



LAX

Los Angeles World Airports

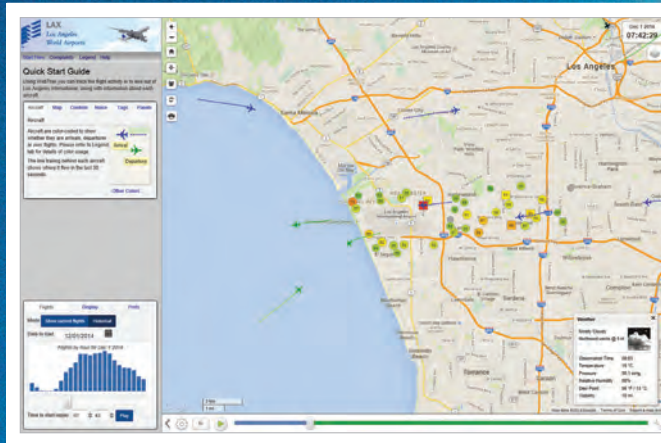
LAX

Noise Management

Program

Sound
Ideas
In Action

LAX Internet Flight Tracking System



Aircraft Type

Altitude

Destination

Origin

Flight ID

The LAX Internet Flight Tracking System allows users to watch the movement of flights and air traffic patterns within the greater Los Angeles region. This informative and popular website averages almost 2,000 individual user sessions per day. Click on *Internet Flight Tracks* on the Noise Management page of the LAWA website, www.lawa.org.

A Commitment to Noise Reduction



As a major international aviation hub, Los Angeles International Airport (LAX) provides a vital service to residents of Southern California and to travelers throughout the world. A major economic engine for Southern California, LAX contributes \$39.7 billion to the local economy and creates 294,400 jobs in Los Angeles County.

With these benefits, though, come impacts—such as aircraft and other airport-related noise—on the densely populated areas adjacent to the airport. As the population in neighboring communities has grown over the years, LAX has increased efforts to most effectively reduce noise impacts in order to balance the needs of airport users while maintaining the quality of life of airport neighbors.

Today, LAX devotes more resources than ever to minimize noise impacts of airport operations, and to provide meaningful response to the community on noise-related issues.

Efforts to Reduce or Limit Aircraft Noise



The Environmental & Land Use Planning Division is one of many Los Angeles World Airports (LAWA) divisions that ensure LAX operates smoothly and responsibly. One of the division's missions is to develop and implement programs that help reduce or limit noise impacts on neighboring communities. Efforts to reduce noise from LAX operations date back to 1959, when the Los Angeles Airport Sound Abatement Coordinating Committee was formed to advise the Los Angeles Board of Airport Commissioners and LAWA on noise-abatement issues. Since then, the City and LAWA have sought partnership-based solutions – including their current support of the LAX/Community Noise Roundtable – to mitigate the noise experienced by surrounding communities.

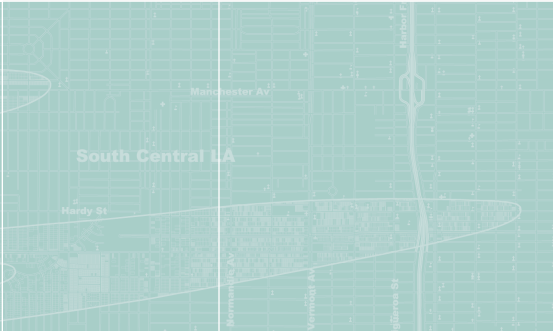
Another key partner in this pursuit is the Federal Aviation Administration (FAA), which has responsibility for the safe operation of all aircraft. LAWA manages the airport and the terminals, but the FAA governs how and where airplanes move on the ground and in the air. For decades, LAWA has worked closely with the FAA to develop successful programs to reduce the noise experienced by surrounding communities. Over the years, LAWA and the FAA have worked to reduce the number of noisier, older aircraft operating at LAX; reserved the inner runways for louder departure operations; and, as much as possible, directed noisier operations away from the communities, especially during early morning hours.

All aircraft produce noise, but there are many steps that can be taken to reduce the amount of noise generated or to limit it to certain areas or time periods. In general, departing aircraft make more noise than arriving aircraft, so establishing procedures that have aircraft depart over the ocean instead of over neighboring communities makes a big difference.

