

Santa Monica Airport Noise Management Program



CALENDAR YEAR 2006 ANNUAL REPORT



City of
Santa Monica

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I. INTRODUCTION

This report has been prepared in an effort to inform the Airport Commission and our community regarding Santa Monica Airport's Noise Management Program. The report provides a summary of Noise Management Staff activity, aircraft operations and violations of the City of Santa Monica's Aircraft Noise Ordinance during calendar year 2006.

II. NOISE MANAGEMENT PROGRAM SUMMARY

In addition to responding to the community's noise concerns and enforcing the City's Aircraft Noise Ordinance, which includes a maximum allowable noise level, curfew hours and certain operational limitations, Airport staff has been involved in a variety of supplementary activities intended to reduce the overall impact of aircraft operations on the residential areas surrounding the Airport.

Noise Management Operational Procedures Enforced by Ordinance

The following procedures and limitations are enforced per the City's Aircraft Noise Ordinance. Violations may result in the imposition of fines and/or exclusion from Santa Monica Airport.

- Maximum Noise Level
A maximum noise level of 95.0 dBA Single Event Noise Exposure Level, measured at noise monitor sites 1,500 feet from each end of the runway, is enforced 24 hours a day, 7 days a week.
- Night Departure Curfew
No takeoffs or engine starts are permitted between 11pm and 7am Monday through Friday, or until 8am on weekends. Exceptions are allowed for bona fide medical or public safety emergencies only.
- Operational Limitations
Touch-and-go, stop-and-go, and low approaches are prohibited on weekends, holidays, and weekdays from one-half hour after sunset until 7am the following day.

Requested Noise Management Operational Procedures

In addition, the following voluntary procedures and limitations have been incorporated into the Airport's *Fly Neighborly Program* and included in the program's outreach materials:

- Voluntary Night Arrival Curfew
Although arrivals are permitted 24 hours a day, pilots are requested to avoid all operations between 11pm and 7am Monday through Friday, or until 8am on weekends

- Visual Flight Rules (VFR) Departure Flight Paths
Fixed-wing aircraft and helicopters departing to the west are requested to overfly the Penmar Golf Course and initiate northerly turns at the shoreline and southerly turns at or after Lincoln Boulevard. Departures to the east are requested to initiate turns at or after reaching the 405 Freeway.
- Auxiliary Power Unit (APU) Limitations
Many jet aircraft utilize APU's to provide electricity to aircraft systems prior to, or just after flight. For noise management purposes, pilots are requested to limit APU use to (30) thirty minutes. Additionally, the APU is considered an engine start and shall comply with the Airport's curfew restrictions.
- Reverse Thrust Use
Due to the noise generated by aircraft utilizing reverse thrust upon landing, particularly during the night hours, the Airport recommends the use of minimum reverse thrust necessary for safety.
- IFR Engine Start Procedures
In an effort to minimize delay between engine start and departure, fixed-wing turbine aircraft shall obtain an expected departure release time from Air Traffic Control prior to starting-up or taxiing to the IFR Hold Area at the end of the runway.
- IFR Hold Area Procedures
Fixed-wing turbine aircraft are requested to hold approximately 200 feet from the end of the runway while awaiting departure clearance from Air Traffic Control. A yellow sign and a yellow dashed line across the taxiway indicate the hold area.
- Helicopter Arrival Procedures
The Helicopter Letter of Agreement between the City of Santa Monica and the FAA was amended to reflect the Airport Working Group recommendation to route helicopters approaching Santa Monica Airport from the north or south at or above 900 feet, rather than on runway heading with fixed-wing aircraft.

Community Outreach

During calendar year 2006 community outreach remained a central component of the Airport's Noise Management Program. In an effort to remain responsive to community concerns, the Noise Management Office is staffed 5 days a week and staff can be reached via telephone, e-mail or fax. As well as responding to community concerns regarding aircraft operations, staff spent a significant amount of time in the neighborhoods surrounding Santa Monica Airport (i.e. West Los Angeles, Rancho Park/Cheviot Hills, Venice, Mar Vista and Santa Monica) observing aircraft adherence to the requested noise management procedures and meeting with residents to discuss, and observe first-hand, their concerns.

Airport staff continued to spend a considerable amount of time fielding, investigating and following up with all calls received from local residents and businesses. Every effort is made to assure that each call received is responded to within 24 hours. Calls from the community are extremely helpful for staff to better understand and respond to community concerns as well as to identify aircraft deviating from the noise management procedures or violating the Aircraft Noise Ordinance.

Pilot Outreach & Education

During calendar year 2006, Noise Management Staff continued an extensive pilot outreach program intended to educate the users of Santa Monica Airport on the Airport's *Fly Neighborly Program*. In addition to the day-to-day direct communication with, and education of, Airport users, the program also included enhancements to the program's web pages (www.santamonicaairport.org) and the distribution of brochures that explain the Airport's comprehensive *Fly Neighborly Program* and operational limitations and procedures. The brochures are available at all public locations on the Airport and during calendar year 2006 approximately 10,000 brochures were distributed to aircraft operators.

