Appendix A
Aircraft Noise Study

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Acronyms and Abbreviations

Acronym	Definition
AAD	Annual Average Daily
AGL	Above Ground Level
ANSI	American National Standards Institute
ASA	Acoustical Society of America
CVW	Carrier Air Wing
dB	Decibel
DNL	Day-Night Average Sound Level (U.S. cumulative noise metric)
DNWG	Department of Defense Noise Working Group
DOD	Department of Defense
E&E	Ecology & Environment, Inc.
EA	Environmental Assessment
EIS	Environmental Impact Statement
EXP	Expeditionary
FAA	Federal Aviation Administration (U.S.)
F	degrees Fahrenheit
FCLP	Field Carrier Landing Practice
FICON	Federal Interagency Committee on Noise
FRS	Fleet Replacement Squadron
ft	Feet
GCA	Ground-Controlled Approach
Hz	Hertz
in Hg	inches of mercury (barometric pressure)
kPa-s/m^2	KiloPascals per second per square meter
L_{eq}	Equivalent Sound Level
$L_{eq(24)}$	Equivalent Sound Level over 24 hours
$L_{eq(8h)}$	Equivalent Sound Level over 8 hours
L_{max}	Maximum Sound Level
MAGIC CARPET	Maritime Augmented Guidance with Integrated Controls for Carrier Approach and Recovery Precision Enabling Technologies (also known as Precision Landing Mode).
MSL	Mean Sea Level
NA	Number of Events At or Above a Selected Threshold
NAS	Naval Air Station
NASMOD	Naval Aviation Simulation Model
NIPTS	Noise-induced Permanent Threshold Shift
NLR	Noise Level Reduction
OLF	Outlying Landing Field
PA	Probability of Awakening
OTOB	One-third octave band
PHL	Potential Hearing Loss
PNL	Perceived Noise Level
POI	Point of Interest
RES	Reserve
RH	Relative Humidity
RLD	Red Label Delta
RLF	Red Label Foxtrot
SAR	Search and Rescue
T&G	Touch-and-Go
U.S. or US	United States
USEPA	U.S. Environmental Protection Agency
USAF	United States Air Force
VFR	Visual Flight Rules

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1 Introduction and Executive Summary

The United States Department of the Navy (the Navy) is preparing an Environmental Impact Statement (EIS) for the addition of EA-18G "Growler" aircraft at Naval Air Station (NAS) Whidbey Island, Washington. Additional aircraft at the NAS would mean additional EA-18G Growler flight and run-up operations there as well as at the NAS's Outlying Landing Field (OLF) Coupeville (aka "the OLF"). The two airfields combined are referred to herein as the "NAS Whidbey Island complex." Figure 1-1 shows the location of the complex. Growler usage of Special Use Airspace is not within the scope of this study.

The purpose of this study is to present the noise exposure associated with the additional EA-18G aircraft operations in the vicinity of the complex. The primary noise metric for quantifying noise exposure is the Day-Night Average Sound Level (DNL), presented in A-weighted decibels (dB), and is based on Annual Average Daily (AAD) aircraft events. Annual flight operations and runway utilization were derived from a separate Naval Aviation Simulation Model (NASMOD) study. All other modeling parameters, such as (but not limited to) flight tracks and profiles, were provided by Navy personnel.

Noise exposure was computed with the Department of Defense (DoD) NOISEMAP suite of computer programs, the core of which is called "NMAP." The noise study was conducted using the most current official version, Version 7.3, of NMAP, leveraging its ability to account for the effect of ground elevation and impedance on the propagation of sound. Noise exposure is primarily presented in terms of estimated off-station population affected in 5 dB bands of DNL, starting at 65 dB. DNL is also computed for 48 off-station Points of Interest (POIs) in the complex's region, representing residential areas, schools, and parks/recreational areas. Consistent with DoD guidelines, the DNL analysis is supplemented by the following analyses:

- risk of hearing loss
- nighttime probability of awakening (PA)
- residential daytime indoor speech interference
- classroom learning interference, and
- recreational daytime and nighttime speech interference

The study examines 34 operational scenarios consisting of 17 scenarios for each of two Field Carrier Landing Practice (FCLP) tempos for the EA-18G, referred to as the "average year" and the "high-tempo FCLP year." The noise study focuses on the average year set, but it also provides results for the high-tempo FCLP year. Each set of scenarios consists of a baseline scenario, a No Action Alternative, and three (action) alternatives, numbered 1 through 3. Each numbered alternative has the same five FCLP distribution scenarios: A, B, C, D, and E. Scenario A places 20 percent of the FCLP operations at Ault Field and 80 percent at the OLF. Scenario B distributes the FCLP operations equally at both fields. Scenario C is the inverse of Scenario A, with 80 percent of the FCLP operations at Ault Field and 20 percent at the OLF. Scenario D places 30 percent of the FCLP operations at Ault Field and 70 percent at the OLF, while Scenario E places 70 percent of the FCLP operations at Ault Field and 30 percent at the OLF.

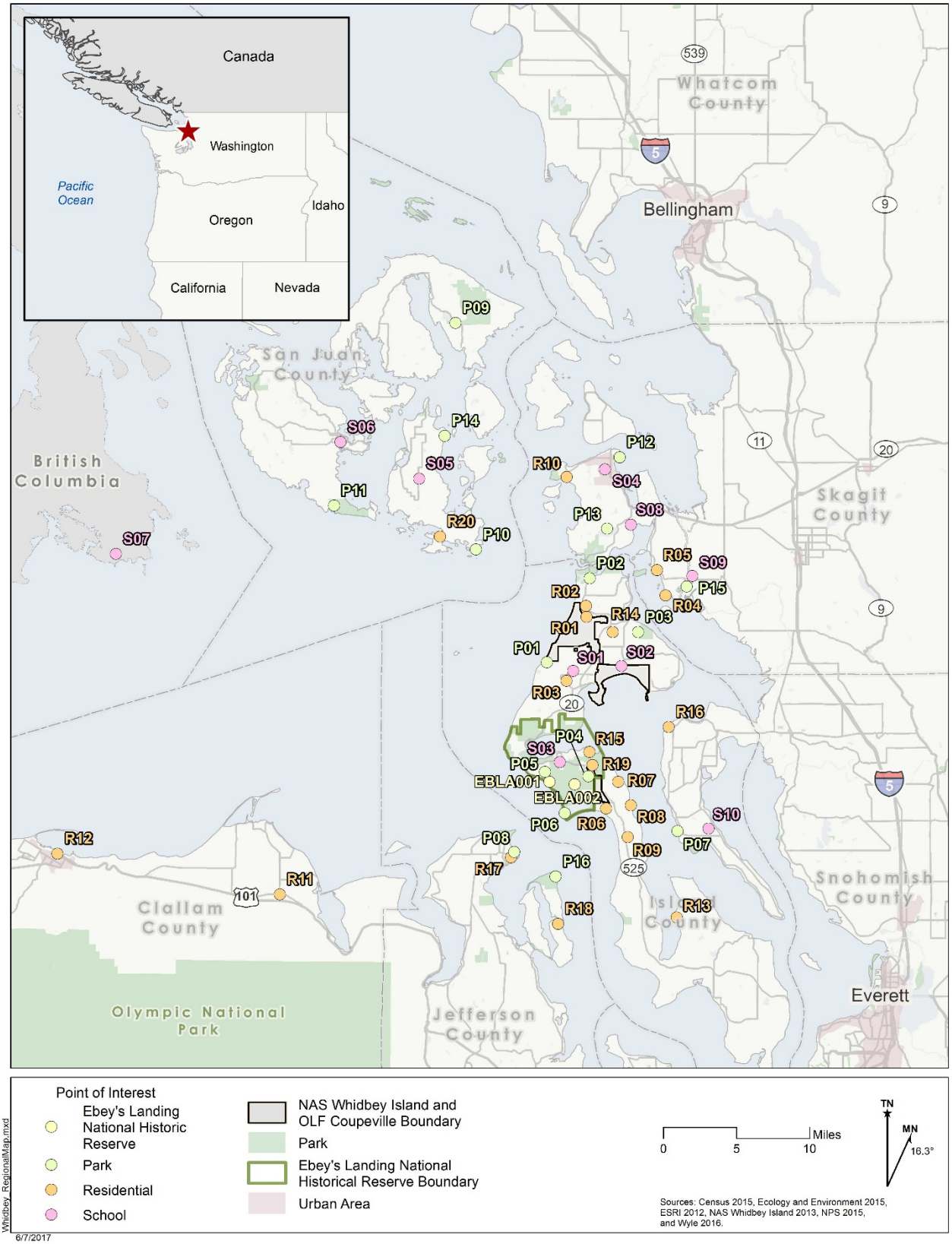


Figure 1-1 Regional Setting of the NAS Whidbey Island Complex and Points of Interest

Table 1-1 summarizes the results from each of the above-listed analyses for all of the average year action scenarios compared to the baseline scenario, describing:

1. Change in overall population exposed to at least 65 dB DNL (in percent),
2. Change in DNL at the POI,
3. Number of POIs exposed to 65 dB DNL in an alternative but exposed to less than 65 dB in the baseline scenario,
4. Change in risk of hearing loss, in terms of the population associated with a Noise Induced Permanent Threshold Shift (NIPTS) of at least 5 dB (in percent).
5. Change in PA with windows open at applicable POIs,
6. Change in daytime indoor speech interference (in events per hour) with windows open at applicable POIs,
7. Change in classroom learning interference (in events per hour) with windows open at applicable POIs, and
8. Change in recreational speech interference (in events per hour) at applicable POIs for both daytime and nighttime.

In terms of any of these metrics, the No Action Alternative would have the least amount of increase but would not likely serve the Navy's needs. The following paragraphs address the numbered alternatives only.

In terms of increases in affected population (item Number 1 above), at 12 to 13 percent, the A series of scenarios would have the least percentage increase. The C and E series of scenarios would have 15 to 17 percent increases in affected population, whereas the B and D series would have 15 to 16 percent increases in affected population.

In terms of change in DNL at the POIs (item Number 2 above), most alternatives and their scenarios would cause 1 to 3 dB increases in DNL at most POIs, but the A, B, and D series of scenarios would cause the highest increases in DNL at a handful of POIs.

From a newly affected perspective (item Number 3 above) among all 48 POIs, all alternatives would have two newly affected POI locations.

In terms of an Average NIPTS of at least 5 dB (item Number 4 above), the affected population would increase the most under the A series of scenarios while only increasing 42 to 53 percent under the B, C, D, and E series of scenarios.

From a change in PA perspective (item Number 5 above) among 30 residential-type POIs, all scenarios would cause increases of up to 20 percent at approximately two-thirds of POIs. An A series of scenarios would cause the greatest increase at a single POI, although the majority of increases under Scenario A would not exceed 10 percent. The C series of scenarios would cause the smallest increase, and 10 to 12 POIs would not change compared to the No Action Alternative.

Table 1-1 Summary of Noise Exposure Results for the Average Year

			Alternative 1					*Alternative 2*					*Alternative 3*				
			A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Population Exposed to ≥65 dB DNL, Both Airfields	Population		12,576	12,989	13,021	12,935	13,050	12,487	12,876	12,814	12,817	12,889	12,483	12,880	12,824	12,817	12,884
	Change from No Action (10,344)		+1405	+1818	+1850	+1764	+1879	+1316	+1705	+1643	+1646	+1718	+1312	+1709	+1653	+1646	+1713
			13%	16%	17%	16%	17%	12%	15%	15%	15%	15%	12%	15%	15%	15%	15%
DNL at POI (Change from No Action)	Decrease of	5dB or more	-	-	2	-	-	-	-	2	-	-	-	-	2	-	-
		3-4dB	-	-	1	-	2	-	-	1	-	2	-	-	1	-	2
		1-2dB	-	2	4	-	1	-	2	4	-	2	-	2	4	-	1
	No Change		17	17	16	16	19	17	18	16	16	19	17	18	16	15	19
	Increase of	1dB	14	12	7	15	7	14	14	10	14	8	14	14	10	15	9
		2-3dB	8	12	15	9	15	8	10	12	9	14	8	10	12	9	13
		4-5dB	4	1	2	3	1	4	1	2	3	1	4	1	2	3	1
		6-10dB	3	3	1	3	2	3	3	1	3	3	3	3	1	3	3
		11-15dB	2	1	-	2	1	2	1	-	2	-	2	1	-	2	-
		>15dB	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Newly ≥65 dB DNL		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Population of Average NIPTS ≥5 dB	Population		70	26	29	30	28	55	26	29	30	28	54	26	29	30	28
	Change from No Action (38)		+59	+15	+18	+19	+17	+44	+15	+18	+19	+17	+43	+15	+18	+19	+17
			164%	42%	50%	53%	47%	122%	42%	50%	53%	47%	119%	42%	50%	53%	47%
Annual Avg Nightly PA at Residential POI (Change from No Action in %PA)	Decrease of	1-10%	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-
	No Change		7	8	10	9	9	8	7	12	8	10	8	8	10	8	9
	Increase of	1-10%	17	17	14	15	18	17	19	14	19	17	17	18	16	18	18
		11-20%	4	5	5	3	3	3	4	3	2	3	3	4	3	2	3
		21-30%	1	-	-	2	-	2	-	-	1	-	1	-	-	2	-
		31-40%	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-
		41-50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		51-60%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		61% or more	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1-1 Summary of Noise Exposure Results for the Average Year

			Alternative 1					*Alternative 2*					*Alternative 3*				
			A	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***	***A***	***B***	***C***	***D***	***E***
Daytime Indoor Speech Interference at Residential POI (Change from No Action)	Decrease of	1-2 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	No Change		19	16	21	16	19	19	16	21	16	19	18	16	21	16	19
	Increase of	1-2 events/hr	11	14	9	14	11	11	14	9	14	11	12	14	9	14	11
		3-4 events/hr															
Classroom Learning Interference at School POI (Change from No Action)	Decrease of	1-2 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	No Change		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	Increase of	1-2 events/hr	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
		3-4 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5-6 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Recreational Speech Interference at Outdoor/Park POI (Change from No Action)	Decrease of	1 events/hr	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-
	No Change		13	15	20	11	16	11	14	21	10	15	10	13	20	10	16
	Increase of	1-2 events/hr	35	33	27	37	32	37	34	26	38	33	38	35	27	38	32
		3-4 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5-6 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		4 events/hr	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

From a change in indoor speech interference perspective (item Number 6 above) among 30 residential-type POIs, the B and D series of scenarios would have the greatest number of POIs affected, with 14 experiencing increases of one or two events per hour on average. The C series of scenarios would have the least number of POIs affected, with only nine resulting in an increase of one or two events per hour on average; the remaining POIs would not experience a change in number of events per hour.

