



# SNOHOMISH COUNTY AIRPORT

## 2017 ANNUAL NOISE REPORT

PAINE FIELD 3220 100TH ST SW, SUITE A, EVERETT, WA 98204

NOISE HOTLINE: 425-388-5125x4

### January – December 2017

## INTRODUCTION TO SNOHOMISH COUNTY AIRPORT NOISE MONITORING

This report summarizes noise monitoring data collected in 2017 (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 and three semi-permanent noise 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.

Figure A, B, C and D represent noise inquiries received from residents during 2012-2017. Figure A presents the correlation between flight operations and flight related noise inquiries, figure B presents the percentage correlation between flight operations and noise inquiries, figure C presents the number of noise inquiries by aircraft category and figure D presents the percentage of noise inquiries by aircraft.

## 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 [paineairport.com](http://paineairport.com), 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 inquiries 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.

### 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.

## 2017 ANNUAL AIRCRAFT OPERATIONS AND NOISE INQUIRIES

The Airport received 646 noise inquiries from 242 individual residences during 2017. Five residences accounted for 182 inquiries or 28% of the total inquiries for the year. During 2017, the FAA Paine Field Air Traffic Control Tower recorded 108,350 flight operations. This is a 1.3% increase in operations from 2016 which had 106,969 operations. The five-year average number of flight operations is 110,608. Total operations for 2017 was 2.1% below the five-year average.

Figure A presents the correlation between flight operations and flight related noise inquiries 2013-2017. Figure B presents the percentage correlation between flight operations and noise inquiries 2013-2017. Figure C presents the number of noise inquiries by aircraft type 2015-2017. Figure D presents the percentage of noise inquiries by aircraft category 2017.

Figure A: Correlation between flight operations and flight related noise Inquiries

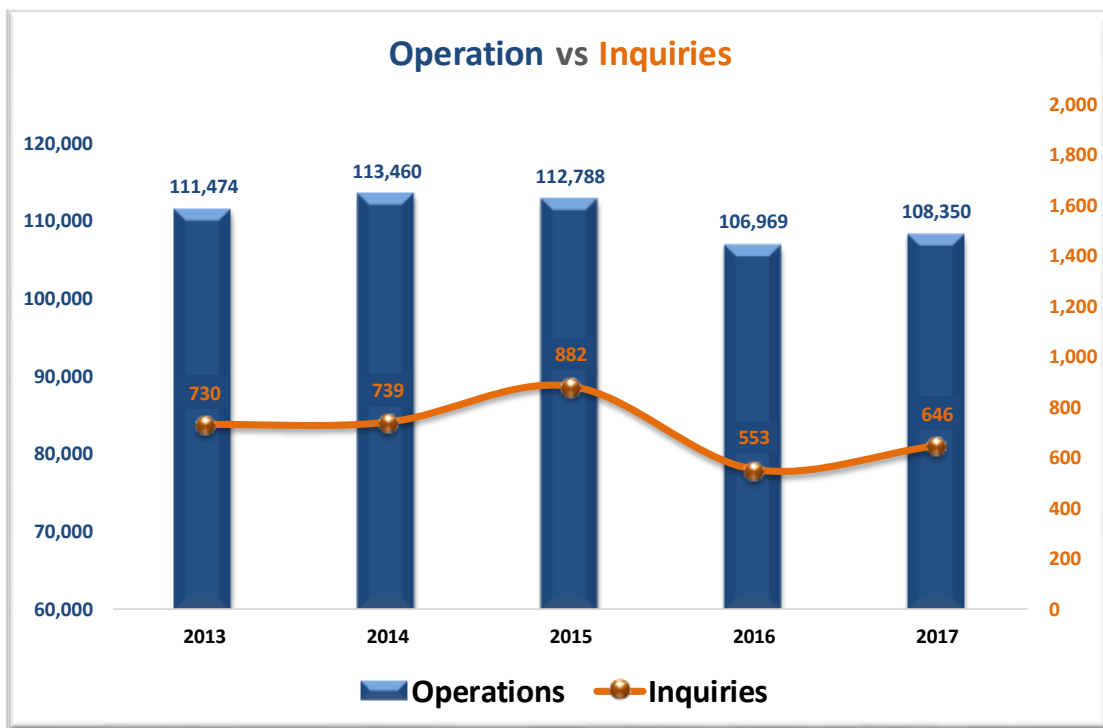


Figure B: Percentage correlation between flight operations and noise inquiries.

