

GLOSSARY OF TERMS

Decibel - The standard unit of measurement of sound pressure is the Decibel (dB). One decibel is actually an exponent to the reference point of 20 micro Pascals or about .000000003 pounds per square inch. Thus, 65 decibels is that amount to the 65th power. A logarithmic scale is used because of the difficulty in expressing such large numbers.

dba - The most common weighting is the A-weighted noise curve. The A-weighted decibel scale (dba) describes frequencies in a manner approximating the sensitivity of the human ear. In the A-weighted decibel, everyday sounds normally range from 30 dba (very quiet) to 100 dba (very loud). Most community noise analyses are based upon the A-weighted decibel scale

DNL - Day Night Noise Level. The DNL index measures the overall noise experienced during an entire (24-hour) day. DNL calculations account for the single event levels of aircraft, the number of aircraft operations and a penalty for nighttime operations. In the DNL scale, noise occurring between the hours of 10 p.m. to 7 a.m. is penalized by 10 dB. This penalty was selected to account for the higher sensitivity to noise in the nighttime and the expected further decrease in background noise levels that typically occur at night. DNL is specified by the FAA in Federal Aviation Regulation Part 150 to be used for community and airport noise assessment.

INM - The FAA's Integrated Noise Model (INM) models civilian and military aviation operations. The original INM was released in 1977. The latest version, INM Version 6.1, was released for use in May 2003 and is the state-of-the-art in airport noise modeling. The program includes standard aircraft noise and performance data for over 100 aircraft types that can be tailored to the characteristics of specific individual airports.

OPERATION - An operation is defined as either a landing or departure. For example, since a touch and go consists of a landing followed by an immediate departure, it is counted as two operations.

Sample Flight Tracks

South Flow Flight Tracks



North Flow Flight Tracks



The focus of this Executive Summary is to give a snapshot of the aircraft activity at Republic Airport for calendar year 2004. The full Noise Contour Update Report is available at the Republic Airport Administration Office located in the main terminal building. The Executive Summary is also available on the Airport's website, www.republicairport.net.

Calendar Year 2004 Air Traffic Totals

According to air traffic counts at Republic Airport, there were 159,484 operations in 2004. An operation is defined as a takeoff or landing. This is 10,636 more than occurred in 2003, or an increase of 6%. Single engine operations increased by 7% over 2003 which can most likely be attributed to more training operations. Twin Engine propeller operations decreased by 4%; Turboprop activity increased by 13%, and helicopter activity increased by 2%. Jet aircraft activity increased by 9%. In years that jet traffic has increased, it is most likely a result of increased business activity on Long Island, including new business and expansion by existing companies. The increase is also a result of a greater number of operations by fractional business jet companies. While the total number of jet operations increased, the number of louder older Stage 2 corporate jets decreased.

Aircraft Class	Total Departures & Arrivals	Total Touch & Go's /Missed App.	Total Operations	Change 03/04	Total Operations
Jet	16,984	4	16,988	9%	
Turboprop	5,056	24	5,080	13%	
Twin Engine Propeller	8,018	598	8,616	-4%	
Single Engine Propeller	68,014	52,490	120,504	7%	
Helicopters	8,158	58	8,216	2%	
Blimps	80		80	7%	
SUB TOTALS	106,310	53,174	159,484	6%	

Day Night Average Sound Level

Aircraft operations that occur throughout the year are averaged and computed to determine the DNL, or Day Night Average Sound Level Noise Contours. DNL is the FAA-accepted criteria that depicts the noise from airport operations as averaged over a 365 day period. The DNL noise contours presented in this document were calculated using FAA Integrated Noise Model Version 6.1. DNL is in part determined by the time of day aircraft operate. Aircraft that operate during nighttime hours are considered more intrusive than daytime operations. Aircraft operations during the hours of 10 p.m.—7 a.m. are weighted 10 decibels higher than operations between 7 a.m.—10 p.m. This report depicts the 75, 70, and 65 DNL contours. The 65 DNL noise contour is the level of significance that the FAA uses to determine noise exposure to the surrounding communities.



2004 Noise Exposure Map

The Noise Exposure Map (NEM) is the combination of the DNL noise contours with the proper basemap, such as an aerial photograph. The noise exposure map in this report shows the 65, 70 and 75 DNL noise contours. While the three contours are shown, the focus of this report is the 65 DNL noise contour and its relation to past contours as well as number and type of structures in the 65 DNL contour and the number of square miles in the contour.

The 2004 Noise Exposure Map does not have any incompatible land uses. The land uses in the existing 65 DNL contour include cemeteries, airport property, light industrial, and roadways. As part of the Airport's Rules and Regulations, the Airport has been resolute not to have the 65 DNL encroach on residential land uses. Since 1983 when the first NEM was completed for the Airport, the 65 DNL contour has not encroached on residential land uses.

The square miles in each noise contour are as follows:

- **DNL 65— 1.06 Square Miles**
- DNL 70— 0.55 Square Miles
- DNL 75— 0.31 Square Miles

In comparison to the 2003 NEM, all of the contours were either reduced in overall size or stayed the same. The 65 DNL contour was reduced by .01 square miles, while the 70 and 75 DNL contours were unchanged. The NEM shape off the Runway 14 end is slightly straighter than the 2003 NEM. This is caused by the percentage of aircraft operations assigned to each flight track in the INM. This shape is primarily a result of departure operations from Runway 32. This report used actual radar flight tracks to determine the dispersion of aircraft departing on Runway 32. The ability to use radar flight tracks to assess how aircraft are departing allows the contour to portray actual aircraft movement at the Airport.

Noise Complaints

In 2004, there were 1,181 noise complaints filed with the Airport through its noise complaint phone line filed by 154 individuals. The number of complaints in 2004 increased by 456 from 2003, a 38% increase. As with 2003, the area Northwest of the Airport generated the majority of noise complaints, registering 1,028 of the 1,181 complaints, or 87% of all complaints. Complaints by time of day increased by 38% for day and 18% for night. Jet aircraft operations generated 52% of the total noise complaints.

