

**GLOSSARY OF TERMS**

**Decibel** - The standard unit of measurement of sound pressure is the Decibel (dB); it is the logarithmic unit of sound intensity. A logarithmic scale is used because of the difficulty in expressing such large numbers. 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 65<sup>th</sup> power.

**dBA** - The most common decibel 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

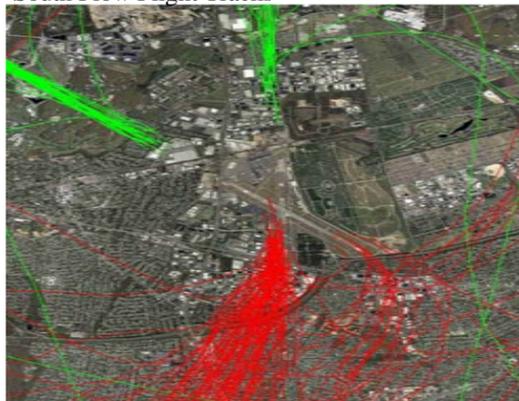
**DNL** - Day Night Noise Level. The DNL index measures the overall noise experienced during an entire (24-hour) day. DNL calculations account for the single event levels of aircraft, the number of aircraft operations and a penalty for nighttime operations. In the DNL scale, noise occurring between the 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 6.2a, was released for use in November 2006 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.

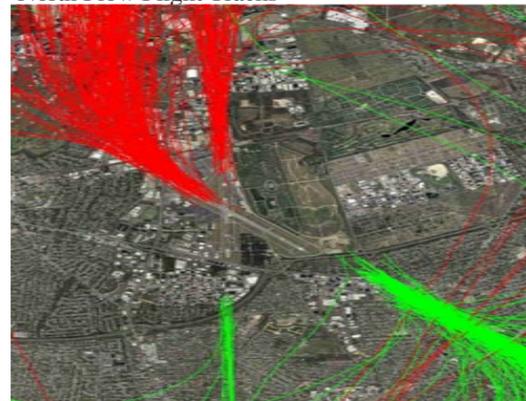
**OPERATION** - An operation is defined as either a landing or departure. For example, since a touch and go consists of a landing followed by an immediate departure, it is counted as two operations.

**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 2006. 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](http://www.republicairport.net).

**Calendar Year 2006 Air Traffic Totals**

According to air traffic counts at Republic Airport, there were 127,369 operations in 2006. An operation is defined as a takeoff or landing. This is 32,153 less than occurred in 2004, or a decrease of 20%. Single engine operations decreased by 27% over 2004 which can most likely be attributed to less training operations due to higher fuel prices and closure of a Flight Training School. Twin Engine propeller operations decreased by 3%; Turboprop activity increased by 16%, and helicopter activity decreased by 8%. Jet aircraft activity increased by 6%. 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 2004/2006	Total Operations
Jet	18,000	81	18,081	6%	
Turboprop	5,820	58	5,878	16%	
Twin Engine Propeller	7,512	424	7,936	-3%	
Single Engine Propeller	55,874	32,056	87,930	-27%	
Helicopters	7,480	48	7,528	-8%	
Blimps	16		16	-80%	
<b>SUB TOTALS</b>	<b>94,702</b>	<b>32,667</b>	<b>127,369</b>	<b>-20%</b>	<b>Annual Operations (000)</b>

**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 6.2a. 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.



### **2006 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 2006 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— 1.09 Square Miles**
- DNL 70— 0.55 Square Miles
- DNL 75— 0.31 Square Miles

In comparison to the 2004 NEM, all of the contours were either slightly increased in overall size or stayed the same. The 65 DNL contour was increased by .03 square miles, while the 70 and 75 DNL contours were unchanged. The NEM shape off the Runway 14 end is the same shape as the 2004 NEM and in the same contiguous neighborhood. 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 2006, there were 557 noise complaints filed with the Airport through its noise complaint phone line filed by 155 individuals. The number of complaints in 2006 decreased by 624 from 2004, a 47% decrease. As with 2004, the area northwest of the Airport generated the majority of noise complaints, registering 391 of the 557 complaints, or 70% of all complaints. Complaints by time of day were 58% for day and 28% for night; complaints that did not have a time associated with it made up the remaining 14% of complaints. Jet aircraft operations generated 74% of the total noise complaints.