YEAR	Operations	Inquiries	Ops/Inquiry %
2013	111,474	730	0.6549%
2014	113,460	739	0.6513%
2015	112,788	882	0.7820%
2016	106,969	553	0.5170%
2017	108,350	646	0.5962%

# ANNUAL NOISE INQUIRIES BY AIRCRAFT TYPE

Figure C: Comparison of Annual 2015-2017 Noise Inquiries By Aircraft Category

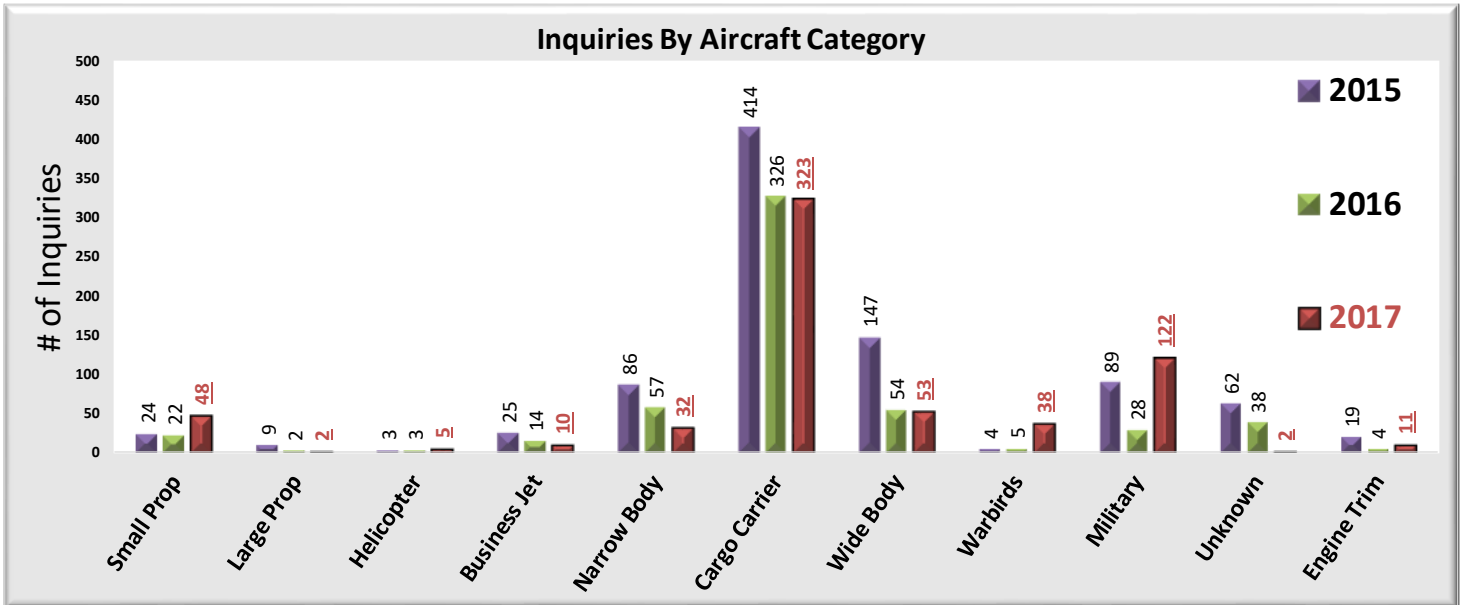
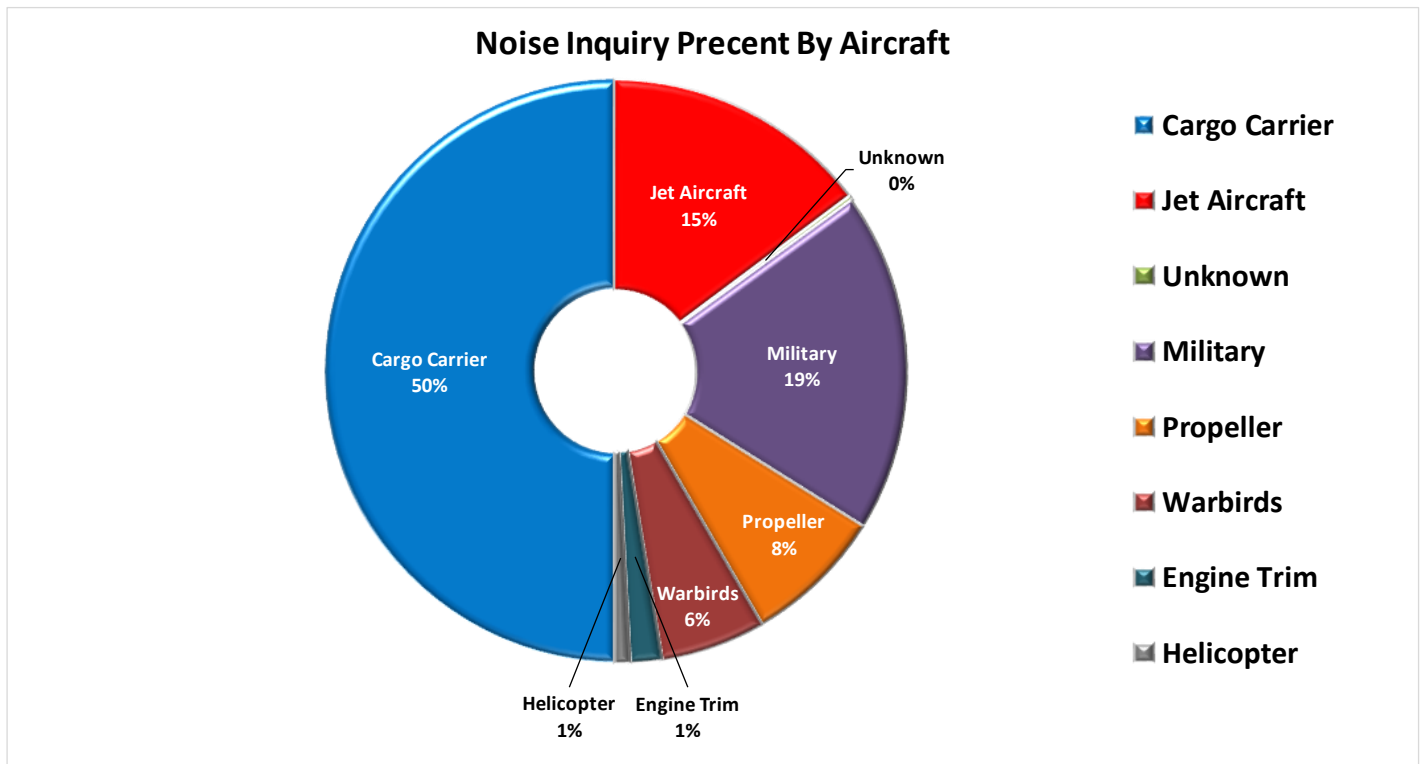


Figure D: Percentage of 2017 Noise Inquiries By Aircraft



## Paine Field Community Council Subquadrants

NW1	NW2	NW3	NW4	NE1	NE2	NE3	NE4	SW1	SW2	SW3	SW4	SE1	SE2	SE3	SE4	OTH
*108	3	**126	64	20	4	3	***45	17	16	25	2	31	0	5	28	149

\* Indicates that 38% of the inquiries in subquadrant were made by 1 resident.

\*\* Indicates that 66% of the total inquiries in subquadrant were made by 2 residents.

\*\*\* Indicates that 62% of the total inquiries in subquadrant were made by 1 resident.

