

Date: October 31, 2023

To: Thomas B. Modica, City Manager



From: Cynthia Guidry, Director, Long Beach Airport



For: Mayor and Members of the City Council

Subject: **General Aviation Operations at Long Beach Airport**

On September 12, 2023, the City Council requested a comprehensive report, in response to community concerns over increased General Aviation (GA) activity, detailing the GA operations at Long Beach Airport (Airport or LGB), including its ties to the City of Long Beach (City), the Federal Aviation Administration (FAA), and privately-owned flight schools.

As California's oldest municipally owned airport, LGB has a long history of serving travel demand, providing economic benefit and being part of the nation's network of critical aviation infrastructure. The FAA has jurisdiction over airspace, aircraft safety and regulates airports and much of our local control is limited by federal law.

The Airport recognizes the recent significant increase in GA activity and sees this report as an opportunity to explain the complexity of Airport operations, answer community questions, share updated GA voluntary measures and provide seven specific recommendations that we believe are within our authority to address community concerns.

Long Beach Airport

The Airport operates as a department of the City of Long Beach (City) and is governed by the Long Beach City Council. The Airport Department reports directly to the Office of the City Manager. Founded on November 26, 1923, the Airport operates as an enterprise-fund department and is responsible for ensuring a sufficient generation of revenues to cover its expenses. The Airport will operate with an estimated budget of \$65.88 million for Fiscal Year 2024 with approximately 135 full-time City employees. The Airport Department was established in 2009, formerly existing as the Airport Bureau of the Department of Public Works.

The Airport is a significant City and regional economic driver providing travel opportunities, connectivity, movement of goods and services, and thousands of well-paying jobs to the local economy. The Airport is also a valuable national asset and is classified as a small hub airport as part of the FAA National Plan of Integrated Airport Systems (NPIAS). Airspace is under the sole jurisdiction of the FAA.

The Airport is appealing for its centralized location within the greater Los Angeles metropolitan area, number and length of runways, and operational diversity with its ability to support commercial passenger and cargo aircraft, GA aircraft from business jets and training aircraft to helicopters and banner-tow aircraft, military aircraft from large transports supporting

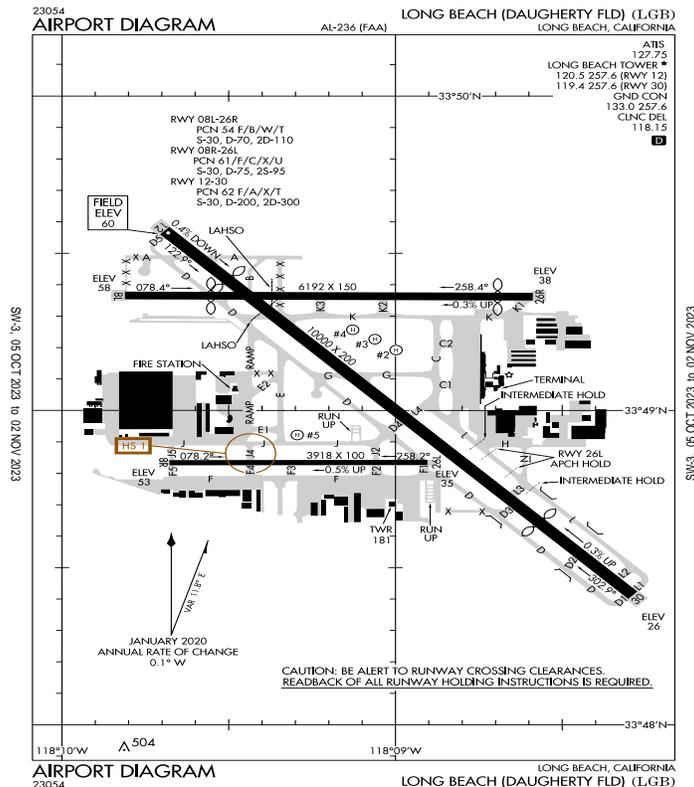
manufacturing industries to tactical jets and even commercial airship operations. The Airport also has aeronautical support activities including aircraft maintenance and repair. A key goal of the Airport is to maximize the economic benefits while minimizing potential adverse effects.

The Airport encompasses 1,166 acres of land (approximately 1.8 square miles) and is generally located east of Cherry Avenue, west of Lakewood Boulevard, south of Cover Street, and north of Spring Street. The Airport, north of Spring Street, is in Council District Five and south of Spring Street is in Council District Four.

LGB Operations and Flight Patterns

LGB has three runways, Runway 12-30, Runway 8L-26R and Runway 8R-26L. Runway 12-30 is 10,000 feet in length and is the primary runway for commercial and business jet operations. LGB also has two parallel runways that are primarily used for GA operations. Runway 8L-26R, the northern parallel runway, is approximately 6,200 feet in length, comparable to John Wayne Airport's main runway. Runway 8L-26R serves as the Airport's secondary air carrier runway and is used when Runway 12-30 is not available. Runway 8R-26L, the southern parallel runway, is approximately 3,900 feet in length and is used exclusively for GA operations including aircraft arrivals and departures and touch-and-go training operations. LGB also has four helicopter landing pads for helicopter practice operations along with an airship mooring site. The airfield layout, including the three runways, is depicted in Figure 1.

Figure 1. Airfield Diagram



The configuration of the runways, combined with meteorological conditions, dictates the runway utilization by various operators and types of aircraft. Aircraft generally takeoff and land into the wind. In effect, this practice reduces the speed of the aircraft when near the ground and reduces the takeoff and landing distance needed. This contributes to flight safety. At LGB, approximately 95 percent of operations utilize “west-flow” using Runways 30, 26R and 26L.

Runway length and aircraft performance characteristics also play a significant role in runway utilization. For example, because of its short length, commercial air carrier aircraft are unable to use Runway 26L. As a result, Runway 30, LGB’s longest runway, is used as the primary runway for commercial operations. Conversely, most GA aircraft, except for jet aircraft, can operate from any of LGB’s runways.

Flight patterns for GA aircraft are well-established and standardized for all airports. Well-established, standardized flight patterns are essential to ensure pilots know what to expect at each airport they visit. This is critical to flight safety as the pilots must not only know where to fly but, perhaps more importantly, they must also know where to look to see and avoid other aircraft.

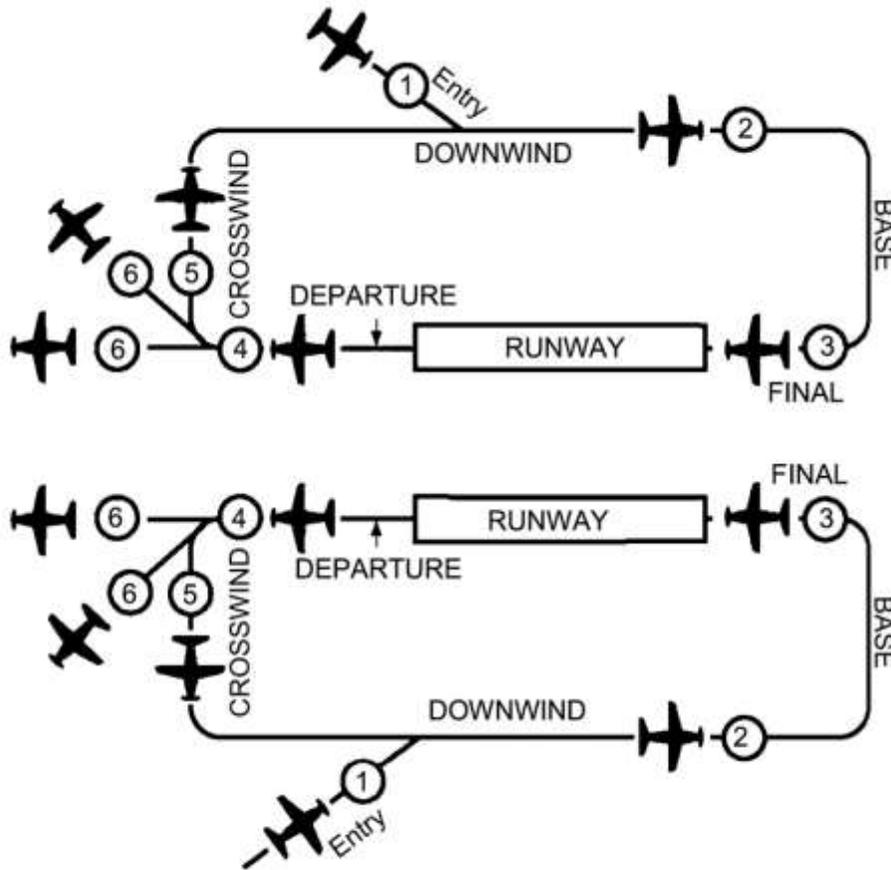
The FAA is responsible for controlling the movement of aircraft. Staff at the Long Beach Air Traffic Control Tower, along with the pilot-in-command of each aircraft, are responsible for ensuring flight separation and safety. The standardized aircraft flight patterns are depicted in Figure 2.

Figure 2 is adapted from the FAA’s Airman’s Information Manual (AIM). The AIM provides flight information common to all airports. Figure 2 depicts common traffic patterns for an airport with a parallel runway configuration. In this configuration, aircraft operating on the respective runways turn away from or opposite each other. The configuration shown in Figure 2 is the configuration of Runway 8L-26R and Runway 8R-26L at LGB.

As shown in Figure 2, aircraft approaching LGB enter the traffic pattern on a 45-degree angle to the downwind segment of the traffic pattern. The aircraft should be at traffic pattern altitude (1,000 feet Mean Sea Level (msl)) prior to entry. This is essential for safety. The downwind segment is flown approximately one mile abeam and parallel to the landing runway. The base segment is approximately .75 miles from landing with the aircraft perpendicular to the runway and descending from pattern altitude. The final segment is from the base segment to the point of power.

If a touch-and-go training operation is being conducted, takeoff power is applied shortly after touchdown and the aircraft will proceed with the departure. The crosswind turn is initiated after the aircraft is beyond the departure end of the runway and within 300 feet of the pattern altitude. Aircraft should be at pattern altitude prior to joining the downwind segment.

Figure 2. Standardized Airport Traffic Pattern



Source: FAA Airman's Information Manual

The City's Noise Compatibility Ordinance (Long Beach Municipal Code Chapter 16.43) also influences runway utilization by restricting types and times of operations to specific runways. Training operations, except for instrument training, are restricted to Runways 26R-8L and 26L-8R. The Noise Ordinance also restricts the time of training operations to between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 3:00 p.m. on Saturdays, Sundays, and specific holidays (LBMC 16.43.030 A). The Airport does not have the ability to enforce runway use beyond the provisions contained in the Noise Ordinance.

Table 1 depicts the overall runway utilization for west-flow operations for Calendar Year 2022 for aircraft categories as defined by the Noise Ordinance (LBMC 16.43.010). Calendar Year 2022 is generally representative of long-term runway utilization. The key aircraft categories of significance comprising the vast majority of operations are the Air Carrier and GA categories. As shown in Table 1, 99.7 percent of air carrier aircraft utilized Runway 30 with the remainder utilizing Runway 26R. Most GA aircraft used Runways 26L and 26R. 55.2 percent of the GA aircraft used Runway 26L and 25.3 percent of GA aircraft used Runway 26R. The remaining GA aircraft, 19.5 percent, used Runway 30.

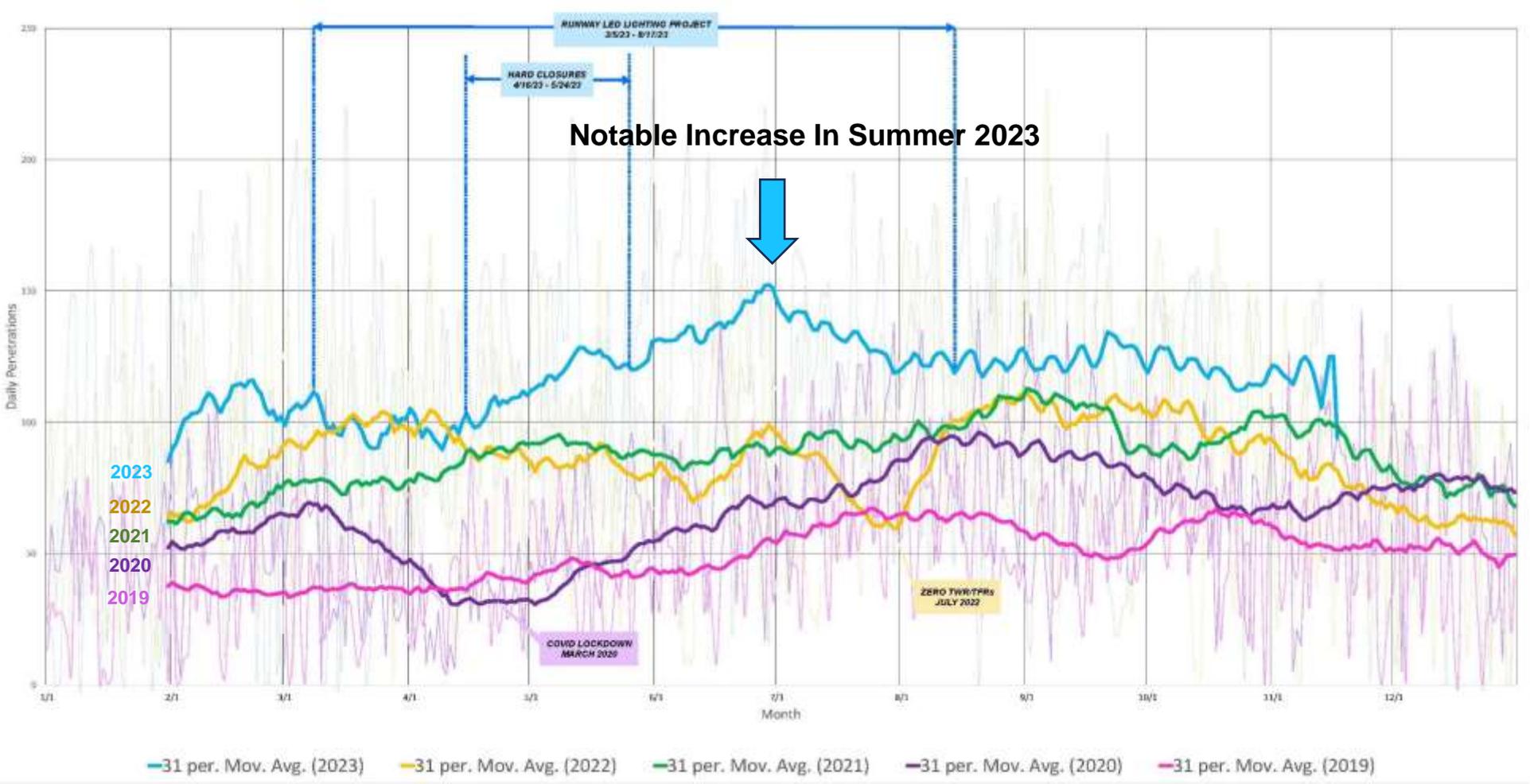
Table 1. Calendar Year 2022 West-Flow Runway Utilization

	30	26R	26L
Charter	100.0%	0.0%	0.0%
Air Carrier	99.7%	0.3%	0.0%
Exempt	54.3%	40.0%	5.7%
General Aviation	19.5%	25.3%	55.2%
Military	100.0%	0.0%	0.0%

The number of aircraft operations is a key factor affecting the noise environment in the vicinity of the Airport. A detailed analysis of operational activity was conducted to assess the potential change over the last several years.

Operations on Runway 26R for periods January 2019 through August 2023 are graphically depicted in Figure 3.

Figure 3. General Aviation Operations Runway 26R, January 2019 – August 2023



Source: Long Beach Airport Noise and Operations Monitoring System / Staff Analysis

The heavy lines in Figure 3 depict the 31-day rolling average for the respective year. The light-weighted lines depict individual daily operations. The data for Calendar Year 2020 reflect the dramatic decrease in operations beginning in early March. This is the result of the early effects of the COVID-19 pandemic on the GA industry. The data also depicts a recovery as travelers preferred private air travel over commercial travel.

The data shown in Figure 3 also depicts the seasonal variation in GA activity with the summer months of June, July and August being the most active months. The data indicates that GA operations during the summer period have consecutively increased in each of the last four years. The data also confirms the recent increase in operations expressed by residents earlier this year.

These increases in GA are driven by the increasing demand for qualified pilots. The FAA issues approximately 6,500 pilot certificates each year. The projected need within the industry is for approximately 14,500 pilots annually through 2030^{1 2}. This disparity between supply and demand has resulted in a substantial increase in pilot compensation along with significant interest in aviation careers. Pilot training requires a sizable investment in terms of resources and time. Flight training schools are working to satisfy this demand.

Basic pilot training must be conducted in fair weather. For this reason, fair weather climates found in states such as California, Arizona and Florida are particularly attractive for flight schools and these areas have long been associated with a high volume of flight training activity. The Southern California region is also attractive due to the density and complexity of the airspace. In other words, if a pilot can handle the complexity of Southern California airspace, they can handle the complexity of any airspace.

Within Southern California, LGB is particularly attractive for flight training operations as it is conveniently located within the Los Angeles basin, which has several training areas and the Airport presents a complex training environment with an operating air traffic control tower and diverse operational activity including interaction with commercial aircraft, business jets and helicopters. The dual parallel runways, Runways 8L-26R and 8R-26L, provide added capacity over single runway operations. For these reasons, LGB has experienced a significant increase in GA training operations.

The question is often asked, "Are GA training operations at capacity at Long Beach Airport?" In response, there are periods during the day when the GA traffic patterns are fully utilized, and additional aircraft cannot be accommodated without incurring operational delays. During these periods, the Airport could be classified as having been at capacity. During other times of the day, this is not the case, and additional operations can be added without incurring delays.