In terms of classroom learning interference (item Number 7 above) among nine school-type POIs, the results would be similar across all scenarios. No POI would experience increases greater than 1 or 2 events per hour on average, compared to the No Action Alternative.

Finally, in terms of recreational speech interference (item Number 8 above) among 48 park-type POIs, the A and D series of scenarios would contain the greatest number of POIs (35 to 38), with increases of 1 to 2 events per hour on average. The C series of scenarios would have the most POIs with no change in events per hour (20 to 21) on average and one location with a decrease of one event per hour.

Section 2 of this document describes the methodology for the noise study, including how the NASMOD study was utilized and all of the pertinent noise metrics. Section 3 introduces the locale and aviation users of the complex. Sections 4 and 5 address the baseline scenario and the No Action Alternative, respectively. Sections 6 through 8 address Alternatives 1 through 3. Section 9 discusses the effect of a considered “Hush House.” The References section contains the bibliographical information for the citations and sources cited in the text. Appendix A1 provides a discussion of noise and its effects, while Appendices 2 through 5 provide detailed modeling input data. Appendix A6 lists the single-event data for each POI for each scenario, and Appendix A7 provides the modeling output of the high-tempo FCLP year scenarios.

2 Study Methodology

This section describes the data collection procedures and provides an overview of the noise analysis methodology, noise metrics, and computerized noise models.

2.1 Data Collection and Validation

The Navy conducted a NASMOD study to determine the airfield capacity for each alternative (ATAC Corporation, 2015). The NASMOD study examined airfield operations[1] at NAS Whidbey Island and OLF Coupeville for sets of 3-year periods. The first set was 2014 through 2016 for baseline scenarios, and the second set was 2021 through 2023 for alternative scenarios. For each set of 3-year periods, NASMOD further examined two operating tempos, one called "maximum year" and one called "average year." For the purposes of the EIS, the maximum year is herein after referred to as the "high-tempo FCLP year" and was defined by the NASMOD study as the calendar year (of the three years studied in each set) with the most FCLP operations. The average year was defined as the mean of total operations for the NAS Whidbey Island complex (Ault Field plus OLF Coupeville) in each 3-year set and is the primary focus of the EIS and this noise study. Chapters 4 through 8 address the noise results for the average year scenarios, while the noise results for the high-tempo FCLP year scenarios are contained in Appendix A2.

Table 2-1 lists the baseline and alternative scenarios, for either the high-tempo FCLP year or average year, in terms of number of squadrons and aircraft per squadron. Relative to baseline, the No Action Alternative removes the EP-3 and P-3 Orion aircraft. Relative to the No Action Alternative, the numbered alternatives would have the same number of Carrier Air Wing (CVW), Fleet Replacement Squadron (FRS), and Reserve (RES) squadrons at nine, one, and one, respectively, but the CVW would contain between five and eight aircraft per squadron, and the FRS would contain between 17 and 26 aircraft. The RES would always be comprised of five aircraft. Relative to the No Action Alternative, the numbered alternatives would contain between three and five Expeditionary (EXP) squadrons, each containing five aircraft per squadron except for Alternative 3, which would contain eight aircraft per squadron. P-8 Poseidon squadrons would remain at six aircraft for any of the alternatives. The H-60 Seahawk helicopter Search and Rescue (SAR) squadron would remain for any of the alternatives.

As shown in Table 2-1, each numbered alternative has five scenarios involving the distribution of total FCLP operations between Ault Field and OLF Coupeville[2]: A, B, C, D, and E. Scenario A would put 80 percent of the FCLP operations at Ault Field and 20 percent at the OLF. Scenario B would put half of the FCLP operations at Ault Field and half at the OLF. Scenario C is the opposite of A, as it would put 20 percent of the FCLP operations at Ault Field and 80 percent at the OLF. Scenario D places 30 percent of the FCLP operations at Ault Field and 70 percent at the OLF, while Scenario E is the opposite of D, with 70 percent of the FCLP operations at Ault Field and 30 percent at the OLF.

[1] A flight operation is defined as a takeoff or landing of one aircraft, with patterns counted as two operations per circuit. The counts in this report do not include transitions through the airspace above or near NAS Whidbey Island.

[2] For Ault Field, only FCLP operations are involved in the distribution calculation. For the OLF, FCLP operations and interfacility arrivals/departures are involved in the distribution calculation; interfacility operations are associated with the first/last legs of each FCLP pattern.

Table 2-1 Numbers of Squadrons and Primary Assigned Aircraft for each Modeled Condition

Aircraft Type	Type of Squadron	Baseline	Alternative												
			No Action	1					2					3				
				A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Number of Squadrons Based at Ault Field																		
EA-18G	CVW	9 [(1)]																
	FRS	1																
	RES	1																
	EXP	3	3	3					5					3				
EP-3	All	1	0															
P-3	All	4	0															
P-8	Fleet	0	6															
H-60	SAR	1	1															
Number of Primary Assigned Aircraft (Growler Only) Per Squadron																		
EA-18G	CVW	5	5	8					7					7				
	FRS	17	17	25					25					26				
	RES	5																
	EXP	5												8				

Source: ATAC 2015.

Notes:
[1] one less squadron would potentially utilize the OLF.

Key:
CVW = Carrier Air Wing
FRS = Fleet Replacement Squadron
RES = Reserve
EXP = Expeditionary

The NASMOD study operations data output was used as input to this noise study. The output of the NASMOD study consisted of Microsoft Excel workbooks containing modeled operations for each alternative and scenario. However, the NASMOD study was created using different groupings and designations of flight paths and operation types than those used in the noise modeling. Because of this, the operations data from the NASMOD study could not be directly imported into the model. Translation of the NASMOD operations data over to noise-modeled flight track and profile types was accomplished with the "RTE_ID_ACT_NAME" field from the NASMOD operations workbooks. This field contained the associated airfield, runway, operation type, and number of operations for a single traversal of each flight path from the NASMOD. Each unique route description from the NASMOD was identified and translated into equivalent modeled flight track and profile types through correspondence with the authors of the NASMOD study. Following the development of that translation key, a Microsoft Excel-based process was created to convert the NASMOD operations data to the format required for input into the noise model. These data were also used to derive runway utilization for each aircraft and operation type. The runway utilization was averaged across the scenarios to isolate the effects of the FCLP field assignments. Since the NASMOD study only included Scenarios A, B, and C, the FCLP operations splits had to be scaled for Scenarios D and E. Scenario D (30 percent FCLP at Ault Field) was calculated by scaling FCLP and interfacility operation counts from Scenario A (originally 20 percent FCLP at Ault Field). The same scaling

was done for Scenario E (70 percent FCLP at Ault Field) utilizing Scenario C (originally 80 percent FCLP at Ault Field).

Although NASMOD output can provide flight operations and runway utilization, it cannot provide other noise modeling information such as flight tracks, track utilization, and flight profiles. During the week of October 26, 2014, Wyle conducted a site visit at NAS Whidbey Island to gather and confirm this information. Following the site visit, data sources and operational assumptions were validated by the Navy (Gaber, 2014; Fahey, 2014; Gaber, 2015).

2.2 Noise Metrics and Modeling

2.2.1 Noise Metrics

The DoD and the Federal Interagency Committee on Noise (FICON)[3] use three types of metrics to describe noise exposure:

1. A measure of the highest sound level occurring during an individual aircraft overflight (single event);
2. A combination of the maximum level of that single event with its duration; and
3. A description of the noise environment based on the cumulative flight and engine maintenance activity.

The DoD and the other FICON members primarily use Maximum Sound Level (L_{max}), Sound Exposure Level (SEL), and DNL, respectively, for the aforementioned three types of metrics.

In addition to the metrics listed above, supplemental metrics are also used to further describe noise exposure for representative POIs per the Defense Noise Working Group (DNWG) guidelines (DoD, 2009a): Number of Events at or above a Specified Threshold (NA) and Equivalent Sound Level (L_{eq}). The NA metric provides the total number of modeled noise events greater than or equal to the selected noise level threshold during a specified period of time. The period of time for NA or L_{eq} can be an average 24-hour day, daytime, nighttime, school day, or any other time period appropriate to the nature and application of the analysis. For this study, the metric of the NA threshold is expressed in L_{max}. Sections 2.3.3 through 2.3.8 explain how these metrics are used or applied for noise assessments.

The metrics in this study are presented in terms of A-weighted decibels, which approximate the response and sensitivity of the human ear. For brevity, decibels are abbreviated as “dB.”

See Appendix A1 for details and definitions of these metrics.

2.2.2 Noise Model

Analyses of aircraft noise exposure and compatible land uses around DoD airfield-like facilities are normally accomplished using a suite of computer-based programs, collectively called NOISEMAP (Czech and Plotkin, 1998; Wasmer and Maunsell, 2006a; Page et al., 2008; Wasmer and Maunsell, 2006b). NOISEMAP is the model for airbases and is most appropriate when the flight tracks are well defined, such as those near an airfield. NOISEMAP typically requires the entry of runway coordinates, airfield information, flight tracks, flight profiles along each flight track for each aircraft, numbers of daily flight operations, run-up coordinates, run-up profiles, and run-up operations. Flight and run-up profiles

[3] DoD is a member of FICON.

include the number of DNL daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) events.

The NOISEMAP suite of programs described below is most accurate and useful for comparing "before-and-after" noise levels that would result from alternative scenarios when calculations are made in a consistent manner. The program allows noise exposure prediction of such proposed actions without actual implementation and/or noise monitoring of those actions.

Table 2-2 lists the parameters used in the NOISEMAP process for this study. The core program of the NOISEMAP suite is called “NMAP.” This study utilized the most recent official version, Version 7.3, of NMAP for all noise computations.

The NOISEMAP process results in a “grid” file containing noise levels at different points of a user-specified rectangular area. As listed in Table 2-2, the spacing of the grid points for this study was 250 feet (ft). From the grid of points, lines of equal DNL (contours) of 60 dB through 95 dB (if applicable), in 5 dB increments, were plotted with the suite’s NMPlot program. NOISEMAP can also compute DNL and other noise metrics for specific POIs. See Section 2.3.4 for further discussion of POIs.

Table 2-2 Noise Modeling Parameters

Software	***Analysis***	***Version***
NMAP (Noisemap)	Fixed wing aircraft	7.3
Parameter	***Description***	
Receiver Grid Spacing	250 feet in x and y	
Metric	DNL (dBA)	
Basis	Maximum Year Daily Operations and Average Year Daily Operations	
Topography		
Elevation Data Source	1/3 arc-second NED	
Elevation and Impedance Grid spacing	250 feet in x and y	
Flow Resistivity of Water (hard)	100,000 kPa-s/m^2	
Flow Resistivity of Ground (soft)	200 kPa-s/m^2	
Modeled Weather (ave 1958-2007, April)		
Temperature	55 °F	
Relative Humidity	74%	
Barometric Pressure	29.94 in Hg	

2.3 Impact and Geospatial Analysis

2.3.1 Topographical Data

The NOISEMAP suite of programs includes the ability to account for atmospheric sound propagation effects over varying terrain, including hills and mountainous regions, as well as regions of varying acoustical impedance—for example, water around coastal regions. Even for flat terrain, the propagation algorithms are more robust than for excluding terrain. This feature is used in computing the noise levels presented in this analysis. By including terrain in the propagation calculations, the shielding effect of landforms can be included in the analysis. As noted in Table 2-2, elevation grid files with a grid-point spacing of 250 feet were created from the National Elevation Dataset one-third arc-second data (U.S. Geological Survey, 2017).