Aircraft Manufacturer Outreach

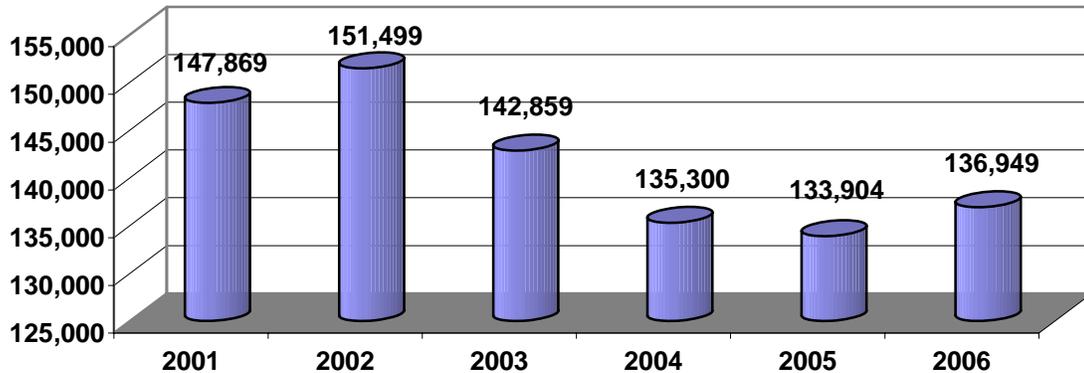
Most aircraft are capable of meeting the Airport's maximum allowable noise level with changes in pilot technique and/or operating weight. Aircraft manufacturers and the National Business Aircraft Association publish general noise management procedures that are compatible with the majority of noise management requirements nationwide. However, these procedures have proven to not be compatible under certain conditions at Santa Monica Airport. Therefore, it is possible that an owner/operator/pilot may utilize nationally accepted noise management procedures at Santa Monica Airport and still exceed the maximum noise level of 95.0 dBA Single Event Noise Exposure Level.

In an effort to continually develop aircraft specific departure procedures that are safe and compatible with the Santa Monica Airport's Noise Ordinance, Staff endeavors to work with existing and future aircraft manufacturers to maintain compliance with the noise program.

III. AIRCRAFT OPERATIONS

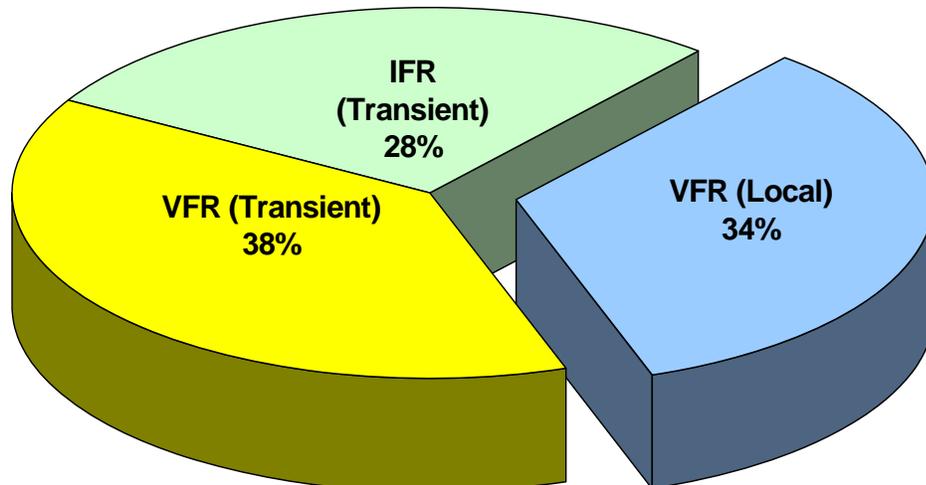
Calendar Year 2006 Operations

The total number of aircraft operations recorded during 2006 was **136,949**, which is a **increase** of **2%** from the recorded 133,904 operations in 2005. The Federal Aviation Administration (FAA) Air Traffic Control Tower records aircraft operations. The graph below depicts the annual operations for the last 6 years.



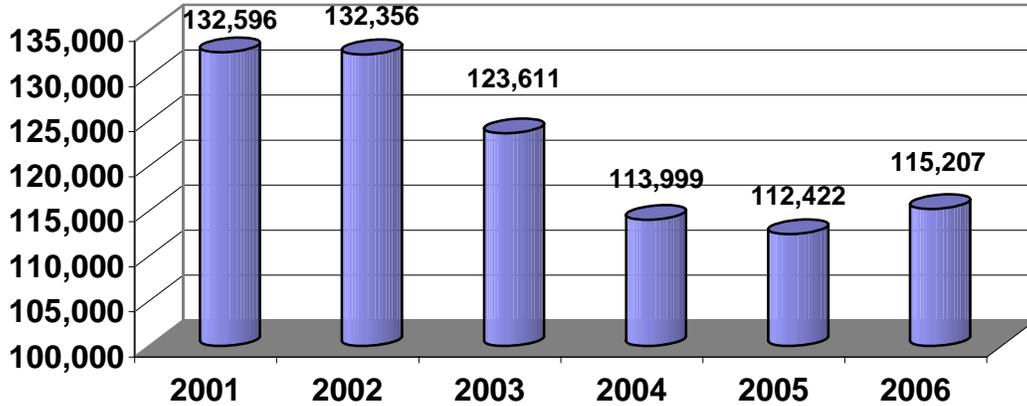
Of the **136,949** total aircraft operations, approximately **28%** Instrument (IFR) Transient flights, **34%** VFR Local touch & go flights, and **38%** were VFR Transient flights. “*Local Traffic*” is defined as traffic which stayed within the Airport’s Class D controlled airspace, generally within 5 NM of the airport or within the airport traffic pattern. “*Transient Flights*” either departed to or arrived outside of the Class D controlled airspace.