Noise Management

The Airport Noise Compatibility Ordinance (Noise Ordinance or Ordinance) for the City of Long Beach (LBMC 16.43) establishes a Community Noise Equivalent Level (CNEL) noise budget for operations at the Airport based on CNEL limits set in the baseline year of 1989-1990. It is the

¹ [Why is there a pilot shortage? It wasn't just the COVID-19 pandemic. - CBS News](#)

² [Statistics Show Pilot Shortage Could Last Through 2030 - InsideHook](#)

goal of the City that Incompatible Property³ in the vicinity of the Airport shall not be exposed to noise above sixty-five (65) CNEL⁴.

The Noise Ordinance is unique and reflects consensus between the City of Long Beach, the FAA, Long Beach residents and various aviation stakeholders on the nature and extent of aircraft operations and noise occurring at the Airport. The Noise Ordinance has not been amended since its adoption in 1995. The Noise Ordinance is grandfathered under the Airport Noise and Capacity Act of 1990 and, for 27 years, the Noise Ordinance has balanced the development of facilities and the growth of operational capacity with the environmental concerns of the surrounding communities. To ensure the continuation of the protections provided, including that noise levels not increase above 1989-1990 CNEL levels, it is necessary for the City to strictly adhere to the provisions of the Noise Ordinance.

The Noise Ordinance is also unique in that it provides a measure of local control of noise management by limiting various aspects of aircraft operations. Other airports across the nation are unable to limit operations as extensively as Long Beach. As a result, other airports control the proximity of incompatible property at the airport through mechanisms such as property acquisition and conversion to compatible land use, acquisition of aviation easements, or other means. The following sections provide an overview of federal, state, and local noise regulations.

Noise Regulatory Environment

Federal

U.S. Environmental Protection Agency

In 1972, Congress passed the Noise Control Act to promote limited noise environments in support of public health and welfare. It also established the U.S. Environmental Protection Agency (EPA) Office of Noise Abatement and Control to coordinate federal noise control activities. U.S. EPA established guidelines for noise levels that would be considered safe for community exposure without the risk of adverse health or welfare effects. They found that to prevent hearing loss over the lifetime of a sensitive receptor, the yearly average Equivalent Sound Level (Leq) should not exceed 70 A-weighted decibels (dBA), and the Day-Night-Average Sound Level (DNL) should not exceed 55 dBA in outdoor activity areas or 45 dBA indoors to prevent interference and annoyance.⁵

U.S. Department of Housing and Urban Development (HUD)

The U.S. Department of HUD has set the following guidelines⁶ for acceptable exterior noise levels in residential areas:

³ Incompatible Property is defined by the Noise Ordinance as property used for residential purposes, schools and churches. Property subject to an easement for noise and property acoustically treated to reduce interior CNEL levels is not rendered compatible as a result of such easement or acoustic treatment.

⁴ See Attachment A for a discussion of noise metrics and assessment in the airport environment.

⁵ U.S. Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974.

⁶ <https://www.hudexchange.info/sites/onecpd/assets/File/Noise-Guidebook-Chapter-5.pdf>.

- Acceptable – 65 DNL or less.
- Normally unacceptable – exceeding 65 DNL but not exceeding 75 DNL.
- Unacceptable – exceeding 75 DNL.

HUD regulations also include a goal (not a standard) that interior noise levels should not exceed 45 DNL. Sound attenuating features such as barriers or sound attenuating building materials shall be used to achieve the interior noise goal where feasible. An acoustically well-insulated building with windows and doors closed can provide 30–35 dB of noise attenuation, while more-conventional residential construction provides 20–25 dB of noise reduction with windows closed and only about 15 dB of noise reduction when windows are open; therefore, if the exterior noise environment is classified as “acceptable,” according to HUD standards, the interior noise environment should not exceed 45 DNL. HUD regulations also encourage the use of quieter construction equipment and methods.

U.S. Department of Transportation (DOT) Code of Federal Regulations, Title 14, Part 36 (14 CFR Part 36)

The FAA regulates the maximum noise level that an individual civil aircraft can emit by requiring aircraft to meet certain noise certification standards. Each noise certification standard is designated as a different stage in the U.S. Stages (1 through 5) and noise standards are defined in 14 CFR Part 36, Noise Standards: Aircraft Type and Airworthiness Certification.⁷ Any aircraft certified for airworthiness in the U.S. must also comply with noise standard requirements to receive a noise certification. The noise certification ensures that the latest safe and airworthy noise reduction technology is incorporated into aircraft design and enables the reductions in noise experienced by communities. As noise reduction technology matures, the FAA works with the international community to determine if a stronger noise standard is needed. If so, the international community, through the International Civil Aviation Organization (ICAO), conducts a comprehensive analysis to determine that new standard. The following is a 14 CFR Part 36 implementation timeline.

Airport Noise Capacity Act (ANCA) of 1990

Widespread introduction of jet aircraft in the 1960’s substantially increased aircraft noise, as did the growth in airline traffic after the industry was deregulated in 1978. While all aircraft designs certified after March 3, 1977, had to meet Stage 3 standards, older Stage 2 designs continued to be manufactured until 1988. While the newer, Stage 3 aircraft were quieter, the long life of jet aircraft (30 or more years) made the transition to a quieter aircraft fleet a slow process. As a result, Stage 2 aircraft with a 30-year lifespan comprised 54 percent of U.S. carrier’s fleets as of November 1990.

In the absence of federal requirements to reduce aviation noise nationally, many airports acted on their own to reduce aircraft noise levels locally, creating a patchwork of noise restrictions that made it difficult for aircraft operators to travel between airports. The Omnibus Budget Reconciliation Act was signed in 1990, which incorporated ANCA. ANCA required:

⁷ [eCFR :: 14 CFR Part 36 -- Noise Standards: Aircraft Type and Airworthiness Certification \(FAR Part 36\)](#).

- FAA to completely phase-out Stage 2 aircraft over 75,000 pounds by December 31, 1998.
- FAA to establish regulations regarding analysis, notice, and approval of airport noise and access restrictions (14 CFR Part 161).
- Required the FAA to develop a national aviation noise policy.
- Grandfather all airport noise and access restrictions that existed prior to November 1, 1990.

There are only about a dozen airports throughout the U.S. with actively enforced restrictions that were grandfathered under ANCA. If an airport proprietor wants to modify its grandfathered restrictions to be more restrictive, the FAA would consider it as new restrictions under ANCA, and it would need to be evaluated using the 14 CFR Part 161 process.

14 CFR Part 161

The FAA implemented 14 CFR Part 161⁸ in 1991 in response to the ANCA requirement for the FAA to establish regulations regarding analysis, notice, and approval of airport noise and access restrictions. 14 CFR Part 161 identifies a comprehensive technical analysis that airport proprietors must perform when proposing any noise or access restrictions on aircraft operating at their airport. The product of the 14 CFR Part 161 study is an application to the FAA requesting a waiver of the federal preemption of local airport noise and access restrictions and authorization to enact and implement the proposed restriction(s).

Airport proprietors that propose restrictions must meet six conditions established by ANCA for approval by the FAA:

1. Be reasonable, not arbitrary, and not discriminatory.
2. Not create an undue burden on interstate or foreign commerce.
3. Maintain safe and efficient use of the navigable airspace.
4. Not conflict with any existing Federal statute or regulation.
5. Provide adequate opportunity for public comment.
6. Not create an undue burden on the national aviation system.

For a proposed restriction to be approved, all six conditions MUST be met. As such, there are many potential roadblocks for approval. FAA has made its opposition to noise and access restrictions clear, and FAA does not consider it to be a benefit to restrict operations at one airport because it assumes that aircraft operations will move to another airport (no net reduction in noise).

⁸ [eCFR :: 14 CFR Part 161 -- Notice and Approval of Airport Noise and Access Restrictions \(FAR Part 161\)](#).

In the 30 years since 14 CFR Part 161 was promulgated, a total of 24 studies have been developed at 21 airports throughout the U.S. Some of those were abandoned and some resulted in purely voluntary agreements. The FAA has only approved one restriction through 14 CFR Part 161: Naples Airport restricted Stage 2 aircraft under 75,000 pounds after a legal challenge.

Aviation Safety and Noise Abatement Act (ASNA) of 1979

ASNA established funding for noise compatibility planning and sets the requirements by which airport operators can apply for funding. This is also the law by which Congress mandated that the FAA develop an airport community noise metric to be used by all federal agencies assessing or regulating aircraft noise. The result was DNL. Because California already had a well-established airport community noise metric in CNEL, and because CNEL and DNL are so similar, FAA expressly allows CNEL to be used in lieu of DNL in noise assessments performed for California airports.

14 CFR Part 150

ASNA required the FAA to identify land uses that are normally compatible with various noise levels. These regulations are codified in 14 CFR Part 150, Airport Noise Compatibility Planning.⁹ 14 CFR Part 150 establishes the average annual DNL/CNEL to determine cumulative noise exposure from airports. 14 CFR Part 150 also established compatibility guidelines for aircraft noise exposure levels with land uses in the vicinity of an airport. These guidelines consider all land uses to be compatible with noise levels less than 65 DNL/CNEL. Some land uses, such as residences, schools, hospitals, and places of worship, are considered noise-sensitive and non-compatible with aircraft noise exposure levels at and above 65 DNL/CNEL. Governmental services, transportation, parking, and some outdoor recreational uses are considered compatible with noise levels up to 70 DNL/CNEL. However, FAA guidelines indicate that ultimately “the responsibility for determining the acceptability and permissible land uses remains with the local authorities.”

FAA Order 1050.1F

FAA Order 1050.1F provides FAA’s policies and procedures for evaluating environmental impacts of all agency actions in compliance with National Environmental Policy Act (NEPA) and the implementing regulations issued by the federal Council on Environmental Quality (CEQ).¹⁰ FAA Order 1050.1F identifies significance thresholds for aircraft noise. These thresholds are based on the annual average daily DNL/CNEL.

In accordance with FAA Order 1050.1F, a proposed action would have a significant noise impact if it would cause a noise-sensitive land use that is already located within the 65 DNL/CNEL noise contour to experience an increase in noise of 1.5 dBA or more, or if it would newly expose a noise-sensitive land use to the DNL/CNEL 65 dBA level due to a 1.5 dBA or greater increase.

⁹ [eCFR :: 14 CFR Part 150 -- Airport Noise Compatibility Planning \(FAR Part 150\)](#).

¹⁰ https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf.

In 1992, the Federal Interagency Committee on Aviation Noise (FICON) recommended that, in addition to significant impacts, less-than-significant noise level changes be identified for noise-sensitive locations exposed to project-related increases in noise levels.¹¹ FICON recommended reporting any changes of 3 dBA or more between 60 and 65 DNL/CNEL and increases of 5 dBA or more between 45 and 60 DNL/CNEL. The FAA's subsequent Air Traffic Noise Screening (ATNS) procedure¹² further emphasized the importance of these changes in DNL/CNEL, so that they also are now included in FAA Order 1050.1F. These recommendations only apply to cases where the significance threshold (increase of 1.5 dBA or more within the 65 dBA DNL/CNEL contour) is met or exceeded.

State Regulations

California Building Standards Code

The California Building Standards Code (California Code of Regulations, Title 24)¹³ requires that walls and floor/ceiling assemblies separating dwelling units from each other, or from public or service areas, have a Sound Transmission Class (STC) of at least 50, meaning they can reduce noise by a minimum of 50 dB. It also specifies a maximum interior noise limit of 45 CNEL in habitable rooms.

California Airport Noise Regulations

Title 21 of the California Code of Regulations, Subchapter 6 (also known as the California Airport Noise Standards)¹⁴ defines incompatible noise levels as exposure of nearby communities to noise levels of 65 CNEL or greater. Land use incompatibility is most likely to occur for most types of noise-sensitive uses when they are within the 65 CNEL noise contour. The purpose of the regulations is to provide a positive basis to accomplish resolution of existing noise problems in communities surrounding airports and to prevent the development of new noise problems. To accomplish this purpose, the regulations establish a quantitative framework within which the various interested parties (i.e., airport proprietors, aircraft operators, local communities, counties, and the state) can work together cooperatively to reduce and prevent airport noise problems.

The 65 CNEL standard is also referenced in the Caltrans California Airport Land Use Planning Handbook as the basic limit of acceptable noise levels for residential and other noise-sensitive uses within an urban area.¹⁵

¹¹

https://gsweventcenter.com/Draft_SEIR_References/1992_08_Federal_Interagency_Committee_on_Noise.pdf

¹² U.S. DOT, FAA, ATNS Model, Version 2.0 User Manual, January 1999.

¹³ <https://www.dgs.ca.gov/BSC/Codes>

¹⁴ <https://regulations.justia.com/states/california/title-21/division-2-5/chapter-6/>

¹⁵ <https://dot.ca.gov/-/media/dot-media/programs/aeronautics/documents/californiaairportlanduseplanninghandbook-a11y.pdf>

Local Regulations

Long Beach Municipal Code Chapter 16.43 – Airport Noise Compatibility Ordinance

In the 1980s, the City of Long Beach began efforts to control aircraft-related noise through the adoption of a noise ordinance. After a significant legal process, the Airport Noise Compatibility Ordinance LBMC 16.43¹⁶, passed in 1995, and made Long Beach Airport one of the strictest noise-controlled airports in the United States. Although ANCA was passed in 1990, giving aircraft noise control to the federal government and FAA, the City was able to work with the federal government and the FAA to retain the ordinance, as grandfathered under the legislation. This was a major victory for local noise control at LGB.

The Noise Ordinance addresses aircraft-related noise in our community and provides local control of airport operational levels. It ensures that noise levels will not rise above 1989/1990 noise levels and complies with the State of California goal of having no residences impacted by a CNEL greater than 65 dBA, which is the FAA-recognized noise compatibility standard. The key components of the ordinance are as follows:

- The Airport is operational 24 hours a day.
- Air carriers are allowed a minimum of 41 flights daily and commuter carriers are allowed a minimum of 25 flights daily.
- The Noise Ordinance establishes maximum Single Event Noise Exposure Level (SENEL) for arrivals and departures. These levels vary by time of day and provide the greatest protection during the sensitive nighttime hours. Refer to **Table 2** for the established noise threshold limits at the Airport. Note that although the Noise Ordinance states Runway 7L-25R and 7R-25L, these runways are now 8L-26R and 8R-26L due magnetic shift.

Table 2
Noise Threshold Limits (LBMC 16.43.040 A)

Runway	7 a.m. to 10 p.m.	10 p.m. to 11 p.m. & 6 a.m. to 7 a.m.	11 p.m. to 6 a.m.	Noise Monitors
	Departure/Arrival	Departure/Arrival	Departure/Arrival	Departure/Arrival
30	102.5/101.5	90/90	79/79	9/10
12	102.5/101.5	90/90	79/79	10/9
26R	92/88	*/	*/	6/1
26L	95/93	*/	*/	5/2
8R	95/92	*/	*/	2/5
8L	88/92	*/	*/	1/6

¹⁶ <https://www.longbeach.gov/globalassets/lgb/resources/noise-abatement/chapter-16-43-lgb-noise-compatibility-ordinance>

- The Noise Ordinance establishes a tiered noise violation process.
- The Noise Ordinance establishes an alternative enforcement procedure.
- Five airport user groups were established and assigned an annual noise budget, based on CNEL, for allowable takeoff and landing noise on Runway 12-30. The five user groups are air carriers (major airlines), commuter carriers, charter operators, industrial/manufacturing operators and GA. The noise of military, public aircraft, law enforcement and emergency life flights are excluded in assessing compliance with annual noise budgets.
- To ensure compliance, CNEL contours are evaluated each quarter. All operations at the Airport are included. The contours are developed and evaluated by an independent third-party consultant based upon noise measurement data from actual operations occurring at the Airport.
- As an incentive for airlines to fly quietly, the Noise Ordinance provides that additional commercial flights can only be added if it is determined by the City that the cumulative noise level (in terms of CNEL) would remain below the annual noise budget standard with the added flight or flights included. This analysis is conducted annually.
- The Noise Ordinance limits GA flight training activity as follows: no touch and go, stop and go, practice low approach, or Visual Flight Rules (VFR) practice missed approach shall be conducted at the Airport except between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 3:00 p.m., on Saturdays, Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. Except for instrument training, training operations shall be conducted only on Runway 8L-26R and 8R-26L. Note that although the ordinance states Runway 7L-25R and 7R-25L, these runways are now 8L-26R and 8R-26L due magnetic shift.

Pilots are permitted to arrive, taxi-back, and immediately depart as these operations are not prohibited by the Noise Ordinance. This practice is required as a component to pilot training to ensure nighttime currency in compliance with 14 CFR Part 61.57 (b) 1: *“Except as provided in [paragraph \(e\)](#) of this section, no person may act as pilot in command of an aircraft carrying passengers during the period beginning 1 hour after sunset and ending 1 hour before sunrise, unless within the preceding 90 days that person has made at least three takeoffs and three landings to a full stop during the period beginning 1 hour after sunset and ending 1 hour before sunrise.”*

- Except in case of emergency or ATC (Air Traffic Control) direction, all aircraft operations between the hours of 10:00 p.m. and 7:00 a.m. are limited to Runway 12-30.
- Runway 12-30 is normally always open, but during construction, maintenance, or an emergency, either Runway 8L-26R or 8R-26L may be used as directed.

- Engine run-ups shall be permitted only between the hours of 7:00 a.m. and 9:00 p.m. on weekdays and 9:00 a.m. and 9:00 p.m. on weekends and holidays. Such runups may be conducted only at locations designated for such purposes by the Airport Director.
- The Airport maintains a pilot education program regarding noise issues. This program works to prevent and reduce noise impacts in the community.

Violation Enforcement

The Noise Ordinance stipulates the following process for administrative enforcement of noise violations:

First Violation: A written Notice of Violation and a copy of the Ordinance are sent to the owner/operator via certified mail.

Second Violation: A second Notice of Violation and a copy of the Noise Ordinance are sent via certified mail, and the owner/operator is requested to submit a written noise compliance program explaining what they will do differently to avoid future violations.

Third Violation: Owner/operator is issued a written Notice of Violation sent via certified mail and fined \$100. If the owner/operator has not had a violation in over 24 months, the violation is considered a 2nd violation, and no fine is incurred.