Acoustical impedance describes how sound is reflected or absorbed by the surface. Sound tends to travel farther over hard surfaces, such as pavement or water, than it does over soft surfaces, such as plowed earth or vegetation. This tendency was used for computing the noise levels presented in this analysis. As noted in Table 2-2, impedance grid files with a grid-point spacing of 250 feet were generated. "Soft" acoustical impedance (flow resistivity) of 200 kiloPascals-second per square meter (kPa-s/m^2) was applied to all modeled ground, and “hard” acoustical impedance (flow resistivity) of 100,000 kPa-s/m^2 was applied to all water bodies.

2.3.2 Exposure Calculation

Population counts of people residing within 5 dB bands of DNL from 55 dB to 95 dB were computed using 2010 U.S. Bureau of the Census block-level data. The population calculation assumes the census block’s population is evenly distributed across each census block.

A geometric proportion method was used to generate the exposure estimates. In other words, the total population affected by a minimum value of DNL, e.g., 65 dB and greater or 70 dB and greater, is assigned based on the percentage of area covered by that DNL or range of DNL. For example, if the 65 dB DNL contour slices through a census block such that 50 percent of the census block’s area is affected by 65 dB DNL or greater, then 50 percent of the block’s population is assigned to the 65 dB DNL’s population.

DNL population counts exclude the property of the NAS, the Seaplane Base, and the OLF.

2.3.3 Potential Hearing Loss

Potential Hearing Loss (PHL) applies to people living long term (40 or more years) outdoors in high-noise environments. The threshold for screening PHL is exposure to DNL greater than or equal to 80 dB (OSD, 2009). Per DoD guidelines (DoD, 2013) for populations exposed to at least 80 dB DNL, the population in 1-dB bands of 24-hour L_{eq} [$L_{eq(24)}$] are assigned to two categories of NIPTS. The first category is people with average hearing sensitivity--i.e., their hearing is within the 10^{th} through 90th percentiles. Their NIPTS is called “Average NIPTS.” The second category is people with the most sensitive of hearing--i.e., their hearing is within the 10th percentile. The NIPTS for this second category is called “10^{th} percentile NIPTS.” The U.S. Environmental Protection Agency’s (USEPA’s) Guidelines for Noise Impact Analysis quantifies hearing-loss risk in terms of NIPTS, a quantity that defines the permanent change in the ear’s hearing threshold level below which a sound cannot be heard.

The PHL is also computed per the 2013 bulletin (DoD, 2013) as the population average value of NIPTS. PHL and NIPTS are expressed in dB, apply to several frequencies, and apply only to daily outdoor exposure to noise over 40 years. The NIPTS reported herein ranges from less than 1 dB to 19.5 dB; however, as stated in the DoD guidelines, “changes in hearing level of less than 5 dB are generally not considered noticeable or significant. Furthermore, there is no known evidence that a NIPTS of 5 dB is perceptible or has any practical significance for the individual. Lastly, the variability in audiometric testing is generally assumed to be ±5 dB (USEPA, 1974).” (DoD 2013). Furthermore, the Growler EIS focuses only on change in NIPTS, or change in population exposed to various levels of NIPTS for the scenario of interest, compared to the No Action Alternative.

PHL was assessed for on- and off-station population. The off-station population was computed in a manner identical to the methodology explained in 2.3.2. The Navy provided the locations (buildings) of on-station housing and the numbers of personnel assigned to them. The on-station estimates were generated using the same geometric proportion method as the off-station counts. As with the census

blocks for the off-station counts, the on-station population is assumed to be uniformly distributed throughout each building depicted in Figure 2-1. The total population inside an $L_{eq(24h)}$ contour was assigned based on the portion of the building that partially or wholly falls within the $L_{eq(24h)}$ contour boundary. If a $L_{eq(24h)}$ contour contained a portion of a building, then only the geographically based proportion of that building's population within that contour was summed. If a building was contained completely by the $L_{eq(24h)}$ contour, then 100 percent of the building's population was included in the estimates.

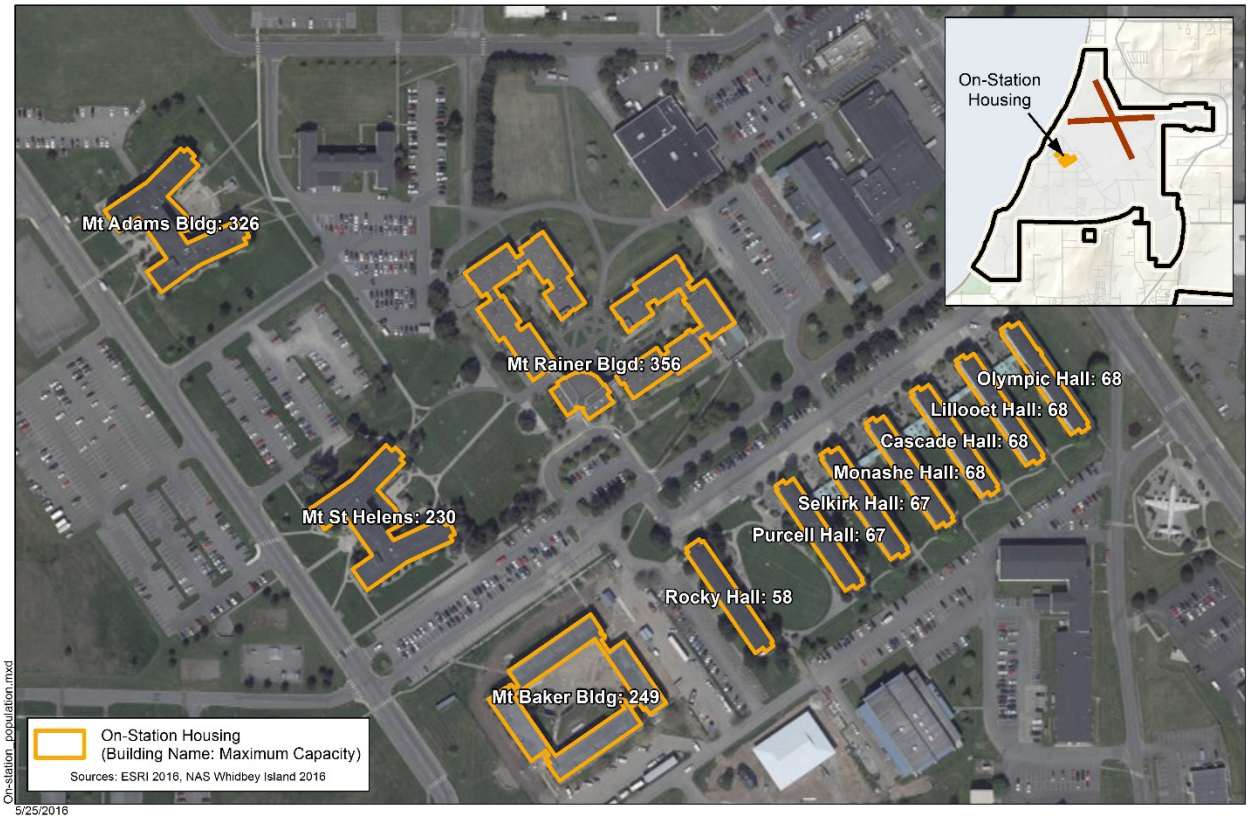


Figure 2-1 On-Station Buildings for PHL Counts

2.3.4 Points of Interest

Forty-eight POIs (including schools, residential areas, and public places) are included in the analysis; these POIs were provided by Ecology and Environment, Inc. (Ecology and Environment, 2017), are listed in Table 2-3, and are shown in Figure 1-1. Schools are representative of nearby residential areas because schools are typically located in residential areas.

Table 2-3 also presents the type of analyses performed for the POIs. For the purposes of the EIS's land use compatibility analysis, outdoor DNL was computed for every POI. Other types of analyses are described in the following sections but are summarized in Table 2-4. For outdoor DNL, it is noted for each alternative whether the POI is "newly impacted," meaning its DNL would be less than 65 dB in the No Action Alternative but greater than or equal to 65 dB for the numbered alternative.

Also computed was the SEL of the five modeled flight profiles whose SEL is greatest at each POI along with the corresponding L_{max}. These data are the subject of Appendix A6.

Table 2-3 Points of Interest and Applicable Analyses

					POI Analysis				
ID	*Type*	*Description*	*Short name (for tables)*	*Associated Airfield of Study*	*DNL*	*Daytime Indoor Speech Interference*	*Classroom Learning Interference*	*Residential Nighttime Sleep Disturbance*	*Rec'l Speech Interference (daytime and nighttime)*
P01	Park	Joseph Whidbey State Park – Parking near Swantown Road	Joseph Whidbey State Park	Ault Field	Yes	No	No	No	Yes
P02		Deception Pass State Park - Quarry Pond Loop Campground	Deception Pass State Park	Ault Field					
P03		Dugualla State Park	Dugualla State Park	Ault Field					
P04		Ebey's Landing National Historical Reserve - Baseball Diamond at Rhododendron Park	Ebey's Landing National Historical Reserve	OLF					
P05		Ebey's Landing National Historical Reserve - Ebey's Prairie	Ebey's Prairie	OLF					
P06		Fort Casey State Park - Admiralty Head Lighthouse	Fort Casey State Park	OLF					
P07		Cama Beach State Park - Beach Information Office	Cama Beach State Park	OLF					
P08		Port Townsend National Historic Landmark District	Port Townsend	OLF					
P09		Moran State Park	Moran State Park	n/a					
P10		San Juan Islands National Monument - Point Colville	San Juan Islands National Monument	n/a					
P11		San Juan Island National Historical Park - American Camp Visitors Center	San Juan Island Visitors Center	n/a					
P12		Cap Sante Park	Cap Sante Park	Ault					
P13		Lake Campbell	Lake Campbell	Ault					
P14		Spencer Spit State Park	Spencer Spit State Park	None					
P15		Pioneer Park	Pioneer Park	Ault					
P16		Marrowstone Island (Fort Flagler)	Marrowstone Island	OLF					
P17		EBLA001 - Ferry House	Ferry House	OLF					
P18		EBLA002 - Reuble Farm	Reuble Farm	OLF					

Table 2-3 Points of Interest and Applicable Analyses

					POI Analysis				
ID	*Type*	*Description*	*Short name (for tables)*	*Associated Airfield of Study*	*DNL*	*Daytime Indoor Speech Interference*	*Classroom Learning Interference*	*Residential Nighttime Sleep Disturbance*	*Rec'l Speech Interference (daytime and nighttime)*
R01	Residential	W Sullivan Rd	Sullivan Rd	Ault Field	Yes	Yes	No	Yes	Yes
R02		Intersection of Salal St. and N. Northgate Dr	Salal St. and N. Northgate Dr	Ault Field			No		
R03		Central Whidbey	Central Whidbey	Ault Field			Yes		
R04		Pull and Be Damned Point	Pull and Be Damned Pt	Ault Field			No		
R05		Snee-Oosh Point	Snee-Oosh Point	Ault Field			No		
R06		Intersection of Admirals Dr and Byrd Dr	Admirals Dr and Byrd Dr	OLF			No		
R07		Race Lagoon	Race Lagoon	OLF			No		
R08		Pratts Bluff	Pratts Bluff	OLF			No		
R09		Intersection of Cox Rd and Island Ridge Way	Cox Rd and Island Ridge Way	OLF			No		
R10		Skyline	Skyline	n/a			No		
R11		Sequim	Sequim	n/a			Yes		
R12		Port Angeles	Port Angeles	n/a			No		
R13		Beverly Beach, Freeland	Beverly Beach	OLF			No		
R14		E Sleeper Rd & Slumber Ln	E Sleeper Rd	Ault					
R15		Long Point Manor	Long Point Manor	OLF					
R16		Rocky Point Heights	Rocky Pt Heights	OLF					
R17		Port Townsend	Port Townsend	None					
R18		Marrowstone Island (Nordland)	Marrowstone Is	None					
R19		Island Transit Offices, Coupeville	Island Transit	OLF					
R20		South Lopez Island (Agate Beach)	South Lopez Is	n/a					

Table 2-3 Points of Interest and Applicable Analyses

					POI Analysis				
ID	*Type*	*Description*	*Short name (for tables)*	*Associated Airfield of Study*	*DNL*	*Daytime Indoor Speech Interference*	*Classroom Learning Interference*	*Residential Nighttime Sleep Disturbance*	*Rec'l Speech Interference (daytime and nighttime)*
S01	School	Oak Harbor High School	Oak Harbor High School	Ault Field	Yes[2]	No	Yes	Yes[1]	Yes
S02		Crescent Harbor Elementary School	Crescent Harbor Elementary	Ault Field					
S03		Coupeville Elementary School and Whidbey General Hospital [(2)]	Coupeville Elementary	OLF					
S04		Anacortes High School	Anacortes High School	Ault Field					
S05		Lopez Island School	Lopez Island School	n/a					
S06		Friday Harbor Elementary School	Friday Harbor Elementary	n/a					
S07		Sir James Douglas Elementary School	Sir James Douglas Elementary	n/a					
S08		Fidalgo Elementary School	Fidalgo Elementary	Ault					
S09		La Conner Elementary School	La Conner Elementary	Ault					
S10		Elger Bay Elementary School	Elger Bay Elementary	OLF					

[1] Schools typically represent residential areas

[2] The Whidbey General Hospital is located within approximately 1,000 feet of the Coupeville Elementary School. Therefore, the hospital was not modeled individually, but similar results for indoor speech interference would apply.

