

# SNOHOMISH COUNTY AIRPORT 2008 ANNUAL NOISE REPORT

PAINE FIELD 3220 100TH ST SW, EVERETT, WA 98204  
NOISE HOTLINE: 425-353-2110x1

*January – December 2008*

## INTRODUCTION TO THE SNOHOMISH COUNTY AIRPORT NOISE MONITORING SYSTEM

This report summarizes noise monitoring data collected in 2008 (January – December) at Snohomish County Airport-Paine Field. It includes comparisons with data collected in previous years where possible. The noise monitoring system produces a tremendous amount of data in a variety of formats.

The Snohomish County Airport Noise Monitoring System includes three central computers, digital voice recorder, three semi-permanent noise monitors, and one mobile noise monitor. Figure E on Page 4 shows the location of the semi-permanent monitors. Monitor One is located 9500 feet north of the airport in Mukilteo. Monitor Two is located 6500 feet west of the airport in Harbour Pointe. Monitor Three is located 8500 feet south of the airport near Lake Serene. Monitor Four, the mobile monitor, is mounted in the airport's noise monitoring trailer and is used for spot monitoring throughout the community.

Figure A, B, and C present noise calls received from residents during 2005-2008. Figure A presents the correlation between flight operations and flight related noise calls, figure B presents the correlation between engine testing and engine testing related noise calls and figure C presents the comparison of noise calls by aircraft type.

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## NOISE MEASUREMENTS

Noise is measured in decibels (dB) which is a logarithmic expression of sound pressure level. All data collected by the Airport's Noise Monitors are "A" weighted to more closely reflect the way people hear sounds. "A" weighting, written as dBA, discriminates against sounds that the human ear is less sensitive to which are sounds below 1,000 hertz (cycles per second) and above 6,000 hertz.

An extensive discussion of noise metrics and computer noise analysis can be found in Chapter C of the 1995 Paine Field

FAR Part 150 Noise Study. This is available at local public libraries or from the Airport Office.

The most common noise measurements used by Paine Field are sound exposure levels (SEL) and cumulative noise levels.

### **Sound Exposure Level (SEL)**

Noise levels generated by aircraft operations are expressed as Sound Exposure Level (SEL) events. The "A"-weighted SEL value represents the total sound level over a background noise threshold, thereby separating aircraft noise events from other noises. SEL accounts for the intensity and duration of the sound of each single event.

Airport staff correlates SEL data with noise calls from Airport neighbors and operations data from the Federal Aviation Administration (FAA) Air Traffic Control Tower. A database has been created with minimum, maximum, and average noise levels at each noise monitor for each aircraft type conducting different types of operations. Figure D presents average SEL noise levels in the database for large jet aircraft arrivals and departures at Monitors One and Three.