Subsequent Violations: Owner/operator is issued a written Notice of Violation sent via certified mail and fined \$300. If the owner/operator has not had a violation in over 12 months, it is considered a 3rd violation. If the owner/operator has not had a violation in over 24 months, the violation is considered a 2nd violation.

An operator assessed an administrative fine may appeal the fine to the Airport Director. All administrative fines collected are used for airport operations. In 2019, the Airport issued 267 violations from 321,984 total operations, which is approximately 22 violations per month. In 2022, the Airport issued 79 violations from 329,775 total operations, which is approximately 7 violations per month. While violations have decreased, continued education efforts is important to ensure new LGB-based or transient aircraft operators are familiar with our Ordinance and procedures.

The Airport is considering raising the violation fine structure outlined in the Noise Ordinance. Based on historical information and ANOMS data, GA operators who violate the Noise Ordinance are typically not repeat offenders over a 12-month period. GA operations are usually beneath the SENEL and CNEL thresholds identified in the Noise Ordinance and, therefore, increasing the fine structure may not materially reduce the volume of training operations, which has been a major community concern. The Noise Ordinance alternative enforcement remains a strong deterrent for SENEL reoccurring violators.

Apart from the administrative fines allowed by the Noise Ordinance, Long Beach also has the ability to refer some violations to the Office of the City Prosecutor under the Alternative Enforcement provisions of the Noise Ordinance. Referrals for criminal prosecution are only

made for egregious violations when there is evidence showing the owner/operator does not have a reasonable basis for believing their aircraft could operate during that time period without exceeding the applicable noise limit.

The first time the Alternative Enforcement provision was used was in 2003, when the City Prosecutor prosecuted two air carriers for egregious repeat violations. The prosecution resulted in a Consent Decree that increased the air carrier's noise violation fines to \$3,000 for the first six violations in any calendar quarter, and then \$6,000 for every subsequent violation within the same quarter. Two subsequent prosecutions were brought against a charter airline and another air carrier, each resulting in consent decrees. There are a total of three Consent Decrees issued to date.

Airport Noise and Operations Monitoring System

The Airport maintains a state-of-the-art Airport Noise and Operations Monitoring System (ANOMS¹⁷). This system operates 24/7 and provides LGB with a comprehensive tool for identifying and evaluating noise in the vicinity of the Airport. The system incorporates a total of 18 Type I noise monitors. Type I noise monitors provide the highest level of measurement accuracy available outside of laboratory conditions. Each microphone is checked daily via an electrostatic calibration and each microphone is annually inspected and calibrated via a pistonphone. This calibration is traceable to the National Institute of Standards and Technology to ensure accuracy. Staff routinely evaluates noise levels to quickly identify and remedy mechanical failure. The location of each of the noise monitors is shown in Figure 4.

As shown in Figure 4, six of the eighteen noise monitors are Enforcement Monitors and are used to enforce the noise limits established by the Noise Ordinance.

Figure 4. Airport Noise and Operations Monitoring System Microphone Locations



¹⁷ ANOMS is a trademark of EnviroSuite LTD

Aircraft are positively identified via FAA spatial data. The Airport receives these data via the FAA System Wide Information Management (SWIM) system. This system integrates data from various sources such as FAA radar, Automated Dependent Surveillance-Broadcast (ADS-B), and multilateration to positively locate specific aircraft at a specific time. Algorithms within the ANOMS system match the noise data with the spatial data to accurately associate noise level data with specific aircraft operations.

The Airport also records air traffic control communications to verify and document air traffic instructions to aircraft. Air traffic control is under the purview of the FAA as they are solely responsible for airspace management; however, verification of aircraft instructions is often valuable for understanding why aircraft are operating in a specific manner.

The combination of acoustic data, spatial data and recorded air traffic communications provides the Airport with verifiable evidence for enforcement of the Noise Ordinance. The Airport reviews all aircraft operations and utilizes specialized software to assist with the identification of violations. Each violation is processed in accordance with the provisions of the Noise Ordinance. Repeat offenders are referred to the Office of the City Prosecutor for possible Alternative Enforcement and prosecution as a misdemeanor within the judicial system.

The Airport actively participates with our community members and aviation stakeholders to address noise concerns and promote the use of best practices with respect to noise mitigation within the guidelines established by the Noise Ordinance. Community members can contact the Airport directly via telephone, email or through the Airport 's WebTrack¹⁸ system. WebTrak is a component of the ANOMS system and provides seamless integration with noise, aircraft identification and location data. Using this system, pilots and community members can readily interact and independently investigate aircraft operations and noise concerns.

Automated noise complaint systems are becoming increasingly popular with community organizations. At LGB, this system was first observed from complaints associated with specific communities in Orange County. Traditional logic through the years was that noise complaints were directly associated with noise levels. Conversely, with the automated complaint systems, large numbers of complaints were observed from communities with relatively low levels of noise compared to the established FAA and California standards. With the introduction of artificial intelligence, it is envisioned that future systems will provide for the capability of automated aircraft noise complaints without human interaction. For this reason, the Airport investigates and evaluates complaints in light of changes in noise levels and aircraft operations rather than relying on complaint data alone. Every complainant who requests a call, in response to their concern, receives a callback from Airport staff. The Noise Complaint Hotline can be reached at (562)-570-2665.

Staff workload has increased significantly since the beginning of 2023, due to the volume of noise complaints. The Airport is committed to meaningful and responsive interaction with the communities surrounding the Airport and, believing the Noise Office requires additional

¹⁸ <https://webtrak.emsbk.com/lgb>

resources, will look to augment staff to enhance outreach efforts and the overall noise management program.

The Airport reports aircraft operational compliance each month via the Airport Noise Report. These reports are available at www.longbeach.gov at the City Manager's web page and the Airports website¹⁹. These reports present the late night aircraft operations, noise violations and volume of total operations by aircraft category. Individual violations are listed along with the number of noise complaints by zip code and individual housing unit. Complaints are also categorized by aircraft type, concern, and time of operation.

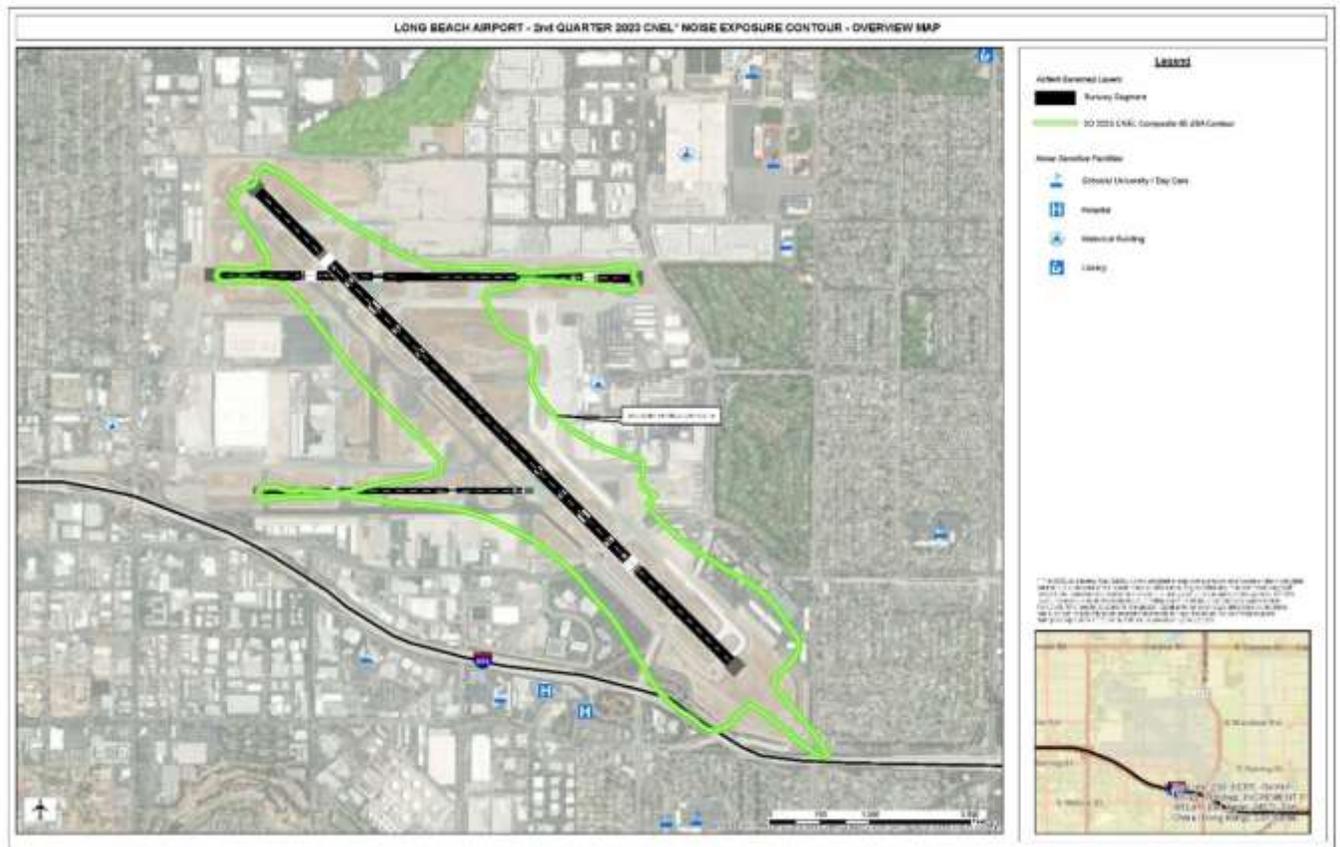
In addition to the monthly reporting, each calendar quarter the Airport reports noise budget data for all types of operations including GA and evaluates cumulative noise exposure. Empirical data from ANOMS is used to precisely determine aircraft noise levels. These data are used to produce CNEL contours to ensure compliance with the City's goal that incompatible properties are not exposed to noise levels in excess of 65 CNEL. As mentioned earlier, 65 CNEL is also the threshold of significance for the State of California and federal agencies for evaluating noise exposure.

These data are provided to Los Angeles County and forwarded to the State of California through the Caltrans Division of Aeronautics. The 65 CNEL contour for the 12-month period ending June 30, 2023, is shown in Figure 5. This contour is produced by independent acoustical consultants and is the most recent contour currently available. Based on these data, all operators, including GA aircraft operators, are not exceeding 65 CNEL contour and are fully in compliance with the City's goal that no incompatible land uses are exposed to noise levels exceeding 65 CNEL contour.

In 2010, the Airport implemented a sound insulation program to address twenty-seven homes identified as incompatible land uses in the Long Beach Airport Terminal Area Improvement Project, Environmental Impact Report (No. 37-03 SCH No. 200309112). The program was completed, and aviation easements were obtained for the insulated homes. As reflected in Figure 5, the Airport does not currently have any incompatible land uses exposed to noise levels in excess of 65 CNEL and is in compliance with local, state and federal goals and guidelines regarding airport cumulative noise levels.

¹⁹ <https://www.longbeach.gov/lgb/community-information/noise-abatement/monthly-noise-and-activity-reports/>

Figure 5. 65 CNEL Contour, July 1, 2022 – June 30, 2023



Airport Federal Obligations

Long Beach Airport maintains certification for providing scheduled and charter air carrier services via an airport operating certificate, more commonly known as a 14 CFR Part 139 certification, issued by the FAA. The Airport is eligible for federal grants under the Airport Improvement Program (AIP), for improvements to the airfield infrastructure, a system of runways, taxiways, and taxi lanes, to ensure the safety of aircraft operations. Eligible funding is also available from Passenger Facility Charges (PFC), a fee that almost all airline travelers in the United States pay in their ticket price.

Since 2004, the City, as the proprietor of the Airport, has accepted approximately \$347 million in federal AIP and PFC funds. Records indicate the receipt of federal funding as early as the 1950s to support the extension of the Airport's main runway, Runway 12-30. The size of the Airport's airfield infrastructure is directly related to its historical importance and prominence in aircraft manufacturing and production, beginning with the war efforts during World War II, continuing with jet aircraft manufacturing by McDonnell Douglas and Boeing, and concluding with the military C-17 aircraft production into the early 21st century. The Airport has had a long partnership with its federal agencies to ensure sufficient funding to maintain a safe airfield for both local operations and the neighboring aircraft manufacturing industry.

The receipt of AIP grants requires the City and Airport to commit to numerous obligations regarding the operation and maintenance of the Airport. There are [39 Grant Assurances](#)

covering almost every aspect of airport operations and management, including specific requirements to operate and maintain the airport in a safe and serviceable condition, mitigate hazards to airspace, use airport revenue properly, and not grant exclusive rights. Grant Assurance 22 requires the City to “make its airport available as an airport for public use on reasonable terms, and without unjust discrimination, to all types, kinds, and classes of aeronautical uses.” Similar [Program Assurances](#) apply to the City and Airport for acceptance of PFC funding.

The City and the Airport are bound by federal grant assurances that limit the authority to curtail, deter, or further minimize operations. Airports that do not have federal obligations, such as small non-commercial service airports, for example Torrance Airport, may be able to implement use restrictions to limit noise exposure from operations. These restrictions are primarily ground-based restrictions, as the FAA has sole jurisdiction over airspace. Ground-based restrictions could include limiting hours of the airport’s availability, limiting the hours for certain activities, including training operations, or limiting the types of available services or businesses.

As the Airport has noted increasing community concerns regarding the regional trend in GA training operations, further consultation and confirmation from the City Attorney was sought to determine the City’s and Airport’s options, beyond the controls of Noise Ordinance, to restrict these operations. What is clear is that the FAA has Congressional delegated authority over navigable airspace and no airport nor its governing authority can direct airspace restrictions (Attachment B). Furthermore, as a federally obligated airport, it would be extremely difficult and unreasonable for the City to attempt to return long term federal dollars, nearly \$350 million, to obtain local control of airport regulations.

It should be noted that the FAA is currently reviewing its noise policy as part of their ongoing commitment to address aircraft [noise](#) and has embarked on a Noise Policy Review and Neighborhood Environmental Survey to quantify the effect of aircraft noise exposure on communities surrounding commercial service airports in the U.S. These efforts are summarized in Attachment C.

GA Operators

The Airport meets with Airport GA stakeholders, including the General Aviation Noise Abatement Committee (GANAC) and the Long Beach Airport Association (LBAA), each quarter to share noise compliance results and community noise concerns. The GANAC was established by the Noise Ordinance.

The LBAA²⁰ is a nonprofit organization that represents over 18,000 employees and 200 different businesses operating at LGB. These businesses include Fixed Based Operators (FBOs), airplane service companies, flight schools, and various other businesses. The LBAA works to advocate for the interests of airport operators and users, achieve balanced economic growth and diversity, preserve aviation jobs and businesses, as well as form community and educational partnerships.

²⁰ [Long Beach Airport Association \(thelbaa.org\)](http://thelbaa.org)

This process of regular communication was established to assist with compliance with the 65 CNEL and is similar to formal communication with the air carriers regarding flight slot allocations. Although the Airport is in compliance with cumulative noise exposure goals and guidelines, the GA community actively participates in seeking opportunities to further reduce noise exposure within their operational and business capabilities.

Cooperation with the GA community and voluntary measures provide the best and quickest method of reducing noise exposure and addressing community concerns as mandatory control measures would likely require a detailed 14 CFR Part 161 process and could possibly open the existing Noise Ordinance to legal challenge.

The Airport met with the GA community, including a significant number of flight schools, with positive results and these efforts will continue. An example of recent success was the noise mitigation efforts during a recent nighttime construction project as part of the Airport's Runway 12-30 Electrical Improvements Program in the later part of 2022 and early 2023. LBAA instituted a Voluntary Pilot Program aimed at reducing nighttime noise exposure in communities surrounding the Airport when Runway 12-30 was closed for construction. Specifically, the LBAA requested that flight schools voluntarily cease nighttime (after 9:59 p.m.) pattern work when Runway 12-30 was closed. The LBAA conducted outreach among members, including meetings and educational materials, to promote the Voluntary Pilot Program.

Additionally, the LBAA organized a group of well-established flight training operators, and knowledgeable GA based users and:

- Reviewed any airport related noise violations and the specific operations raising concern.
- Reviewed the airport users' operational practices and syllabus guidelines for potential refinement specific to the Airport.
- Collectively considered reasonable operational modifications that potentially would mitigate concerns and provide benefit without transferring or impacting other community areas or residents.
- Created a best practices guide called, "How to Fly a Friendly Pattern at Long Beach Airport." The guidelines were submitted to each master tenant flight school, and user/operator.

LBAA continues to refine best practices and educational tools to communicate with based pilots, instructors, and students at the Airport. The current "How to Fly a Friendly Pattern at Long Beach Airport" noise abatement procedures, developed in conjunction with the GA stakeholders, include the following:

- On departure, aircraft should climb as quickly as possible to gain altitude prior to reaching residential areas. Departures should use the full length of the runway when able.

- On approach, aircraft should avoid flying long, low, high power, and high Revolutions Per Minute (RPM) approaches. Aircraft should approach on or above the glideslope/VASI/PAPI.
- Pattern altitude is 1,000 feet MSL for small aircraft and 1,500 feet MSL for large aircraft. Aircraft in this pattern should remain as close to the Airport and as high as possible.
- Aircraft practicing missed approaches should reduce power/RPM when safely able after initiating the missed approach.
- Pilots should be aware of and follow the provisions set forth in the Airport Noise Compatibility Ordinance, including airport noise limits and noise violation monitor locations.
- Runway 12-30 is the only active runway from the hours of 10:00 p.m. to 7:00 a.m., unless otherwise notified by NOTAM or ATC.
- No intersection departures are permitted between the hours of 10:00 p.m. and 7:00 a.m.
- Aircraft requesting a noise reading or conducting noise testing may contact the Airport Noise Office at (562) 570-2635.
- Per the Airport Noise Compatibility Ordinance, no touch and go, stop and go, practice low approaches and VFR practice missed approaches shall be conducted at the Airport except between 7:00 a.m. and 7:00 p.m. on weekdays and between 8:00 a.m. and 3:00 p.m. on weekends and holidays. Except for instrument training, training operations shall be conducted only on Runways 8L-26R and 8R-26L.
- According to the Airport Noise Compatibility Ordinance, engine runups, for purposes other than preflight, are allowed only between 7:00 a.m. and 9:00 p.m., Monday through Friday, and 9:00 a.m. and 9:00 p.m., weekends and holidays, at locations approved by the Airport Director.