One key milestone among many was, upon LAWA's recommendation, the Los Angeles City Council's adoption of an ordinance phasing out noisy Stage 2 aircraft at LAX by Jan. 1, 2000. This ordinance was grandfathered under federal regulations, which allowed LAWA to be one of few airport operators to adopt an airport-specific Stage 2 phase-out measure that was more restrictive than the nationwide phase-out plan.

LAWA successfully negotiated with the FAA to implement a series of operating procedures designed to ease noise impacts over certain areas and during sensitive hours. However, the FAA has the final determination of where aircraft fly. If weather conditions are hazardous, the FAA may instruct pilots to deviate from these noise-abatement-preferred procedures.

During optimal conditions, the following noise-control measures are in place:



Keep Late Night/Early Morning Arrivals and Departures Over the Ocean

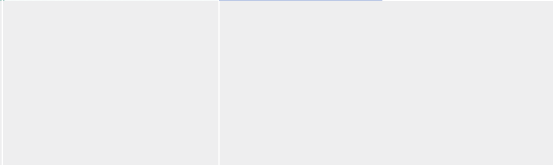
From midnight to 6:30 a.m., all aircraft arriving at LAX must approach from over the ocean, unless FAA Air Traffic Control determines that weather conditions are unsafe for such operations. This procedure, originally implemented in 1973, provides close relief from arriving aircraft during the noise-sensitive early morning hours. This procedure is commonly referred to as *Over-Ocean Operation Procedures*.



Between midnight and 6:30 a.m., all aircraft land and take off over the ocean to keep air traffic away from communities directly east of LAX.

Use Runways Further From Communities for Departures

During the daytime and evening hours between 7 a.m. and 10 p.m., LAX prefers that the outer runways (closer to neighboring communities) be reserved for arrivals, and that the inner runways (closer to the terminals) be used for departures, which are usually louder than arrivals. During the noise-sensitive hours between 10 p.m. and 7 a.m., FAA Air Traffic Control maximizes the use of the inner runways and taxiways for all operations to lessen community noise impacts. This is commonly referred to as *Preferential Runway Use Procedures*.



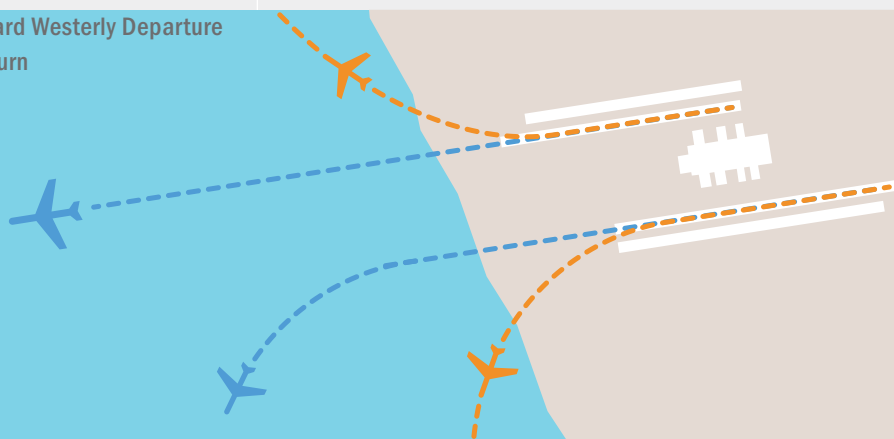
During the daytime and evening hours, the two "inner" runways are used for takeoffs and the two "outer" runways are used for landings to reduce noise impacts.

No Aircraft Turns Over Communities Before Reaching the Shoreline

To minimize noise in residential communities along the north and south airport boundaries, pilots of all aircraft departing toward the west (over the ocean) must fly straight until past the shoreline before beginning any turns, unless specifically instructed otherwise by FAA Air Traffic Control. LAWA regularly monitors all early turns to the north and south, and uses recordings of communications with pilots to verify whether FAA Air Traffic Control instructed the early turns. LAWA issues notification letters with supporting graphics to airlines that deviate from this procedure. The airlines are asked to investigate the incident and to respond to LAWA with an explanation of why the incident occurred and what the airlines have done or will do to prevent future early turns.

Early Turn reports are generated for local communities, the FAA and other interested parties and are available online at www.lawa.org, under Aircraft Noise. This program is known as the *Early Turn Notification Program*.

■ Standard Westerly Departure
■ Early Turn



To reduce aircraft noise to neighboring communities, pilots are requested to fly straight until past the shoreline before initiating turns.