Table 2-4 Summary of POI Analysis Parameters

Analysis for POI	*Noise Metric*	*Events or Operations Quantifier*	*Analysis Threshold(s)*	*Comment*
DNL	DNL	AAD	n/a	n/a
Daytime Indoor Speech Interference	NA ALM	AAD	50 dB (indoors*)	DNL daytime only
Classroom Learning Interference	$L_{eq(8h)}$	Average School-Day	35-40 $L_{eq(8h)}$ (indoors*)	assumes school hours are 8am-4pm
	NA ALM		50 dB L_{max} (indoors*)	
Residential Nighttime Sleep Disturbance	PA	AAD	n/a	indoors*; DNL nighttime only
Recreational Daytime and nighttime Outdoor Speech Interference	NA ALM	AAD	50 dB L_{max}	DNL daytime and nighttime

* assume outdoor-to-indoor Noise Level Reductions of 15 dB for open windows and 25 dB for closed windows.

Key:
AAD = Annual Average Daily
ALM = Maximum Sound Level
dB = decibel
DNL = Day Night Average Sound Level
$L_{eq(8h)}$ = Equivalent sound level over 8 hours
NA = Number of Events at or above a Selected Threshold
n/a = not applicable
PA = Probability of Awakening

2.3.5 Residential Nighttime Sleep Disturbance

For sleep disturbance, the DoD guidelines recommend the methodology and standard developed by the American National Standards Institute (ANSI) and the Acoustical Society of America (ASA) in 2008 to compute the PA adults associated with outdoor noise events heard in homes; this PA is a function of indoor SEL (ANSI, 2008; DoD, 2009b, FICAN, 2018). However, it is noted that this standard has been withdrawn, but it will be used until further recommendations are made by FICAN. SEL only pertains to flight events, so PA is only applied to flight events and not run-up events. The ANSI methodology is valid from an indoor SEL of 50 dBA to a maximum SEL of 100 dBA, and the resulting PA range for a single aircraft flight event is approximately 1 percent to 7.5 percent, respectively. Estimated PA accounting for indoor SELs above 100 dBA is also presented in the study based on extrapolation of the ANSI methodology. Only DNL nighttime (10:00 p.m. to 7:00 a.m.) flight events and POIs representing residential areas were considered. All school POIs were included because of their typical proximity to residential areas. PA was computed with AAD events.

NMAP computes outdoor noise levels that must be converted to interior noise levels by accounting for the noise attenuation provided by the structure (e.g., house or school) and dependent upon whether windows are open or closed. The noise attenuation is known as Noise Level Reduction (NLR). Per FICON guidance, NLRs of 15 dB and 25 dB, respectively, were used to account for the effect of a typical home with windows open and windows closed (FICON, 1992).

2.3.6 Daytime Indoor Speech Interference

Speech interference analysis determines the number of times speech would be interrupted. For the analysis of the potential for indoor speech interference at residential POIs, the NA metric was computed for AAD flight and run-up events during the DNL daytime (7:00 a.m. to 10:00 p.m.) period. All school POIs were included because of their typical proximity to residential areas. The selected noise threshold for NA was indoor 50 dB L_{max} (DoD, 2009a; Sharp et al., 2009). L_{max} pertains to flight and run-up events.

Consistent with the sleep disturbance analysis, NLRs of 15 dB and 25 dB were used to account for the noise attenuation effect of a typical home with its windows open or closed, respectively (FICON, 1992). The outdoor thresholds, equivalent to the indoor threshold of 50 dB L_{max}, are 65 dB L_{max} and 75 dB L_{max} for windows open and closed, respectively.

2.3.7 Classroom Learning Interference

To analyze the potential for indoor classroom learning interference, two noise metrics were computed for the representative school: L_{eq} and NA 50 dB L_{max}. Per the DoD guidelines, an appropriate set of criteria for speech interference in schools is an indoor L_{eq} of 35 dB for continuous noise and 40 dB for intermittent noise, with a single-event indoor noise level of 50 dB L_{max}. The DNWG set a screening level of 60 dB for outdoor equivalent sound level over 8 hours ($L_{eq[8h]}$) (DoD, 2009a; 2012; Sharp et al., 2009).

The school day is assumed to last 8 hours, from 8:00 a.m. to 4:00 p.m. (Ecology and Environment, Inc., 2015) and thus would be entirely contained within the DNL daytime period. Only those flight events occurring during the 8-hour school day are included in the analysis, as extracted from the NASMOD data. Runway utilization was also extracted from the NASMOD data for the school day period. The number of school days was assumed to be 230 (Ecology and Environment, Inc., 2015). DNL daytime static run-up events were scaled by the ratio of school-day flight operations to total daily flight operations for each scenario, and these ratios varied from 0.562 to 0.786. The result is classroom learning interference computed on an average school-day basis. Refer to Appendices A2 and A3, which contain the school-day operations and runway utilizations, respectively.

Classroom learning interference was estimated for all of the school POIs and for two of the residential POIs (R03 and R11) that have nearby schools.

NLRs of 15 dB and 25 dB were used to account for the effect of a typical school building with windows open and windows closed, respectively. These NLRs likely result in potential overestimates of learning interference because schools typically provide greater NLR than homes. The outdoor thresholds, equivalent to the indoor threshold of 50 dB L_{max}, are 65 dB L_{max} and 75 dB L_{max}, respectively, for windows open and closed.

The number of AAD events whose L_{max} would be greater than or equal to 65 dB and 75 dB serve as the measure of potential classroom learning interference and are presented as NA65 L_{max} and NA75 L_{max} for windows open and closed, respectively, on a per-hour basis.

2.3.8 Recreational Daytime and Nighttime Speech Interference

In recreational areas, other indicators of noise effects are outdoor daytime speech interference and nighttime events. All POIs were analyzed for these types of indicators to account for activities that may occur outdoors at residences, schools, and parks. Consistent with the indoor speech interference methodology, outdoor speech interference is measured by the number of average daily daytime events per hour subject to L_{max} of at least 50 dB. Since people are assumed to be outdoors, there is no

adjustment for building attenuation. Thus, NMAP is used to compute the NA 50 dB L_{max} for AAD for the DNL daytime and nighttime hours.

3 NAS Whidbey Island Complex

The following three subsections discuss the region and vicinity of the NAS Whidbey Island complex, its aviation users, and its climatic conditions.

3.1 Regional and Local Settings

Figure 1-1 shows the regional context of NAS Whidbey Island and OLF Coupeville as they are located, approximately 50 miles north-northwest of Seattle, Washington. The boundaries of NAS Whidbey Island are depicted on the vicinity map in Figure 3-1. Ault Field borders the City of Oak Harbor to the south. OLF Coupeville, located nearly 10 miles south-southeast of Ault Field and 3 miles southeast of the Town of Coupeville, is used primarily for FCLP.

The layout and vicinity of Ault Field are depicted in Figure 3-1. The elevation is 47 feet above Mean Sea Level (MSL) (Navy, 2013). The magnetic declination, as of December 2015, is 16.3 degrees east (Federal Aviation Administration [FAA], 2016). Pertinent runway parameters are listed in Table 3-1. Ault Field has two intersecting runways, Runway 07/25 and Runway 14/32 (Navy, 2013).

Table 3-1 Runway Parameters

	Runway		
	Ault Field		*OLF*
Parameter	*07/25*	*14/32*	*14/32*
Length (ft)	8,000	8,000	5,400
Width (ft)	200	200	200
Elevation (ft)	47	47	199
Magnetic Heading (deg)	71/251	138/318	140/320
Overruns (ft)	1000/700	1000/1000	

Source: Airnav, 2016; FAA, 2016; Navy, 2013

The layout and vicinity of OLF Coupeville are also depicted in Figure 3-1. The field elevation is 199 feet above MSL. As listed in Table 3-1, the OLF has one concrete runway, Runway 14/32 (Navy, 2013).

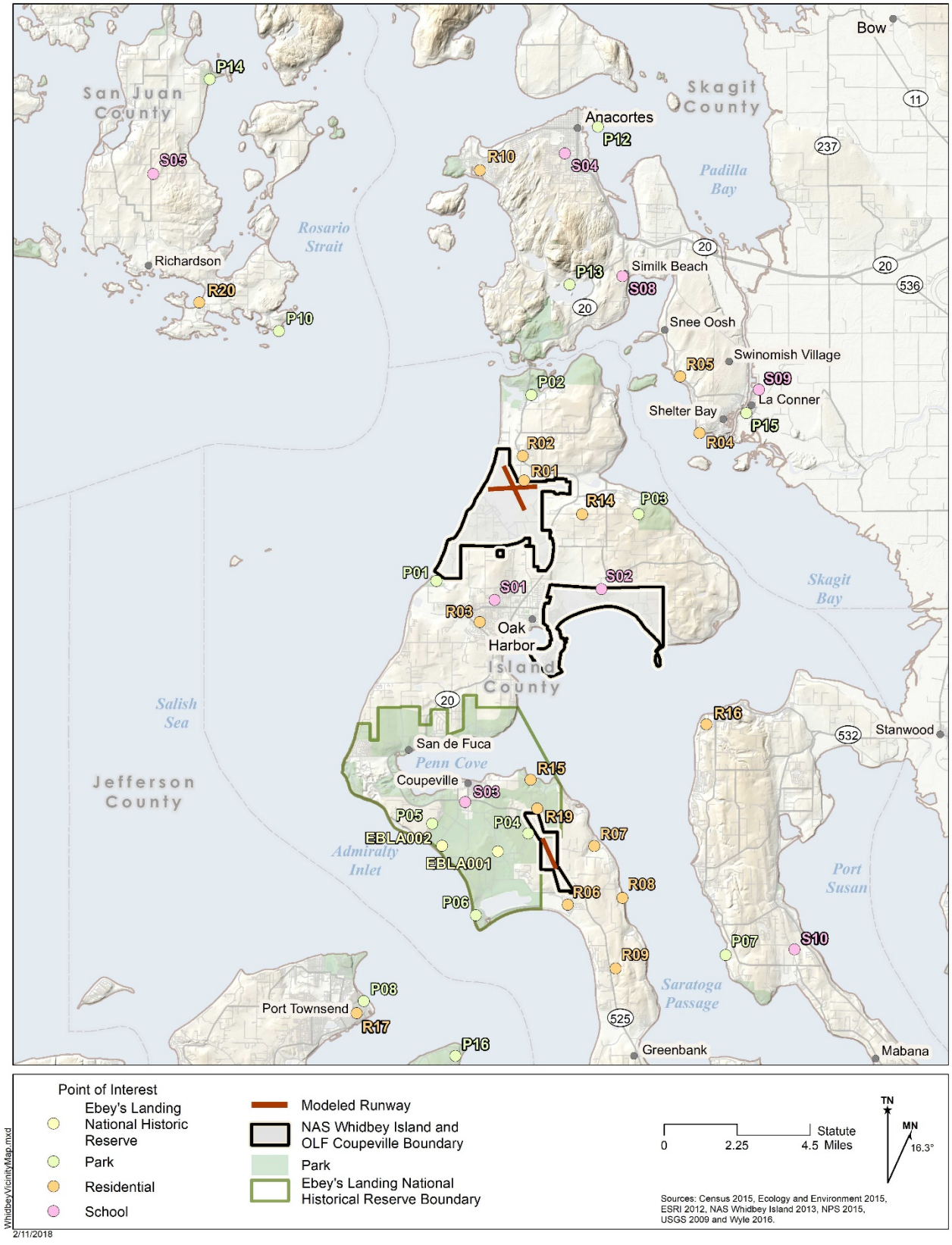


Figure 3-1 Vicinity of the NAS Whidbey Island Complex

3.2 Aviation Users

The U.S. Navy is, and would continue to be, the primary user of Ault Field, OLF Coupeville, and their facilities and runways. There are 19 active-duty squadrons, one reserve squadron, and several other tenants at the NAS Whidbey Island complex. The aircraft types currently operating at the complex are:

- the EA-18G Growler, an electronic warfare jet
- P-3C Orion, a four-engine turbo-prop aircraft for maritime surveillance, and the similar EP-3 Aries II, used for signal reconnaissance
- SH-60 Seahawk helicopter for SAR missions
- various transient aircraft types, identified in the NASMOD study as the C-40 Clipper and/or large jets for transport purposes, modeled as the B-737-700
- For the No Action Alternative and the numbered alternatives, the P-3C Orion aircraft would be replaced with the P-8 Poseidon aircraft, also modeled as the B-737-700.

