



VNY

VAN NUYS AIRPORT

NOISE MANAGEMENT PROGRAM

WHERE SOUND IDEAS TAKE FLIGHT

Historical Highlights: VNY Community Noise Mitigation Efforts

1981

- Establishment of mandatory Noise Abatement and Curfew Ordinance with partial nighttime departure curfew and engine run-up restriction

1984

- Activation of 24-hour community response line

1991

- Adoption of six helicopter routes to reduce community noise impacts
- Implementation of voluntary Helicopter Altitude and Route Deviation Program

1993

- Opening of VNY Noise Management branch office
- Installation of noise operations management system

1994

- Launch of voluntary Quiet Jet Departure Program

1996

- Establishment of voluntary No Early Turn Program

1997

- Extension of partial nighttime departure curfew by one hour for non-Stage 3 aircraft

1999

- Initiation of voluntary Residential Soundproofing Program

2000

- Addition of permanent, dedicated noise officer at VNY Noise Management office
- Adoption of mandatory Non-Addition Rule limiting operations of non-grandfathered Stage 2 aircraft

2003

- Publication of pilot guide highlighting established helicopter routes and altitudes
- Submittal of VNY Part 150 Noise Compatibility Study

2005

- Approval of VNY Master Plan reserving 38.6 acres for propeller aircraft use

2009

- Approval of ordinance to phase out operation of noisiest based jets by 2016
- Installation of internet flight tracking system

2010

- Completion of voluntary Residential Soundproofing Program with 779 dwellings treated

2011

- Adoption of updated target noise levels for Quiet Jet Departure Program

2012

- Achievement of zero noise impact area per California Code of Regulations, Title 21
- Establishment of voluntary Friendly Flyer Awards Program

2015

- Publication of revised pilot guide with map of noise sensitive areas and No Early Turn procedures

2016

- Implementation of noise comment management system with mobile application and web form

2018

- Publication of reformatted Aircraft Noise Comment Monthly Report

2019

- Deployment of enhanced noise comment management system with user login and history capabilities, and improved system processing and email response functionality

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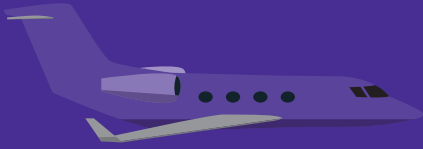
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VNY continues our work to reduce aircraft noise for area residents and to provide meaningful response to the community on noise-related issues.

As a major economic engine in Southern California, Van Nuys Airport (VNY) serves a vital role in the growth of business and employment. According to a study by the Los Angeles Economic Development Corporation, VNY has an annual economic impact of more than \$2 billion and supports more than 10,000 jobs in the region. VNY also provides a base for essential general aviation and emergency services, such as life-saving medical evacuation, air ambulance and fire-fighting operations.

While these diverse activities bring many benefits, they also result in certain noise impacts on the areas adjacent to the airport. VNY works diligently to balance the needs of the aviation community with those of local residents by providing meaningful and timely response to noise concerns, and by taking proactive measures to identify and reduce aircraft noise.

A COORDINATED EFFORT

Today, more resources than ever are being dedicated and developed to minimize the impacts associated with airport operations. To administer our noise management programs and community response efforts, we effectively pool our resources from Los Angeles World Airports (LAWA), the City of Los Angeles department that owns and operates VNY and Los Angeles International Airport (LAX). The dedicated full-time noise abatement officer at VNY works hand-in-hand with a team of Noise Management Division staff at LAX, as well as staff from the Public and Community Relations, Airport Operations and Administrative Divisions at VNY.

COMPLIANCE WITH NOISE STANDARDS

Through developing and instituting aggressive noise abatement policies and programs, VNY is distinguished as the first LAWA airport to achieve full compliance with the California Code of Regulations Title 21 Noise Standards. This milestone means VNY has achieved a zero noise impact area and may operate without obtaining a variance from the state.

VNY's noise compliance strategy is focused on two major elements:

1. Reduce noise at the source, and
2. Reduce noise for the receiver.

Reducing noise at the source is accomplished through both formal and informal noise abatement policies and procedures, as well as changes in overall airport operations and a transition to quieter jets. In addition, through successful completion of a major residential soundproofing program, VNY has successfully reduced noise at homes located within its noise impact boundary.

