

# Santa Monica Airport Noise Management Program



## CALENDAR YEAR 2011 ANNUAL REPORT



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## Table of Contents

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<b>Introduction</b> .....	<b>Page 4</b>
<b>Noise Management Program Summary</b> ..... Noise Management Operational Procedures, Community Outreach, Pilot Outreach & Education, Aircraft Manufacturer Outreach	<b>Page 4</b>
<b>Aircraft Operations Data</b> ..... Total Operations, Propeller Aircraft Operations, Jet Aircraft Operations, Helicopter Operations	<b>Page 8</b>
<b>Voluntary Night Arrival Curfew</b> .....	<b>Page 11</b>
<b>Curfew Violations</b> .....	<b>Page 13</b>
<b>Noise Violations</b> ..... Violations by Aircraft Type, Enforcement Procedures, Noise Limit Structure (Fines & Bans)	<b>Page 14</b>
<b>Noise Management Briefings</b> .....	<b>Page 15</b>
<b>Noise Ordinance &amp; Enforcement Procedures</b> .....	<b>Page 15</b>
<b>Aircraft Deviations</b> .....	<b>Page 16</b>
<b>Community Complaints</b> .....	<b>Page 17</b>
<b>Attachment A</b> ..... Location of Remote Monitor Sites (RMS)	<b>Page 19</b>
<b>Attachment B</b> ..... Defining the Single Event Noise Exposure Level (SENEL)	<b>Page 20</b>

## 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 2011.

## II. NOISE MANAGEMENT PROGRAM SUMMARY

In addition to responding to the community's noise concerns and enforcing the City's Aircraft Noise Abatement Code, which includes a maximum allowable noise limit, 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 Abatement Code. 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 (SENEL), 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, including auxiliary power unit (APU), are permitted between 11pm and 7am Monday through Friday, or until 8am on weekends. Exceptions are only allowed for bona fide medical or public safety emergencies.
- 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.
- Helicopter Training  
Helicopter Training is prohibited.

## Recommended Noise Management Operational Procedures

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

- Voluntary Arrival Curfew  
Although arrivals are permitted 24 hours a day, pilots are requested to avoid all operations between 11 p.m. and 7 a.m. Monday through Friday, or until 8 a.m. 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 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 are requested to 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 either 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.

- Formation Flying

Formation takeoffs and landing are prohibited. Formation flying within the FAA designated Class D Airspace surrounding the Airport is highly discouraged unless necessary for an emergency. *Typically, Class D airspace surrounds an airport with an operating control tower; has a radius of 5 miles and extends from the surface to 2,500 feet above ground level. Radio contact with the control tower is required prior to entry.*

## **Community Outreach**

During 2011 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 during normal City business hours and staff can be reached via telephone, e-mail, website or the newly acquired WebTrak System.

*Bruel & Kjaer's* WebTrak system was recommended by the Airport Commission and became available to the public in late March 2011. WebTrak is an internet based system that enables anyone with web access to view near-real time flight tracks and file their complaints directly to our office via an integrated complaint entry form.

Airport staff has continued to dedicate a considerable amount of time to the essential tasks of fielding, investigating and following up on all inquiries from local residents and businesses. Every effort is made to assure that each inquiry received is responded to in an expeditious matter. Inquiries 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 recommended noise management procedures or violating the Aircraft Noise Ordinance.

## **Pilot Outreach & Education**

Throughout 2011, 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 aircraft operators, the program also includes the distribution of brochures that explain this program and operational limitations and procedures. These brochures are available at all public locations on the Airport; in 2011 several hundred were distributed to aircraft operators.

Airport staff recognizes the importance of utilizing technology and strives to partner with innovative companies to assist with the dissemination of the Airport's noise abatement procedures to national and international operators.

## **Aircraft Manufacturer Outreach**

Most aircraft, with the exception of those on the “List of Banned 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 incompatible 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.

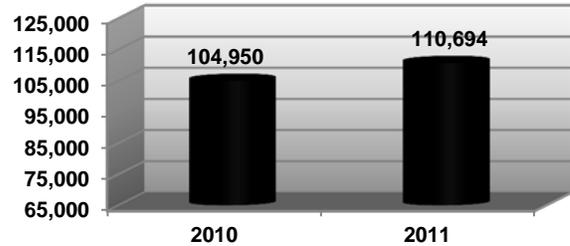
In an effort to continually develop aircraft specific departure procedures that are safe and compatible with the Santa Monica Aircraft Noise Abatement Code, staff endeavors to work with existing and future aircraft manufacturers to maintain compliance with the noise program.