Microphones, like the one shown here, measure the level of noise created by aircraft operating at LAX.

Limit When Aircraft Engine Maintenance Can Be Performed

Departing and arriving aircraft are not the only sources of noise. All aircraft require regular engine maintenance and testing. LAWA requires that all idle engine checks and run-ups (engine tests) are conducted for the minimum time required to accomplish the necessary maintenance or preflight checks, with auxiliary power units also operated as minimally as possible. Run-ups of mounted aircraft engines for maintenance or test purposes are prohibited between 11 p.m. and 6 a.m., and maintenance or test running of jet engines not mounted on aircraft is prohibited unless performed in a test cell of adequate design.

Restrict Specific Aircraft Operations at Imperial Terminal

All turboprops over 65,000 pounds or all turbojets arriving at Imperial Terminal must taxi to a position on Taxiway A, where engines are shut down to minimize noise. The aircraft are then towed to their assigned parking positions. On departure, these aircraft also are towed to the taxiway and positioned facing east or west prior to starting their engines. Jet engine runs and run-ups, as well as turbine-based ground power units, are prohibited on the ramp. Auxiliary power units may only operate when required during tow-in or tow-out.

Monitor Aircraft Flight to Ensure Compliance with Preferred Procedures

LAWA monitors specific arrival and departure procedures for compliance with described minimum altitudes, location of aircraft and other requirements established by the FAA or contained in LAX's *Aircraft Noise Abatement Operating Procedures and Restrictions*. This is accomplished by using one of the largest, most comprehensive noise-monitoring systems in the world. LAWA collects noise levels, flight track and operations data, as well as pilot and air traffic controller radio communication records.

This ongoing program is referred to as the *In-Flight Monitoring Program* and monitors adherence to specific flight operations such as:

- Go-Arounds
- Loop Departures
- Monterey Park Overflights
- Palos Verdes Peninsula Overflights
- Short Turns
- East Departures during Over-Ocean or Westerly Operations

These operations are described in detail in separate handouts.

Helicopter Operations

Helicopter operators with a valid operating agreement with LAWA must comply with FAA Air Traffic Control noise mitigation requirements and procedures pertaining to routes and altitudes.

Noise Management Timeline

1959		1961		1972	1976	1982
Jet aircraft operations begin. Los Angeles Airport Sound Abatement Coordinating Committee formed.		Los Angeles Board of Airport Commissioners urges National Aeronautics and Space Administration (NASA) and Federal Aviation Administration (FAA) to establish federal aircraft noise standards and noise-abatement rules.		Board adopts a comprehensive five-point program to reduce noise impacts, including LAX's landmark "over-ocean" policy.	Los Angeles World Airports (LAWA) begins monitoring aircraft noise using a system certified by the State of California Department of Transportation, Division of Aeronautics.	Board authorizes development of a comprehensive sound-insulation program for airport noise-impacted properties.
1985	1987	1991		1992	1996	1997
Ban on older, noisier Stage 1 aircraft takes effect.	Board adopts local funding program to supplement FAA grants to local jurisdictions to sound-insulate or acquire noise-impacted residential property.	LAWA installs new aircraft noise monitoring system with added aircraft identification and flight-tracking capabilities.		LAX commences monthly distribution of community overflight ("early turn") information to FAA, airlines, and affected local jurisdictions.	LAWA urges FAA to implement new turboprop departure procedure. This, along with other measures implemented by FAA and requested by LAWA, result in reductions of early turns by 76% over El Segundo, 62% over Hyperion Sewage Treatment Plant, and 22% over Playa del Rey.	LAWA establishes Residential Soundproofing Division to take responsibility for sound-insulating residences within the City of Los Angeles.
1998	2000	2002		2007	2010	2011
LAWA begins more comprehensive monitoring of aircraft flight tracks to ensure compliance with noise abatement procedures.	Ban on older, noisier, Stage 2 aircraft takes effect. LAWA facilitates the formation of the LAX/Community Noise Roundtable to allow local representatives from neighboring communities to discuss mitigation of noise impacts with LAWA, the FAA, and airline representatives.	LAX Internet Flight Tracks system unveiled on LAWA's website, allowing residents to observe and identify aircraft operations.		LAWA and Roundtable members work together with the FAA to refine existing RNAV departure procedures to help reduce early turns at LAX. The FAA publishes these revised procedures in record time.	LAWA and Roundtable members celebrate the 10th anniversary of the LAX/Community Noise Roundtable. State certified the replacement Airport Noise and Operations Monitoring System, including new noise monitoring equipment.	LAWA starts sending notification letters to air carriers who depart east between 12 AM and 6:30 AM when LAX is in Westerly or Over-Ocean Operations. The notification is intended to deter air carriers from departing east by requesting specific information about each operation.
2013	2014					
LAWA completes FAR Part 161 study and submits application to FAA for a proposed restriction to prohibit easterly departures from midnight to 6:30 AM when LAX is in Westerly or Over-Ocean Operations.	LAWA begins updating FAR Part 150 Noise Exposure Maps to ensure LAX continues to receive FAA funding for sound insulation programs.					