EA-18G

P-3C Orion

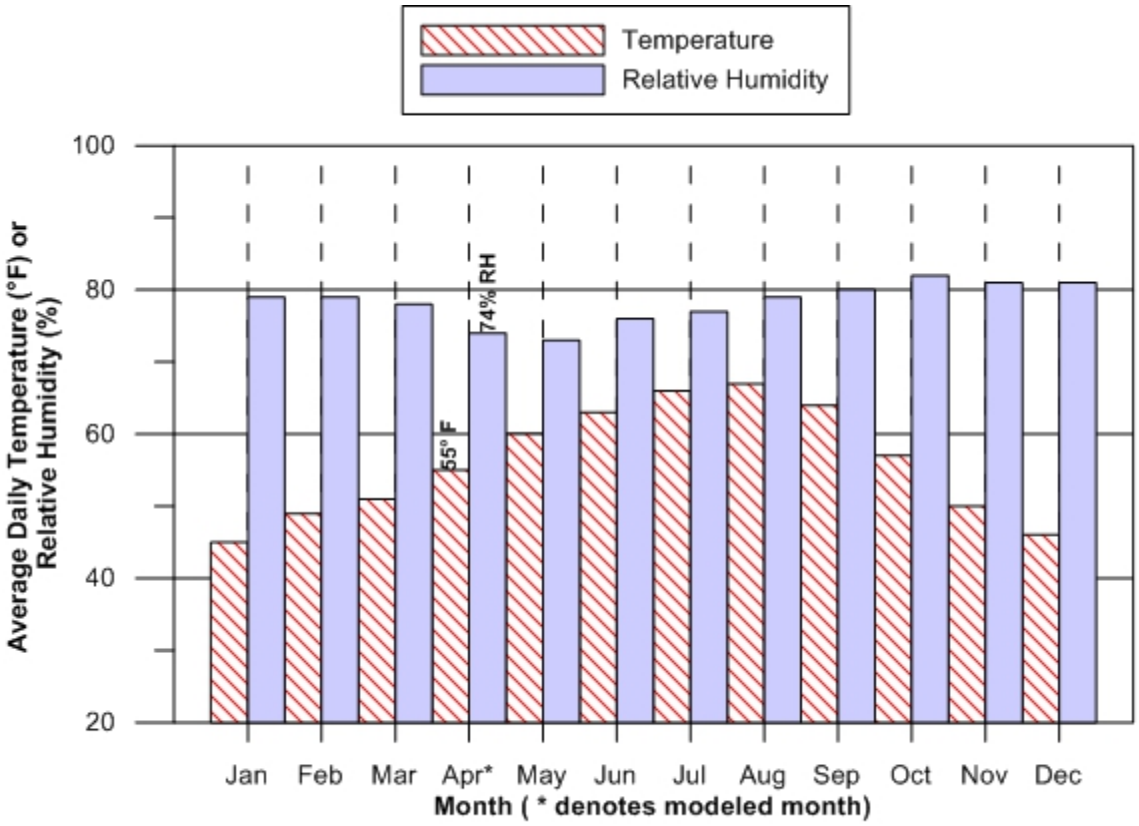
SH-60

C-40 Clipper

P-8 Poseidon

3.3 Climatic Data

Weather is an important factor in the propagation of noise, and the computer model requires input of the average daily temperatures in degrees Fahrenheit (F), percent relative humidity (RH), and station barometric pressure in inches of mercury (in Hg) for each month of a year. See Figure 3-2 for daily weather data for each month for the 50-year period from 1958 through 2007 (Baird, 2014). NOISEMAP's BaseOps program selects the month with the median sound absorption coefficient based on each month's average daily temperature, percent RH, and pressure. The weather conditions for the month of April, which had average daily conditions of 55 degrees F, 74 percent RH, and atmospheric pressure of 29.94 in Hg, were used for modeling.



Source: Baird 2014; data for 1958-2007

Figure 3-2 Average Daily Weather Data for NAS Whidbey Island and Modeled Conditions

4 Average Year Baseline Scenario

Section 4.1 details the flight operations. Section 4.2 presents the runway/flight track utilization, flight profiles, and derivation of AAD flight operations. Sections 4.3 and 4.4 contain the maintenance run-ups and resultant aircraft noise exposure.

4.1 Flight Operations

From the methodology described in Chapter 2, Tables 4-1 and 4-2 summarize and detail, respectively, the modeled flight operations for the average year baseline scenario. This scenario includes approximately 94,100 total annual flight operations for the complex. The EA-18G would dominate aircraft operations, with 79 percent of the complex's annual flight operations. Approximately two-thirds of the complex's annual FCLP operations would be conducted at Ault Field, while the remaining one-third would be conducted at the OLF. Consistent with the 2005 Environmental Assessment (EA), the OLF would have approximately 6,100 annual FCLP operations (Schmidt-Bremer, Jr. et al., 2004). As shown in Table 4-2, approximately 12 percent and 19 percent of the overall total flight operations and OLF FCLP operations, respectively, would be conducted during the DNL nighttime period. The numbers of annual nighttime FCLP operations at the OLF would be consistent with the 2005 EA (Schmidt-Bremer, Jr. et al., 2004).

The high-tempo FCLP year baseline scenario (Appendix A2) has 96,400 total annual flight operations for the complex, with the EA-18G having 79 percent of those annual flight operations. Approximately 70 percent of the complex's FCLP operations would be conducted at Ault Field. The OLF's FCLP operations would be consistent with the 2005 EA, as stated above.

Table 4-1 Summary of Annual Flight Operations for the Average Year Baseline Scenario

Airfield	*Aircraft Type or Category*	*Type of Flight Operation*		
		FCLP[2]	*Other[3]*	*Total*
Ault Field	EA-18G	15,500	52,500	68,000
	Other Based	-	17,300	17,300
	Transient	-	2,300	2,300
	Subtotal	15,500	72,100	87,600
OLF Coupeville[4]	EA-18G	6,100	-	6,100
	Other	-	400	400
	Subtotal	6,100	400	6,500
Total (both airfields)		**21,600**	**72,500**	**94,100**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.
2 Each closed pattern is counted as two operations.
3 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.
4 Excludes 900 interfacility Growler operations (FCLP related).

Table 4-2 Detailed Annual Flight Operations for the Average Year Baseline Scenario

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	4,834	254	5,088	1,732	54	1,786	2,876	-	105	2,980	310	7	317	142	-	32	174	84	42	48	174	-	-		-	-	
		FRS	6,172	409	6,581	2,372	340	2,712	2,626	346	677	3,650	183	36	219	167	-	25	192	98	55	39	192	-	-		-	-	
		RES	1,142	83	1,225	413	21	434	699	-	26	725	59	5	64	12	-	4	16	8	3	6	17	-	-		-	-	
		EXP	1,537	85	1,622	559	18	577	907	-	36	943	98	1	99	-	-	-	0	-	-	-	0	-	-		-	-	
	EP3	All	644	125	769	382	15	397	-	-	-	0	366	-	366									-	-		-	-	
	P3	All	1,516	95	1,611	1,207	134	1,341	-	-	-	-	261	9	270									-	-		-	-	
	P8	All	-	-	-	-	-	-	-	-	-	-	-	-	-									-	-		-	-	
	H60	SAR	384	-	384	384	-	384	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	396	115	511	372	103	475	-	-	-	-	24	10	34									-	-		-	-	
	JET_LRG	-	390	-	390	285	-	285	-	-	-	-	105	-	105									-	-		-	-	
Total			**17,015**	**1,166**	**18,181**	**7,706**	**685**	**8,391**	**7,108**	**346**	**843**	**8,297**	**1,406**	**68**	**1,474**	**321**	-	**61**	**382**	**190**	**100**	**93**	**383**	**90**	-	**90**	**90**	-	**90**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
																DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW														142	-	32	174	84	42	48	174						
		FRS														167	-	25	192	98	55	39	192						
		RES														12	-	4	16	8	3	6	17						
	H60	SAR																					-	90	-	-	90	-	90
Total																**321**	-	**61**	**382**	**190**	**100**	**93**	**383**	**90**	-	**90**	**90**	-	**90**

Table 4-2 Detailed Annual Flight Operations for the Average Year Baseline Scenario

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	3,742	2,138	1,691	7,571	2,165	326	390	2,881	1,637	64	1,701	2,647	1,161	3,808	20,169	2,506	3,806	26,481
		FRS	4,594	1,708	1,001	7,303	3,723	694	1,046	5,463	-	-	0	4,801	931	5,732	24,737	2,803	4,504	32,044
		RES	132	59	24	215	485	8	17	510	419	9	428	472	51	523	3,841	70	245	4,157
		EXP	-	-	-	0	563	-	29	593	511	18	529	557	27	584	4,732	-	214	4,946
	EP3	All					1,307	-	-	1,307	-	-		661	0	661	3,360	-	140	3,500
	P3	All					6,395	-	381	6,776	-	-		2,779	121	2,900	12,158	-	740	12,898
	P8	All					-	-	-	-	-	-		-	-	-	-	-	-	-
	H60	SAR					-	-	-	-	-	-		-	-	-	948	-	-	948
	C-40	-					-	-	-	-	-	-		-	-	-	792	-	228	1,020
	JET_LRG	-					333	-	-	333	-	-		167	-	167	1,280	-	-	1,280
Total			**8,468**	**3,905**	**2,716**	**15,089**	**14,972**	**1,028**	**1,863**	**17,863**	**2,567**	**91**	**2,658**	**12,084**	**2,291**	**14,375**	**72,017**	**5,379**	**9,877**	**87,274**
OLF	EA18	CVW	1,131	721	589	2,441											1,357	763	669	2,789
		FRS	1,310	976	399	2,685											1,575	1,031	463	3,069
		RES	111	46	72	229											131	49	82	262
	H60	SAR					180	-	-	180							360	-	-	360
Total			**2,552**	**1,743**	**1,060**	**5,355**	**180**	-	-	**180**							**3,423**	**1,843**	**1,214**	**6,480**
														Grand Totals (Ault+OLF)			**75,440**	**7,222**	**11,091**	**93,754**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:
CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

4.2 Other Modeling Parameters

The next step in the noise modeling process is assignment of flight operations to runways and flight tracks via utilization percentages for each aircraft type, operation type, and DNL time period. Appendix A3 contains tables of runway utilization percentages as extracted from the NASMOD study output. Flight tracks and their utilization were initially based on the 2012 noise study (Kester and Czech, 2012) in support of the 2012 EA (Navy, 2012) and adjusted with guidance from NAS Whidbey Island personnel, as mentioned in Section 2.1. Modeled flight tracks are depicted in Appendix A4.

Fixed-wing flight profiles consist of a combination of power settings, airspeeds, and altitudes along each modeled flight track. These data define the vertical profiles (altitude) and performance profile (power setting and airspeed) for each modeled aircraft. The representative profiles for each modeled aircraft type are contained in Appendix A5.

The next step in the noise modeling process is the computation of the AAD day and night events for each profile. This is accomplished by dividing the track operations by 365 and further dividing closed-pattern operations (e.g., touch-and-go, depart and re-entry FCLP, and Ground-Controlled Approach [GCA] Box) by two[4]. There would be approximately 171 and 10 AAD flight events for the average year baseline scenario for Ault Field and the OLF, respectively. For the high-tempo FCLP year baseline scenario, Ault Field and the OLF would have 174 and 10 AAD flight events, respectively.

4.3 Run-up Operations

Squadron and maintenance personnel conduct various types of tests on aircraft engines at one or more power settings for certain lengths of time. These tests are termed maintenance "run-ups." During these operations, engines remain in the airframe of the aircraft (i.e., an "in-frame" run-up) or are removed from the airframe (i.e., an "out-of-frame" run-up). Out-of-frame run-ups can only be conducted on apparatus designed to hold the engines, called "test stands."

Table 4-3 lists the modeled run-ups for the average year baseline scenario, and their locations are depicted in Figure 4-1. As mentioned in Section 2.1, the EA-18G run-up operation counts were updated in this report to reflect new information provided by NAS Whidbey Island personnel. Approximately 32 percent of the EA-18G run-ups would occur during the DNL nighttime period; however, 97 percent of run-ups conducted during this period would be low power.

Baseline EA-18G high-power run-ups would be conducted at two different high-power pads, which are shown as the green squares in Figure 4-1. EA-18G low-power run-ups would be conducted on the EA-18G ramp in the southwest portion of NAS Whidbey Island, with aircraft oriented approximately perpendicular to Runway 32.

[4] The closed-pattern operations are divided by two for noise modeling purposes only. Air Traffic Control counts closed patterns as two distinct operations: one departure and one arrival. In NOISEMAP, the departure and arrival are represented by one event because both operations are connected (i.e., on a single flight track).