### III. AIRCRAFT OPERATIONS DATA

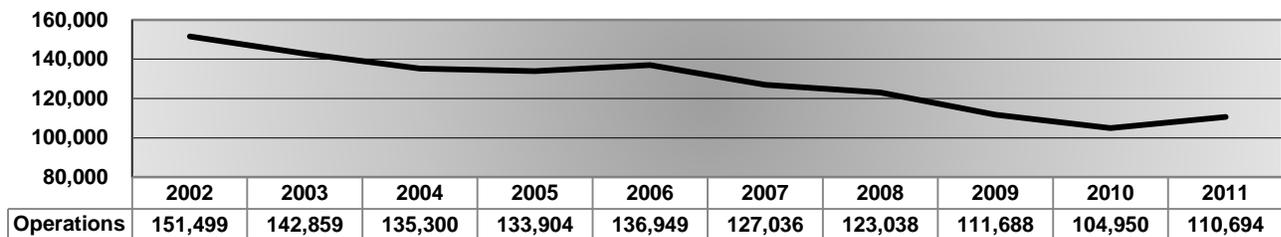
The data presented in this section of the report originate from several sources including the Federal Aviation Administration Air Traffic Control Tower, the City's Landing Fee Program, and Noise Management System.

#### TOTAL OPERATIONS

The total number of aircraft operations (*aircraft operation is defined as one takeoff or one landing*) recorded during 2011 was 110,694; which is an increase of approximately 5% from the recorded 104,950 operations in 2010.

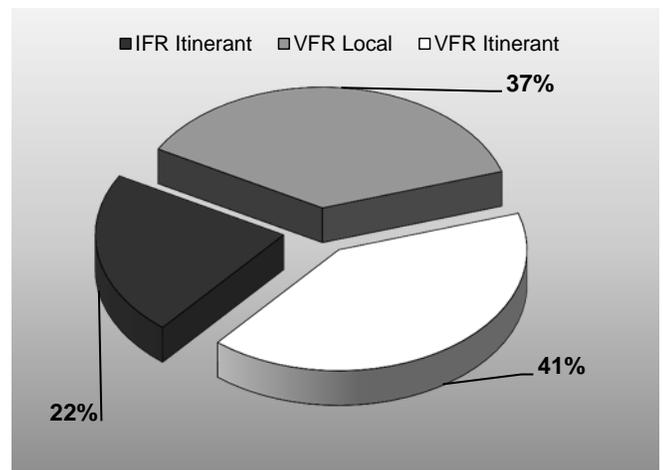


10 Year Operational Trend



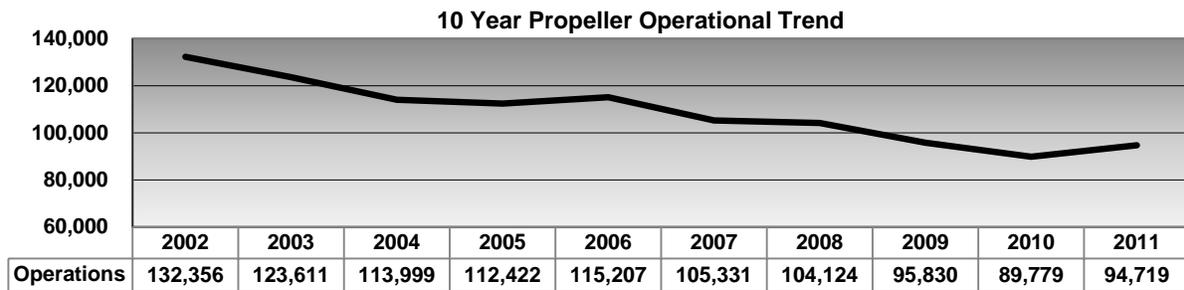
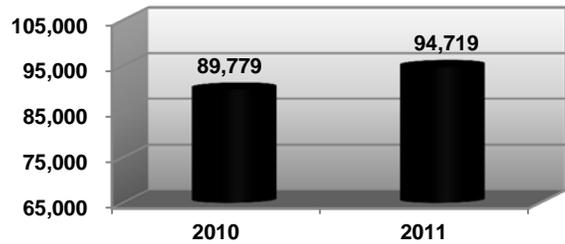
Note: Total Operations are the sum of propeller, jet and helicopter Aircraft operations.