Operations by Origin/Destination
136,949 Operations



III (a) PROPELLER AIRCRAFT OPERATIONS

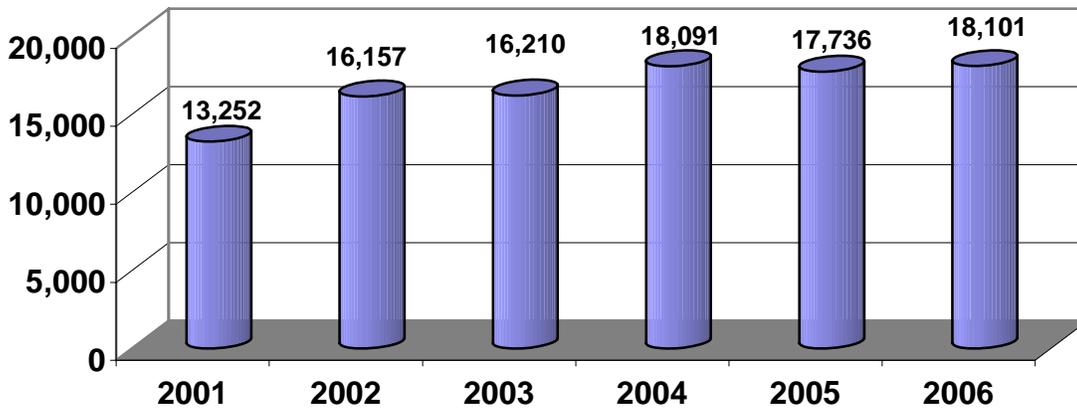
Approximately **115,207** of the total aircraft operations for 2006 were propeller aircraft operations. Propeller aircraft represented **84%** of the total operations.



The graph above depicts the annual propeller aircraft operations for the past five years. Annual propeller aircraft operations (single-engine, multi-engine, and turbo-prop) **increased by 2,785 operations or 2.5%** from 2005.

III (b) JET AIRCRAFT OPERATIONS

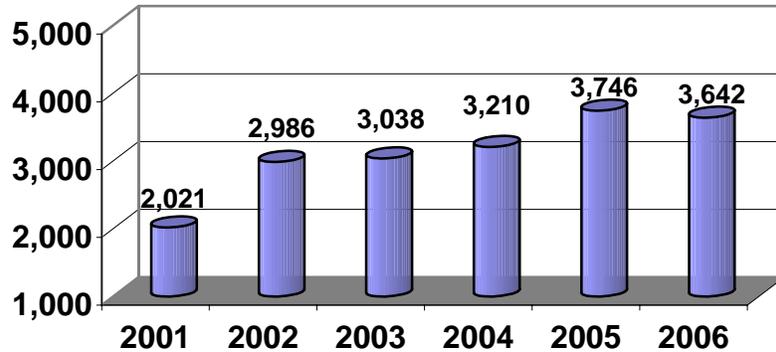
Approximately **18,101** of the total operations for 2006 were jet aircraft operations. In 2006, jets represented **13%** of the total operations.



The graph above depicts the annual jet aircraft operations for the past five years. In 2006, the number of jets **increased by 2%** from calendar year 2005.

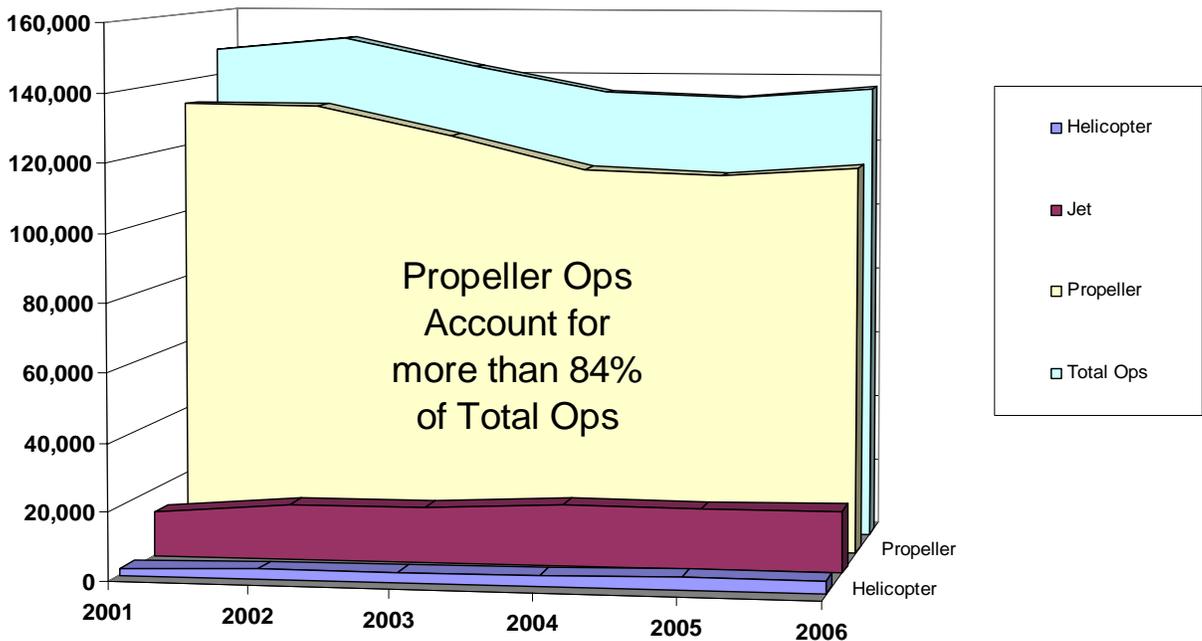
III (c) HELICOPTER OPERATIONS

Approximately **3,642** of the total aircraft operations for 2006 were helicopter operations. Helicopters represent **2%** of the total operations.