A NOISE BRIEFING

Noise is defined as unwanted sound, which means that the tolerance for noise varies from person to person. Sound is transmitted in the form of pressure waves that spread from the source through the air to the human ear, much like waves do across the ocean. While waves

VNY IS THE FIRST LAWA AIRPORT TO ACHIEVE FULL COMPLIANCE WITH THE CALIFORNIA CODE OF REGULATIONS TITLE 21 NOISE STANDARDS.

may originate from wind or other weather phenomena across the ocean's surface, aircraft noise is generated from vibrating objects such as jet engines, helicopter and propeller blades, and air flowing over the wings and fuselage of aircraft in flight.

Jet operations account for the majority of airport noise concerns. In simple terms, jet engines generate more noise during departure when power settings are higher for aircraft to climb to flight altitude, and generate less noise on arrival when power settings are lower. While noise may be subjective, there are many environmental factors that impact the level of airport-related noise in the community.

Warmer temperatures and lower humidity levels decrease sound levels, while cooler temperatures and higher humidity increase sound levels. However, when there is a temperature inversion (cooler air near the ground and warmer air higher up), the sound is bent toward the ground instead of dissipating into the atmosphere. This is a common weather phenomenon in Southern California that may cause louder noise levels to occur. Wind direction and strength can also affect whether sound travels toward or away from a specific area. Porous building materials, grass, shrubs and trees are more effective at absorbing sound than hard, smooth surfaces like brick, concrete, stone and wood.

VNY utilizes the latest, state-of-the-art noise monitoring system, plus provides the community with tools to track flights and communicate with the airport about noise concerns.

VNY's noise reduction efforts include enforcement of the mandatory Noise Abatement and Curfew Regulation and implementation of the Non-Addition Rule. Voluntary programs include the Quiet Jet Departure, No Early Turn, Helicopter Route and Altitude Deviation, and Friendly Flyer Awards programs.

In addition, the VNY Noise Management office utilizes a state-of-the-art noise and operations management system (NOMS) to review, analyze and report on all arrival and departure activities at VNY with the same radar data used by the Federal Aviation Administration (FAA). If an operation is shown in the system to deviate from any mandatory or voluntary noise abatement programs, Noise Management staff can notify the aircraft owner/operator or appropriate enforcement authority. Serving as an educational tool for counseling pilots and operators, these deviation notification letters contain the date, time, route and flight track of the aircraft operation.



Leveraging the technology of the NOMS, LAWA also provides the community with a powerful web-based tool to view past and real-time flight tracks online in order to report and/or self-investigate noise concerns. Additionally, noise concerns can be reported directly into NOMS via an easy-to-use mobile application, a web form with user login and history capabilities, and the VNY noise comment line. On a daily basis, the VNY Noise Management team works to:

- Successfully monitor and report ongoing and emerging noise concerns at VNY to stakeholders;
- Provide meaningful, accurate information to the community regarding their noise concerns;
- Achieve effective noise reduction at the source through ongoing pilot education and counseling; and
- Work collaboratively with essential stakeholders such as community members, elected officials and the FAA to develop meaningful and effective noise abatement programs at VNY.

NOISE ABATEMENT AND CURFEW REGULATION (PARTIAL NIGHTTIME DEPARTURE CURFEW FOR JET AIRCRAFT)

Adopted as an ordinance by the Los Angeles City Council in 1981 and amended in November 1997 and July 1999, the Noise Abatement and Curfew Regulation includes fines for violations ranging from \$750 to \$3,500, and a provision that may prevent violators from using the airport for up to three years.

At the time, the ordinance was enacted to prohibit the oldest, noisiest jets from departing VNY during the nighttime hours of 10 p.m. to 7 a.m. The restriction for these nighttime departures was based on each aircraft's certified (not measured) takeoff noise level published in the FAA Advisory Circular Regulation 36-3. Any aircraft with a certified takeoff noise level at or above 74 A-weighted decibels (dBA) are restricted from taking off between the curfew hours. Stage 3 aircraft are not affected by the curfew until 11 p.m. Exempt from the curfew are helicopters, medical emergency flights, military aircraft and government-operated aircraft for emergency purposes.