Table 4-3 Modeled Run-Up Operations and Profiles for the Average Year and High-Tempo FCLP Year Baseline Scenarios

Modeled Maintenance Run-up Operations at NAS Whidbey Island for Baseline Max Year and Average Year Scenarios

						Percentage During		Power Setting			
Aircraft Type	*Engine Type*	*Run-up Type*	*Pad ID*	*Magnetic Heading (degrees)*	*Annual Events*	*Day (0700 - 2200)*	*Night (2200 - 0700)*	*Reported*	*Modeled*	*Duration of Each Event (Minutes)*	*No. of Engines Running (each event)*
EA-18G	F414-GE-400	Water Wash	Lo-Pwr1 Lo-Pwr2 Lo-Pwr3 (1)	135/315	82	45%	55%	Ground Idle	65% NC	10	1
		Low power	Lo-Pwr1 Lo-Pwr2 Lo-Pwr3 (1)	135/315	1230	45%	55%	Ground Idle	65% NC	30	1
					2460			Ground Idle	65% NC	30	2
		High Power	50% Hi-Pwr1 / 50% Hi-Pwr2	311 (Hi-Pwr1) / 127 (Hi-Pwr2)	656	90%	10%	Ground Idle	65% NC	25	2
								80%NC	80% NC	10	2
								Mil	96% NC	3	2
								AB	A/B	3	2
P-3C	T56-A-14	Lo-Pwr	Lo-Pwr4	126	1604	100%	0%	1000 ESHP	1000 ESHP	15	1
		Out-Of-Phase	Lo-Pwr4	126	130			250 ESHP	250 ESHP	30	4
								450 ESHP	450 ESHP	10	4
								1000 ESHP	1000 ESHP	10	4
		Prop Dynamic Balance	Lo-Pwr4	126	123			1500 ESHP	1500 ESHP	15	1
		High-Power	Red Label Delta (RLD)	315	154			1500 ESHP	1500 ESHP	15	2
								2750 ESHP	2750 ESHP	15	2
								4300 ESHP	4300 ESHP	10	2
			Red Label Foxtrot (RLF)	-18	154			1500 ESHP	1500 ESHP	15	2
								2750 ESHP	2750 ESHP	15	2
								4300 ESHP	4300 ESHP	10	2
		Prop Dynamic Balancing	Hi-Pwr1	315	123			1500 ESHP	1500 ESHP	15	1

Notes:

1 Run-up events split 50% Lo-Pwr1, 30% Lo-Pwr2, 20% Lo-Pwr3

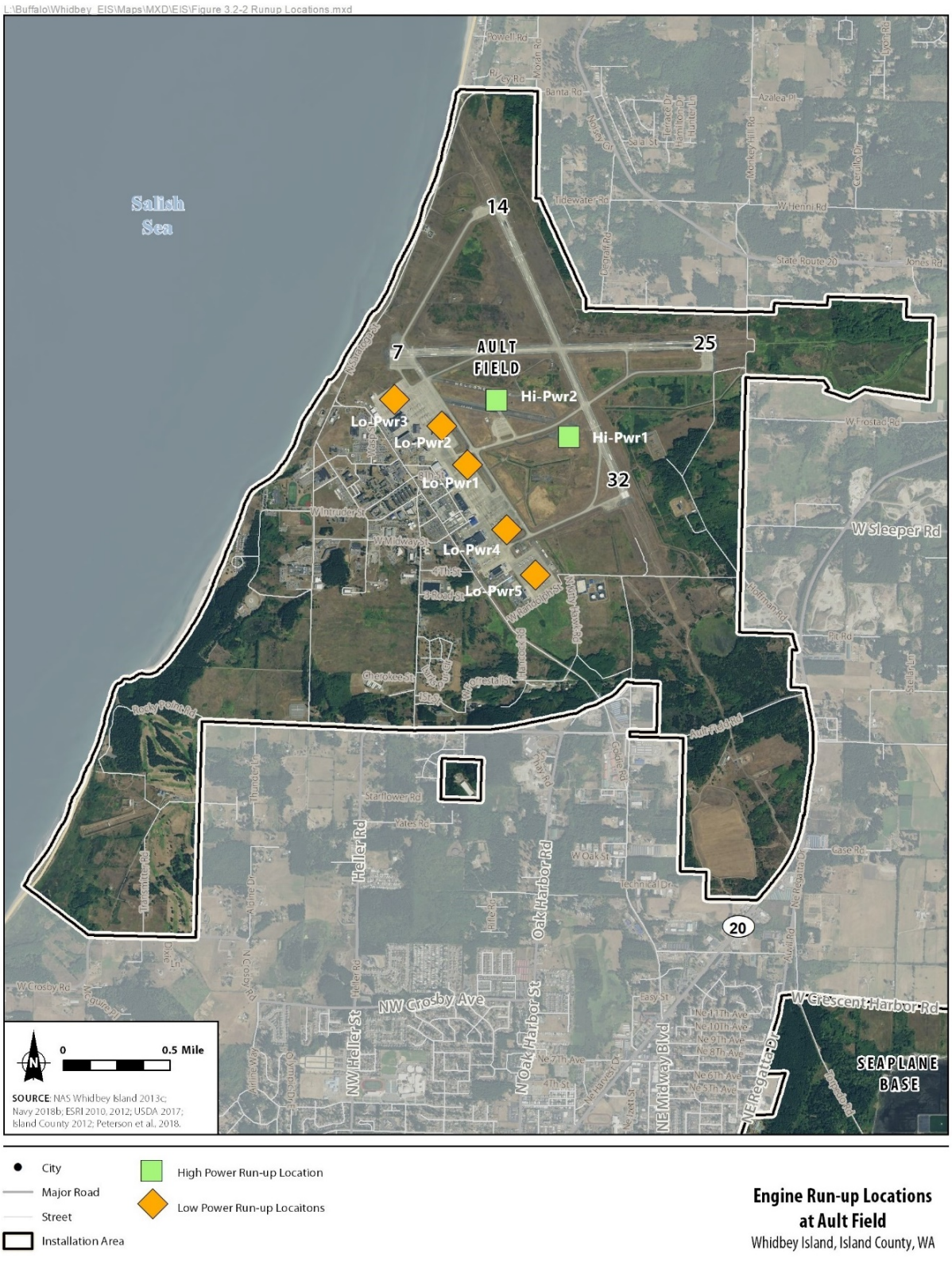


Figure 4-1 Modeled Run-Up Pads For Baseline Scenario

P-3C low-power run-ups would be conducted on the southwest ramp (south of the EA-18G ramp), while the high-power run-ups would be conducted on the active runway near the threshold at Red Label Foxtrot (RLF) and Red Label Delta (RLD), with the aircraft oriented along the runway heading.

For the high-tempo FCLP year baseline scenario, it was assumed the run-ups would not change compared to the average year scenario.

4.4 Aircraft Noise Exposure

Using the data described in Sections 4.1 through 4.3, NOISEMAP was used to calculate and plot the 60 dB through 90 dB DNL contours, in 5-dB increments, for AAD events for the average year baseline scenario. Figure 4-2 shows the resulting DNL contours.

The 65 dB contour surrounding Ault Field would extend approximately 7 to 11 miles from the runway endpoints. The locations of these lobes would be primarily attributable to the EA-18G on the approach portion of GCA patterns, where aircraft generally descend on a 3-degree glide slope through 3,000 feet AGL 10 miles from the runway. The 65 dB DNL contour would extend approximately 1 mile past the western shore of the mainland across Skagit Bay. The 80 dB DNL contour would extend approximately 2.5 miles to the east outside the station boundary, primarily due to EA-18G GCA and Visual Flight Rule (VFR) approaches descending from 1,800 feet AGL, and also due to the GCA patterns. The 90 dB contour would extend 1,300 feet to the east beyond the station boundary.

The DNL exposure at the OLF would be attributable to the FCLP operations. The 65 dB DNL contours would extend northward just short of the southern shore of Penn Cove and southward approximately 3 miles south of the OLF's runway. Appendix A7 shows the modeling output for the high-tempo FCLP year scenarios.

Table 4-4 presents the noise exposure in terms of estimated off-station population for each contour band. A total of 11,171 people are exposed to DNL of at least 65 dB among Ault Field and OLF Coupeville.

Under the high-tempo FCLP year baseline scenario (Appendix A7), the totals would increase by 6 percent at Ault Field, 4 percent at the OLF, and 6 percent overall compared to the average year baseline scenario.

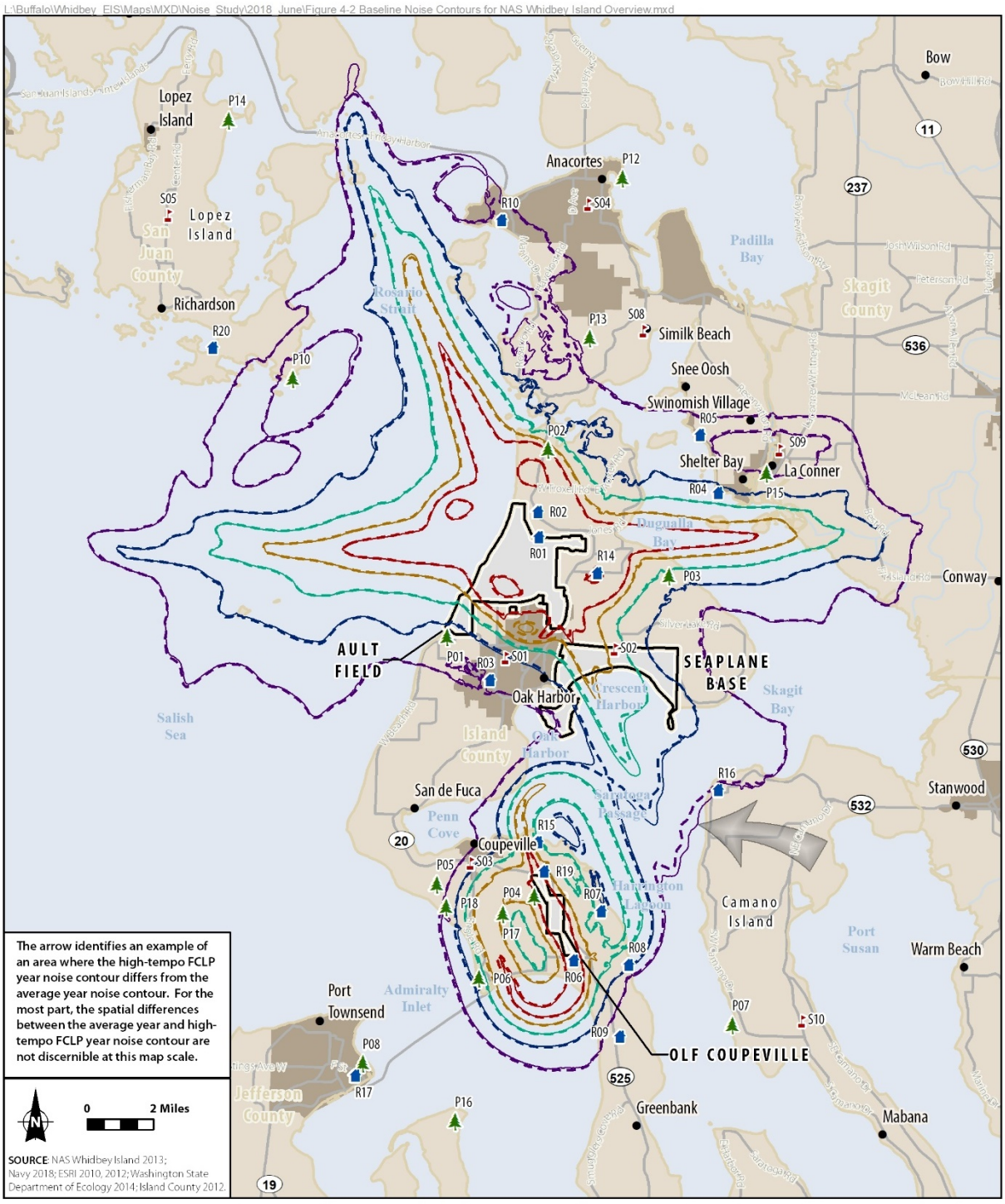


Figure 4-2
Baseline Environment for NAS Whidbey Island Overview
Whidbey Island, Island County, WA

Table 4-4 Estimated Acreage and Population within the DNL Contour Ranges[1] for the Average Year at the NAS Whidbey Island Complex (CY 21) for Baseline Scenario

	DNL Contour Ranges							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total[3]*	
DNL Contours	*Area (acres)*	*Pop[2]*	*Area (acres)*	*Pop[2]*	*Area (acres)*	*Pop[2]*	*Area (acres)*	*Pop[2]*
Ault Field	3,586	3,207	3,139	1,935	5,723	3,234	12,447	8,376
OLF Coupeville	3,735	817	3,222	782	811	577	7,768	2,176
Total[3]	**7,321**	**4,024**	**6,361**	**2,717**	**6,534**	**3,811**	**20,215**	**10,552**

Notes:

1 Acreage presented does not include areas over water or areas over the NAS Whidbey Island complex.

2 Population counts of people within the DNL contours were computed using 2010 census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contours (NAS Whidbey Island [Ault Field], the Seaplane Base, and OLF Coupeville). All population estimates for areas under the dB DNL contours utilized 2010 U.S. Census Bureau data. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). To simplify the analysis, this growth factor was also used for areas of Skagit County that fall under the 65+ dB DNL contours. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

3 Numbers have been rounded to ensure totals sum.

Key:
dB = decibel
DNL = day-night average sound level

4.4.1 Points of Interest

Table 4-5 shows the DNL for each POI. Under the average year baseline scenario, 11 POIs would experience DNL greater than or equal to 65 dB, five of these being residential. Four POIs would experience DNL greater than or equal to 75 dB, all of which are residential. Three of the residential POIs would be near Ault Field (R01, R02, and R14), and one (R06) would be near the OLF. No school POI would experience DNL greater than or equal to 65 dB, except Crescent Harbor Elementary, with a DNL of 68 dB. See Appendix A6 for lists of the five flight profiles with the greatest SEL at each POI.