From the 110,694 annual operations, approximately 22% of the operations were instrument flights (IFR itinerant), 37% were local flights (VFR local operations), and 41% VFR itinerant flights. "Local Traffic" is defined as an aircraft that stayed within the Airport's Class D controlled airspace, generally within 5 nautical miles of the airport or within the airport traffic pattern. "Transient Flights" either arrived from, or departed to, the outside of the Class D controlled airspace.



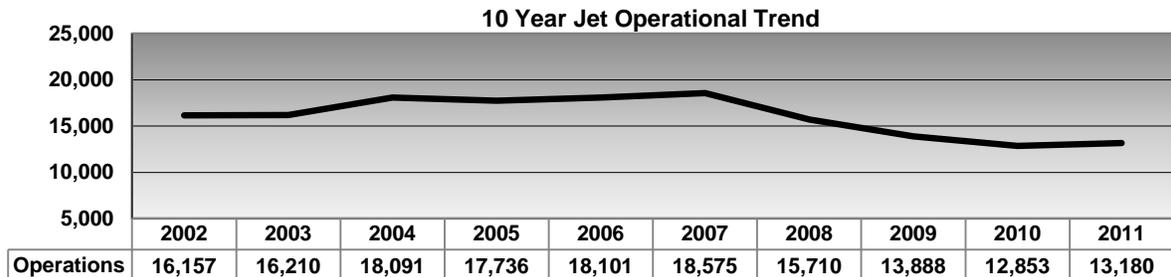
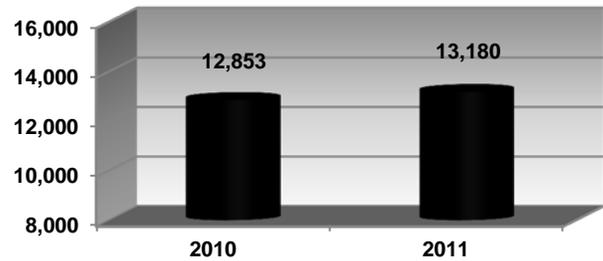
## PROPELLER AIRCRAFT OPERATIONS

Approximately 94,719 of the total aircraft operations for 2011 were from propeller aircraft. Propeller aircraft represented 86% of the total operations. Annual propeller aircraft operations (single-engine, multi-engine, and turbo-prop) increased by 5% compared to calendar year 2010.



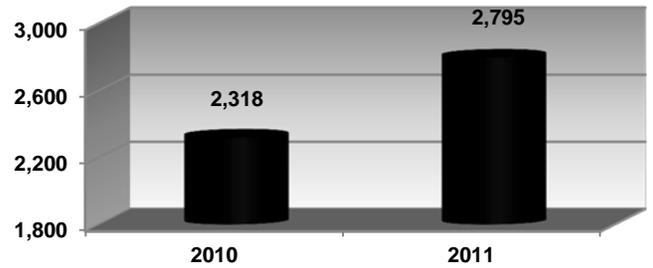
## JET AIRCRAFT OPERATIONS

Approximately 13,180 of the total operations for 2011 were jet aircraft operations. In 2011, jets represented 12% of the total operations. In 2011, the number jet operations increased by 2% compared to calendar year 2010.

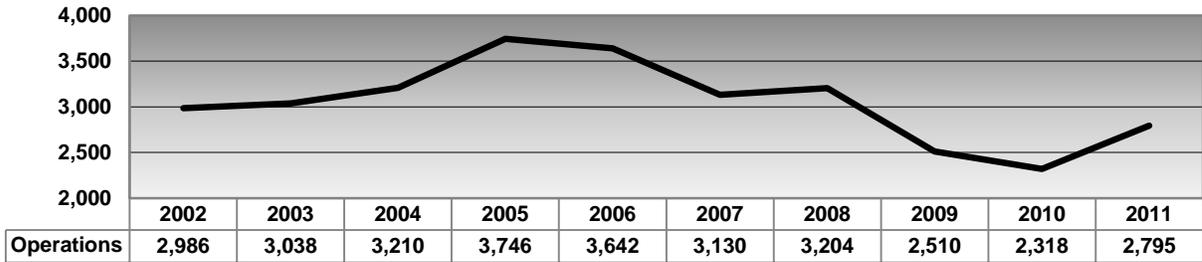


## Helicopter Operations

Approximately 2,795 of the total aircraft operations for 2011 were helicopter operations. Helicopters represent 2% of the total operations. In 2011, helicopter operations increased by 17% compared to calendar year 2010.