As a testament to its effectiveness and the success of manufacturers in building quieter and more efficient aircraft, very few jets operating at VNY today are affected by the curfew. Most aircraft meet and/or are certified at levels far below the maximum 74dBA requirement, and may fly into and out of VNY at any time.

For noise abatement purposes, the ordinance also restricts pilot training operations to the hours of 7 a.m. and 10 p.m. during summer months and 7 a.m. and 9 p.m. during all other months; prohibits engine maintenance run-ups between the hours of 7 p.m. and 7 a.m.; and directs pilots to use the main runway between the hours of 11 p.m. and 7 a.m. unless otherwise instructed by air traffic control.

THE NON-ADDITION RULE

To further address and balance the concerns of airport neighbors and tenants, enforcement of the Non-Addition Rule became effective on January 1, 2002. The Non-Addition Rule, an amendment to the existing VNY Noise Abatement and Curfew Regulation, prohibits any additional Stage 2 aircraft with certified takeoff noise levels exceeding 77dBA from being based at VNY. Grandfathered aircraft were permitted to operate through 2010, but are now prohibited.

NOISIER AIRCRAFT PHASEOUT

In 2009, the Los Angeles City Council approved a new ordinance with a timeline to phase out noisier jet aircraft at VNY by 2016. The phaseout first restricted aircraft with certified takeoff noise levels at or above 85 dBA and gradually extended to all aircraft with certified takeoff noise levels of 77 dBA or higher.

Still in effect today, VNY's exemptions are more restrictive than those contained in the national phaseout of Stage 2 jets established by Congress in the FAA Modernization and Reform Act of 2012.

QUIET JET DEPARTURE PROGRAM

VNY established the Quiet Jet Departure Program in 1994 to decrease noise in the communities south of, and closest to, the airport by having pilots agree to use predetermined, recommended procedures to reduce jet departure noise. Under the voluntary program, pilots agree to:

- Use noise abatement techniques as established in manufacturers' operating manuals or the National Business Aviation Association Noise Abatement Program;
- Make every effort within adequate safety margins to abide by the proper noise-reducing techniques;
- Actively participate in the monitoring program by working with airport staff and others to research any residential complaints regarding a particular flight; and
- Work with airport staff and the Van Nuys Airport Association to support and encourage other jet operators to participate in the program.

A noise monitoring terminal near the end of the runway measures departure sound levels, and VNY Noise Management staff notifies aircraft owners and operators in writing when they exceed the criterion noise level established for each aircraft type. These not-to-exceed target noise levels are based on many years of aircraft noise data and affect the noisiest 5 percent of jet departures from VNY.

Additionally, the Quiet Jet Departure Program serves as the cornerstone for the annual Friendly Flyers Awards Program launched in 2012 to recognize jet operators who achieve 99 percent or greater compliance with all voluntary noise abatement programs and full compliance with all mandatory noise abatement policies.

NO EARLY TURN PROGRAM

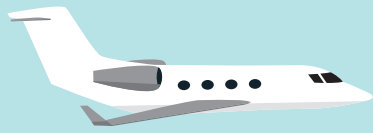
Another highly effective program established to minimize noise impacts to communities closest to the airport is the No Early Turn Program. Under the program, the VNY noise officer uses the NOMS to detect pilots who turn too early after departure and subsequently fly over adjacent residential areas. Unless investigations show that specific instructions to turn early were issued by FAA air traffic control, the offending pilots and operators are notified of operations conducted contrary to this program. The No Early Turn Program ultimately serves as an effective tool for the VNY Noise Management office to educate pilots, aircraft owners and operators of airport noise abatement procedures to reduce the impact of departures on neighboring communities.

HELICOPTER ROUTE AND ALTITUDE DEVIATION PROGRAM

Although the FAA has no minimum altitude restrictions for helicopters in flight, VNY Noise Management staff has worked with the FAA to develop agreements with VNY-based operators to follow the established preferential helicopter routes and recommended altitude minimums when flying into or out of the airport. The Helicopter Route and Altitude Deviation Program notifies helicopter owners and operators of arrivals and departures that stray from these preferential helicopter routes. Like the other voluntary programs at VNY, the notification process provides additional opportunities for the VNY Noise Management office to:

- Educate and bring awareness of the established routes and altitude minimums to encourage compliance;
- Maximize awareness of the airport environment and community noise concerns; and
- Minimize flight and noise impacts in nearby residential areas.





