



# SNOHOMISH COUNTY AIRPORT PAINE FIELD QUARTERLY NOISE SUMMARY



July - September 2017

## INTRODUCTION TO THE SNOHOMISH COUNTY AIRPORT NOISE MONITORING SYSTEM

This report summarizes noise monitoring data collected in the Third Quarter of 2017 (July - September) at Snohomish County Airport-Paine Field. It includes comparisons with data collected in previous years where possible.

The Snohomish County Airport Noise Monitoring System includes three semi-permanent noise monitors, one mobile noise monitor, over a dozen CCTV cameras and a subscription to Noise and Operations Monitoring (NOMS) software powered by FAA flight rack data and noise correlation and metrics provided by Harris Corp. 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 7600 feet south of the threshold of 34L 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.

Figures A, B, and C present noise inquiries received from residents during the Third Quarter 2014–2017. Figure A presents the correlation between flight operations and flight related noise inquiries, figure B presents the percentage of flight operations to noise inquiry generation and figures C(1) and (2) presents the comparison of noise inquiries by aircraft type.

### 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.

A discussion of noise metrics and computer noise analysis as well as Paine Field's FAR Part 150 Noise Exposure Maps can be found online at [www.paineairport.com](http://www.paineairport.com), 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.

#### Cumulative Noise Levels

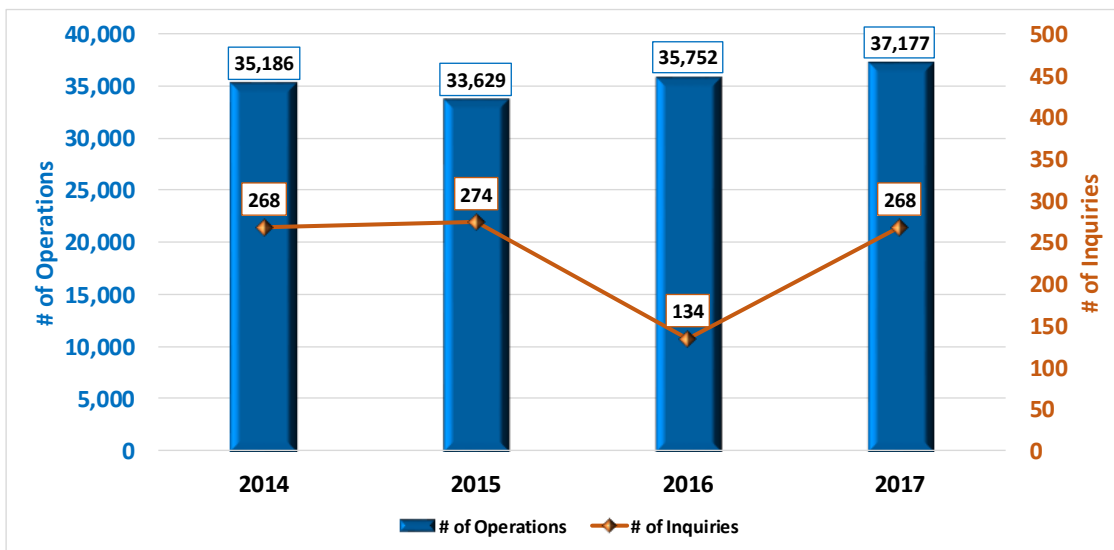
Cumulative noise levels include noise from various sources, including wind, animals, automobiles, and aircraft. The Airport's Noise Monitoring System computer analyzes the characteristics of each single event noise recorded. It distinguishes between aircraft and community noises and labels them accordingly. "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.



# THIRD QUARTER AIRCRAFT OPERATIONS AND NOISE INQUIRIES

- ◇ The FAA recorded 37,177 flight operations and the Airport received 268 noise inquiries during the Third Quarter of 2017. Figure A correlates total noise inquiries generated by flight operations with total flight operations in the Third Quarters of 2014–2017.
- ◇ Figure B presents the percentage of flight operations to noise inquiry generation
- ◇ Figures C (1) and (2) presents a comparison of the total number of noise inquiries regarding flight operations by particular aircraft type.
- ◇ Table One on page 4 indexes the number of noise inquiries received from each Paine Field Community Council subquadrant during the Third Quarters of 2014–2017. 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 inquiries Third Quarter 2014-2017.**



