City of Long Beach **Memorandum**

Working Together to Serve

Date: November 14, 2018

To: Patrick H. West, City Manager

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

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 (Noise Ordinance), requires the Airport to evaluate noise budgets for each user category 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, staff recommends 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, 2017, through September 30, 2018 (NY 17-18), which is attached, indicates that the Airport operated below the Air Carrier noise budget at remote monitoring terminal (RMT) 9 and RMT 10. Remote monitoring locations are physical points around the Airport that use 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 is provided in Table 1.

Table 1: Air Carrier Noise Budget Performance (October 1, 2017 – September 30, 2018)

Location	Allowable Budget	Budget Used	Percent Used	Budget Remaining	Percent Remaining
RMT 9	70.7	64.3	90.9	6.4	9.1
RMT 10	84.6	84.3	99.6	0.3	0.4

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 64.3 at RMT 9 and 84.3 at RMT 10. This indicates 6.4 budget units were unused at RMT 9 and 0.3 budget units were unused at RMT 10.

Air Carrier operations remained steady during the current reporting period (NY 17-18). 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 49.4 flights per day throughout the reporting period.

The Air Carriers were below their allowable budget for the reporting period at 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, staff recommends no changes to the Airport's Air Carrier slot allocation at this time.

If you have any questions or require additional information, please call me at (562) 570-2605.

JR:RM:km

ATTACHMENT

CC: CHARLES PARKIN, CITY ATTORNEY
LAURA L. DOUD, CITY AUDITOR
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REBECCA GARNER, ASSISTANT TO THE CITY MANAGER

October 18, 2018

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

Subject: Long Beach Airport Noise Budget Analysis For Noise Year October 1, 2017 to September 30, 2018

Dear Mike,

Landrum & Brown, has completed the analysis of the Air Carrier Noise Budget for Noise Year October 1, 2017 through September 30, 2018 (NY '17-18).

As discussed in more detail below, the data indicate that the air carriers operated below the allowed budget at RMT 9 and barely below the budget at RMT 10 for the NY '17-18. 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 and used, and the noise budget actually used during the NY '17-18. Table 1 compares the allowed budget with the actual budget used:

Table 1

Noise Budget Status For Noise Year 2017/18

Location	Allowed Budget	Actual Budget Used
RMT 9	70.7	64.3
RMT 10	84.6	84.3

The airport averaged 49.4 air carrier 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).

The Air Carrier Noise Budget for RMT 10 was below the allowed budget by 0.3 units, which while below the limit is a very small margin. Recall that the budget results for budget year 2015/2016 were below the allowable budget and the Airport allocated 9 supplemental flights above the minimum 41 flights for budget year 2016/2017 and these supplemental flights remained for NY '17-18. Additional flight slots cannot be allocated at this time as the airlines are operating too close to the noise limit, albeit below the limit, to safely add flights and remain below budget.

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 was 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:

Max Date Time	Aircraft Type	Airline	A/D/O	Runway	RMT	SEL
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 includes 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 2,000 miles carries substantially more fuel that 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,
Landrum & Brown

Vincent Mestre, P.E.