Our Noise Management and Airport Operations personnel regularly meet and engage with pilots and aircraft operators to educate them about noise programs and community concerns, enhancing compliance with both mandatory and voluntary initiatives.



NOISE RESTRICTION STUDIES AND COLLABORATIVE EFFORTS

As one of the busiest general aviation airports in the world, VNY's achievements with respect to noise abatement and noise compatibility issues are substantial. In 2003, with a residential sound insulation program already underway for VNY, LAWA completed a Federal Aviation Regulation (FAR) Part 150 Noise Compatibility Study to gain federal funding for this and many other

NOISE AND FLIGHT TRACK MANAGEMENT SYSTEM (NOMS)

Serving as the foundation for almost every VNY noise management program, LAWA's NOMS provides Noise Management personnel with a comprehensive system to review, analyze and report on nearly all VNY aircraft operations based on FAA flight track data, aircraft noise measurements from seven permanent noise monitoring terminals and noise comments received from community members. The innovative system enables:

- More effective enforcement of noise abatement and in-flight procedures;
- Faster investigation and shortened response time for noise comments; and
- Accurate measurement and recording of noise generated by arriving and departing aircraft.

LAWA's NOMS provides extensive data query, analysis, reporting, display and improved monitoring capabilities, while automating many tasks previously handled manually. Utilizing the system, VNY integrates a variety of sources to administer effective noise management programs and provide meaningful response to the community.



VNY integrates a variety of sources to monitor noise and aircraft operations



INTERNET FLIGHT TRACKING SYSTEM

VNY's internet flight tracking system allows viewing of flight movement and air traffic patterns in the San Fernando Valley, as well as portions of the greater Los Angeles area. This system shows flight identification, aircraft type, altitude, and origin and destination airports. Real-time data in the live mode is delayed for security and system processing reasons. Historical data is viewed in the replay mode and is available for the previous 90 days. Key features include:

- An integrated noise comment form that allows residents to select an operation that may be the cause of a noise event and submit a comment with the operation information automatically filled in;
- A map system that allows users to pan and zoom using the Map toolbar;
- Display of noise levels (in both the Live and Replay modes) from the numerous noise monitoring terminals around VNY;
- Use of an address locator that allows for self-investigation of noise comments; and
- A new community locator tool that allows users to zoom in on communities in the immediate areas around the airport.

RESPONSE TO THE COMMUNITY

The continued reduction of aircraft-related noise from VNY depends on more than just a technological approach. It also requires community involvement and a dialogue to establish effective noise-related decisions. VNY pledges to maintain an active role in developing programs and solutions together with the community—our neighbors.

To better respond to the concerns of the community, in 2019 LAWA implemented a new aircraft noise comment system that is fully integrated with the NOMS and works in tandem with the existing Internet Flight Tracking tool. The noise comment system is available for concerned residents to submit their comments 24 hours a day, seven days a week using one of the following options:

- 1) Complete a VNY Noise Comment Form at lax.to/vnyviewpoint
- 2) Complete a VNY Noise Comment Form using the mobile application available for iPhone and Android devices at lax.to/vnymobileapp
- 3) Access VNY Internet Flight Tracking System to perform self-investigation and complete an online comment form at lax.to/vnywebtrak
- 4) Call the dedicated 24-hour VNY Aircraft Noise Comment Line at 800.560.0010

VNY noise management staff investigates and responds to noise comments via email when requested, providing relevant information about what caused the reported noise concern and, if applicable, whether the pilot deviated from any mandatory or voluntary noise abatement programs.



VNY pledges to maintain an active role in developing programs and solutions together with the community – our neighbors.



NOISE TERMINOLOGY & DEFINITIONS

The following provides common terminology used when discussing airport and aircraft noise issues, along with definitions.