**10 Year Helicopter Operational Trend**

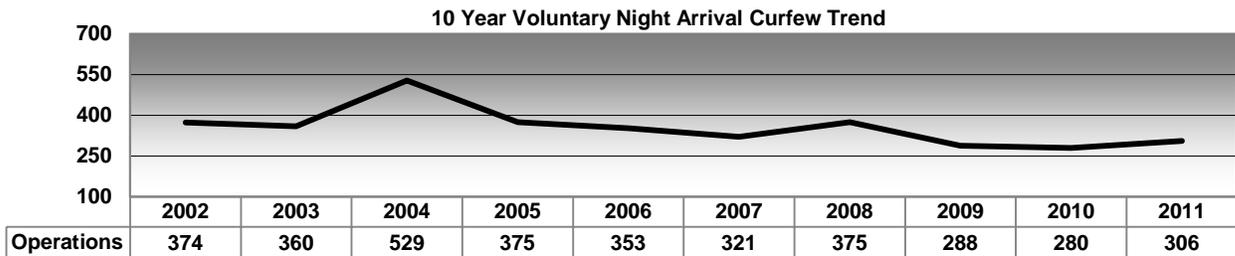
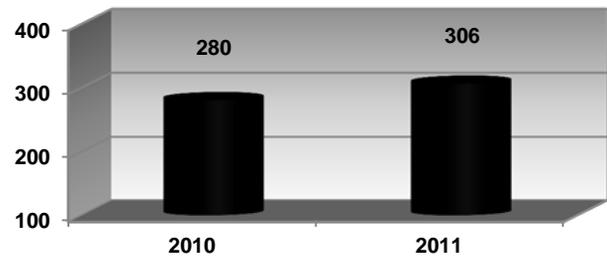


*Note: Santa Monica Municipal Code (SMMC) 10.04.04.100 (b) prohibits helicopter flight training operations at Santa Monica Airport.*

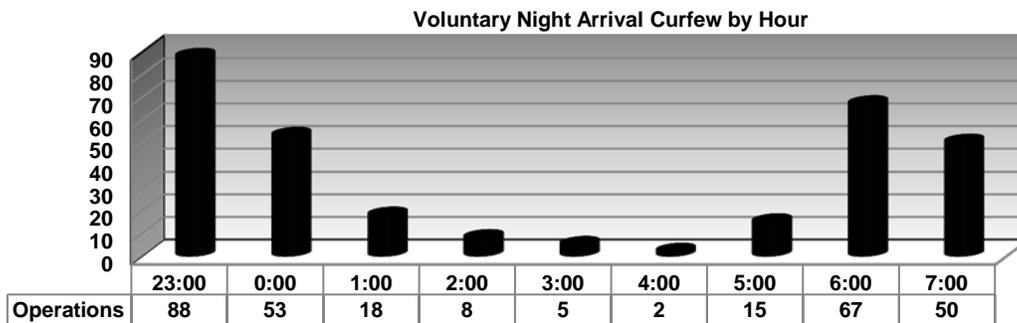
#### IV. VOLUNTARY NIGHT ARRIVAL CURFEW

Although arrivals are permitted 24 hours a day, pilots are requested to comply with the Airport's Voluntary Night Arrival Curfew by not arriving 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, the majority of the operators that arrived during these hours are counseled by staff to comply with the voluntary arrival curfew in the future.

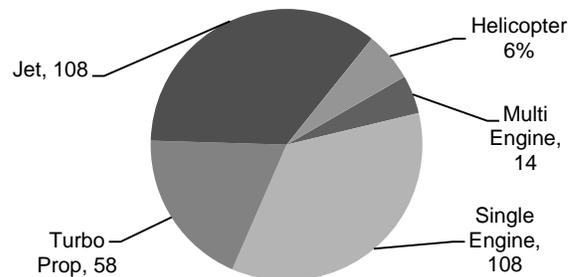
For calendar year 2011, Airport Staff logged a total of 306 Voluntary Night Arrival Curfew arrivals, 8% increase, from the 280 for 2010.



The graph below depicts the number of Voluntary Arrival Curfew arrivals by hour during 2011. The majority of arrivals (67%) occurred during the first and last hour of the Voluntary Arrival Curfew.



The majority of arrivals during the Voluntary Night Arrival Curfew were by propeller aircraft (single-engine, multi-engine, and turbo-prop), as depicted in the chart.