The graph above depicts the annual helicopter operations for the past five years. In 2006, helicopter operations **decreased by 3%** compared to calendar year 2005. *Note: Santa Monica Municipal Code (SMMC) 10.04.04.100 (b) prohibits helicopter flight training operations at Santa Monica Airport at all times.*

Summary Comparison of Aircraft Operations by Engine Type 136,949 Total Operations - 2006

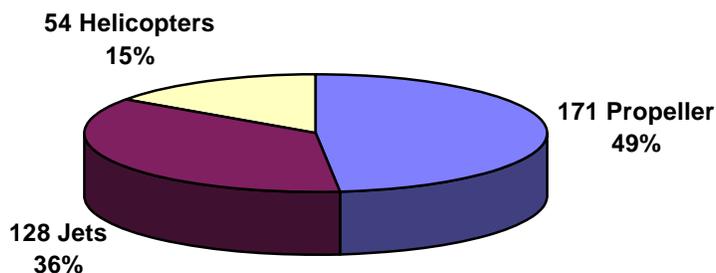


III (d) NIGHT OPERATIONS

Although arrivals are permitted 24 hours a day, pilots are requested to comply with the Airport's Voluntary Night Arrival Curfew and avoid all operations between 11:00 p.m. and 7:00 a.m. weekdays, and 11:00 p.m. to 8:00 a.m. weekends/holidays. In an effort to improve compliance with the Airport's Voluntary Night Arrival Curfew, all operators that arrived during the night hours were requested in writing to comply with the requested arrival curfew.

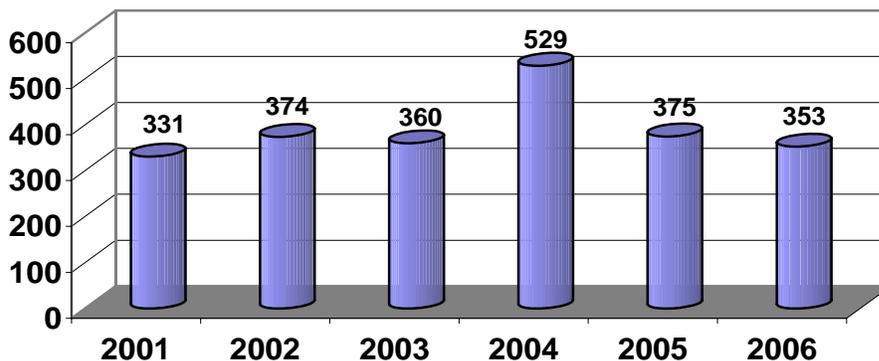
During calendar year 2006, Airport Staff logged a total of **353** aircraft night arrivals as compared to a total of 375 night arrivals during 2005. The majority of arrivals were by propeller (single-engine, multi-engine, and turbo-prop) aircraft.

Summary of Night Arrivals by Aircraft Type 353 Total Night Arrivals



Of the total aircraft arrivals during the night hours recorded for calendar year 2006, **50% (178)** of aircraft night arrivals registered noise levels at one of the permanent noise monitors located 1,500 feet from each end of the Runway. All of the aircraft arrivals during calendar year 2006 registered noise levels below the maximum allowable noise level of 95.0 dBA SENEL. In 2006, Night Arrivals were **down 6%** from those recorded in 2005.