The pilot shortage and resulting increase in individuals pursuing careers as pilots has resulted in increased flight training operations both regionally and nationally. Fair weather locales, such as Southern California, Arizona, and Florida in particular, have experienced significant increases. In response, several airports and communities have attempted to address these increases through various measures.

The ability to enact aircraft training control measures are largely dependent on whether the airport sponsor has accepted federal funds and thereby incurred federal grant obligations and the type of control measure proposed as measures affecting airspace and aircraft in flight are solely under the jurisdiction of the FAA. A discussion of legal options and actions other airports have attempted or are attempting are contained in Attachment B.

Flight School Business Operations

The Airport receives revenue from GA operations from monthly rent through ground leases at the Airport. The GA operations and services around the Airport, including the business parks, operate under the terms of their respective ground leases or sub-leases. The Airport leases land for either development or for existing facilities. Terms of those leases are subject to market conditions and investment needed. Larger parcels of land typically have long term master tenant leases. Master tenants will sublease space to smaller businesses. Flight schools may lease space from any entity at the Airport, either as a master tenant with their own facility or as a sub-tenant in a multi-tenant facility. Businesses and services at the Airport are available to all users, whether LGB-based or transient operations.

All businesses in the City, including businesses at the Airport, are required to maintain an active business license with the Department of Financial Management, Business License Division. The Business License Division regulates the requirement for a business license; it does not regulate the technical operations of the various businesses at the Airport. For example, GA training operations are directly regulated by the FAA.

The City currently has seven businesses licensed as flight schools and eight businesses licensed for aircraft rental. GA related businesses have varying office hours, and are generally open seven days a week, from 7:00 a.m. – 5:00 p.m., unless there is a need for night currency instruction and training. The current annual rates for a flight school business license and an aircraft rental license are the same: \$442.95 base fee plus \$23.00 per employee.

The Airport does not determine the prices or fees for GA business operations including fuel prices, hangar and tie-down rental fees, cost of office space, maintenance and repair services, flight training fees, etc. Those costs and fees are determined by each proprietor and will fluctuate based on market and economic conditions. LGB does not receive landing fees for GA operations.

Annual revenue related to GA is approximately \$5.6 million and represents 9 percent of the total Airport revenue budget. This approximation includes revenues tied to cargo, charter, and military operations. Commercial operations at the Airport generate more than 80 percent of LGB's total revenue, which is used to maintain the Airport complex and to ensure the Airport Enterprise Fund is self-sustaining.

LGB Unleaded Fuel Incentives

The Airport Department does not sell fuel, unlike some other airports, as part of its direct operations. Historically, Fixed-Base Operators (FBOs) at the Airport provide aircraft fueling services and other uses to both LGB-based and transient aircraft. There are currently two FBO's that provide multiple aeronautical services and uses: Aeroplex/Signature Aviation and Atlantic Aviation (formerly Ross Aviation and Airflite). Both FBO's have operated at LGB since the 1980's and have long-term leases, expiring February 2055 and July 2051 respectively. A third FBO, Jet Flight Inc. (JFI Jets), previously operated at the Airport but ceased its LGB operation in 2017. In addition to fueling services, FBO services and uses include aircraft maintenance and repair, cargo facilities, aircraft hangar rentals and tie-downs, and flight training facilities.

The transition to unleaded fuel will require fuel providers to have the necessary infrastructure and/or equipment to provide both leaded and unleaded fuel. This may necessitate additional expenses for fuel providers in preparation for the sale of unleaded fuel. On December 6, 2022, the City Council adopted a resolution amending the Master Fee and Charges Schedule to exempt unleaded aviation fuel from fuel flowage fees for the three-year period of 2023-2025 as an incentive to commence the transitioning process for the sale of unleaded aviation fuel at the Airport. The Airport receives revenue from leaded aviation fuel based on a \$0.06 per gallon fuel fee. Sale of leaded fuel represents ten percent of annual fuel deliveries to the Airport.

As an encouraging initial step, on August 7, 2023, Aeroplex/Signature Aviation, commenced the sale of an unleaded 94-grade (UL94) product produced by Swift Fuels (Swift) of Indiana. Swift currently supplies UL94 to airports in Los Angeles and San Diego. UL94 is capable of servicing approximately 75 percent of the nation's piston-powered fleet. The Airport estimates approximately 60-70 percent of the piston-powered aircraft based at the Airport may be eligible to use UL94.

To use UL94, qualifying aircraft must purchase a Supplemental Type Certificate (STC) from Swift. The STC confirms that the aircraft has received FAA approval for the use of UL94 as a modification from the aircraft's original design. A small placard is also installed on the aircraft to verify its certification for use of UL94. To further incentivize and encourage pilot use of UL94, the Airport will bring forth an item for City Council approval in November 2023 authorizing reimbursement of STC costs for LGB-based pilots from the Airport Enterprise Fund. If approved, this will mark another significant step supporting the transition.

In February 2022, the FAA announced the formation of the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative to safely eliminate the use of leaded aviation fuel by the end of 2030. EAGLE referenced 2030 for the approval certifications, production, and nationwide distribution and use of unleaded fuel to serve the entire GA network. EAGLE addresses a broader timeline for lead-free fuel to account for the time required for production and supply of a new fuel, policies, distribution, and infrastructure across the country.²¹

On October 18, 2023, the Environmental Protection Agency (EPA) [announced](#) its final determination that emissions from leaded aviation fuel "cause or contribute to air pollution, which may reasonably be anticipated to endanger public health and welfare under the Clean Air Act." This determination will set in motion federal regulatory standards from the EPA and the FAA for lead emissions and aviation fuel.

EPA's determination does not ban the sale of leaded fuel. It is a significant step towards improving air quality in our community and goes hand-in-hand with the Airport's continuing efforts to work with its tenants to incentivize and accelerate a safe transition to unleaded aviation fuel.²² Due to federal regulations, grant assurances, etc., the Airport does not have the authority to ban the use and sale of leaded fuel. In other words, to do so would place the Airport in jeopardy of compliance with federal regulations.

²¹ For additional information please see: https://flyeagle.org/wp-content/uploads/2023/10/EAGLE-EPA-Endangerment-Finding-QA_101723-FINAL.pdf

²² For additional information please see: https://www.epa.gov/system/files/documents/2023-10/420f23022_0.pdf

Next Steps and Recommendations

While this report provides an extensive overview of airport operations and its associated regulatory framework, the majority of what the community requests as additional GA restrictions is directly prohibited under federal law, specifically the City's federal obligations, including connected grant assurances, the Noise Ordinance, and long-term lease obligations at the Airport. The Airport remains committed and engaged in finding meaningful opportunities to improve quality of life and has the following seven specific recommendations that we believe are within our authority to address community concerns:

1. **Pursue Voluntary Agreements with LGB Flight Schools.** Voluntary measures represent the best and fastest remedy, and the Airport will continue to work with GA stakeholders to reduce noise and operational effects of GA training operations at LGB through the evaluation of voluntary measures. Voluntary measures have the advantage of: (a) enabling the Airport and aviation stakeholders to evaluate noise mitigation measures beyond, or outside of, the 65 CNEL, (b) do not require legal review to verify they will not endanger the grandfathered status of the Noise Ordinance under ANCA, and (c) can be implemented as soon as practicable.

The LBAA has increased their level of integration with LGB flight schools to identify additional voluntary operations to enhance the current Fly Friendly program in response to community concerns. These efforts are outlined in LBAA's letter (Attachment D) and includes a major new addition, an *Operator's Pledge* that has been acknowledged by most LGB-based flight schools as well as one non-LGB based flight school. Local flight schools that are not associated with LBAA are also working with the Airport to address community concerns and to fly friendlier.

2. **Review Increasing the Noise Ordinance Violation Fee Structure.** The Airport will work with the City Attorney on a potential increase in fees for Noise Ordinance violations. The Airport will concurrently coordinate with the FAA on the feasibility and acceptable structure without placing into jeopardy the City's coveted Noise Ordinance. A clear understanding of the process and appropriate consultation and outreach required by FAA is critical.
3. **Increase Community Outreach and GA Educational Materials.** The Airport will seek resources to increase outreach efforts and availability to respond to community concerns. These efforts would also include the development of additional educational materials and refinement of the monthly Noise Report to provide greater detail on operations and community complaints. The Airport will also coordinate with the LBAA and other stakeholders on increasing educational materials for pilot awareness, especially as new pilots are training within the area, and other opportunities to enhance LGB's overall noise management program.
4. **Support Strong Federal Advocacy for Lead-Free Skies.** In support of EPA and FAA next steps for unleaded fuel standards, the City will continue to pursue strong advocacy

work as part of its legislative agenda to expedite the safe and viable transition to unleaded fuels.

5. **Confer with FAA on Feasible Operational Solutions.** The Airport will continue to interface with local FAA offices and the ATC Tower, as they are key stakeholders that will review proposed voluntary measures and/or explore feasible airspace modifications and operational control measures that lessen aircraft noise in the community. In addition to local FAA actions, a national study is being conducted that may yield additional analysis capabilities and the thresholds of significance.
6. **Explore Additional Incentives for Unleaded Fuel and Fly Friendly Program.** In addition to the Airport's upcoming recommendation for City Council approval to reimburse pilots that require STC's to use unleaded fuel for their aircraft, staff will continue to work both nationally and locally on the exploration of additional fiscal incentives for LGB-based aircraft to accelerate the transition to GA unleaded fuel. The Airport will develop a program to recognize flight schools that honor and voluntarily develop innovative scheduling and training techniques, for example increased use of flight simulators. We will explore other potential benefits and periodically evaluate performance.
7. **Explore with FAA Temporary Moratorium on New Flight Schools Business Licenses.** The Airport will seek the FAA's input, in consultation with the City Attorney, to explore the feasibility of a temporary moratorium on *new* business licenses for flight schools desiring to locate to LGB, pending the resolution of similar actions by other airports within the region. This process will be conducted in a manner that does not jeopardize the Airport's grant assurances or endanger the ANCA-grandfathered status of the Airport's Noise Ordinance.

Thank you for this opportunity to provide a comprehensive report that outlines historical and present day operations along with the regulatory framework for GA operations at Long Beach Airport. Should you have any questions, please contact me at (562) 570-2605.

ATTACHMENTS

ATTACHMENT A - FUNDAMENTALS OF NOISE
ATTACHMENT B - MEMORANDUM FROM CITY ATTORNEY
ATTACHMENT C - CONTINUING NOISE RESEARCH
ATTACHMENT D - LETTER FROM LBAA

CC: DAWN MCINTOSH, CITY ATTORNEY
DOUGLAS P. HAUBERT, CITY PROSECUTOR
LAURA L. DOUD, CITY AUDITOR
LINDA F. TATUM, ASSISTANT CITY MANAGER
TERESA CHANDLER, DEPUTY CITY MANAGER
MEREDITH REYNOLDS, DEPUTY CITY MANAGER
GRACE YOON, DEPUTY CITY MANAGER
APRIL WALKER, ADMINISTRATIVE DEPUTY CITY MANAGER
KEVIN LEE, CHIEF PUBLIC AFFAIRS OFFICER
MONIQUE DE LA GARZA, CITY CLERK
DEPARTMENT HEADS

Attachment A

Fundamentals of Environmental Noise

The measurement and human perception of sound involve two basic physical characteristics: intensity and frequency. Intensity is a measure of the acoustic energy of sound vibrations, expressed in terms of sound pressure. The higher the sound pressure, the more energy carried by the sound and the louder the perception of that sound. The second important physical characteristic is sound frequency, which is the number of times per second the air vibrates or oscillates. Low-frequency sounds are characterized as rumbles or roars, while high-frequency sounds are typified by sirens or screeches.

Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level), which is measured in decibels (dB). On this scale, 0 dB corresponds roughly to the threshold of human hearing and 120 to 140 dB corresponds to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound. Noise is commonly defined as unwanted sound.

Sound pressure fluctuations can be measured in units of Hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts on humans, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency weighting and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown on **Figure A-1**.

General Characteristics of Aircraft Noise

Outdoor sound levels decrease as a function of distance from the source and as a result of wave divergence, atmospheric absorption, and ground attenuation. If sound is radiated from a source in a homogenous and undisturbed manner, the sound travels as spherical waves. As the sound wave travels away from the source, the sound energy is distributed over a greater area, dispersing the sound power of the wave. Spherical spreading of the sound wave reduces the noise level, for most sound sources, at a rate of 6 dB per doubling of the distance.

Atmospheric absorption also influences the levels that are received by the observer. The greater the distance sound travels, the greater the influence of atmospheric effects. Atmospheric absorption becomes important at distances of greater than 1,000 feet. The degree of absorption is a function of the sound frequency, as well as the humidity and temperature of the air. For example, atmospheric absorption is lowest at high humidity and higher temperatures. Turbulence and gradients of wind, temperature, and humidity also play a significant role in determining the degree of attenuation. Certain conditions, such as inversions,

can also result in higher sound levels that would result from spherical spreading as a result of channeling or focusing the sound waves.

Absorption effects in the atmosphere vary with frequency. The higher frequencies are more readily absorbed than the lower frequencies. Over large distances, the lower frequencies become the dominant sound as the higher frequencies are attenuated.

The effects of ground attenuation on aircraft noise propagation are a function of the height of the source and/or receiver and the characteristics of the terrain. The closer the source of the noise is to the ground, the greater the ground absorption. Terrain consisting of soft surfaces, such as vegetation, provides for more ground absorption than hard surfaces, such as a large parking lot.

Aircraft noise originates from both the engines and the airframe of an aircraft, but the engines are the more significant source of noise. Meteorological conditions affect the transmission of aircraft noise through the air. Wind speed and direction, and the temperature immediately above ground level, cause diffraction and displacement of sound waves. Humidity and temperature materially affect the transmission of air-to-ground sound through absorption associated with the instability and viscosity of the air.

Aircraft Noise Descriptors

The description, analysis, and reporting of aircraft noise levels is made difficult by the complexity of human response to sound and the myriad of sound-rating scales and metrics that have been developed for describing acoustic effects. Various rating scales have been devised to approximate the human response to the “loudness” or “noisiness” of a sound. Noise metrics have been developed to account for additional parameters, such as duration and cumulative effect of multiple events.

Noise metrics can be categorized as single-event metrics and cumulative metrics. Single-event metrics describe the noise from individual events, such as an aircraft flyover. Cumulative metrics describe the noise in terms of the total noise exposure over a period of time.

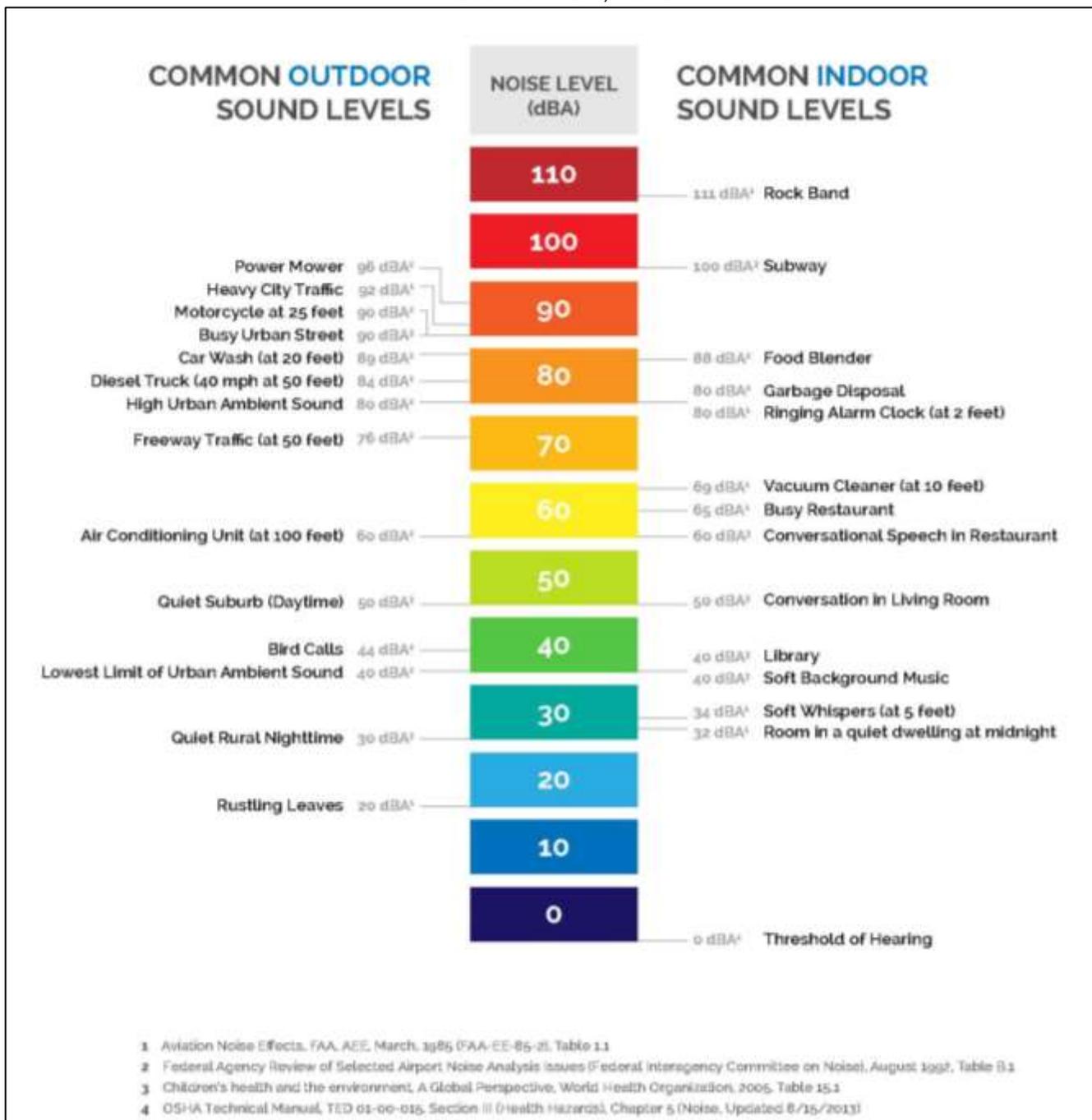
A-Weighted Sound Pressure Level (dBA)

The decibel is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Some common sound levels on the dBA scale are listed in **Figure A-1**. As shown, the relative perceived loudness of a sound doubles for each increase of 10 dBA, although a 10-dBA change in the sound level corresponds to a factor of 10 changes in relative sound energy. Generally, single-event sound levels with differences of 2 dBA or less are not perceived to be noticeably different by most listeners.