## V. CURFEW VIOLATIONS

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

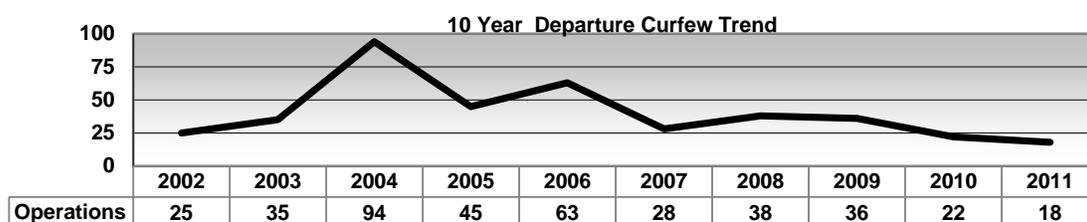
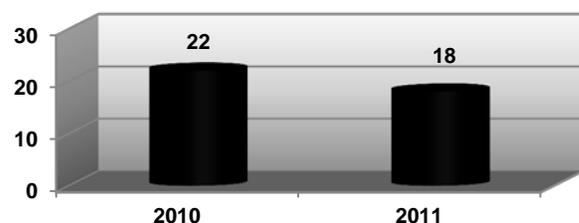
“No aircraft shall be started, run-up, or depart the Airport between the hours of 11:00 p.m. and 7:00 a.m. Mondays through Fridays nor between 11:00 p.m. and 8:00 a.m. Saturdays and Sundays, except in case of bona fide medical or public safety emergency, with the consent of the Airport Director or, in his or her absence, the Watch Commander of the Police Department.”

Certain types of operations are exempt from Santa Monica Airport’s curfew restrictions per California Public Utilities Code §21662.4. It exempts emergency aircraft flights for: medical purposes; law enforcement; fire-fighting; military; or other persons who provide emergency flights for medical purposes 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. In 2010 this Section of the PUC added language to exempt Aircraft or equipment used during a medical emergency, or emergency personnel and first responders involved in treating the medical emergency, for the purpose of returning to its base of operation.

In 2011 the majority of the curfew departures were by Lifelight or Law enforcement aircraft.

The term “Lifelight” 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.

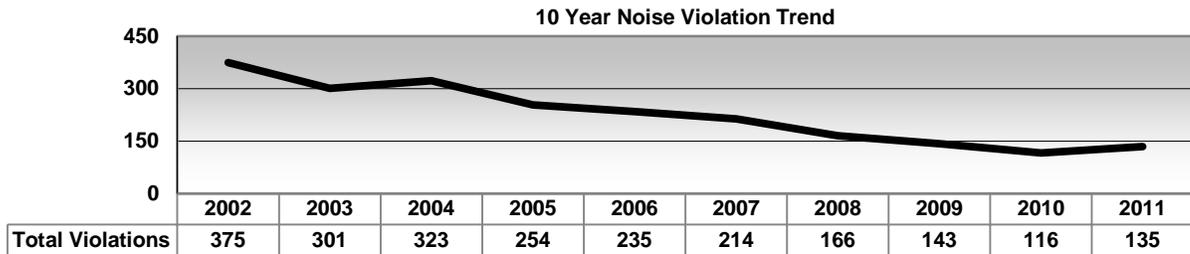
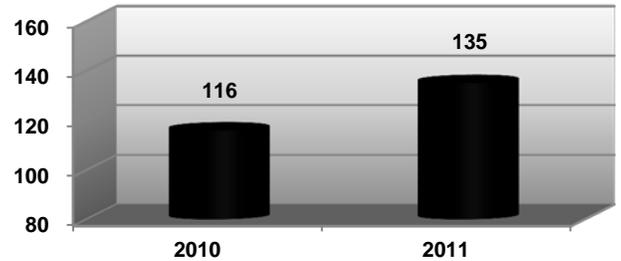
For calendar year 2011, Airport Staff logged a total of 18 Curfew departures, 18% decrease, from the 22 Curfew departures during 2010. Of those departures only three were in violation of the Santa Monica Municipal Code. In addition to the curfew departures, in 2011 staff issued 10 violations to operators who used an Auxiliary Power Unit (APU) and/or performed an engine start during curfew hours.