### **Cumulative Noise Levels**

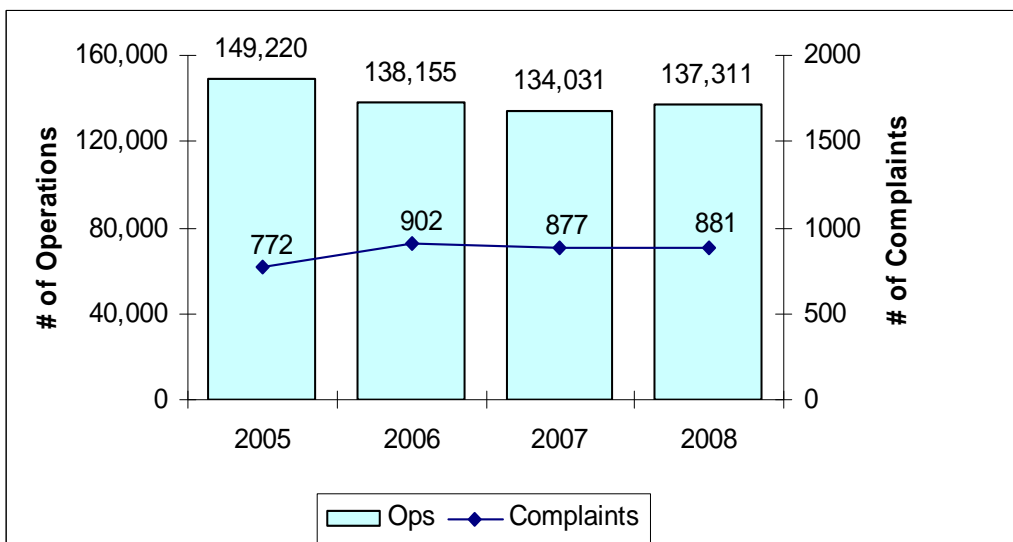
Cumulative noise levels include noise from various sources, including wind, animals, automobiles, and aircraft. The Airport's Noise Monitoring System computer analyzes the characteristics of each single event noise recorded. It distinguishes between aircraft and community noises and labels them accordingly. "A" weighted Day-Night Sound Level (DNL) is the standard sound metric used by the Environmental Protection Agency (EPA) and the FAA for determining cumulative noise exposure around airports. The DNL metric adds a 10 dBA penalty to all noises recorded between the hours of 10:00 PM and 7:00 AM to reflect the greater sensitivity individuals have to noise while sleeping. The DNL data generated by the noise monitoring equipment can be compared to annual DNL noise contours generated in the Part 150 Noise Study Update.



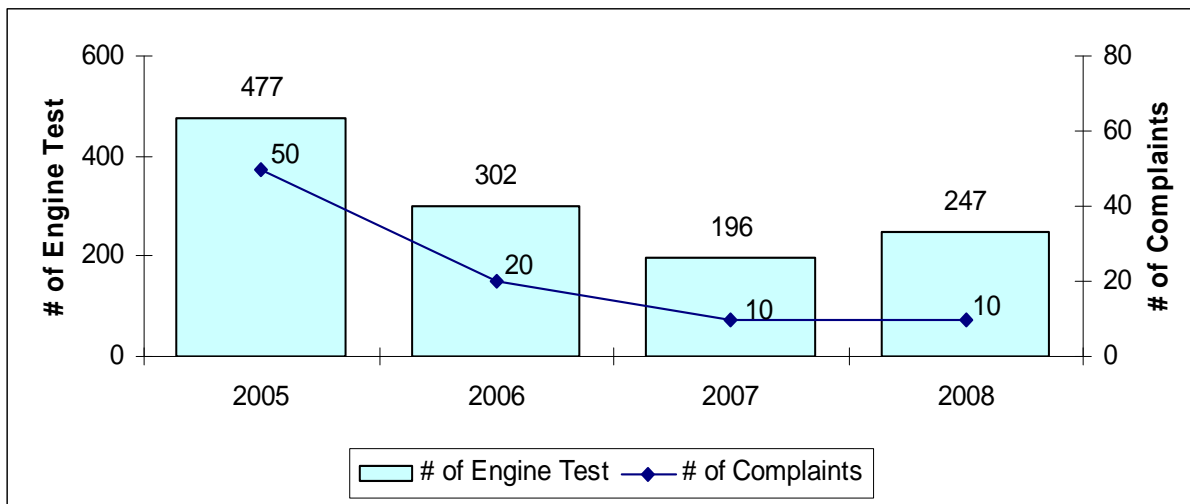
## 2008 ANNUAL AIRCRAFT OPERATIONS AND NOISE COMPLAINTS

The Airport received 881 noise complaints during 2008. 871 of those calls were complaints regarding flight operations. We received 10 calls regarding engine testing. 6 people accounted for 437 calls or 49.6% of the total calls for the year. During 2008, the FAA Paine Field Air Traffic Control Tower recorded 137,311 flight operations. This is a 2.45% increase in operations from 2007 which had 134,031 operations. The four-year average number of flight operations is 139,679. Total operations for 2008 were 1.7% below the four-year average.\*\*

Figure B compares the number of noise complaints on engine testing with total engine tests conducted during the same period. Table one on page 3 indexes the number of noise calls received from each Paine Field Community Council subquadrant during 2008. The Community Council subquadrants are shown graphically on Figure E. Specific boundary delineation information is available at the Airport Office.