Figure A-1 – Common Sounds on the A-Weighted Decibel Scale

Source: ESA, 2023



Maximum A-Weighted Level (Lmax)

Lmax is the maximum, or peak, sound level during a noise event. The metric only accounts for the highest A-weighted sound level measured during a noise event, not for the duration of the event. For example, as an aircraft approaches, the sound of the aircraft begins to rise above ambient levels. The closer the aircraft gets, the louder the sound until the aircraft is at its closest point. As the aircraft passes, the sound level decreases until the sound returns to ambient levels. Some sound level meters measure and record the maximum sound level (Lmax). The Lmax for an aircraft flyover is illustrated on **Table A-1**.

Table A-1
Common Sounds on the A-Weighted Decibel Scale

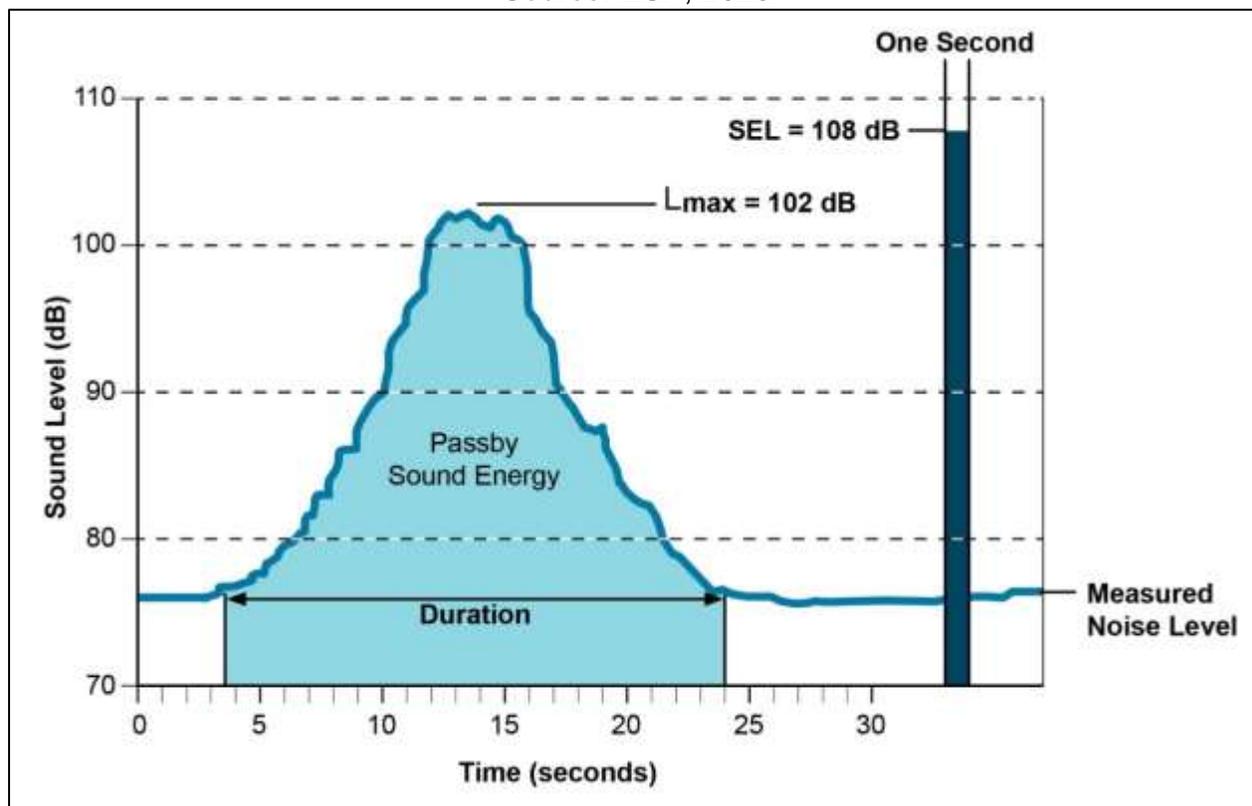
Sound	Sound Level (dBA)	Relative Loudness (Approximate)	Relative Sound Energy
Rock music, with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobiles at low speed	50	1/2	.1
Average office	40	1/4	.01
City residence	30	1/8	.001
Quiet country residence	20	1/16	.0001
Rustle of leaves	10	1/32	.00001
Threshold of hearing	0	1/64	.000001

SOURCE: U.S. Department of Housing and Urban Development, Aircraft Noise Impact—Planning Guidelines for Local Agencies, 1972.

Sound Exposure Level (SEL)

SEL is a time integrated measure, expressed in decibels, of the sound energy of a single noise event at a reference duration of one second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum sound level and the duration of the sound. The standardization of discrete noise events into a one-second duration allows calculation of the cumulative noise exposure of a series of noise events that occur over a period of time. The SEL of an aircraft noise event is typically 6 to 12 dBA greater than the Lmax of the event. SELs for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or overflight), and the type of aircraft. The SEL for an aircraft flyover is illustrated on **Figure A-2**.

Figure A-2
SEL and Lmax
Source: ESA, 2023



Single Event Noise Exposure Level (SENEL)

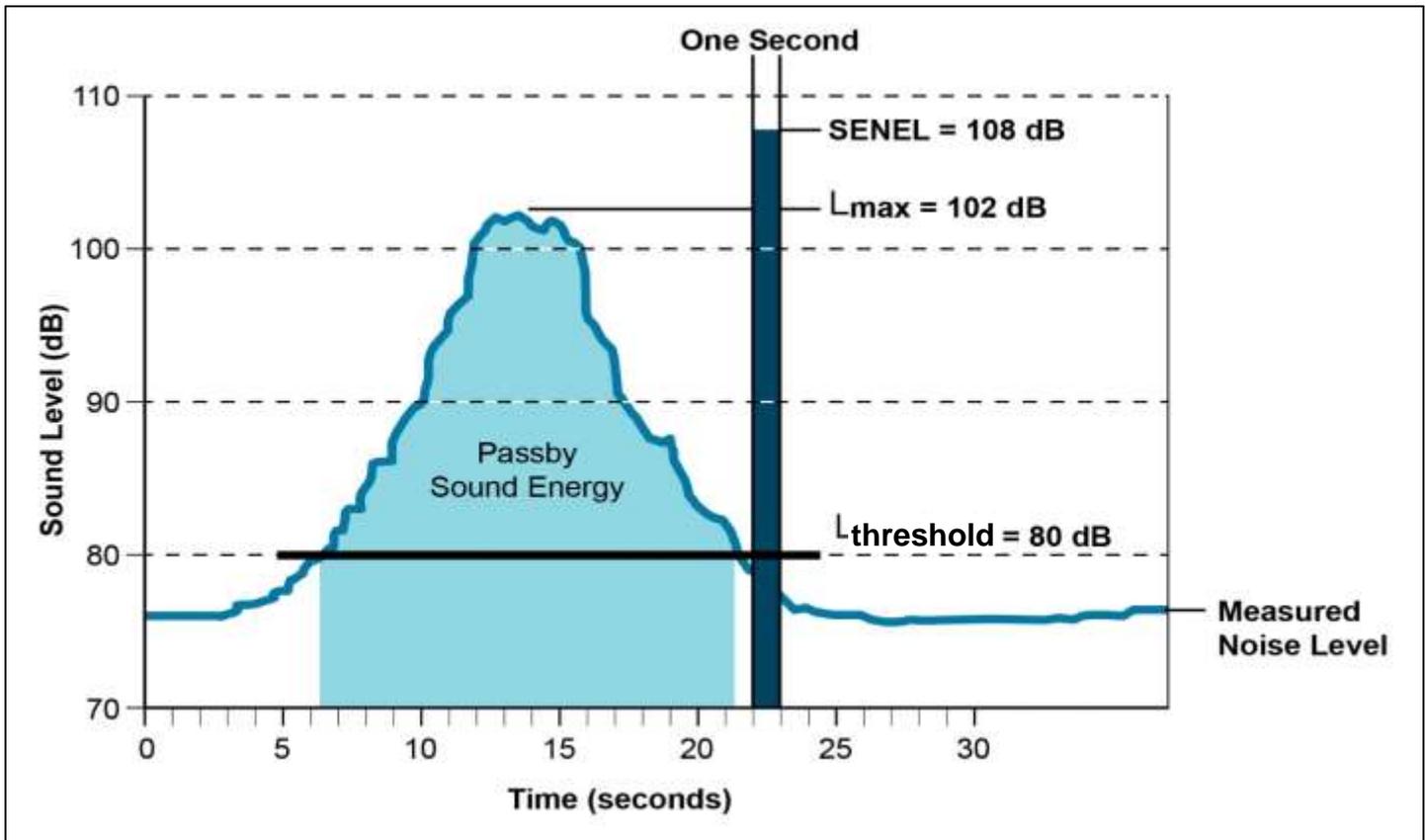
California Department of Transportation (Caltrans) Division of Aeronautics noise standards regulations require use of SENEL to describe the cumulative noise exposure for an individual noise event, such as an aircraft flyover. SENEL is a very slight variation on SEL. Just like SEL, it is the one-second-long steady-state level that contains the same amount of energy as the actual time-varying level. However, unlike SEL, it is calculated only over the period when the level exceeds a selected threshold.

Figure A-3 depicts the SENEL concept for the noise event used in **Figure A-2** SEL example, but with an 80 dB SENEL threshold value. Note that even though the SENEL is calculated over a shorter duration, both metrics have the value of 108 dB. This situation is typical for most noise events; for all but very unusual noise events, as long as the threshold is at least 10 dB below the maximum level, the SEL and SENEL values will be within 0.1 dB.

Equivalent A-Weighted Noise Level (Leq)

Leq is the sound level corresponding to a steady state, A-weighted sound level containing the same total energy as a time-varying signal over a given sample period. Leq is the “energy” average noise level during the time period of the sample. It is based on the observation that the potential for a noise to impact people is dependent on the total acoustical energy content of the noise. It is the energy sum of all the sound that occurs during that time period. This is graphically illustrated in the middle graph on **Figure A-3**. Leq can be measured for any time period, but is typically measured for 15 minutes, 1 hour, or 24 hours.

Figure A-3
SENEL, L_{max}, and L_{eq}
Source: ESA, 2023



Time Above (TA)

TA measures the total time or percentage of time that the A-weighted aircraft [noise](#) level exceeds a defined sound level threshold (L) over the desired time period (X). TA can be calculated for any period of time, such as daytime or nighttime. The time period is usually defined in minutes. The TA metric is usually denoted by TAL(X). For example, a TA₆₅(60) calculated over a 24-hour day describes an area within which the noise level exceeds 65 dB for 60 minutes or more in a 24-hour day.

Number Above (NA)

Like TA, the NA metric is usually denoted by NAL(X). NA calculates the total number of aircraft events (X) that exceed a selected sound level threshold (L) during a specified time period. The threshold is usually defined using either the SEL or L_{max} metric. The time period can be any time interval, such as a 24-hour day, nighttime, or daytime.

Day-Night Average Sound Level (DNL)

DNL (or sometimes referred to as Ldn) represents a 24-hour A-weighted noise dose. DNL is essentially equal to the 24-hour A-weighted Leq, with one important adjustment: noise occurring at night – from 10 p.m. through 7 a.m. – is “factored up.” The factoring up can be made in one of two ways:

1. Weighting, by counting each nighttime noise contribution 10 times, e.g., if DNL is calculated by summing the SEL of aircraft operations over a 24-hour period, each nighttime operation is represented by 10 identical daytime operations.
2. Penalizing, by adding 10 dB to all nighttime noise contributions, e.g., if DNL is calculated from the SEL of aircraft operations occurring over a 24-hour period, 10 dB are added to the SEL values for nighttime operations.

The 10 dB adjustment accounts for our greater sensitivity to nighttime noise and the fact lower ambient levels at night tend to make noise events, such as aircraft flyovers, more intrusive. **Figure A-4** depicts this adjustment graphically.

Why is DNL used to describe noise around airports? The U.S. Environmental Protection Agency (EPA) identified DNL as the most appropriate measure of evaluating airport noise based on the following considerations:

- It is applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods of time.
- It correlates well with known effects of noise on individuals and the public.
- It is practical, and accurate. In principle, it is useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics is commercially available. It was closely related to existing methods currently in use.

Representative values of DNL in our environment range from a low of 40 to 45 dB in extremely quiet, isolated locations, to highs of 80 or 85 dB immediately adjacent to a busy truck route. DNL would typically be in the range of 50 to 55 dB in a quiet residential community and 60 to 65 dB in an urban residential neighborhood. **Figure A-5** presents representative outdoor DNL values measured at various U.S. locations.

Figure A-4
Example Calculation of DNL
Source: ESA, 2023

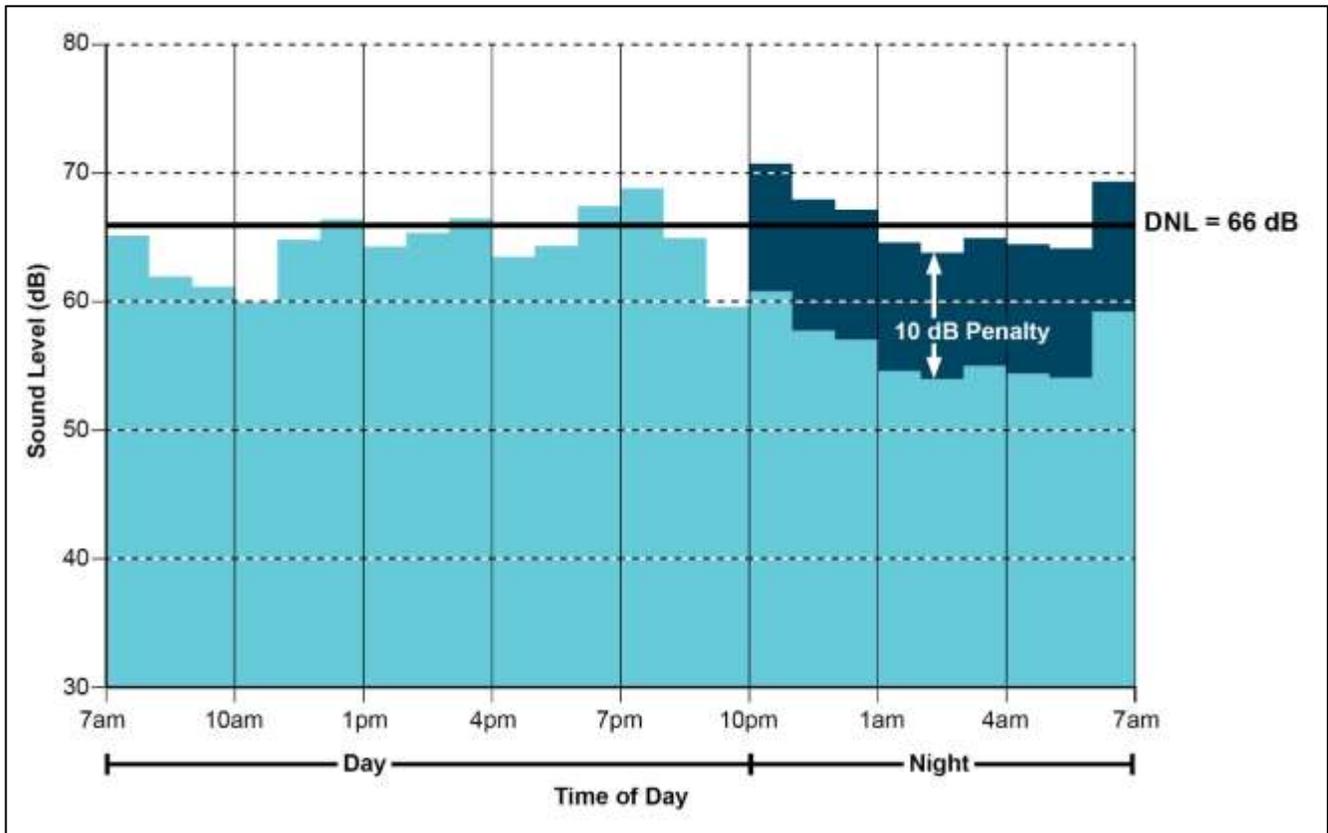
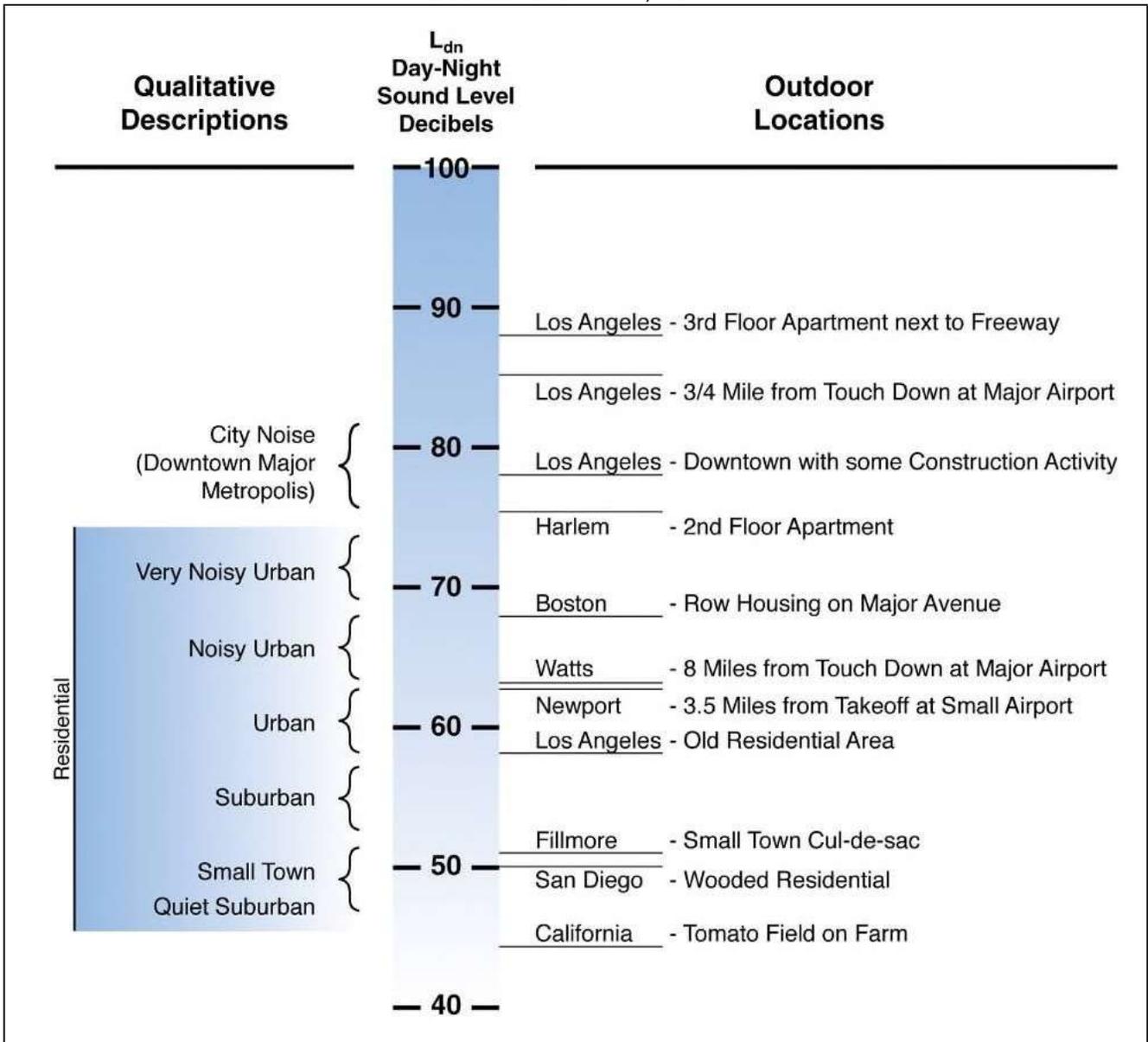