Night Arrivals 2001 - 2006

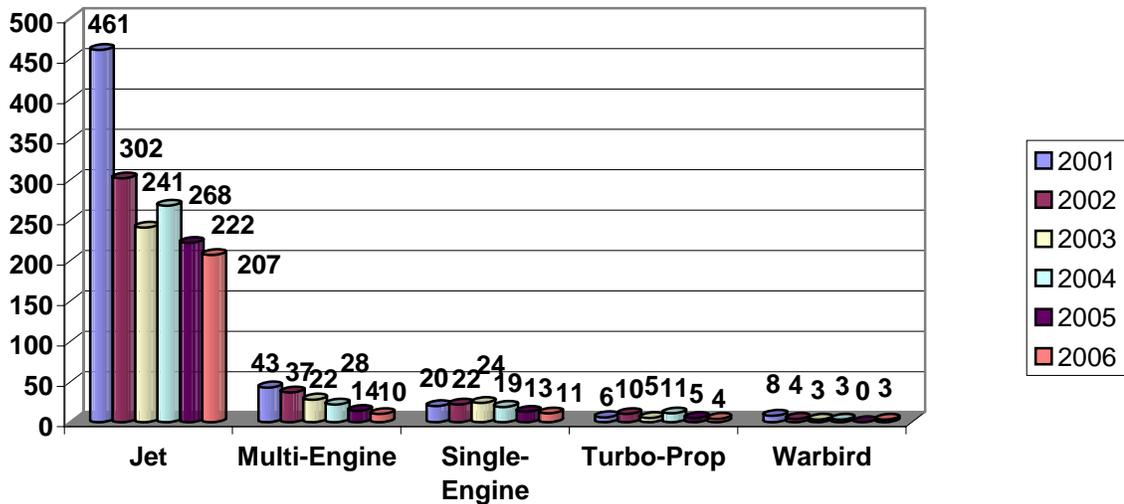


IV. NOISE VIOLATIONS

As a result of an agreement between the City of Santa Monica and the Federal Aviation Administration (FAA), an Aircraft Noise Ordinance was established setting a maximum noise level of 95.0 dBA Single Event Noise Exposure Level (SENEL) measured at Remote Monitoring Stations (RMS) 1,500 feet from each end of the runway. (See **Attachment A** for the RMS locations and **Attachment B** for the Definition of SENEL.)

During calendar year 2006, there were **235** noise violations, **down 7%** from the 254 noise violations recorded during calendar year 2005. The noise violations listed in the graph below were registered at RMS sites 1 and 2 and do not include exempt medical emergency operations.

2001-2006 Noise Violation Summary



Following are brief summaries of the noise violations during calendar year 2005 for each aircraft category relative to the aircraft's operations:

PROPELLER AIRCRAFT:

Propeller aircraft (multi-engine, single-engine, turbo-prop and Warbird) noise violations during calendar year 2006 **decreased** by **12%** from calendar year 2005, while propeller aircraft operations **increased** by **2.5%** during the same time period.

JET AIRCRAFT:

During calendar year 2006, jet aircraft comprised the majority of noise violations. Jet aircraft noise violations **decreased** by **7%** from calendar year 2005, while jet aircraft operations **increased** by **2%** during the same time period.

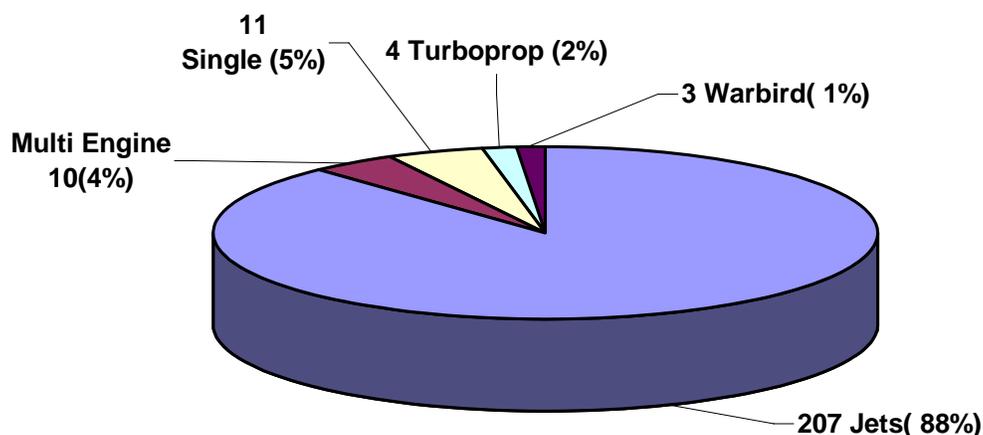
HELICOPTER:

Historically, helicopters have comprised the smallest percentage of noise violations and calendar year 2006 was no exception. While helicopter operations were **down 3%** from calendar year 2005, no helicopter noise violations occurred during calendar year 2006.

Noise Violations by Aircraft Type

Although most aircraft currently operating at Santa Monica Airport are able to meet the City's maximum allowable noise level, staff has identified several aircraft makes within each category that are more prone than others, under certain operational conditions, to produce incompatible noise levels.

2006 Noise Violations by Aircraft Type



The graph above depicts the noise violations by aircraft type for calendar year 2006 and indicates the most frequent aircraft makes. Because jet aircraft have comprised such a large fraction of the noise violations, staff has primarily focused their efforts on working with manufacturers and operators of jet aircraft in order to develop and implement safe and compliant procedures. However, staff has also worked extensively with operators of non-jet aircraft, particularly those prone to higher noise levels, in an effort to further reduce noise violations and increase compatibility with the surrounding residential areas.

Noise Ordinance Enforcement Procedures

Consistent with the 1984 Airport Agreement and the Santa Monica Municipal Code, Noise Management Staff establishes contact with the owner/operator/pilot of each aircraft exceeding the 95.0 dBA SENEL noise limit, in order to educate them on the Airport's Noise Management Program. SMO Staff requests the utilization of safe, compatible and compliant operating procedures, and informs all operators penalties are imposed for repeat or willful violations.

For the majority of first-time violations, Airport staff established communication with the owner, operator and/or pilot prior to their return. Once the owner / operator / pilot was contacted and informed of a violation, they were given the opportunity to implement compliant and compatible procedures.

Noise Violation Warnings, Fines & Aircraft Bans 2005/2006 Comparison

Violations	2006		2005	
Warning	195	83%	215	84%
\$2,000 Fine	34	15%	25	10%
\$5,000 Fine	3	1%	2	1%
\$10,000 Fine	0	0%	0	0%
Banned	3	1%	12	5%
Total	235	100%	254	100%

A 1st violation generally results in a warning and subsequent violations result in a fine and/or restriction from the Airport. During calendar year 2006, **83%** of the **235** noise violations were first time violations; while **15%** were second time violations which incurred fines.