## VI. NOISE VIOLATIONS

As a result of an agreement between the City of Santa Monica and the FAA, an Aircraft Noise Abatement Code was established setting a maximum noise limit of 95.0 dBA Single Event Noise Exposure Level (SENEL) measured at Remote Monitoring Stations (RMS) #1 and #2 located 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 2011, there were 135 noise violations, an increase of 14% from the 116 noise violations recorded during calendar year 2010.



Of the 110,694 aircraft operations recorded during 2011, 99.9% were in compliance with Santa Monica Airport's Noise Ordinance. The noise violations listed in the graphs below were registered at RMS 1 and RMS 2.

### Noise Violations by Aircraft Type

Because jet aircraft comprise such a majority of the noise violations, staff focuses their efforts on working with manufacturers and operators of jet aircraft in order to develop and implement safe and compliant procedures. In addition, 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 Violation 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. This done as part of staff's investigation of the violation and as part of our continuing education and outreach program in order to educate them on the Airport's Noise Management Program. Staff requests the utilization of safe, compatible and compliant operating procedures, and informs all operators of the penalties imposed for repeat or willful violations.

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

<b>Fine</b>	<b>2010</b>	<b>%</b>	<b>2011</b>	<b>%</b>
<b>Warning</b>	106	91%	118	87%
<b>\$2,000</b>	8	7%	15	11%
<b>\$5,000</b>	1	1%	0	0%
<b>\$10,000</b>	0	0%	0	0%
<b>Banned</b>	1	1%	2	1%
<b>Total</b>	<b>116</b>	<b>100%</b>	<b>135</b>	<b>100%</b>

#### **Noise Violation Warnings, Fines & Aircraft Bans 2010/2011 Comparison**

1st violation generally results in a warning and subsequent violations result in a fine and/or restriction from the Airport. During 2011, 87% of the 135 noise violations were first time violations.

#### **Noise Limit Structure (Fines & Bans)**

Extensive outreach and counseling by Airport staff with pilots routinely results in compliance with the maximum noise level of 95.0 dBA SENEL. However, if successive violations occur without progressive attempts at 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.

In accordance with the Santa Monica Municipal Code, Airport staff maintains a list of aircraft that are 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 II & III series, and early Sabreliner business jet aircraft.

During 2011, 15 aircraft were issued fines and 2 were banned from the airport as a result of violations of the 95.0 dBA SENEL maximum noise limit. The chart above depicts the quantity and type of aircraft that were fined and/or restricted from Santa Monica Airport during the year.

## **VII. NOISE MANAGEMENT BRIEFINGS**

Most aircraft are capable of meeting the 95.0 dBA maximum SENEL limit with changes in pilot technique or aircraft operating weight. The goal of the Santa Monica Airport's Noise Management Program is to communicate methods or techniques that will lower aircraft noise levels, therefore minimizing the impact of aircraft operations on the surrounding community.

## **VIII. 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.

## IX. AIRCRAFT DEVIATIONS

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

Westerly departing fixed-wing aircraft are requested to turn 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 900 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 runway. The descent should be made over the Airport or business park to the runway.

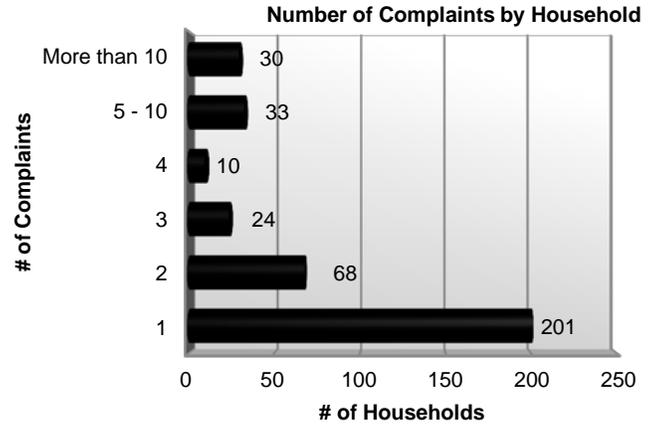
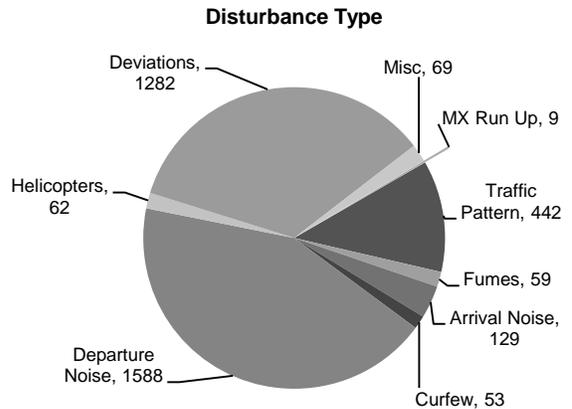
It is important to note that there are certain situations when aircraft deviate from the requested flight path procedures and they are as follows:

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 Aviation Administration Regulations that, for example, may require that the pilot remain clear of clouds.