Meaningful Community Involvement

How can I participate and make a difference?

The LAX/Community Noise Roundtable, created in September 2000, is designed to bring together representatives from all concerned parties to develop recommendations that would help reduce and mitigate aircraft noise impacts on surrounding communities. Roundtable members include local elected officials and staff, representatives of congressional offices, members of recognized community groups, the Federal Aviation Administration, the airlines, and LAWA management. The Roundtable meetings are open to the public. Comments and suggestions from community members attending the meetings are welcomed. The Roundtable has thus far been successful in obtaining FAA assistance in changing several procedures, including a requirement that increased the altitude of arriving aircraft over South Bay communities during Easterly Operations (when aircraft arrive from over the ocean and take off to the east over land). The Roundtable is also pursuing adoption of new departure procedures using satellite navigation instead of verbal direction and altitude instructions from FAA air traffic controllers.

The Roundtable usually meets during the months of January, March, May, July, September and November on the second Wednesday. Roundtable meeting information is posted on the LAX Noise Management page of LAWA's website at www.lawa.org.



Members of the Roundtable discuss noise impacts on communities affected by LAX aircraft operations, and develop ways to reduce those impacts.

How can I find out about aircraft that are flying over my community?

LAX Internet Flight Tracks can be used to view when and where aircraft are flying and who the aircraft operators are by using LAX Webtrak, an Internet-based program located on the LAX Noise Management page at www.lawa.org. It allows the public to view the movement of flights and air traffic patterns within the greater Los Angeles region, and also allows local community members to obtain information on the type and altitude of any aircraft flying over their neighborhoods. These details can be very useful for submitting a noise complaint for aircraft operations that have created a noise disturbance. The flight tracks are delayed about 21 minutes for security reasons. The tracks are available for viewing in the replay mode (showing flight ID, aircraft type, etc.) starting one hour after the flight and are available for a period of 90 days. (Federal Aviation Administration policy requires military and certain "sensitive" aircraft operations to be filtered for security reasons, so these are not displayed.)

How do I report loud aircraft noise or low flights over my neighborhood?

Residents concerned about aircraft noise may contact LAX 24 hours a day, seven days a week by using LAX's noise comment phone line at 424-64-NOISE (424-646-6473), the online noise comment form on the LAWA website at www.lawa.org, or the LAX web app. Click on the Aircraft Noise button and follow the Noise Comments link on the "Noise Management" page. Each comment received is logged in the LAX noise database. The details about noise disturbances contained in comments submitted are reviewed and are an important component for aircraft noise analysis and management. Please note that while staff will review comments, assess trends and look for emerging issues, we will not investigate or respond to all comments received. LAWA creates summary reports of noise comments received each month and posts the reports on the LAWA website.

Weather

Partly Cloudy
West winds @ 9.2 mph

Observation Time	10:53
Temperature	72°F/22°C
Pressure (inHg)	29.9
Relative Humidity	76%
Dew Point	64°F/18°C
Visibility (miles)	10

What Other Kinds of Noise Relief Are There for Residents?

Sound Insulation

Los Angeles World Airports (LAWA) has a Noise Compatibility Program that allows the airport to fund sound insulation projects for residences and schools impacted by aircraft noise. Since the 1990's, LAWA has provided funding and monitored four voluntary residential sound insulation programs in neighborhoods surrounding LAX. The communities eligible for this program in the LAX impact area are the City of Los Angeles (Council Districts 8 and 11), the City of El Segundo, the City of Inglewood, and the County of Los Angeles – unincorporated areas of Athens, Del Aire and Lennox. All together, there are almost 30,000 dwelling units eligible for sound insulation in the LAX area, constituting the largest sound insulation program in the country. LAWA's Sound Insulation Grant Program currently oversees residential and school sound insulation.