Community Noise Equivalent Level (CNEL):

The computed average noise level for an area over a 24-hour period, with extra weight given to noise produced during evening and nighttime hours. The annual CNEL average is the number used by the state to administer noise regulations for areas within 65 decibels or higher.

Decibel (dB): The standard unit used to express noise levels. The dB measures the magnitude or intensity of sound through a range of sound pressure levels that can be heard by the human ear. Most people perceive a 10 dB increase as a doubling of loudness, meaning that 75 dB usually seems twice as loud as 65 dB.

Decibel A Scale (dBA): The sound pressure level using a “weighing filter” that correlates to the human ear’s sensitivity to various frequencies.

FAA: Federal Aviation Administration, the government agency with the primary responsibility for the safety of civil aviation.



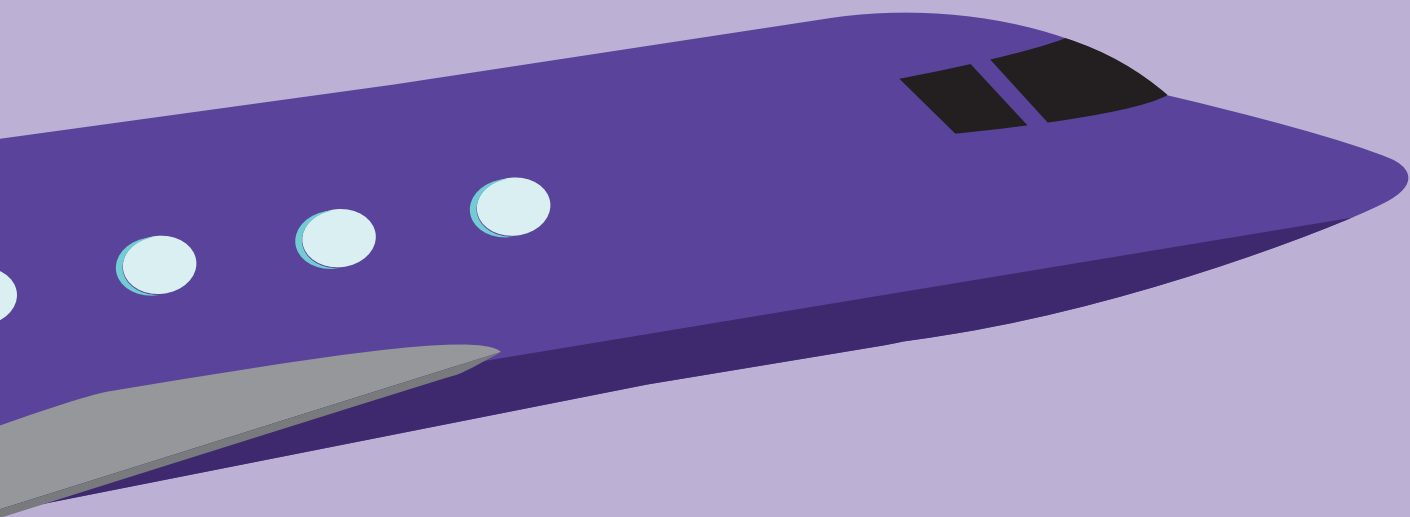
Noise Contour: A computer-generated map representing a line of equal CNEL value. Areas considered to be within an airport's noise impact boundary are those within the annual average 65 dB CNEL contour.

Noise Impact Area: The area within the noise impact boundary composed of "incompatible land uses" such as residential dwellings.

Noise Impact Boundary: : Defined as an annual average noise contour of 65 dB Community Noise Equivalent Level (CNEL).

Run-Ups (or Engine Run-Ups): A mechanical testing of an engine on the ground, akin to revving up a car engine. VNY only permits run-ups for engine maintenance activity between 7 a.m. and 7 p.m. in designated areas.

Stage: Aircraft noise level categories as established by FAA aircraft noise standards, with Stage 1 the loudest and Stage 5 the quietest.





VAN NUYS AIRPORT

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VNY'S NOISE MANAGEMENT PROGRAM RESOURCES

- 24-Hour Community Response Line
[800.560.0010](tel:800.560.0010)
- Noise Management Program Information
www.lawa.org/vnynoise
- Internet Flight Tracking System
www.lax.to/vnywebtrak