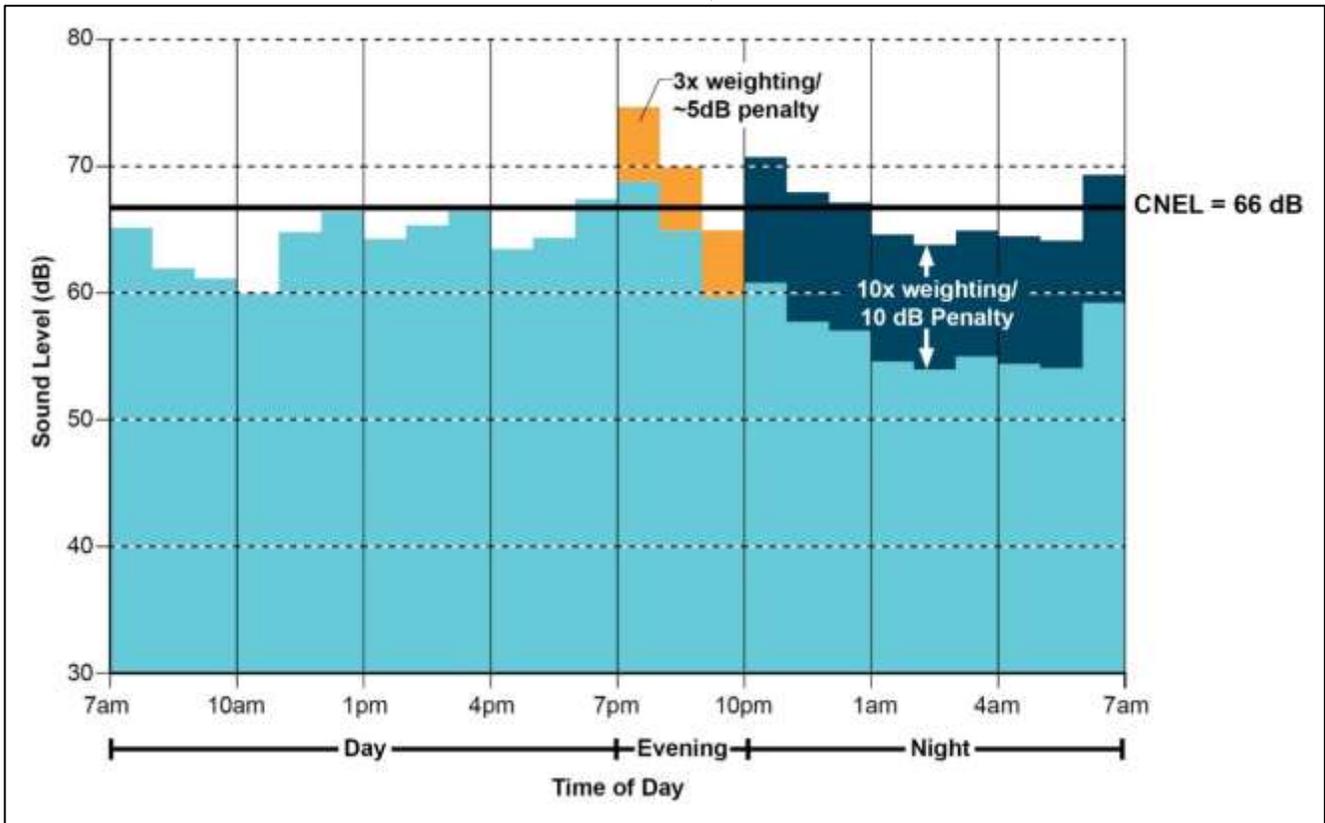
Figure A-5
Examples of Measured DNL
 Source: U.S. EPA, 1974



Community Noise Equivalent Level (CNEL)

The State of California requires use of a slight variation of DNL to express cumulative A-weighted noise exposure over any number of days. CNEL (or sometimes referred to as L_{den}), differs from DNL in one way: It adds an “evening” (7 pm – 10 pm) period during which noise events are weighted by a factor of three, which is mathematically equivalent to adding approximately a 4.77 dB penalty. **Figure A-6** depicts this adjustment graphically.

Figure A-6
Example Calculation of CNEL
 Source: ESA, 2023



Unless noise exposure is calculated for an unlikely situation where there is no noise-producing activity during the evening period (an unlikely situation) CNEL will always be greater than DNL. However, from a practical standpoint this difference is rarely more than one decibel. For this reason, the DNL values shown in **Figure A-5** are reasonably representative of CNEL values for the same environments, as are guidelines for interpreting changes in exposure discussed in the previous section. The FAA applies the same criteria for thresholds of significant change in CNEL that they have set for DNL.

Attachment B



City of Long Beach

Working Together to Serve

Office of the City Attorney

Memorandum

DATE: October 31, 2023

To: Honorable Mayor and Members of the City Council

FROM: Dawn McIntosh, City Attorney
Marsha M. Yasuda, Deputy City Attorney

SUBJECT: Review and Comment on Airport Issues

I. PURPOSE OF MEMO

This memo is written in response to the September 12, 2023 request for the City Attorney's Office to report back to the City Council to address legal issues involving general aviation¹ and privately-owned flight school operations at the Long Beach Airport (LGB or Airport).

We understand the significant impacts the increase in flight school operations is having on the local community and have fully explored the City's legal and regulatory options to address this issue. Unfortunately, there are very limited regulatory options we can pursue to provide relief, as discussed in more detail below. The City is aware of the serious concerns from residents related to Airport noise and leaded fuel and is exploring all possible avenues to address them.

II. BACKGROUND

The navigable airspace is a limited national resource that Congress has charged the Federal Aviation Administration (FAA) to administer in the public interest as necessary to ensure the safety of aircraft and its efficient use. The FAA has exclusive authority to regulate the areas of airspace use, management and efficiency; air traffic control; safety; navigational facilities; and aircraft noise at its source. (49 USC §§ 40103, 44502, and 44701-44738.) FAA rules and regulations apply to the entire National Airspace System and heavily disfavors local restrictions on aircraft operations. As such, local governments have not been allowed to adopt noise or access restrictions at airports without FAA approval since November 1, 1990, with few exceptions.

¹ "General aviation" means aviation activity other than operations by Air Carriers, Commuter Carriers, Industrial operators, Charter operators, and public aircraft, as defined by Long Beach Municipal Code Chapter 16.43. It includes, but is not limited to, flight schools, cargo flights, and banner tow services.

A. The Airport Noise and Capacity Act of 1990 (ANCA)

Congress enacted the Airport Noise and Capacity Act of 1990 (ANCA) to establish a national program for review of airport noise and access restrictions. ANCA, as implemented by 14 CFR Part 161, requires airports comply with certain requirements before implementing any noise or access restriction (known as the Part 161 process). The requirements set forth in 14 CFR Part 161 are extremely onerous and very difficult to meet.

When ANCA was passed, it allowed certain proposed restrictions and restrictions that were already in effect to be exempt from the Part 161 process. These are known as the “grandfathered” provisions of ANCA and such restrictions were not subject to the Part 161 process, meaning they could be adopted or stay in effect without FAA review.

Currently, an airport cannot impose a new noise restriction or an amendment to a grandfathered restriction that reduces or limits aircraft operations or affects aircraft safety without first obtaining approval from the FAA through the Part 161 process or agreement from all affected aircraft operators before implementing the restriction. To obtain FAA approval, an airport would need to submit a Part 161 Study to the FAA, which is a comprehensive technical and legal analysis that must include: (1) public notification; (2) opportunity for public input; (3) a scientific study of the noise environment; (4) a benefit-cost analysis of the proposed restriction; and (5) a federally determined documentation process. The product of the Study is an application to the FAA requesting waiver of the federal preemption of local airport noise and access restrictions and authorization to enact and implement the proposed restriction.

To approve a proposed restriction, the FAA must be satisfied it (1) is reasonable, nonarbitrary, and nondiscriminatory; (2) does not create an undue burden on interstate or foreign commerce; (3) is not inconsistent with maintaining the safe and efficient utilization of the navigable airspace; (4) does not conflict with any existing federal statute or regulations; (5) has been adequately provided to the public for comment; and (6) does not create an undue burden on the national aviation system.

Only after the FAA has approved the Part 161 application can the airport implement the proposed restriction. A Part 161 Study is costly (expenses can be upwards of several million dollars) and time-consuming (it can take up to a decade to complete). The penalty for violating ANCA and Part 161 (i.e., implementing a new restriction without FAA approval) is termination of Airport Improvement Program (AIP) grant eligibility and loss of authority to impose use and Passenger Facility Charges (PFCs) (discussed in further detail below). The FAA can also obtain a court order to enjoin enforcement of the unauthorized restrictions.

B. The Long Beach Airport Noise Ordinance

In 1981, the City adopted its first airport noise ordinance, which limited air carrier flights to 15 per day and required air carriers to use quieter aircraft. In 1983, three commercial carriers sued the City in Federal District Court. In an effort to resolve the protracted litigation that ensued, the City and the airlines ultimately entered into a settlement agreement and a stipulated final judgment, which the Federal District Court adopted on May 18, 1995. As a result of the settlement, the City enacted its current Airport Noise Ordinance (Long Beach Municipal Code, Chapter 16.43) (Noise Ordinance).

The three major components of the Noise Ordinance are:

1. Single event noise exposure limits (SENEL) for aircraft operating at the Airport.
2. Curfew requiring all commercial flights to be scheduled between 7:00 a.m. and 10:00 p.m. Violations are subject to monetary administrative "civil" penalties as well as "alternative" criminal enforcement.
3. Community Noise Equivalent Level (CNEL) "noise budget" for all five Airport user groups (commercial air carriers, commuter, general aviation, industrial, charter) based on their respective CNEL limits in the baseline year of 1989-1990. The Noise Ordinance allows a minimum of 41 air carrier flights per day. The number of flights may be increased if all flights in the category operate at, or below, the 1989-1990 baseline CNEL noise contour.

While the Noise Ordinance does not have a curfew for general aviation operations, general aviation is nevertheless subject to maximum SENELs during certain hours at certain runways, and its operations are limited to the larger runway during nighttime hours. Violators are identified and processed under the Noise Ordinance's enforcement penalties. Additionally, training operations are restricted to certain hours per day under LBMC 16.43.030.A; however, if a pilot arrives, taxis back around and immediately departs, this is not considered a training activity. The FAA will not allow airports to restrict this procedure for safety reasons.

The FAA has previously acknowledged that the fundamental provisions of the City's Noise Ordinance, including those provisions related to the limitation of "late night" flights, is grandfathered under the provisions of ANCA; therefore, the notice, review, and approval requirements set forth in ANCA and Part 161 do not apply to a subsequent amendment to the Noise Ordinance so long as it " ... does not reduce or limit aircraft operations or aircraft safety." (See 49 USC 47524(d)(4), as implemented by 14 CFR 161.3(b) and 161.7(b)(4).)

The Noise Ordinance approved by the Court in 1995 remains in effect today, and it has not been amended or modified by the Long Beach City Council since its enactment. It is currently one of the strictest noise ordinances in the nation. Given the special status

and critical benefits of the Noise Ordinance for the community, aviation interests, and other stakeholders, the City is very careful to ensure that it is protected and remains in full force and effect. For this reason, the City strictly adheres to the provisions of the Noise Ordinance and has deferred any modification to the Noise Ordinance that could endanger its grandfathered status.

C. Airport Noise Ordinance Noise Limits

1. Community Noise Equivalent Level (CNEL)

The FAA has adopted a day-night average sound level (DNL) of 65 dBA as the threshold above which aircraft noise is considered to be incompatible with residential areas. The FAA recognizes a Community Noise Equivalent Level (CNEL)² of 65 dBA in California. Accordingly, the Noise Ordinance acknowledges: "It is the goal of the City that Incompatible Property³ in the vicinity of the Airport shall not be exposed to noise above sixty-five (65) CNEL." (LBMC 16.43.050.)

The Airport Noise and Operations Monitoring System (ANOMS) collects noise data on every airplane arriving at and departing from the Airport. There are eighteen Remote Monitoring Terminals (RMTs) located around the airport and the surrounding community, six of which are used for noise violation enforcement (RMTs 1, 2, 5, 6, 9, and 10). Noise is continually monitored at all 18 RMTs and enforced 24 hours a day at the six noise violation enforcement RMTs.

Data from the noise monitors indicate aircraft at LGB are operating under the 65 dBA limit. At Runway 30-12 (the Airport's largest runway), general aviation has been operating significantly under its allowable budget, using only 53.5% of its allowable budget at RMT 9, and only 31.9% at RMT 10, for the period from July 1, 2022 to June 30, 2023. Preliminary data for the current quarter indicates that general aviation is still operating well below its allowable budget at Runway 30-12.

Additionally, at Runways 8R-26L and 8L-26R, which are primarily used by general aviation, operations have historically been and are currently well below the 65 dBA CNEL limit. It would take a significant increase of operations before the noise level at these runways came close to reaching the 65 dBA noise limit, and the Airport likely could not support this kind of operational increase.

² CNEL is a measure of the average noise environment over a 24-hour period. CNEL depends not only on the loudness of the noise, but the time of day that the noise occurs. Noise events occurring during the evening (7 p.m. - 10 p.m.) are penalized by 10 dBA. CNEL measurements include noise from aircraft at take-off, landing, and while in-flight.

³ "Incompatible property" means property used for residential purposes, schools and churches. Property subject to an easement for noise and property acoustically treated to reduce interior CNEL levels is not rendered compatible as a result of such easement or acoustic treatment. (LBMC 16.43.010.H.)

2. Single Event Noise Exposure Level (SENEL)

The Noise Ordinance sets maximum decibel levels for single event noise exposures. (LBMC 16.43.040.) SENEL is a measurement of noise in decibels that takes into account how loud a single noise event is and how long it lasts. The Noise Ordinance sets the following SENEL limits for runways 8R-26L and 8L-26R, the runways primarily used by general aviation operators, for the hours between 7:00 a.m. and 10:00 p.m.:

Runway	Limit on Dep/Arr	Monitoring Station
26R	92/88	6/1
26L	95/93	5/2
8R	95/92	2/5
8L	88/92	1/6

The Airport enforces violations of the SENEL limits by all airport users, including general aviation operators; however, not many general aviators are violating the SENEL limits or any other provision of the Noise Ordinance. In fact, since 2016, out of an average of 283,532 general aviation operations per year, only an average of 138 per year resulted in violations, meaning less than 0.05% of general aviation operations violated the Noise Ordinance. In the last 6 months, 0.04% of general aviation operations violated the SENEL provisions of the Noise Ordinance.

Per the Noise Ordinance, SENELs applicable to general aviation may only be reduced if the overall airport noise exceeds 65 dBA CNEL, the general aviation allowable budget is exceeded, and voluntary measures fail to reduce the noise to the allowable level for general aviation. As already noted, because general aviation is operating significantly under its allowable noise budget, general aviation SENEL levels cannot be reduced.

D. Airport Improvement Program (AIP) Grant Assurances

The Airport Improvement Program (AIP) provides federal grants to airports for airport development and planning. As a grant program, it provides funds to airports for a known range of capital projects without the financial burden associated with bonds or other debt financing.