Under the high-tempo FCLP year baseline scenario (Appendix A7), the statistics cited above would not change.

Table 4-5 Estimated Aircraft DNL at POIs for the Average Year Baseline Scenario

Point of Interest				
Type	***ID***	***Description***	***Related Field***	***DNL (dB)***
Park	P01	Joseph Whidbey State Park	Ault	57
	P02	Deception Pass State Park	Ault	73
	P03	Dugualla State Park	Ault	65
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	OLF	74
	P05	Ebey's Landing State Park	OLF	52
	P06	Fort Casey State Park	OLF	62
	P07	Cama Beach State Park	OLF	<45
	P08	Port Townsend	None	<45
	P09	Moran State Park	None	<45
	P10	San Juan Islands National Monument	None	54
	P11	San Juan Island Visitors Center	None	<45
	P12	Cap Sante Park	Ault	<45
	P13	Lake Campbell	Ault	54
	P14	Spencer Spit State Park	None	<45
	P15	Pioneer Park	Ault	55
	P16	Marrowstone Island (Fort Flagler)	OLF	<45
	EBLA001	Ferry House	OLF	69
	EBLA002	Reuble Farm	OLF	56
Residential	R01	Sullivan Rd	Ault	90
	R02	Salal St. and N. Northgate Dr	Ault	78
	R03	Central Whidbey	Ault	57
	R04	Pull and Be Damned Point	Ault	62
	R05	Snee-Oosh Point	Ault	56
	R06	Admirals Dr and Byrd Dr	OLF	79
	R07	Race Lagoon	OLF	61
	R08	Pratts Bluff	OLF	62
	R09	Cox Rd and Island Ridge Way	OLF	51
	R10	Skyline	None	56
	R11	Sequim	None	<45
	R12	Port Angeles	None	<45
	R13	Beverly Beach, Freeland	OLF	<45
	R14	E Sleeper Rd & Slumber Ln	Ault	75
	R15	Long Point Manor	OLF	65
	R16	Rocky Point Heights	OLF	54
	R17	Port Townsend	None	<45
	R18	Marrowstone Island (Nordland)	None	<45
	R19	Island Transit Offices, Coupeville	OLF	73
	R20	South Lopez Island (Agate Beach)	None	48

Table 4-5 Estimated Aircraft DNL at POIs for the Average Year Baseline Scenario

Point of Interest				
Type	*ID*	*Description*	*Related Field*	*DNL (dB)*
School	S01	Oak Harbor High School	Ault	59
	S02	Crescent Harbor Elementary School	Ault	68
	S03	Coupeville Elementary School	OLF	58
	S04	Anacortes High School	Ault	48
	S05	Lopez Island School	None	<45
	S06	Friday Harbor Elementary School	None	<45
	S07	Sir James Douglas Elementary School	None	<45
	S08	Fidalgo Elementary School	Ault	51
	S09	La Conner Elementary School	Ault	53
	S10	Elger Bay Elementary School	OLF	<45

4.4.2 Potential Hearing Loss

Table 4-6 shows estimates of the population within 1-dB bands of $L_{eq(24h)}$ and their associated NIPTS. The level at which there may be a noticeable NIPTS would be at the 84 to 85 dB $L_{eq(24)}$ range and above. At this level and above, an estimated 32 individuals may be vulnerable to NIPTS, all of whom are off station but in the vicinity of Ault Field (there are no individuals around OLF Coupeville at these noise levels or above). The range of potential hearing loss could be up to 8.5 dB for those living around Ault Field.

The potential NIPTS values presented in Table 4-6 are only applicable in the extreme case of outdoor exposure at one's residence to all aircraft events occurring over a period of 40 years. As it is highly unlikely any individuals would meet all of those criteria, the actual potential NIPTS for most individuals would be much less than the values presented here.

Table 4-6 Estimated Potential Hearing Loss for the Average Year Baseline Scenario

Band of $L_{eq(24)}$ (dB)	Average NIPTS (dB)[1]	10th Percentile NIPTS (dB)[1]	Estimated Population[2, 3,4]		
			Ault Field	OLF Coupeville	Total
74-75	0.5	3.5	-	-	-
75-76	1.0	4.0	-	53	53
76-77	1.0	4.5	121	44	165
77-78	1.5	5.0	263	45	308
78-79	2.0	5.5	157	23	180
79-80	2.5	6.0	114	6	120
80-81	3.0	7.0	72	-	72
81-82	3.5	8.0	55	-	55
82-83	4.0	9.0	36	-	36
83-84	4.5	10.0	26	-	26
84-85	5.5	11.0	23	-	23
85-86	6.0	12.0	9	-	9
86-87	7.0	13.5	6	-	6
87-88	7.5	15.0	4	-	4
88-89	8.5	16.5	2	-	2
89-90	9.5	18.0	-	-	-
90-91	10.5	19.5	-	-	-
91-92	11.5	21.0	-	-	-

Notes:

1 NIPTS values rounded to nearest 0.5 dB.

2 This analysis assumes the population is outdoors and exposed to all aircraft noise events for 40 years. Given the amount of time spent indoors and the intermittent occurrence of aircraft noise events, it is highly unlikely that individuals would meet all the criteria, and the actual potential for hearing loss would be less than the values reported here.

3 Estimated population was determined by those living within the 80 dB DNL noise contour around each airfield, including those living on base at Ault Field (there is no on-base population at OLF Coupeville).

4 Population counts of people within the DNL contours were computed using 2010 census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block. All population estimates for areas under the dB DNL contours utilized 2010 U.S. Census Bureau data. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). In addition, per guidance on potential hearing loss, on-base populations at Ault Field have been included in the analysis. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

Key:

dB = decibel

$L_{eq(24)}$ = 24-hour Equivalent Sound Level

NIPTS = Noise Induced Permanent Threshold Shift

OLF = outlying landing field

4.4.3 Residential Nighttime Sleep Disturbance

Table 4-7 lists the PA for applicable POIs for average daily nighttime (10:00 p.m. to 7:00 a.m.) events. Under the average year baseline scenario, the PA would average 11 percent and 6 percent across the listed POIs, respectively, for windows open and closed. The most impacted POIs (R01 and R02) would have between 30 percent and 59 percent PA, depending whether windows are open or closed.

Under the high-tempo FCLP year baseline scenario (Appendix A7), the PA would average 11 percent and 6 percent across the listed POIs, respectively, for windows open and closed. The most impacted POIs (R01 and R02) would range between 31 percent and 62 percent PA, depending whether windows are open or closed.

Table 4-7 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Baseline Scenario

Point of Interest				*Annual Average Nightly (2200-0700) Probability of Awakening (%)* [1]	
Type	*ID*	*Description*	*Related Field*	*Windows Open*	*Windows Closed*
Residential[2]	R01	Sullivan Rd	Ault	59%	44%
	R02	Salal St. and N. Northgate Dr	Ault	42%	30%
	R03	Central Whidbey	Ault	16%	8%
	R04	Pull and Be Damned Point	Ault	19%	9%
	R05	Snee-Oosh Point	Ault	15%	5%
	R06	Admirals Dr and Byrd Dr	OLF	10%	7%
	R07	Race Lagoon	OLF	5%	2%
	R08	Pratts Bluff	OLF	5%	3%
	R09	Cox Rd and Island Ridge Way	OLF	3%	2%
	R10	Skyline	None	6%	2%
	R11	Sequim	None	0%	0%
	R12	Port Angeles	None	0%	0%
	R13	Beverly Beach, Freeland	OLF	2%	0%
	R14	E Sleeper Rd & Slumber Ln	Ault	38%	26%
	R15	Long Point Manor	OLF	11%	4%
	R16	Rocky Point Heights	OLF	9%	3%
	R17	Port Townsend	None	1%	0%
	R18	Marrowstone Island (Nordland)	None	0%	0%
	R19	Island Transit Offices, Coupeville	OLF	10%	5%
	R20	South Lopez Island (Agate Beach)	None	2%	1%
School (near residential)	S01	Oak Harbor High School	Ault	21%	12%
	S02	Crescent Harbor Elementary School	Ault	22%	13%
	S03	Coupeville Elementary School	OLF	6%	3%
	S04	Anacortes High School	Ault	2%	1%
	S05	Lopez Island School	None	0%	0%
	S06	Friday Harbor Elementary School	None	0%	0%
	S07	Sir James Douglas Elementary School	None	0%	0%
	S08	Fidalgo Elementary School	Ault	6%	2%
	S09	La Conner Elementary School	Ault	7%	3%
	S10	Elger Bay Elementary School	OLF	0%	0%

[1] Assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] R01 and R06 include interior SELs greater than 100 dB with windows open

4.4.4 Residential Daytime Indoor Speech Interference

Table 4-8 presents the average daily indoor daytime (7:00 a.m. to 10:00 p.m.) events per hour for the applicable POIs that would experience indoor maximum sound levels of at least 50 dB with windows closed and open, for the average year baseline scenario. Events per hour would be less than one at 14 of the 30 POIs and would range between one and 10 for the remaining POIs, regardless of the window status.

Table 4-8 Indoor Speech Interference for the Average Year Baseline Scenario

Point of Interest				*Annual Average Daily Indoor Daytime (0700-2200) Events per Hour* [1]	
Type	*ID*	*Description*	*Related Field*	*Windows Open*	*Windows Closed*
Residential	R01	Sullivan Rd	Ault	10	10
	R02	Salal St. and N. Northgate Dr	Ault	9	8
	R03	Central Whidbey	Ault	5	-
	R04	Pull and Be Damned Point	Ault	2	1
	R05	Snee-Oosh Point	Ault	2	1
	R06	Admirals Dr and Byrd Dr	OLF	-	-
	R07	Race Lagoon	OLF	-	-
	R08	Pratts Bluff	OLF	-	-
	R09	Cox Rd and Island Ridge Way	OLF	-	-
	R10	Skyline	None	-	-
	R11	Sequim	None	-	-
	R12	Port Angeles	None	-	-
	R13	Beverly Beach, Freeland	OLF	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	8	7
	R15	Long Point Manor	OLF	1	1
	R16	Rocky Point Heights	OLF	2	1
	R17	Port Townsend	None	-	-
	R18	Marrowstone Island (Nordland)	None	-	-
	R19	Island Transit Offices, Coupeville	OLF	1	1
	R20	South Lopez Island (Agate Beach)	None	-	-
School (near residential)	S01	Oak Harbor High School	Ault	6	2
	S02	Crescent Harbor Elementary School	Ault	5	2
	S03	Coupeville Elementary School	OLF	1	-
	S04	Anacortes High School	Ault	-	-
	S05	Lopez Island School	None	-	-
	S06	Friday Harbor Elementary School	None	-	-
	S07	Sir James Douglas Elementary School	None	-	-
	S08	Fidalgo Elementary School	Ault	-	-
	S09	La Conner Elementary School	Ault	1	-
	S10	Elger Bay Elementary School	OLF	-	-

[1] With an indoor maximum sound level of at least 50 dB; assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] The Whidbey General Hospital is located within approximately 1,000 feet of the Coupeville Elementary School; therefore, this location was not modeled individually, but similar result for indoor speech interference for POI S03 would apply.

For the high-tempo FCLP year baseline scenario (Appendix A7), the above-cited statistics would not change compared to the average year baseline.

4.4.5 Classroom Learning Interference

Table 4-9 presents the potential learning interference for classrooms under the average year baseline scenario. One of the schools, S02 (Crescent Harbor Elementary), would have an outdoor $L_{eq(8h)}$ of 68 dB, which is greater than the screening threshold of 60 dB. Three of the POIs would have more than one event per hour with windows open (S01, S02, and R03), and two would have more than one event per hour with windows closed (S01 and S02). POI S01, Oak Harbor High School, would have the most events per hour, at six events with windows open and two with windows closed.

Under the high-tempo FCLP year baseline scenario (Appendix A7), the above-cited statistics would not change compared to the average year baseline.

Table 4-9 Classroom Learning Interference for the Average Year Baseline Scenario

Point of Interest				*Outdoor $L_{eq(8h)}$ (dB)*	*Indoor [1]*			
					Windows Open		*Windows Closed*	
Type	*ID*	*Description*	*Related Field*		*$L_{eq(8h)}$ (dB)*	*Events per Hour [2]*	*$L_{eq(8h)}$ (dB)*	*Events per Hour [2]*
School	R03	Central Whidbey	Ault	57	<45	5	<45	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2
	S02	Crescent Harbor Elementary School	Ault	68	53	5	<45	2
	S03	Coupeville Elementary School	OLF	52	<45	1	<45	-
	S04	Anacortes High School	Ault	46	<45	-	<45	-
	S05	Lopez Island School	None	<45	<45	-	<45	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-
	S08	Fidalgo Elementary School	Ault	49	<45	-	<45	-
	S09	La Conner Elementary School	Ault	51	<45	1	<45	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**3**		**2**
Minimum Number of Intrusive Events per Hour if Exceeding 1						**5**		**2**
Maximum Number of Intrusive Events per Hour if Exceeding 1						**6**		**2**

Notes:

[1] Assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] Number of Average School-Day Events per hour during 8-hour school day (0800-1600) at or above an indoor maximum (single-event) sound level (L_{max}) of 50 dB;

4.4.6 Recreational Speech Interference

Table 4-10 lists the AAD daytime NA 50 L_{max} per hour for the recreational POIs. The average NA across the 48 POIs would be three events per daytime hour and less than one event per nighttime hour. POIs R01, R02, and R14 would have the most events per hour, at 10 during daytime hours. Thirteen POIs would have two events per nighttime hour.