**Figure B: Percentage of flight operations to noise inquiry production for Third Quarter 2014-2017.**

Third Quarter Operations to Inquiries Percentage				
YEAR	Operations	Inquiries	Ops/Inquiry %	Ratio
2014	35,186	268	0.7617%	≈ 1:131
2015	33,629	274	0.8148%	≈ 1:123
2016	35,752	134	0.3748%	≈ 1:267
2017	37,177	268	0.7209%	≈ 1:139

Figure C (1): Summary of Third Quarter 2017 Noise Inquiries for Civil Aircraft Operations by Aircraft Type

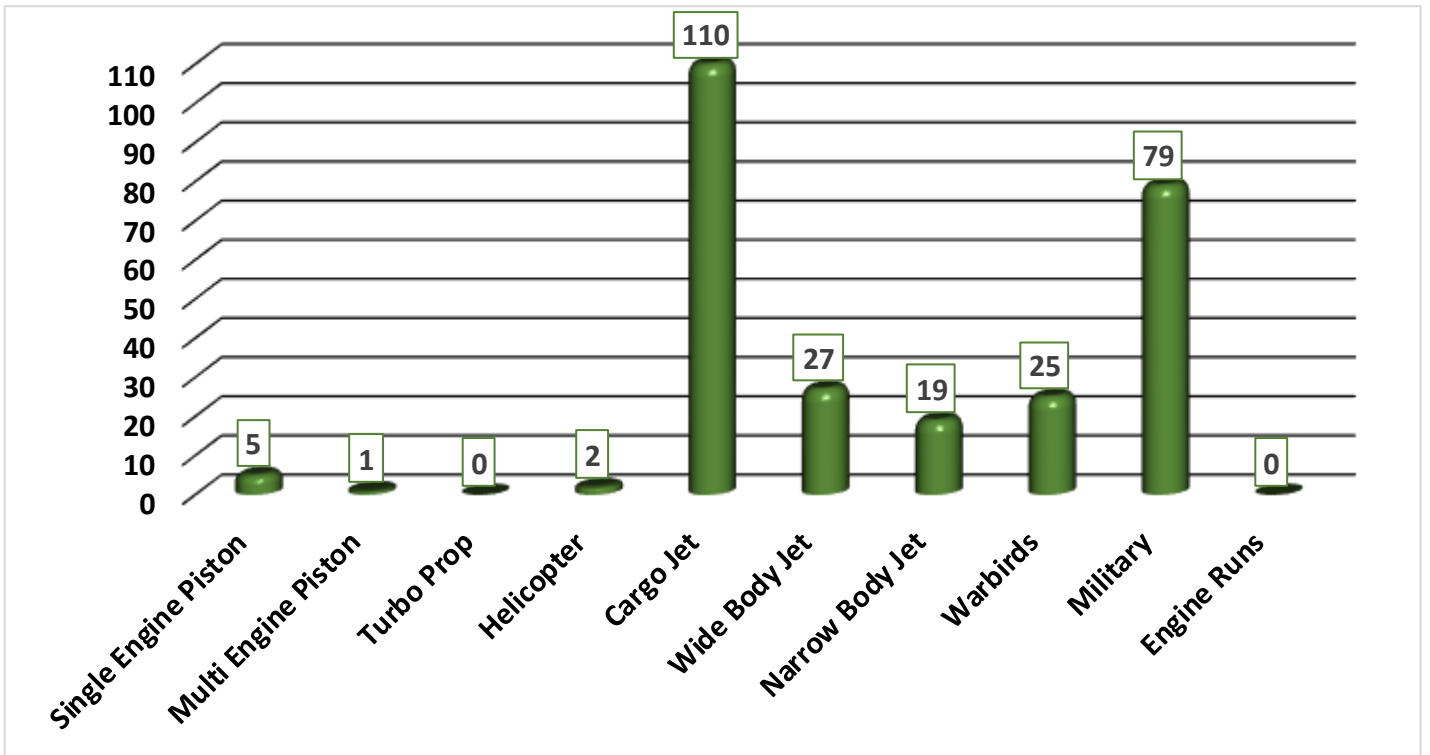
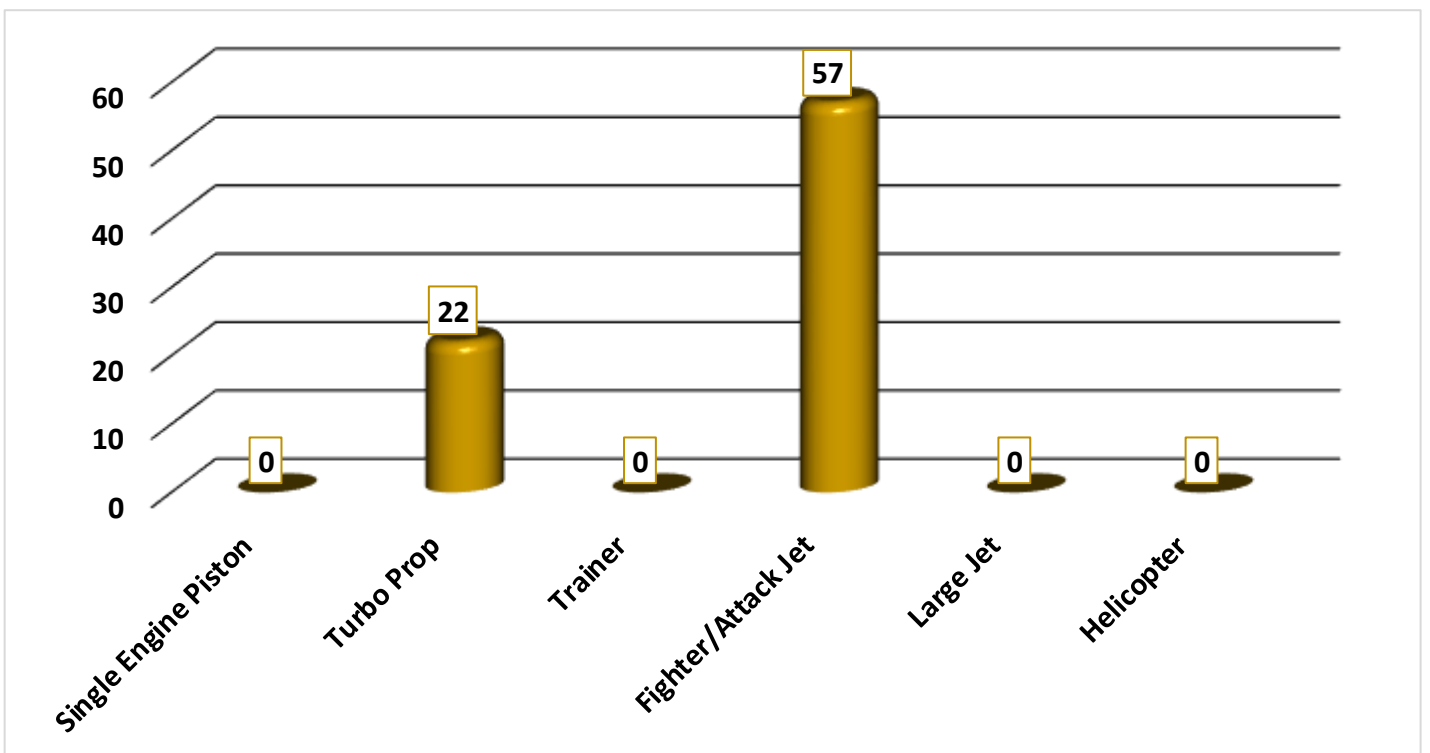


