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Subject: Whidbey Island Military Jet Noise
Recommended EIS Scope

Ladies and Gentlemen:

I understand that the Navy has agreed to prepare an EIS to address all impacts of the EA18G aircraft (Growlers) stationed at the Whidbey Island Naval Air Station. This report presents my recommendations for the scope of the EIS as it pertains to environmental noise impacting south Whidbey Island in the vicinity of Coupeville OLF.

The first step is to accurately measure and document the existing acoustical environment. This requires measurement of the ambient noise in selected locations that are expected to be impacted by the proposed project. Outdoor ambient noise measurements should be collected continuously over a minimum period of 1 week at each measurement location. A full week is recommended to obtain meaningful long-term average ambient noise levels and to identify if there are any significant differences between weekday and weekend noise statistics. ANSI S12.4 Type 1 acoustic instrumentation should be used to collect these data, and the outdoor microphone should be provided with weather protection with acoustical performance equal to the Bruel & Kjaer model 4952. The measurement microphone shall be positioned 5 feet above level ground at least 50 feet from the nearest street and at least 10 feet from the nearest structure or tree. At a minimum, the following ambient noise level statistics should be recorded at each measurement location for each hour of the 7 day period:

- L_{Aeq} , the A-weighted time average sound pressure level
- $L_{Amax,fast}$, the maximum A-weighted sound pressure level (fast response)
- L_{Apk} , the maximum A-weighted peak sound pressure level
- L_{A90} , the A-weighted sound pressure level exceeded 90% of each 1 hour period
- L_{A1} , the A-weighted sound pressure level exceeded 1% of each 1 hour period
- L_{Zpk} , the maximum Z (unweighted) peak sound pressure level



After the data is collected, the measured results should be analyzed to determine the following noise level statistics for each measurement location:

- ✓ Weekday average hourly L_{Aeq} , $L_{Amax,fast}$, and L_{Apk} vs. time of day (24 hours)
- ✓ Weekend average hourly L_{Aeq} , $L_{Amax,fast}$, and L_{Apk} vs. time of day (24 hours)
- ✓ Full week average hourly L_{Aeq} , $L_{Amax,fast}$, and L_{Apk} vs. time of day (24 hours)
- ✓ Weekday average hourly L_{A90} , L_{A1} , and L_{Zpk} vs. time of day (24 hours)
- ✓ Weekend average hourly L_{A90} , L_{A1} , and L_{Zpk} vs. time of day (24 hours)
- ✓ Full week average hourly L_{A90} , L_{A1} , and L_{Zpk} vs. time of day (24 hours)
- ✓ L_{dn} for each day of the week, and average L_{dn} for the full week.

A minimum of 4 measurement locations is recommended for long-term (1-week) ambient noise monitoring. One location should be in the residential development south of the Coupeville OLF at or near Position 1 in Figure 1. A second location should be in or near the park north of the Coupeville OLF at or near Position 4 in Figure 1. The other two locations could be near the town of Coupeville and in the populated area east of the Coupeville OLF. The ambient noise instrumentation will need to be secure, which will limit the available locations for these measurements. In addition to the long-term measurements, short-term (24 hours) measurements could be taken at other locations of interest to the community. The short-term measurements should occur at the same time as the closest long-term measurement location. The ambient noise measurements should be conducted during a period when there are no aircraft using the Coupeville OLF. If aircraft are using Coupeville OLF during these measurements, the hours of aircraft operations should be noted and that data should be deleted from the data base.

In addition to documenting the existing acoustical environment, the EIS should present the results of aircraft noise level predictions using the latest version of the NOISEMAP software (or equivalent) around the Coupeville OLF. The following noise contours should be presented in 5 dB intervals covering the entire south half of Whidbey Island: L_{dn} , $L_{Amax,fast}$, and L_{Apk} . In addition to providing noise contours, the EIS should also predict aircraft noise levels at each of the ambient noise measurements locations (long-term and short-term). A summary table should be presented showing the existing ambient and the predicted future aircraft noise levels at each location. Predicted future noise levels should include 1 year, 5 years, 10 years, and 20 years into the future.

The EIS should also reveal the number of people that will be impacted by the project, and the level of impact. Specific questions that should be addressed include:

1. How many people will suffer loss of sleep, and to what degree?
2. How many people will suffer hearing loss, and to what degree?



3. How often will aircraft noise levels degrade speech intelligibility indoors?
4. Will excessive building vibrations result from the project, and to what degree?

The EIS should also address noise mitigation measures that could be employed. Potential noise mitigation measures that should be assessed include:

- reducing the noise level generated by each aircraft,
- reducing the number of aircraft events, particularly at night,
- improving the sound insulation properties of the homes, and
- moving the Coupeville OLF to a more remote location.

The discussion of improving the sound insulation properties of the homes in the area should (at a minimum) address the following potential noise reduction measures:

- adding interior storm windows using varying thicknesses of laminated glass,
- adding exterior storm doors using varying thicknesses of laminated glass,
- adding insulation above the upper floor ceilings, and
- upgrading the exterior walls and ceilings of bedrooms.

Upgrading the exterior walls and ceilings of bedrooms could be as simple as adding another layer of gypsum board to the existing surface, or as difficult as removing the existing gypsum board and installing new gypsum board on resilient channels or resilient sound isolation clips.

If you have any questions regarding these recommendations, do not hesitate to give me a call.

Very truly yours,
JGL Acoustics, Inc,

A handwritten signature in black ink that reads "Jerry G. Lilly".

Jerry G. Lilly, P.E., President, FASA
Member INCE, ASTM, NCAC



Figure 1. Aerial photograph showing the 5 noise measurement locations.