Noise Violation Summary

Of the **136,949** aircraft operations recorded during calendar year 2006, **0.2% resulted in violations** of the 95.0 dBA SENEL maximum noise level. **99.8%** of the total aircraft operations **were in compliance** with Santa Monica Airport's noise ordinance during calendar year 2006.

V. NOISE MANAGEMENT FLIGHT TESTS

Prior to operating at Santa Monica Airport, all pilots are requested to contact airport staff to receive a thorough briefing on the Airport's Noise Management Program. After discussing with staff the various operational and noise management procedures, including the available manufacturer recommended procedures, pilots are able to communicate with staff via a specific radio frequency (122.85 MHz) and receive a noise reading immediately after landing or departure. Based on the readings received, pilots are then able to make any necessary adjustments to reduce the noise levels, and minimize the impact on the surrounding communities for future operations.

During calendar year 2006, over 1,240 pilots performed noise management flight tests at Santa Monica Airport. The noise management flight tests conducted at Santa Monica Airport have enhanced airport staff's understanding of the complexities involved in complying with the noise limit and enabled staff to better communicate them to pilots.

It is important to note that noise management flight tests are not waivers to exceed the maximum noise level of 95.0 dBA SENEL. All aircraft that exceed the noise limit are subject to sanctions outlined in the Santa Monica Municipal Code.

VI. NOISE LIMIT SANCTIONS (FINES & BANS)

Extensive outreach and counseling by airport staff with pilots regularly results in compliance with the maximum noise level of 95.0 dBA SENEL. However, if successive violations occur without progressive compliance, and after considering all relevant factors including the willfulness, severity and frequency of violations and the use of safe noise management operating procedures, and it is assured that the violation was not related to extraneous factors beyond the pilot's control such as loss of power, avoiding other aircraft, or unusual weather conditions, aircraft can be fined and/or restricted from operating at Santa Monica Airport.

Additionally, per the Santa Monica Municipal Code, the Airport shall maintain a list of aircraft that have been shown to be unable to meet the maximum noise level of 95.0 dBA SENEL. These "Listed Aircraft" shall be permanently excluded from operating at Santa Monica Airport after one violation of the noise limit. "Listed Aircraft" mainly include several current military and ex-military turbine and piston aircraft as well as a number of older business jets including the Lear 20 series, Gulfstream GII & GIII series, and early Sabreliner business jet aircraft.

During calendar year 2006, **37 aircraft were issued fines** as a result of violations of the 95.0 dBA SENEL maximum noise limit. The chart on the previous page depicts the number and type of aircraft that were fined and/or restricted from Santa Monica Airport during calendar year 2006.

VII. NOISE ORDINANCE & ENFORCEMENT PROCEDURES

As of December 14, 2003, the following prescribed amendments to the Santa Monica Municipal Code (SMMC Sections 10.04.04.040, 10.04.04.050, and 10.04.04.055) are being enforced as approved by the Santa Monica City Council on October 23, 2003:

1. Civil penalties for violations of the Noise Code may be imposed on each pilot, aircraft owner, and operator jointly or severally.
2. Initial penalty for a repeat or willful violation shall be two thousand dollars (\$2,000.00).
3. The penalty for a violation following the initial civil penalty shall be five thousand dollars (\$5,000.00).
4. The penalty for a violation following the second civil penalty shall be ten thousand dollars (\$10,000.00).
5. After imposition of the maximum fine of \$10,000.00, subsequent violations shall, after a hearing, result in a suspension of Airport privileges for six months and, following that, revocation of privileges or permits.
6. After landing, each pilot or his or her representative must comply with all registration requirements prescribed by the Airport Director by regulation including completing a registration form and acknowledging receipt of a summary of Airport regulations.

VIII. CURFEW VIOLATIONS

Santa Monica Airport maintains a curfew in effect that prohibits engine start-ups and departures during specific nighttime hours. The full Santa Monica Municipal Code (SMMC) Section 10.04.04.080 (b) states:

“No aircraft shall be started, run-up, or depart the Airport between the hours of 11:00 p.m. and 8:00 a.m. Mondays through Fridays nor between 11:00 p.m. and 8:00 a.m. Saturdays and Sundays, except in case of bona fide medical or public safety emergency, with the consent of the Airport Director or, in his or her absence, the Watch Commander of the Police Department.”

Curfew violators are subject to misdemeanor prosecution. The departures listed in the chart below as Lifeguard, U.S. Government and Law Enforcement received prior approval from the Airport Director or Police Watch Commander as bona fide emergencies. The remaining operations were unapproved and issued a warning or a fine.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total	%
Lifeguard	2	1	3	2	1	4	1	0	0	1	1	2	18	29%
U.S. Government	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Law Enforcement	0	0	14	4	2	5	11	3	0	0	3	3	45	71%
Issued a Warning	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
Issued a Fine	0	0	0	0	0	0	0	0	0	0	0	0	0	0%
	2	1	17	6	3	9	12	3	0	1	4	5	63	100%

Certain types of operations are exempt from Santa Monica Airport’s curfew restrictions. Per California Public Utilities Code §21662.4, emergency aircraft flights for medical purposes by law enforcement, fire fighting, military, or other persons who provide emergency flights for medical purposes are exempt from local ordinances adopted by a city, county, or city and county, whether general law or chartered, that restrict flight departures and arrivals to particular hours of the day or night.

