		
INDUSTRIAL		0.10	8.5	10.7	0.13	6.6	8.3
CHARTER		1.2	0.14	0.17	1.3	0.09	0.11
CRJ	200	0.0			0.0		
CRJ	700	0.0			0.0		
COMMUTER		0.0	0.4	0.5	0.0	3.6	4.5
GENERAL AVIATION		7.3	23.0	28.9	17.0	26.0	32.7
RWY 30/12 CNEL TOTAL		78.6	102.7	129.4	110.8	120.9	152.1
See Notes (3) & (4)							
MIL & GOV		6.4			16.8		
MEASURED CNEL TOTAL		87.0			127.6		

- (1) Excludes noise from military & government aircraft flights
(2) Long Beach City Ordinance Chapter 16.43
(3) Noise contributions total 100 for 65 dB at nearest residential ar
(4) Excludes military/government and non-Rwy 30/12 flights

TABLE 4
CUMULATIVE NOISE CONTRIBUTION SUMMARY FOR
October 1, 2016 to September 30, 2017

	<u>STATION 9</u>		<u>STATION 10</u>	
MEASURED CNEL	63.1 dB		64.8 dB	
ADJ. CNEL (1)	62.5 dB		64.2 dB	
ADJ. CNEL at Res. Area	63.6 dB		65.1 dB	
ADJ. CNEL re 65 dB GOAL	-1.4 dB		0.1 dB	
AIRCRAFT	TOTAL BUDGET(2)		TOTAL BUDGET(2)	
FDX A300/A310	2.3		1.6	
SWA B737	4.5		10.9	
JBU A320	46.2		62.6	
ASH CRJ9	2.3		4.2	
SKW CRJ9	2.8		3.8	
UPS B76S	3.5		2.0	
AIR CARRIERS	61.7 70.7		85.4 84.6	
G5 GLF	0.01		0.01	
G6 GLF	0.03		0.00	
INDUSTRIAL	0.04 8.5		0.01 6.6	
CHARTER	0.8 0.1		0.8 0.1	
CRJ200	0.00		0.01	
CRJ700	0.2		0.3	
COMMUTER	0.2 0.4		0.3 3.6	
GENERAL AVIATION	9.2 23.0		16.4 26.0	
TOTAL CIVIL A/C ON	71.9 102.7		103.0 120.9	
RW 30/12	71.9 102.7		103.0 120.9	
(3) & (4)				
MIL & GOV	11.7		13.4	
MEASURED CNEL TOTAL	83.6		116.4	

(1) Excludes noise from military & government aircraft flights

(2) Long Beach City Ordinance Chapter 16.43

(3) Noise contributions total 100 for 65 dB at nearest residential areas

(4) Excludes noise from military & government flights, and non-Runway 30/12 flights