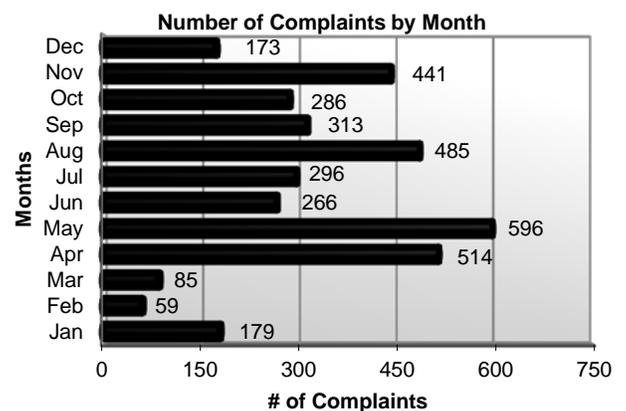
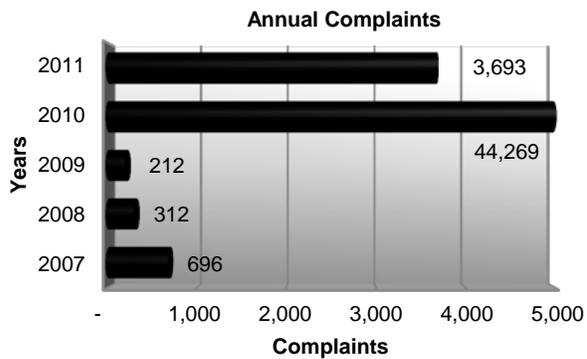
Throughout 2011, Airport staff spent many hours monitoring aircraft operations to ensure compliance with the requested noise management procedures. Additionally, airport staff was informed of aircraft deviations from the requested flight paths by members of the surrounding communities and by Airport Services Officers, who are present at the Airport 24 hours a day, 7 days a week. Airport staff made every effort to contact aircraft operators identified as deviating from the requested flight paths and educated the pilots about the proper noise management procedures. Additionally, staff conducts Certified Flight Instructor classes with our local flight schools. The goal is to continually educate our local flight instructors about our “fly neighborly program” and in turn pass on what they learned to their students.

## X. AIRCRAFT NOISE COMPLAINTS

During 2011, Airport Noise Management staff received a total of 3,693 complaints from 366 different residences. Complaints were investigated and proper actions were taken in accordance with the Airport's "Fly Neighborly Program". The following charts provide a breakdown of the complaints received during 2011.



Note: Staff incorporates citizen complaints into the various categories depicted in the chart above.