The term “Lifeguard” is used to identify air ambulance flights operating on missions of an urgent medical nature (first call to an accident scene, carrying patients, organ donors, organs, or other urgently needed lifesaving medical material) in order to receive priority treatment by the Air Traffic Control System.

Because Santa Monica Airport is in close proximity to several large medical facilities such as Saint John’s Health Center, the Veteran’s Hospital and UCLA Medical Center, many “Lifeguard” flights originate from, or terminate at, the Airport. The majority of “Lifeguard” operations are by non-jet aircraft during non-curfew hours.

IX. AIRCRAFT DEVIATIONS

Santa Monica Airport requests that fixed-wing aircraft and helicopters arriving and departing under Visual Flight Rules (VFR) follow certain flight paths in order to reduce the overall impact on the surrounding communities.

Westerly departing fixed-wing aircraft are requested to offset at the end of the Runway and over-fly the Penmar Golf Course and, if leaving the area, make turns at the shoreline. If the aircraft are returning to the Airport after departure, they are requested to turn left at Lincoln Boulevard at or above 800 feet Mean Sea Level (MSL). Fixed-wing aircraft departing towards the east are requested not to initiate turns until reaching the San Diego 405 Freeway at or above 800 feet MSL.

Helicopters are requested to adhere to the same departure paths as fixed-wing aircraft. However, arriving helicopters are requested to avoid the flow of other arriving fixed-wing aircraft and enter mid-field at or above 900 feet MSL and execute a 270° descending turn to the North or South Taxiway. The descent should be made over the Airport or business park to the taxiway.

It is important to note that there are certain situations when aircraft are permitted to deviate from the requested noise management procedures and they are as follows:

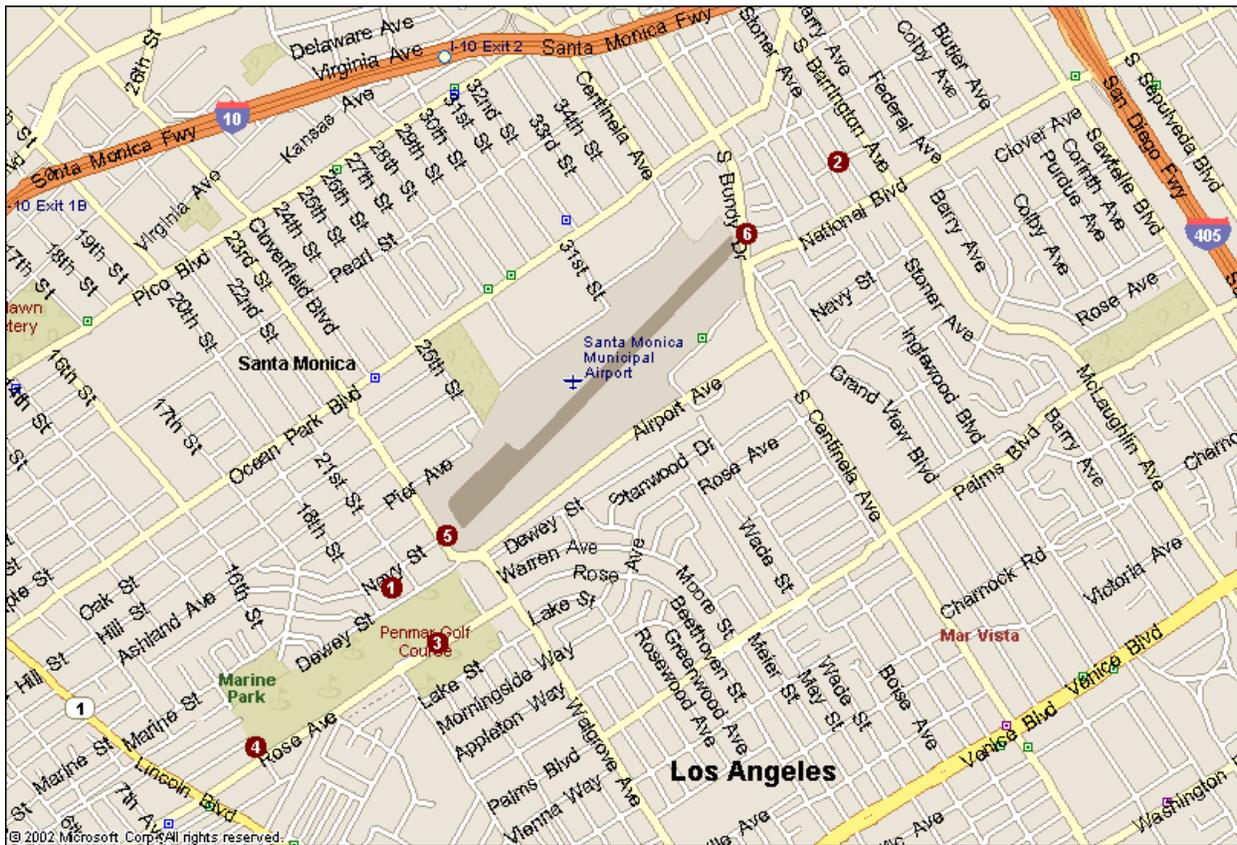
1. All instrument (IFR) departures must fly a defined track that is controlled by the Federal Aviation Administration (FAA). Instrument departures generally fly the runway heading and do not offset to over fly the Penmar Golf Course.
2. Instructions may be issued by the FAA Air Traffic Control Tower for safety of flight operations. For example, departing aircraft may occasionally be instructed to turn early to clear the area for other faster departing traffic.
3. Meteorological conditions may require a pilot to deviate from the procedures in order to comply with Federal Air Regulations that, for example, may require that the pilot remain clear of clouds.
4. A pilot performing an Instrument Approach may be authorized by the FAA to execute a circle-to-land maneuver to align the aircraft with the Runway when a straight-in landing is not possible, for example when weather does not permit it. Such a maneuver will place the aircraft in a wide circling turn to the south of the Airport and is authorized by the Federal Air Regulations.