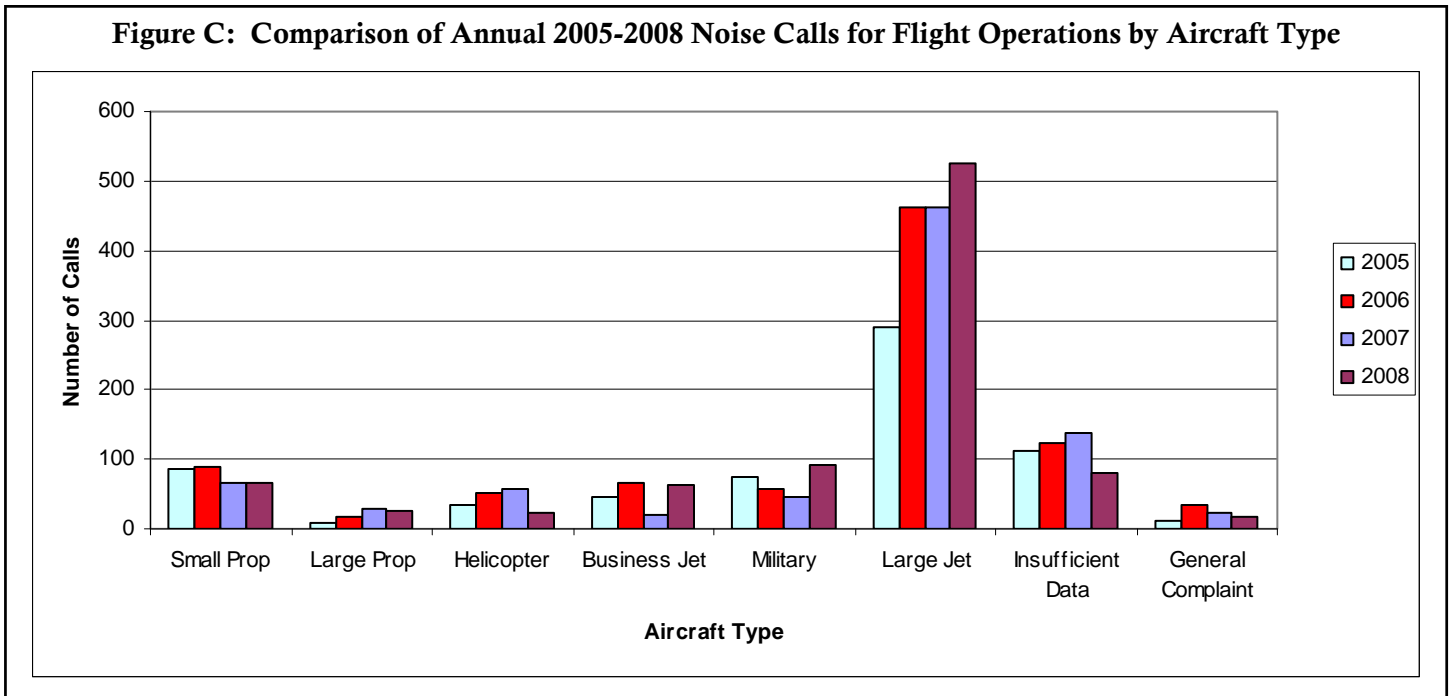
**Figure A: Correlation between flight operations and flight related noise complaints (January – December 2005-2008)**