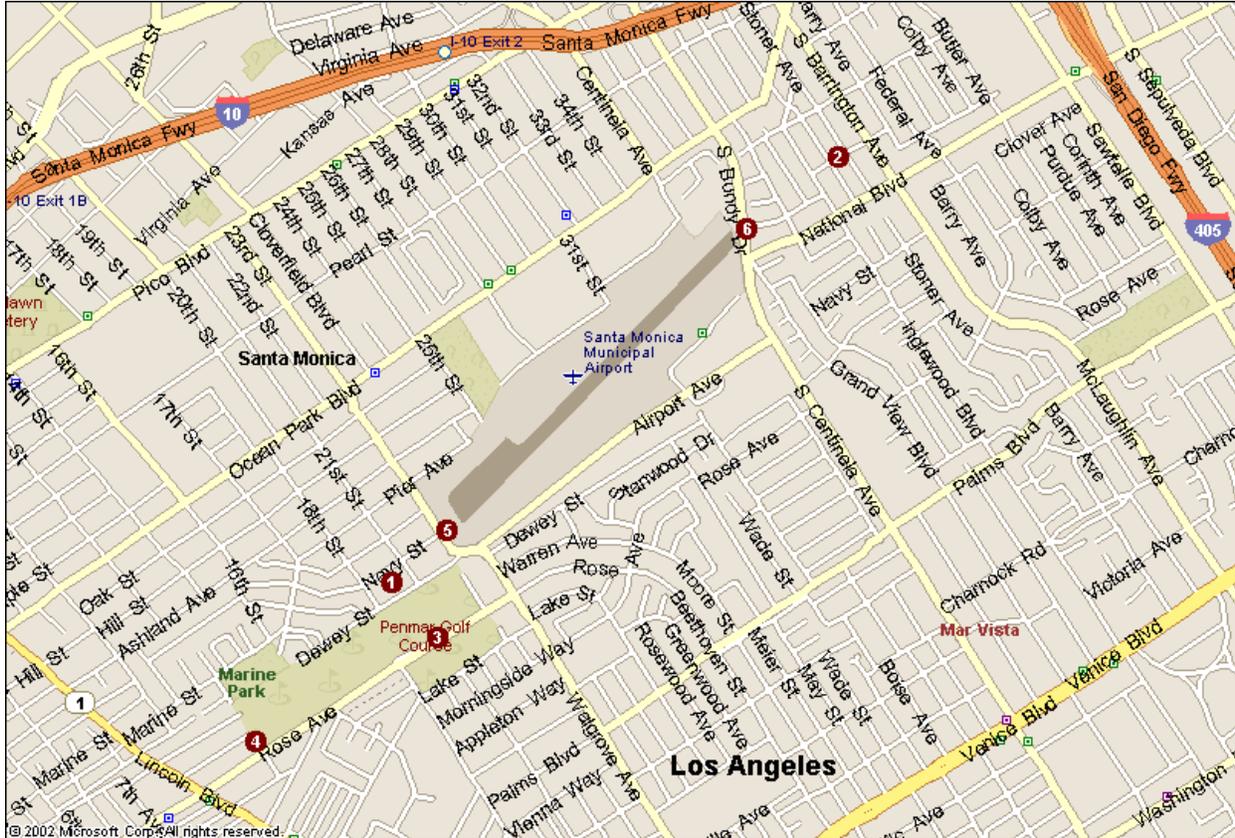


Note: Out of the 44,269 complaints recorded in 2010; 41,862 were associated with Federal Aviation Administration 250 degree heading test.

## ATTACHMENT A

### 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



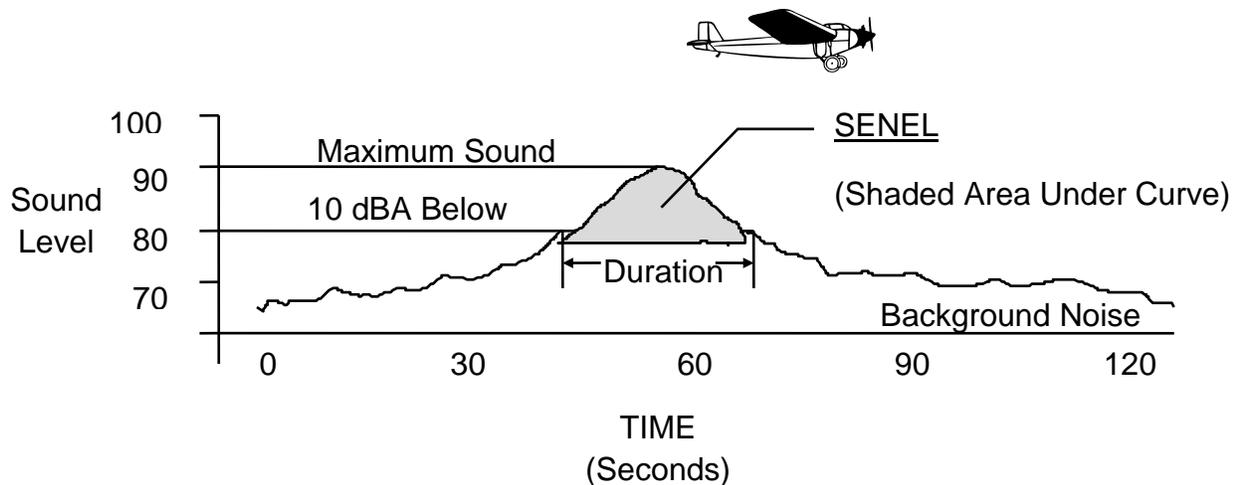
Note: Remote Monitoring Stations 1 & 2 are used for the Enforcement of the 95.0 dBA Single Event Noise Exposure Level (SENEL) maximum allowable noise level.

## ATTACHMENT B 2011 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.



**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.