To receive AIP grant funds, airport sponsors⁴ commit to numerous obligations regarding the operation and maintenance of the airport, known as “grant assurances.” The City, and by extension the LGB, has been accepting AIP grant funds for decades and in exchange has agreed to a total of 39 grant assurances covering almost every aspect

⁴ Airport sponsors are either “public agency sponsors” or “private sponsors.” A “public agency sponsor” means a public agency with control of a public-use airport. The City of Long Beach is the “public agency sponsor” of the LGB, and it is the City (not the Airport) that enters into AIP grant agreements with the FAA. Both the City and the LGB (as a department of the City) are bound by the terms of the agreement.

of airport operations and management. Most assurances apply for the shorter of 20 years or the useful life of the facilities developed with the funds.

Individuals or entities that are (1) “directly and substantially affected” by an alleged noncompliance of the airport sponsor as to a grant assurance and (2) who have engaged in good faith efforts to resolve the issue informally, may file a formal Part 16 complaint or informal Part 13 complaint with the FAA. Complainants who do not meet the two aforementioned requirements may only file an informal Part 13 complaint.

Under both processes, the airport sponsor is provided with the complaint for review and response, after which the FAA issues a determination setting forth its position and the penalties that will be imposed for such violations, which include withholding approval of grant applications, withholding payments on existing grants, requiring an airport sponsor to reimburse the FAA for all prior grant payments, treble damages, and commencing legal action aimed at achieving compliance. Penalties depend on which grant assurance was violated. An airport sponsor may appeal the FAA’s ruling to the Associate Administrator for Airports and the United States Court of Appeals.

III. LEGAL QUESTIONS

A. What ability does the City have to adjust its Noise Ordinance?

Per ANCA, amendments to the Noise Ordinance may not be more restrictive than the terms of the currently grandfathered Noise Ordinance. As previously stated, any amendment to the regulatory environment (including the Noise Ordinance) at the Airport that “reduces or limits aircraft operations” is subject to ANCA and requires either a Part 161 Study and FAA approval or must be agreed to by the airport and all the airport aircraft operators.

Only after unanimous approval of airport aircraft operators or the FAA’s approval of a Part 161 application can an airport implement the proposed restriction. **The FAA has never approved a restriction on currently operating general aviation or other aircraft under Part 161⁵.**

Several airports that initiated Part 161 Studies did so in the early to mid-1990s in an effort to restrict certain aircraft ahead of the aircraft’s phase out date⁶. This resulted in the Naples Municipal Airport in Florida being the only successful airport to implement a noise restriction under Part 161, allowing them to restrict a type of aircraft that was

⁵ Only three applications have been deemed by the FAA to have completed the Part 161 requirements (Naples Airport in Florida, Burbank Hollywood Airport, and Los Angeles International Airport) and only one was allowed to proceed with its proposed restrictions on aircraft that no longer operate (Naples Airport). The other two applications were disapproved by the FAA.

⁶ The FAA has required the transition to quieter aircraft and has phased out older and noisier aircraft.

scheduled by the FAA to be phased out of use (the restriction is now moot because the aircraft it applied to was completely phased out by January 1, 2016).

The FAA has found only two Part 161 applications proposing restrictions on currently operating aircraft (i.e., aircraft not yet scheduled to be phased out) complete, such that it could render a final decision. One application was from the Hollywood Burbank Airport (BUR) and the other from Los Angeles International Airport (LAX). Both applications were ultimately disapproved by the FAA.

In 2000, the Hollywood Burbank Airport sought to make its voluntary nighttime curfew mandatory in response to complaints of nighttime aircraft noise. In 2009, after 9 years and \$7 million spent on developing data and preparing an application, the FAA disapproved its Part 161 application, finding that while the proposed curfew was non-discriminatory because it was applicable to all aviation users, it was not reasonable because there were more cost-effective and feasible alternatives that could be implemented; it would cause an undue burden on airport users by diverting operations to other airports; and it would have a negative impact on other Southern California airports.

Similarly, in 2014, Los Angeles World Airports (LAWA) submitted an application to restrict and penalize certain easterly aircraft departures from LAX between midnight and 6:30 a.m. The FAA disapproved the application, finding that while the proposed curfew was non-discriminatory because it was applicable to all aviation users, it failed to provide substantial evidence there were no feasible or cost-effective alternatives; failed to demonstrate the expected benefits of the curfew would outweigh the costs of the burden it presented on other airports; and the curfew violated a grant assurance based on safety.

The FAA heavily disfavors increasing local restrictions at airports and has considerable discretion to disapprove a Part 161 application on a variety of grounds. Thus, even if the City decided to undertake the costly and time consuming effort to prepare and submit a Part 161 application seeking to amend its Noise Ordinance to restrict general aviation operations, including flight school operations, it would almost certainly be disapproved by the FAA.

If the City decided to impose a restriction on flight schools without following the Part 161 process, the FAA could terminate the City/LGB's eligibility for Airport Improvement Program (AIP) grant funds and the authority to impose and use Passenger Facility Charges (PFCs)⁷. The LGB is an enterprise department of the City, meaning it does not require a General Fund subsidy because it generates its own revenues. No taxpayer dollars have ever been used to fund the Airport. The LGB has received millions in AIP funding and PFCs (through commercial airport operations), which have been used

⁷ The PFC Program allows the collection of PFC fees up to \$4.50 for every eligible passenger at commercial airports controlled by public agencies. Airports use these fees to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition.

to fund capital improvement projects, such as airfield runway, taxiway and taxi-lane reconstruction and rehabilitation projects; additional roadway and airport access projects; security projects; and baggage screening facilities projects. If the Airport lost its eligibility to obtain AIP funds and/or the authority to collect PFCs, the Airport would no longer be able to cover its expenses, as it would have insufficient funds to maintain existing infrastructure. The likely result would be the loss of commercial service operations, as Airport infrastructure could not be maintained to FAA standards.

The loss of commercial service operations would have a devastating impact on the City and neighboring regions. In 2018, the Airport supported over 46,000 direct and indirect jobs and generated \$8.6 billion for the regional economy. The average commercial passenger traveling from out of town spent \$546 on accommodations, ground transportation, food, shopping and entertainment, and the Airport served almost 4 million commercial passengers.

Additionally, if the City were to revise the Noise Ordinance in a way that reduced or limited access to the Airport without FAA approval, individuals or entities could file a Part 13 or 16 complaint, and the FAA would investigate as to whether the restriction violates any grant assurances. The FAA is likely to find a restriction targeting flight schools or general aviation operations constitutes a violation of Grant Assurance 22 at a minimum (Economic Nondiscrimination), because it would restrict a particular category of aircraft operations⁸. A violation of Grant Assurance 22 could result in millions of dollars in federal grants being withheld. In addition, the FAA could find that the revisions cause the Noise Ordinance to no longer qualify for grandfathered status because the changes “reduce[d] or limit[ed] aircraft operations”. (See 49 USC 47524(d)(4), as implemented by 14 CFR 161.3(b) and 161.7(b)(4).) The FAA could then order that the City could no longer enforce its Noise Ordinance without completing a Part 161 application and receiving FAA approval.

Accordingly, it is imperative that the City carefully coordinate any proposed mandatory restriction on general aviation with the FAA before implementation, with the understanding that obtaining FAA approval is costly, time-consuming, and extremely difficult to secure.

Alternatively, the City and Airport can work with the general aviation community to implement voluntary noise abatement procedures under which aircraft operators voluntarily fine-tune flight procedures and routes to minimize noise impacts in certain communities or neighborhoods. This approach is heavily favored and encouraged by the FAA.

⁸Grant Assurance 22 requires, amongst other things, the airport be made available for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities.

B. How Have Other Airports Addressed These Types of Concerns and What Ability Does Long Beach Have to Take Similar Actions?

Comparisons regarding airport restrictions have been raised between Torrance Municipal Airport – Zamperini Field (TOA or Torrance Airport) and the LGB. It is important to note there are marked differences between the Torrance and Long Beach Airports. LGB is a much larger airport than TOA, both in size and in operations:

	Torrance Airport (TOA)	Long Beach Airport (LGB)
Airport Category	Regional Reliever (Nonprimary) <i>An airport designated by the Secretary of Transportation to relieve congestion at a commercial service airport and to provide more general aviation access to the overall community</i>	Small Hub (Primary) <i>Receives 0.05 to 0.25 percent of the annual U.S. commercial enplanements</i>
Size	506 acres ⁹	1,166 acres
Runways	1. 11L/29R is 5,000 x 150 ft (1,524 x 46 m) 2. 11R/29L is 3,000 x 75 ft (914 x 23 m)	1. 12/30 is 10,000 by 200 feet (3,048 x 61 m) 2. 8L/26R is 6,192 by 150 feet (1,887 x 46 m) 3. 8R/26L is 3,918 by 100 feet (1,194 x 30 m)
Use	Primarily general aviation	Multi-use, including commercial and general aviation
Average No. of Annual Ops (Approx.)	120,000	260,000
No. of Annual Commercial Airline Passengers (Approx.)	0	3.9 million (2018) 3.6 million (2019) 1.0 million (2020) 2.1 million (2021) 3.2 million (2022)

Torrance Airport is not a grant-obligated airport because it has not accepted AIP grant funds for the development and operation of its airport. Accordingly, it is not obligated to comply with the FAA’s grant assurances. In addition, TOA does not support commercial aircraft, so it is not eligible to receive or use PFCs. Therefore, the noise and access restrictions provided by ANCA and Part 161 are arguably not applicable to the City of Torrance because the penalty for violating ANCA and Part 161 is termination of AIP grant eligibility and loss of authority to impose and use PFCs. As a result, because the City of Torrance has not accepted AIP grants, does not intend to accept grants in the future, and does not impose PFCs, the penalties that could be imposed by the FAA would not impact TOA.

⁹ While TOA is smaller in size compared to LGB, airport size is not the determinative factor in whether an airport is grant-obligated. For example, John Wayne Airport in Orange County is similar in size to TOA, but accepts AIP grants and collects PFCs, so it is nevertheless subject to the same obligations as LGB.

Both the Hollywood Burbank Airport and LAX accept federal funding and collect PFCs. As previously stated, both airports attempted to implement mandatory curfews applicable to all airport operators under Part 161 and both applications were disapproved by the FAA. Both airports complied with the FAA's final decisions and abandoned their efforts to implement mandatory curfews.

In yet another case, Florida's Palm Beach County Park Airport (KLNA), formerly known as Lantana Airport, banned all jet aircraft over 12,500 pounds from operating at the airport. In 2016, Part 13 and 16 complaints were filed, alleging the airport was in violation of Grant Assurance 22. The FAA found in favor of the complainant.

The FAA found the County's jet restriction was unjustly discriminatory because it allowed aircraft equally noisy or noisier than the aircraft restricted from operating at the airport. ("In terms of the quality of the noise produced by modern type fan-jets...there is absolutely no difference between the noise of such jets and the noise emitted by the louder fixed-wing propeller aircraft which are allowed to use the airport." [FAA citing *Santa Monica Airport Ass'n v. City of Santa Monica* (C.D. Cal. 1979) 481 F.Supp. 927, 943, aff'd (9th Cir. 1981) 659 F.2d 100].) It further found the County failed to produce evidence of the relationship between the ban and noise, finding it was unreasonable to impose a restriction in instances where there was no noise data or justification for access restriction. The FAA also noted the County failed to provide evidence the alleged noise problem could not be mitigated through voluntary measures. Furthermore, the FAA determined the ban was not based on safety and efficiency because no safety analysis had been conducted before implementation.

The County appealed the FAA's decision and the U.S. Court of Appeals for the 11th Circuit sided with the FAA. (*Palm Beach County v. Federal Aviation Administrator* (11th Cir. 2022) 53 F.4th 1318.) In upholding the FAA's determination that the ban was not justified by noise, safety, or any other concern, the Court gave wide deference to the FAA's decision, stating it would only reverse based on abuse of discretion.

The Court held that if airport sponsors want to establish restrictions on an airport's use, Grant Assurance 22 requires those restrictions to be "reasonable," "not unjustly discriminatory," and "necessary for the safe and efficient operation of the airport," and agreed with the FAA that these requirements were not met. (*Palm Beach County, supra*, 53 F.4th at 1337.) It noted that the County's jet ban was not grandfathered under ANCA, and therefore had to comply with ANCA's substantive and procedural regulations.

After spending tens of thousands of dollars in legal fees to challenge the FAA, the County chose not to pursue further appeal, which could have resulted in the loss of millions of dollars in federal aid needed to improve the County's airports. The County acknowledged, "With the recent U.S. Court of Appeals decision, we unfortunately have no further opportunity to maintain the restriction without violating federal law."

The Palm Beach County case is instructive because it demonstrates that a ban or restriction targeting a specific category of aircraft or operation will likely be disapproved by the FAA and there is a high bar to overturning that decision on appeal.

C. Can the fines for violations of the Airport Noise Ordinance be increased?

The City could arguably amend the Noise Ordinance to increase fines within the current fine structure without violating ANCA, provided any increase does not reduce or limit aircraft operations or affect aircraft safety, and the increases are reasonable. Since these criteria are subjective and the FAA is the ultimate arbiter of whether any fine increase violates ANCA, the City should consult with the FAA before pursuing this option.

In 1999, in response to growing numbers of departure curfew violations by airlines, San Diego International Airport conferred with the FAA to determine the legality of increasing fine amounts for curfew violations. The FAA rendered an advisory opinion that ANCA would not apply to increasing fines within the specific fine structure proposed by the airport. It stated that if the increases were only intended to and would only deter and penalize willful violations, then ANCA does not apply. San Diego, however, ultimately chose to forego increasing its fines.

In 2001, the City of Santa Monica adopted an ordinance that increased the fines for repeat violations of the Santa Monica Airport noise abatement provisions from a maximum of \$500 to as much as \$10,000, despite a request by the FAA to defer action. The FAA expressed concern that the new ordinance was subject to ANCA because it potentially made access to the airport more restrictive. The FAA also noted that only reasonable increases in fines would be consistent with Part 161. (The FAA and the City of Santa Monica were involved in years of litigation and ultimately settled, agreeing to close the airport in 2028.) In another example, the town of Islip, Long Island, New York, imposed a massive \$50,000 nighttime landing fee at its airport in order to reduce nighttime noise, which the FAA stated was subject to a Part 161 Study because the fee made access to the airport more restrictive. (Islip eventually repealed its noise abatement procedures.)

Accordingly, the City should arguably be able to reasonably increase its fines within the current fine structure without triggering ANCA. If the City wanted to change the fine structure (e.g., issue a fine, not a notice, on the first violation) or significantly increase the fine amounts, it would likely trigger ANCA.

If the City were to pursue a fine increase, close coordination with the FAA is advised. Any implementation of an amendment to the LBMC's current fine structure (i.e., LBMC 16.43.090) without prior FAA input could jeopardize the Noise Ordinance.

It should be noted that an increase in fines may not resolve the noise issue with flight schools given the low number of violations by general aviation operators and the lack of repeat offenders.

D. Can the City Ban Leaded Fuel?

In February 2022, the FAA launched the Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative to eliminate leaded aviation fuels in piston-engine aircraft by the end of 2030. Some municipalities have pressed for the phase out of leaded aviation fuel to occur more quickly.

In 2021, the County of Santa Clara voted to ban the sale of leaded gas at its two general aviation airports (Reid Hillview and San Martin). It is the only county in the nation to implement such a ban at its airports. Airport tenants, pilots, and aircraft owners filed complaints with the FAA under Part 13, claiming the ban was unreasonable and would force planes to refuel elsewhere, prompting the FAA to launch an informal investigation into the ban as to whether it violated grant assurances. The FAA sent a Notice of Informal Investigation to the County, which advised that “until the Federal Government certifies the use of unleaded fuel in all aircraft, the County may not ban or phase out leaded fuel or take any action related to fuel that would conflict with or undermine Federal law and airport access consistent with the grant assurances. ...[T]he ban on use of leaded fuel constitutes a probable violation of Grant Assurance 22... .”

There was a subsequent Part 16 complaint filed by AOPA, which is now pending before the FAA, making allegations similar to those in the Part 13 complaint relating to the availability of leaded aviation fuel for purchase at the County airports.

Earlier this year, the FAA entered into a Memorandum of Understanding (“MOU”) with the County of Santa Clara, which suspended the FAA’s Part 13 investigation for 6 months while they develop a mutually agreeable action plan to meet the common goal of operating the County airports in a safe condition, including addressing necessary repairs and maintenance to the airport, wildlife and concerns related to leasing practices (unrelated to any leaded fuel issues) and to ensure, to the extent possible, aircraft are not misfueled with unleaded fuel. The County also agreed to consider participating in a project “to facilitate the study of the implementation of the goal of reducing aircraft lead emissions nationally.” The MOU noted that AOPA’s Part 16 complaint and FAA’s adjudication of it was not held in abeyance and that any new Part 16 complaint would also not be held in abeyance. The Director’s Determination on AOPA’s Part 16 complaint is currently set to be issued by November 6, 2023.

Congress is currently trying to mandate that airports accepting federal funds continue to sell leaded aviation fuel. (H.R. 3935, S. 1939.) Part of the FAA Reauthorization Act, the bill passed in the House and has stalled in the Senate. FAA authorization was recently extended as part of measures to avoid a government shutdown. It remains to be seen whether Congress will be successful in mandating the sale of leaded aviation fuel.

On October 18, 2023, the U.S. Environmental Protection Agency (EPA) issued an “endangerment finding” under the Clean Air Act, concluding that “lead emissions from aircraft engines that operate on leaded fuel cause or contribute to air pollution that may reasonably be anticipated to endanger public health and welfare.” The endangerment finding triggers a statutory mandate for the EPA and FAA to develop federal regulations regarding the use of leaded aviation fuel. As previously mentioned, the FAA has publicly committed to the elimination of leaded aviation fuel by 2030, but neither the EPA nor the FAA have announced any more specific timeline for issuing new regulations regarding leaded aviation fuel. The endangerment finding does not authorize any action by state or local agencies to regulate leaded aviation fuel.

Thus, LGB does not currently have the authority to ban the use and sale of leaded fuel. The City and LGB can continue to offer incentives for use of unleaded fuel for aircraft that are able to use it and closely monitor FAA regulations regarding this issue. In addition, the City can work with our Congressional representatives to push the FAA for faster action and immediate guidance in light of the EPA’s recent finding.