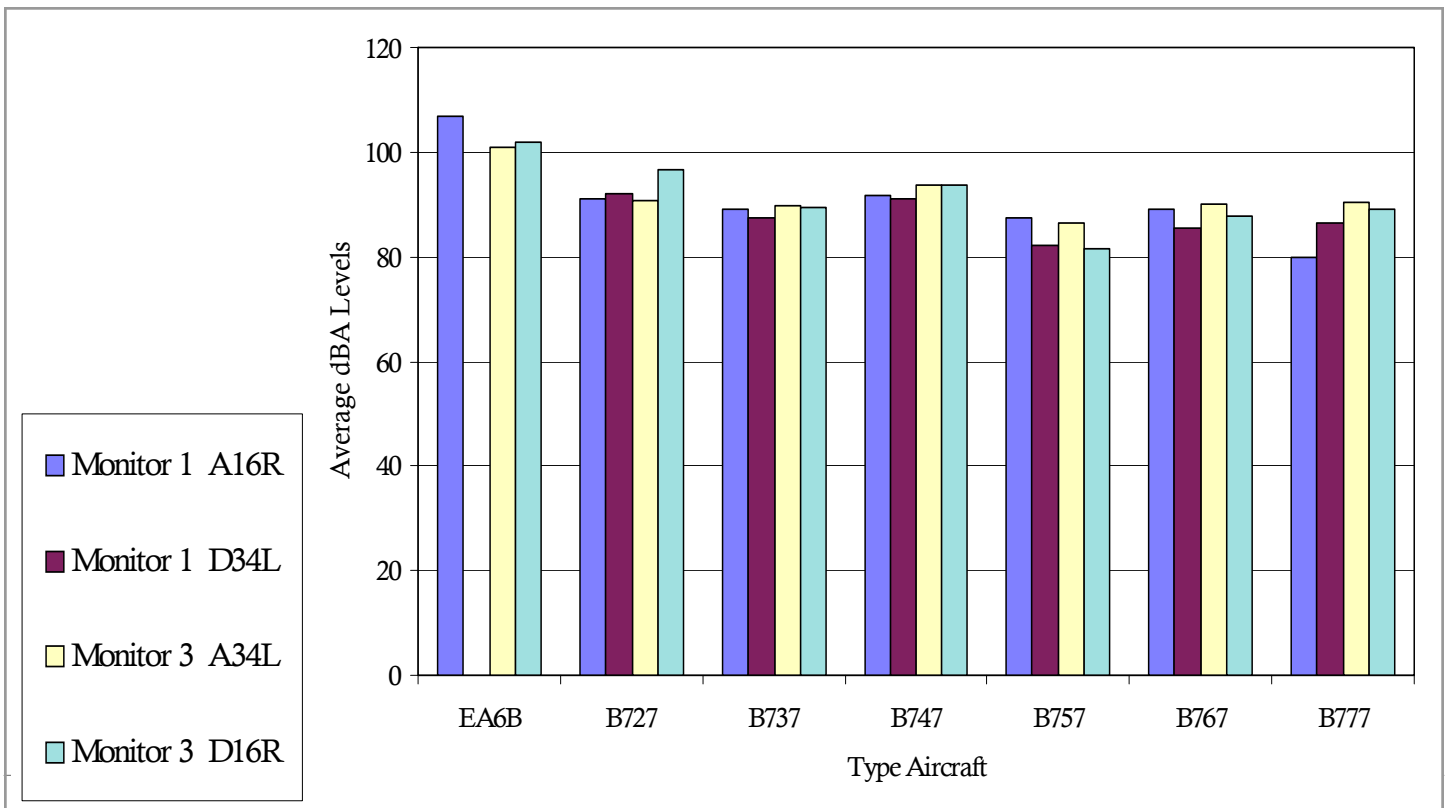
**Figure B: Correlation between engine testing and engine testing related noise complaints (January – December 2005-2008)**

\*\* Number of complaints may differ from the quarterly or monthly reports due to date entered into database, and/or corrections made on the FAA air traffic website.

## 2005-2008 ANNUAL NOISE COMPLAINTS BY AIRCRAFT TYPE



## AVERAGE NOISE LEVELS



# NOISE COMPLAINTS – JANUARY – DECEMBER 2008

Table One: Noise Complaints by Paine Field Community Council Subquadrants - January – December 2008

Year	NW1	NW2	NW3	NW4	NE1	NE2	NE3	NE4	SW1	SW2	SW3	SW4	SE1	SE2	SE3	SE4	Unk/Other	Total
2008	161	5	16	218	76	5	19	7	19	16	7	2	25	2	12	260*	31	881

\* Indicates that 97% of the calls were made by two callers.