Figure C (2): Summary of Third Quarter 2017 Noise Inquiries for Military Aircraft Operations by Aircraft



# NOISE INQUIRIES – THIRD QUARTER 2014-2017

Figure D: Noise Inquiries by Paine Field Community Council Subquadrants - Third Quarter 2014-2017

Year	NW1	NW2	NW3	NW4	NE1	NE2	NE3	NE4	SW1	SW2	SW3	SW4	SE1	SE2	SE3	SE4	Unk/ Other	Total
2014	37	5	13	45	15	15	1	1	18	13	9	4	43	0	0	29	20	268
2015	33	1	36	17	10	1	0	8	4	7	4	1	35	0	1	31	85	274
2016	24	0	18	11	3	1	1	3	4	3	13	1	6	1	0	6	39	134
2017	40	2	34	31	9	3	1	8	4	8	7	0	11	0	1	7	102	268

Reported numbers may differ slightly from the monthly reports due to corrections made to database after reports are published

## JULY - SEPTEMBER 2017 NOISE INQUIRIES BY NOISE QUADRANT

Figure E: Paine Field Community Council Subquadrants

Paine Field received 268 noise inquiries from 173 individual households in the third quarter of 2017.

The graphic on the right depicts Paine Field's 16 noise quadrants and the locations of the three noise monitors. The numbers within each quadrant represent how many inquiries were made from that quadrant in the Third Quarter of 2017. "Other" represents calls from outside the quadrants.