E. Non-regulatory Options

There are a number of strategies the City and community can pursue outside of regulation to try to address the current situation. First, LGB can continue to work with the general aviation community to seek voluntary measures that will ease the impact on the local community from the expanded flight school operations and to encourage the transition to unleaded fuel.

Second, LGB and the City can continue to reach out to contacts at the FAA to seek informal solutions that might be able to provide some relief to local communities.

Third, community members can reach out directly to the FAA to seek relief from noise impacts¹⁰. The FAA has a portal for residents to submit noise complaints at <https://noise.faa.gov/noise/pages/noise.html>. If that approach is not successful at addressing the noise issues, the FAA provides a process for an ombudsman to review the situation and provide assistance (<https://www.faa.gov/noise/inquiries>).

MMY:bg

A23-03049
01589496.DOCX

¹⁰ The FAA recently issued a Noise Complaint Policy - <https://www.faa.gov/sites/faa.gov/files/FAA%20Addressing%20Noise%20Complaints%20Policy.pdf>.

Attachment C

Continuing Noise Research

Neighborhood Environmental Survey (NES)

FAA recently undertook a comprehensive research effort to quantify the effect of aircraft noise exposure on communities surrounding commercial service airports in the U.S. The purpose of the effort was to develop an updated dose-response curve to quantify the relationship between aircraft noise exposure and community annoyance and conduct a review of current noise policy based on the results of this research. To do this, the FAA team conducted a NES²³, which collected data from adult residents living in communities surrounding 20 different commercial airports in the U.S., chosen to represent the country as a whole. This research represents a reevaluation of previous transportation noise annoyance studies conducted in the 1970's and 1990's, and the Schultz Curve, the previously accepted standard dose-response curve for describing transportation noise exposure and community annoyance relationships.

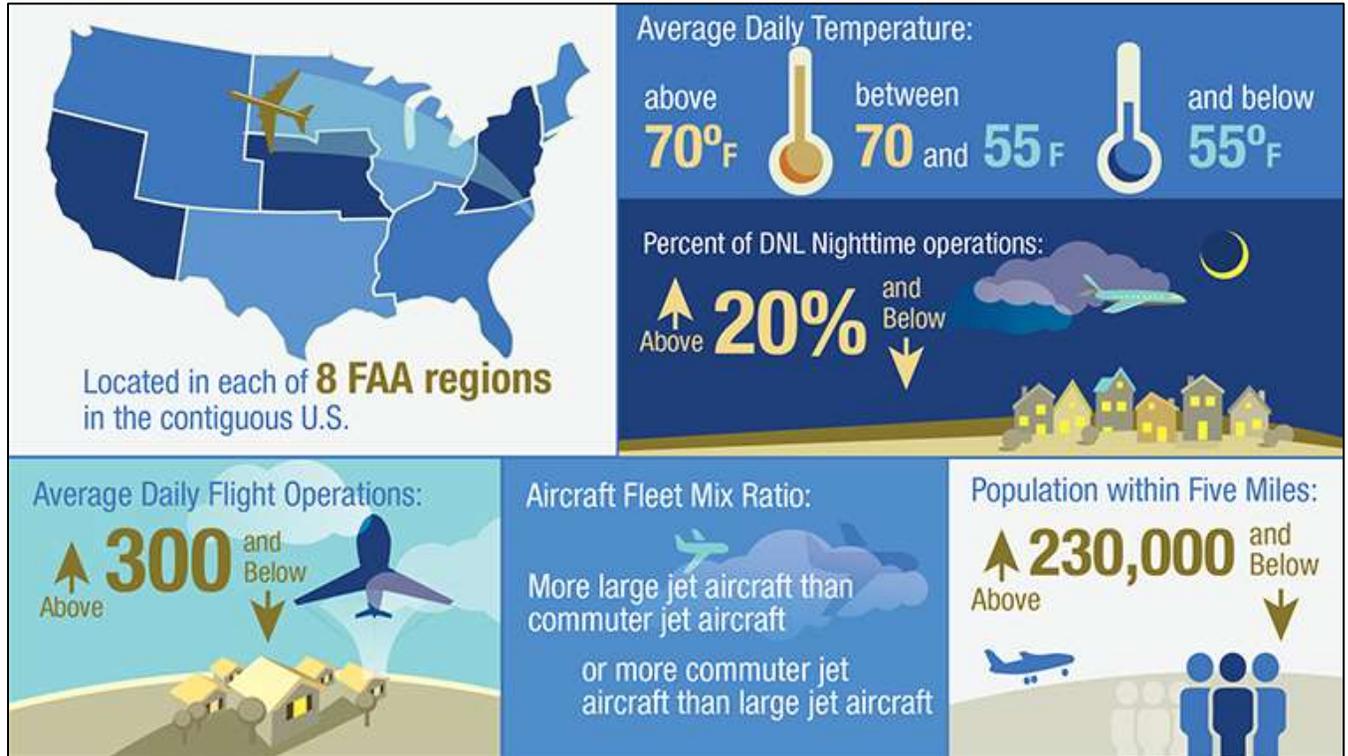
Methodology

The FAA surveyed over 10,000 residents living in communities nearby 20 different representative commercial service airports via a mailed survey. Representative airports were selected using a minimum criterion of having at least 100 jet operations per day, at least 100 households exposed to aircraft noise of 65 DNL and above, and at least 100 households exposed to aircraft noise of 60 DNL to 65 DNL. More advanced criteria, such as airport location, climate, total operations, typical fleet mix, and surrounding population were used to narrow the total number of representative airports to 20. Noise modeling was performed to determine noise exposure levels surrounding the representative airports and the number of households within each exposure level. Surveys were distributed to households within several different noise exposure levels (55-60 DNL, 60-65 DNL, etc.), with the majority of surveys distributed to households located below the 65 DNL noise exposure threshold. Refer to **Figure B-1** for a graphic depicting how airports were selected through balanced sampling.

This survey, the NES, asked residents if different environmental concerns, such as traffic and aircraft noise, disturbed or annoyed them within the last twelve months. As there were many different environmental concerns listed in the survey, participants did not know that the focus was strictly on aircraft noise. Participants were asked to rate their annoyance level of each environmental concern on a scale of 1 through 5, with 5 being "most annoying". In addition to the mail-in surveys, phone surveys were conducted with roughly 2,000 residents in order to gather additional information regarding annoyance due to aircraft noise.

²³ <https://www.airporttech.tc.faa.gov/Products/Airport-Safety-Papers-Publications/Airport-Safety-Detail/ArtMID/3682/ArticleID/2845/Analysis-of-NES>

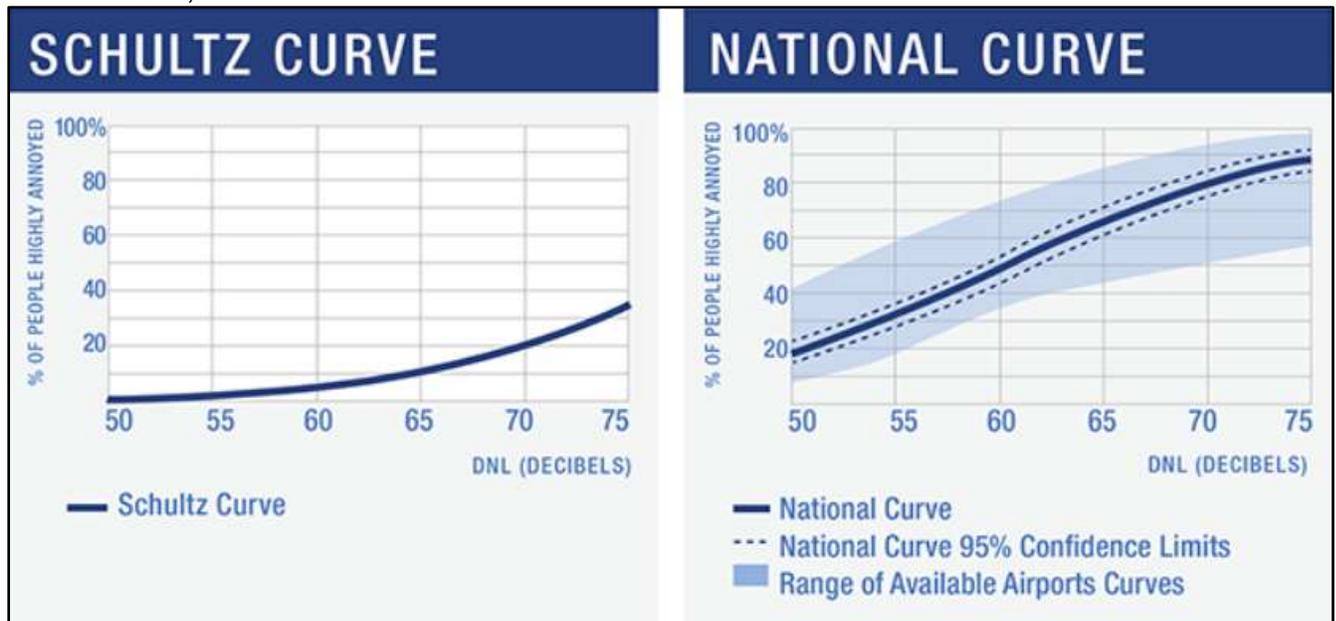
Figure B-1
Airport Selection through Balanced Sampling Factors
 Source: FAA, 2023



Results

A new National dose-response curve was developed by combining NES responses from the aircraft noise portion of the survey and modeled aircraft noise levels. When compared to the Schultz Curve, the new National Curve shows a much higher percentage of the population highly annoyed by aircraft noise, even at lower levels of noise exposure. While primarily focused on commercial service airports and jet aircraft operations, this research will inform future FAA noise policy applicable to both commercial service and GA airports. Refer to **Figure B-2** for a comparison between the Schultz and National Curves.

Figure B-2
Schultz Versus National Curve
 Source: FAA, 2023



Noise Policy Review (NPR)

The FAA is currently reviewing its noise policy as part of their ongoing commitment to address aircraft [noise](#). The effort builds upon their work to advance the scientific understanding of noise impacts as well as the development of analytical tools and technologies. The noise policy sets forth how the FAA analyzes, explains, and publicly presents changes in noise exposure from aviation activity: recreational and commercial fixed wing airplanes, helicopters, commercial space transportation vehicles, unmanned aircraft systems, as well as emerging technology vehicles (newer types of vehicles that will operate in U.S. airspace).

The NPR is evidence-based, thorough, and collaborative. The FAA is considering findings from ongoing [noise research](#), including the NES which provided an updated [dose-response curve](#), and other research related to health impacts, speech interference, [sleep disturbance](#), and economic impacts. They are examining the distribution of environmental risks, tradeoffs, and resulting impacts across communities.

As part of the review, the FAA is:

- Looking at their current use of DNL (CNEL) as the primary noise metric for assessing cumulative aircraft noise exposure.
- Reviewing whether to continue to use the 65 DNL as the metric and threshold for determining significant noise impacts in environmental reviews under the NEPA or the definition of the limit of residential land use compatibility.

- Considering if and how alternative noise metrics may be used in lieu of or in addition to DNL to better inform agency decisions and improve FAA's disclosure of noise impacts.

The FAA is engaging with the public and other stakeholders through meaningful opportunities in order to learn more about aviation noise, hear from the FAA, and provide input for the agency's consideration. The FAA invited public comments from interested individuals, entities, and other parties. The public comment period closed on September 29, 2023; a total of 4,830 comments were received and will be reviewed by the FAA.

Attachment D



LBAA

Advancing Aviation, Economic Growth and Business Diversity

President
Curt Castagna
CEO and President,
Aerlesse Group

1st Vice President
Eric Hill
Signature Flight Support

2nd Vice President
Dan Thompson
EAA President, Chapter 7

Treasurer
Jason Svoboda
Marketing Mgr.-Flight Safety

Secretary
Cindy Goodfellow

Kevin Fletcher
Gulfstream Aerospace

Daniel Medina
General Manager
Atlantic Aviation

CMF Buford
General Manager
Southwest Airlines

Justin Castagna
Bonseph Long Beach

Binan Grimshaw
Escape

Jason Jeffries
Owner-
Pacific Air Flight School

Imran Ahmed
General Manager
Long Beach Airport Marriott

Christopher Wairath
General Manager
Hawaiian Airlines

Vickie Dewey
Sr. Property Manager
White Buffalo

October 19th, 2023

Ms. Cynthia Guidry
Director- Long Beach Airport
City of Long Beach
4100 Donald Douglas Dr
Long Beach, CA 90808

Re: LGB Airport General Aviation Operations- Revised Voluntary Pilot Program

Dear Ms. Guidry

In an effort to enhance our focus to assist in addressing flight training operations at LGB that have resulted in community concerns, and to mitigate quality of life concerns, the Long Beach Airport Association (LBAA) continues to review that voluntary program introduced in October of 2022.

Our Fly Friendly voluntary program provides the opportunity for flight schools to enhance their own training curriculums, by implementing best industry practices in their training programs for both instructors and students. As you know, GA operations at many airports have increased nationally where the industry has responded to the shortage of qualified pilots. LGB Airport is a vibrant airport and plays a vital role in GA and in-flight training. We are pleased to see that LGB operations continue to show good alignment from the GA users and operators in flying compliant with the established LGB Noise Ordinance.

A collective group of flight schools have met, reviewed, and now recommend modified practices for aircraft pattern work to best mitigate noise concerns. Our members will continue to meet collectively to review "How to Fly a Friendly Pattern at Long Beach Airport". The revised guidelines, and pending revised pilot handout, (outlined below) are being submitted to each master tenant, flight school and user/operator. There is support in implementing these procedures with pledges being made by participating flight schools operating at LGB Airport. Also, flights schools continue to support the priority recommendation to voluntary terminate pattern work after 9:59 pm local, which we understood has shown results. As a living document, this program will continue to review reasonable improvements that also align with the priority for safety, existing policy and any established rules, regulations, and ordinances. As well, these procedures may be superseded by Air Traffic Control.

P.O. Box 91361
Long Beach, CA 90809
562-506-2942
www.thebbaa.org

LGB Airport General Aviation Operations- Revised Voluntary Pilot Program

- The organized group of well-established local LGB flight training operators, and others from neighboring airports, are knowledgeable GA users who have:
 - Reviewed any LGB related noise violations and the specific operations raising concern
 - Reviewed the LGB users operational practices and training syllabus guidelines for potential refinement specific to LGB Airport, and are implementing regional training and communications.
 - Collectively considered reasonable operational modifications that potentially would mitigate concerns and provide benefit without transferring or impacting other community areas or residents at LGB and elsewhere regionally.
 - Continue to use these practices and educational tools so to outreach and communicate with based pilots, instructors, and students on continued refined best practices. And educate users on the City of LB's noise policies and regulations, and address how to mitigate impacts at other regional airports.
 - Will continue our commitment to adherence to airport rules, regulations, and noise abatement procedures.

Below is an outline of the guidelines for the voluntary program.

HOW TO FLY A FRIENDLY PATTERN AT LGB

- Use full length of Runway, and full power on departure.
- Use Best Rate (Vy) or Best Angle (Vx) on departure.
- Utilize Best Angle with any touch and go aircraft operations to best achieve maximum altitude within the airport boundaries.
- Fly appropriate pattern altitudes
 - When able, implement crosswind turns at 500' MSL on departure
 - Otherwise fly the upwind leg to 1000' MSL on departure before turning crosswind/downwind
 - Limit the width of the downwind leg to no more than 1/2 to one mile from runway centerlines of Runway 08L/26R and Runway 08R/26L use visual cues
 - Aligning Downwind to Carson St., to north on Runway 08L/26R
 - Aligning Downwind to Willow St. to the south on Runway 08R/26L
- Distribute flight activity based on demand and optimize the use of both 26L and 26R as the prevailing runways to best avoid residential areas
- Adhere to all Long Beach Municipal Code (LBMC) Chapter 16.43 (Airport Noise Ordinance) regulations and Long Beach Airport recommended noise abatement procedures related to pattern and flight training.
 - Reminder – Touch and Go operations are not permitted after 7 pm weekly and 3 pm on the weekends and Holidays.
 - As a recommendation- No pattern work on any runway after 10 pm- including required full stop and taxi back operations.
 - For any pattern work necessary after 10 pm, use a right-hand pattern on the only active runway (30/12) so to mitigate impacts to residential neighborhoods
- Aircraft should try to touch down in the first 500' of usable distance of the runway and as close to the runway identifier markers as possible. This will assist in the best use of the runway to maximize flight profiles.

Further considerations and efforts:

- LGB flights schools should ensure they comply with all administrative requirements to operate at LGB (valid lease agreements for space, consent to lease by the airport, insurance consistent with city requirements, operation consistent with LGB Minimum Standards and a valid City of LB business license)
- LGB flight schools should consider incorporating the identified best practices into their own training programs for both instructors to establish ongoing education within their own programs.
- LBAA and those willing and interested business operators should consider participating in a wider regional effort to cross-educate operators on local flight training rules and to minimize community impacts.

LONG BEACH FLIGHT SCHOOL OPERATOR'S PLEDGE

"We pledge to fly and educate pilots in a safe and prudent manner at all times, faithfully observing all FAA regulations and LGB Airport Noise Regulations. In addition, we will strive to utilize safe, best management flight practices to reduce the noise impact of our operations on the residents who live below our flight paths. We will do our part in these efforts so to facilitate a reduction in the number of aircraft flight training noise complaints in the community adjacent to the Long Beach Airport. We will fly our aircraft at altitudes where it is safe to do so without endangering pilots or passengers. And will be mindful of the fact that how we operate our aircraft reflects on all those who fly training aircraft in the Los Angeles region where flight training is active as a means to train our future workforce. We realize that the current aircraft training environment requires understanding, tolerance and even appreciation of the residents of the region. Therefore, we pledge to be responsible pilots and citizens."

We believe the continued partnership between the airport, businesses and users does result in a baseline of improvement in best mitigating quality of life concerns, while also protecting the established diversity of aeronautical users found at LGB, protected by the established Noise Ordinance.

I look forward to continuing a collaborative dialogue between the Airport and LGB aviation business community.

Sincerely,

Curt Castagna

Curt Castagna
LBAA President