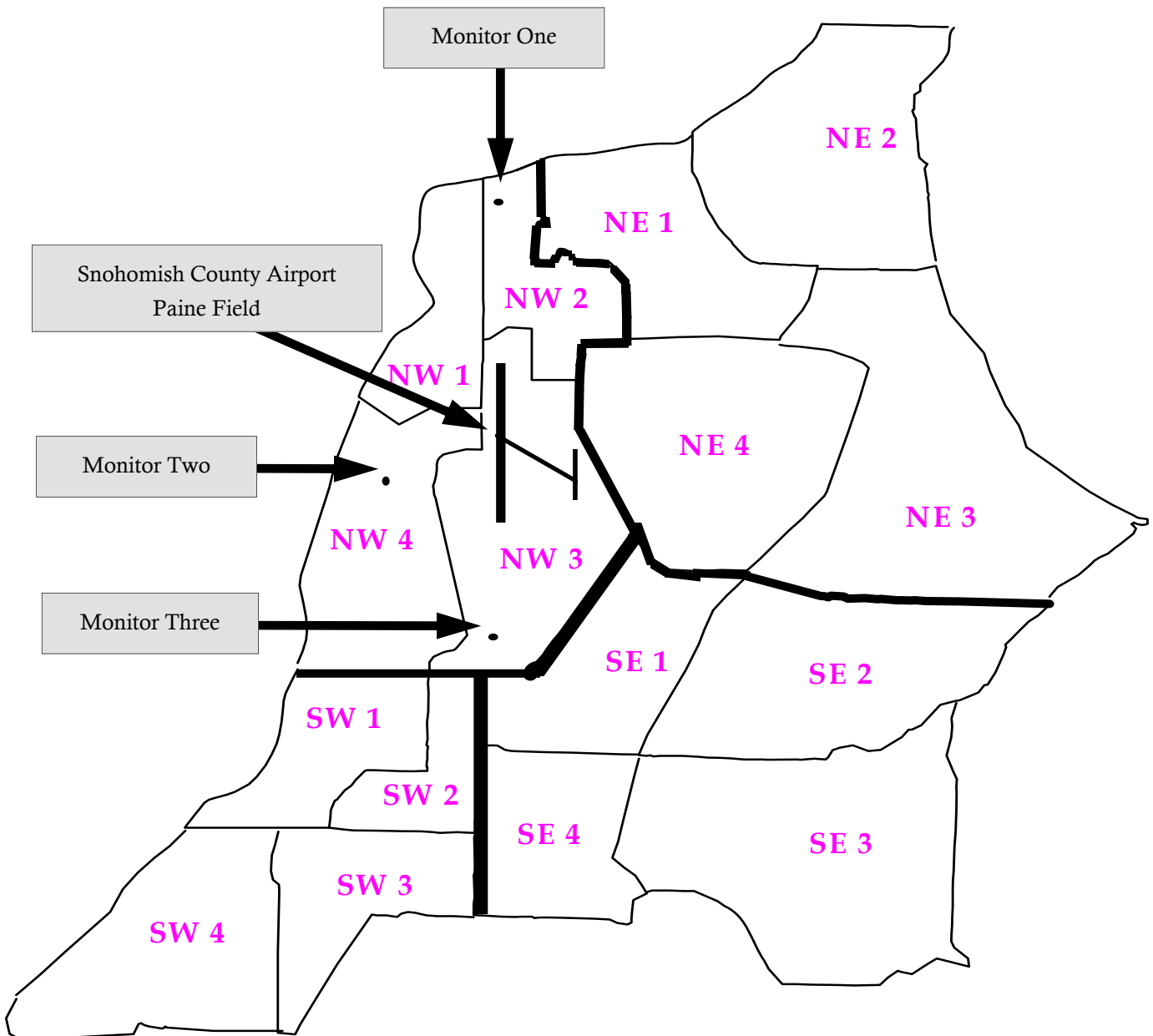


Figure E: Paine Field Community Council Subquadrants