The purpose of the sound insulation program is to reduce the impact of aircraft noise indoors in residential areas where the exterior noise level is 65 dB or greater as required by state law. This is achieved by treating areas that allow noise to enter the home, such as windows, doors and roofs. Such treatment includes replacing windows and doors, as well as adding insulation and ventilation systems where necessary. The goal of the program is to reduce the interior noise level to 45 dB by applying acoustic modifications and achieve at least a 5 dB reduction from the previous noise threshold.

Funding for the sound insulation program comes from a variety of sources including Airport Improvement Program funds from the Federal Aviation Administration (FAA), Passenger Facility Charge (PFC) funds, and LAWA operating revenue. Nearly \$500 million has been spent on sound insulation for all four LAX communities as of 2014.

City of Los Angeles (Council Districts 8 and 11)

LAWA runs the Sound Insulation program for the City of Los Angeles (Council Districts 8 and 11). This program finished its last construction contract in 2014, completing sound insulation of approximately 7,400 dwelling units out of 8,200 dwelling units originally eligible. For more information on the City



Residents whose homes qualify for LAWA's soundproofing programs can inspect sound-insulation products that will be used in their homes, and get assistance with the documents necessary to begin the process. Specific plans are then prepared for each participating home and construction schedules are arranged directly with the residents.

of Los Angeles' sound insulation program, please call (424) 646-7444 or visit the LAWA website at www.lawa.org and go to "Aircraft Noise."

City of Inglewood Residential Sound Insulation Program

The City of Inglewood runs its Residential Sound Insulation Program, which has approximately 8,400 eligible units within the eligibility noise contour. For information, visit the City of Inglewood website at www.cityofinglewood.org - under the "Departments" tab, select "Residential Sound Insulation." To see if your residence is eligible, please call (310) 412-5289.

City of El Segundo Residential Sound Insulation Program

The City of El Segundo runs its Residential Sound Insulation Program, which has approximately 4,500 eligible units. For more information, visit the City of El Segundo website at www.elsegundo.org. Under the "Departments" tab, select "Planning and Building Safety" and then "Residential Sound Insulation Program." To see if your residence is eligible, please call (310) 524-2377.

Los Angeles County Residential Sound Insulation Program

The Los Angeles County Community Development Commission runs the Residential Sound Insulation Program, which has approximately 6,200 eligible units in the unincorporated areas of Lennox, Del Aire, and Athens. For more information, visit the LA County website at www.lacdc.org - select "For Homeowners" and then "Residential Sound Insulation Program." To see if your residence is eligible, please call (626) 586-1840 or (626) 586-1798.

Property Acquisition

Since 1998, LAWA's Residential Acquisition Program has overseen implementation of the Voluntary Acquisition and Relocation Program for the City of Los Angeles neighborhoods of Manchester Square and Airport/Belford northeast of LAX. This program, which is now nearing completion, provides residential acquisition on a voluntary basis in lieu of soundproofing, plus relocation assistance to both owners and tenants in compliance with the Uniform Relocation Act. The program also includes property management and demolition. Eligible properties are within the program's noise contour area in accordance with Federal Aviation Administration guidelines.

Other Noise Reduction Measures

In addition to its sound insulation and property acquisition programs, LAWA assisted neighboring communities by completing two sound barriers along portions of LAX—one that runs between Emerson Avenue and the Westchester Golf Course, and another that runs east from Emerson Avenue to Sepulveda Westway. These barriers noticeably reduced airport noise levels in the areas immediately behind the walls.

LAX also mitigates noise at all terminal gates with passenger boarding bridges by equipping them with fixed power and air conditioning units, thereby reducing the need for aircraft to run engines or on-board auxiliary power units at the gates.




Landscaped earth berm and concrete sound barrier (above) help reduce the impact of aircraft noise in communities immediately surrounding LAX.

Production: LAX Public Relations; Design: David Mellen Design, Los Angeles; Photography: Los Angeles World Airports Archives; Printing: Los Angeles City Print Shop

About Los Angeles World Airports

Los Angeles World Airports is a City of Los Angeles department that owns and operates LAX and two other Southern California airports—LA/Ontario International and Van Nuys. A seven-member, policy-making Board of Airport Commissioners appointed by the mayor of Los Angeles governs the Los Angeles World Airports system. For more information, visit www.lawa.org.



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