During calendar year 2006, Airport staff spent many hours in the Venice, Mar Vista, West Los Angeles, Cheviot Hills/Rancho Park and Santa Monica communities visually monitoring aircraft operations to ensure compliance with the requested noise management procedures. Additionally, airport staff was informed of aircraft deviations from the requested flight paths by members of the surrounding communities and by Airport Security personnel, who are present at the Airport 24 hours a day, 7 days a week. All of the aircraft operators identified as deviating from the requested flight paths were contacted by airport staff via letter or direct contact and educated about the proper noise management procedures.

ATTACHMENT F

Location of Remote Noise Monitoring Stations (RMS)

- RMS – 1** 18th Street, Between Dewey Street & Navy Street, Santa Monica
- RMS – 2** Sardis Street and Granville Street, West Los Angeles
- RMS – 3** Penmar Golf Course, 1233 Rose Avenue, Venice
- RMS – 4** West end of Penmar Golf Course on Warren Avenue, Venice
- RMS – 5** 23rd Street & Navy Street, Santa Monica
- RMS – 6** Bundy Ave & Clarkson Road/Ct, West Los Angeles (in development)



Note: Remote Monitoring Stations 1 & 2 are used for the Enforcement of the 95.0 dBA Single Event Noise Exposure Level (SENEL) maximum allowable noise level. RMS 6 is currently under construction.

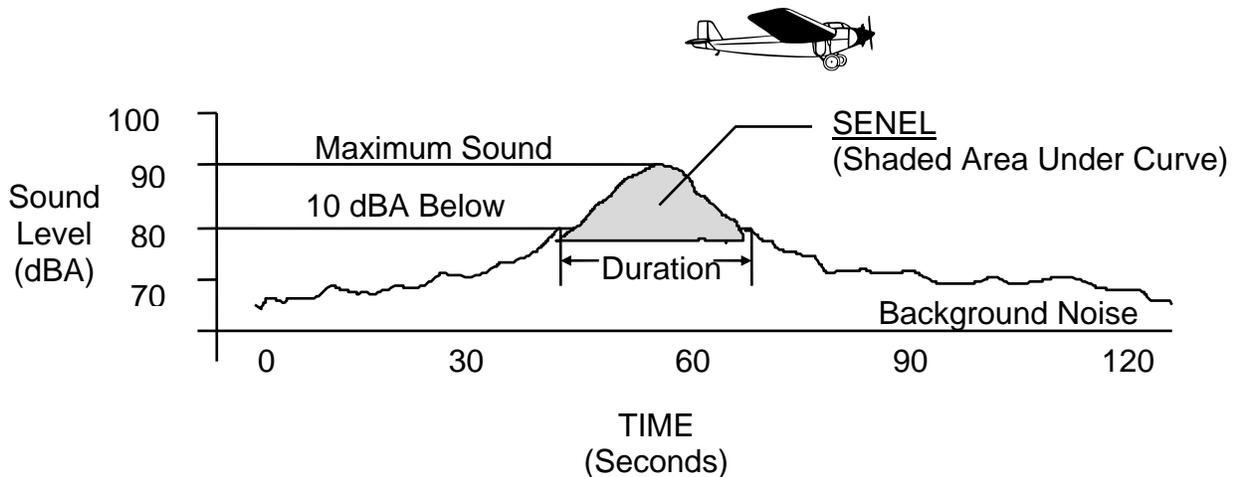
ATTACHMENT B
2005 Annual Report

Definition of Single Event Noise Exposure Level (SENEL)

As a result of an agreement between the City of Santa Monica and the FAA, an Airport Ordinance was established setting a maximum noise level of 95.0 dBA Single Event Noise Exposure Level (SENEL) measured at noise monitor sites 1,500 feet from each end of the runway.

As an aircraft approaches each noise monitor, the sound of the aircraft begins to rise above the threshold level. The closer the aircraft gets, the louder it is until the aircraft is at its closest point directly overhead. As the aircraft passes, the noise level decreases until the sound settles below the threshold level. Such a history of a flyover is plotted in the graph below. The highest noise level reached during the flyover is called the “Maximum Noise Level”, or LMax. Referring to the same graph, the area within 10 dB of the LMax is the area from which the SENEL is computed. This metric takes into account the maximum noise level and the duration of the event. The SENEL value is always higher than the LMax value for aircraft events.

Single Event Noise Exposure Level (SENEL)



A-WEIGHTED SOUND LEVEL (dBA) – The sound pressure level in decibels as measured on a sound level meter using the A-Weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. It is a numerical method of rating human judgment of loudness.