Under the high-tempo FCLP year baseline scenario (Appendix A7), the above-cited statistics would not change compared to the average year baseline.

Table 4-10 Recreational Speech Interference for the Average Year Baseline Scenario

Representative Park Receptor				*Annual Average Outdoor Daily Daytime Events per Hour NA50 L_{max}*	
Type	***ID***	***Description***	***Related Field***	***Daytime***	***Nighttime***
Park	P01	Joseph Whidbey State Park	Ault	9	2
	P02	Deception Pass State Park	Ault	9	2
	P03	Dugualla State Park	Ault	9	2
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	OLF	3	1
	P05	Ebey's Landing State Park	OLF	2	-
	P06	Fort Casey State Park	OLF	1	-
	P07	Cama Beach State Park	OLF	3	-
	P08	Port Townsend	None	1	-
	P09	Moran State Park	None	-	-
	P10	San Juan Islands National Monument	None	7	2
	P11	San Juan Island Visitors Center	None	-	-
	P12	Cap Sante Park	Ault	-	-
	P13	Lake Campbell	Ault	4	1
	P14	Spencer Spit State Park	None	-	-
	P15	Pioneer Park	Ault	4	1
	P16	Marrowstone Island (Fort Flagler)	OLF	-	-
	EBLA001	Ferry House	OLF	2	-
	EBLA002	Reuble Farm	OLF	2	-

Table 4-10 Recreational Speech Interference for the Average Year Baseline Scenario

Representative Park Receptor				*Annual Average Outdoor Daily Daytime Events per Hour NA50 L_{max}*	
Type	*ID*	*Description*	*Related Field*	*Daytime*	*Nighttime*
Residential	R01	Sullivan Rd	Ault	10	2
	R02	Salal St. and N. Northgate Dr	Ault	10	2
	R03	Central Whidbey	Ault	8	2
	R04	Pull and Be Damned Point	Ault	8	2
	R05	Snee-Oosh Point	Ault	7	2
	R06	Admirals Dr and Byrd Dr	OLF	1	-
	R07	Race Lagoon	OLF	3	1
	R08	Pratts Bluff	OLF	1	-
	R09	Cox Rd and Island Ridge Way	OLF	1	-
	R10	Skyline	None	4	1
	R11	Sequim	None	1	-
	R12	Port Angeles	None	1	-
	R13	Beverly Beach, Freeland	OLF	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	10	2
	R15	Long Point Manor	OLF	7	2
	R16	Rocky Point Heights	OLF	5	1
	R17	Port Townsend	None	-	-
	R18	Marrowstone Island (Nordland)	None	-	-
	R19	Island Transit Offices, Coupeville	OLF	3	1
	R20	South Lopez Island (Agate Beach)	None	3	1
School	S01	Oak Harbor High School	Ault	9	2
	S02	Crescent Harbor Elementary School	Ault	8	2
	S03	Coupeville Elementary School	OLF	3	1
	S04	Anacortes High School	Ault	1	-
	S05	Lopez Island School	None	-	-
	S06	Friday Harbor Elementary School	None	-	-
	S07	Sir James Douglas Elementary School	None	-	-
	S08	Fidalgo Elementary School	Ault	4	1
	S09	La Conner Elementary School	Ault	3	1
	S10	Elger Bay Elementary School	OLF	1	-

Notes:

[1] Number of events at or above 50 dB L_{max}; reflects potential for outdoor speech interference

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5 Average Year No Action Alternative

As shown in Table 2-1, under the No Action Alternative, all of the EP-3 and P-3C aircraft would be gone from the complex, and six fleet squadrons of P-8 aircraft would be on station. The Navy's Precision Landing Mode (PLM) system, also known as Maritime Augmented Guidance with Integrated Controls for Carrier Approach and Recovery Precision Enabling Technologies (MAGIC CARPET), is expected to reduce the FCLP training requirement by 20 percent, which would also reduce the interfacility operations by the same ratio.

Section 5.1 details the flight operations. Section 5.2 presents the runway/flight track utilization, flight profiles, and derivation of AAD flight operations. Sections 5.3 and 5.4 contain the maintenance run-ups and resultant aircraft noise exposure.

5.1 Flight Operations

From the methodology described in Chapter 2, Tables 5-1 and 5-2 summarize and detail, respectively, the modeled flight operations for the average year No Action Alternative. This alternative has approximately 84,700 total annual flight operations for the complex. The EA-18G would dominate aircraft operations, with 83 percent of the complex's annual flight operations. Approximately 75 percent of the complex's annual FCLP operations would be conducted at Ault Field, while the remaining 35 percent would be conducted at the OLF. Consistent with the 2005 EA, the OLF would have approximately 6,100 annual FCLP pattern operations (Schmidt-Bremer, Jr. et al., 2004). As shown in Table 5-2, approximately 13 percent and 17 percent, respectively, of the overall total flight operations and OLF FCLP operations would be conducted during the DNL nighttime period. The numbers of annual nighttime FCLP operations at the OLF would be consistent with the 2005 EA (Schmidt-Bremer, Jr. et al., 2004).

Relative to the average year baseline scenario, Table 5-1 shows that overall FCLP operations would decrease by 4,200 annually for the average year No Action Alternative, and the total of the complex's annual flight operations would decrease by 9,400 due to changes associated with the P-3C replacement and reduction in EA-18G FCLP.

The high-tempo FCLP year No Action Alternative (Appendix A2) has approximately 90,000 total annual flight operations for the complex, with the EA-18G having 85 percent of the complex's annual flight operations. Nearly 73 percent of the complex's FCLP operations would be conducted at Ault Field. The OLF's FCLP operations would be consistent with the 2005 EA as stated above.

Table 5-1 Summary of Annual Flight Operations for the Average Year No Action Alternative

Airfield	Aircraft Type or Category	No Action Alternative (Average Year) Type of Flight Operation FCLP [2]	Other [3]	Total	Change from Baseline Type of Flight Operation FCLP [2]	Other	Total
Ault Field	EA-18G	11,300	53,000	64,300	-4,200	+500	-3,700
	Other Based	-	11,600	11,600	-	-5,700	-5,700
	Transient	-	2,300	2,300	-	-	-
	Subtotal	11,300	66,900	78,200	-4,200	-5,200	-9,400
OLF Coupeville [4]	EA-18G	6,100	-	6,100	-	-	-
	Other	-	400	400	-	-	-
	Subtotal	6,100	400	6,500	-	-	-
TOTAL (both airfields)		**17,400**	**67,300**	**84,700**	**-4,200**	**-5,200**	**-9,400**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[4] Excludes 900 interfacility Growler operations (Baseline and No Action).

Table 5-2 Detailed Annual Flight Operations for the Average Year No Action Alternative

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	4,803	289	5,092	1,744	46	1,790	2,914	-	95	3,009	283	4	287	162	-	35	197	98	49	49	197	-	-		-	-	
		FRS	6,187	400	6,587	2,355	343	2,698	2,652	339	668	3,659	199	30	229	180	-	26	206	107	59	42	208	-	-		-	-	
		RES	1,140	86	1,226	401	17	418	700	-	27	727	76	5	81	17	-	2	19	10	6	4	19	-	-		-	-	
		EXP	1,537	86	1,623	590	21	611	885	-	33	918	86	3	89	-	-	-	0	-	-	-	0	-	-		-	-	
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0	-	-	-		-	-	-		-	-		-	-	
	P3	All	-	-	0	-	-	0	-	-	-	-	-	-	-	-	-	-		-	-	-		-	-		-	-	
	P8	All	1,928	96	2,024	1,389	271	1,660	-	-	-	-	313	51	364	-	-	-		-	-	-		-	-		-	-	
	H60	SAR	384	-	384	384	0	384	-	-	-	-	-	-	-	-	-	-		-	-	-		90	-	90	90	-	90
	C-40	-	401	109	510	384	96	480	-	-	-	-	21	10	31	-	-	-		-	-	-		-	-		-	-	
	JET_LRG	-	391	-	391	282	-	282	-	-	-	-	109	0	109	-	-	-		-	-	-		-	-		-	-	
Total			**16,771**	**1,066**	**17,837**	**7,529**	**794**	**8,323**	**7,151**	**339**	**823**	**8,313**	**1,087**	**103**	**1,190**	**359**	**-**	**64**	**422**	**215**	**114**	**95**	**424**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility												
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
			Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW	162	-	35	197	98	49	49	197	-	-		-	-	
		FRS	180	-	26	206	107	59	42	208	-	-		-	-	
		RES	17	-	2	19	10	6	4	19	-	-		-	-	
	H60	SAR									90	-	90	90	-	90
Total			**359**	**-**	**64**	**422**	**215**	**114**	**95**	**424**	**90**	**-**	**90**	**90**	**-**	**90**

Table 5-2 Detailed Annual Flight Operations for the Average Year No Action Alternative

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	2,519	1,656	1,435	5,609	2,237	349	425	3,011	1,681	57	1,738	2,792	1,227	4,019	19,233	2,054	3,662	24,949
		FRS	3,637	1,248	704	5,589	3,746	738	1,000	5,484	-	-	0	4,879	895	5,774	23,942	2,384	4,108	30,434
		RES	53	-	10	63	513	4	15	532	446	13	459	503	37	540	3,858	10	216	4,084
		EXP	-	-	-	0	506	-	21	527	517	20	537	499	21	520	4,620	-	205	4,825
	EP3	All	-	-	-		-	-	-	0	-	-		-	-	0	-	-	-	-
	P3	All	-	-	-		-	-	-	0	-	-		-	-	0	-	-	-	-
	P8	All	-	-	-		4,056	0	595	4,651	-	-		1,752	161	1,913	9,438	-	1,174	10,612
	H60	SAR	-	-	-		-	-	-	0	-	-		-	-	0	948	-	-	948
	C-40	-	-	-	-		-	-	-	0	-	-		-	-	0	806	-	215	1,021
	JET_LRG	-	-	-	-		332	0	0	332	-	-		167	-	167	1,281	-	-	1,281
Total			**6,208**	**2,904**	**2,149**	**11,261**	**11,390**	**1,091**	**2,056**	**14,537**	**2,644**	**90**	**2,734**	**10,592**	**2,341**	**12,933**	**64,126**	**4,448**	**9,580**	**78,154**
OLF	EA18	CVW	1,101	870	481	2,452	-	-	-								1,361	919	565	2,846
		FRS	1,198	1,029	356	2,583	-	-	-								1,485	1,088	424	2,997
		RES	113	88	38	239	-	-	-								139	94	44	277
	H60	SAR	-	-	-		181	-	-	181							361	-	-	361
Total			**2,412**	**1,987**	**875**	**5,274**	**181**	**-**	**-**	**181**							**3,347**	**2,101**	**1,033**	**6,481**
														Grand Totals (Ault+OLF)			**67,473**	**6,549**	**10,613**	**84,635**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

5.2 Other Modeling Parameters

Appendix A3 contains tables of runway utilization percentages as extracted from the NASMOD study output. Flight tracks and their utilization would be identical to the baseline scenario. Modeled flight tracks are depicted in Appendix A4.

Flight profiles would be identical to the baseline scenario except for the introduction of P-8 profiles. The representative profiles for each modeled aircraft type are contained in Appendix A5.

In terms of AAD events, the No Action Alternative would have approximately 157 and 10 AAD flight events for Ault Field and OLF Coupeville, respectively. For the high-tempo FCLP year No Action Alternative, Ault Field and the OLF would have 161 and 10 AAD flight events, respectively.

5.3 Run-up Operations

Table 5-3 lists the modeled run-ups, with their locations depicted in Figure 5-1. There would be no change to the modeled run-ups for the EA-18G aircraft for the average year No Action Alternative compared to the average year baseline scenario. P-8 run-ups (at their appropriate tempo) replace ones for the P-3. The P-8 has run-ups at Lo-Pwr4, Lo-Pwr5, and the runway hold positions.

For the high-tempo FCLP year No Action Alternative, it was assumed the run-ups would not change compared to the average year scenario.

Table 5-3 Modeled Run-Up Operations and Profiles for the No Action Alternatives

Aircraft Type	*Engine Type*	*Run-up Type*	*Pad ID*	*Magnetic Heading (degrees)*	*Annual Events*	*Percentage During*		*Power Setting*		*Duration of Each Event (Minutes)*	*No. of Engines Running (each event)*
						Day (0700 - 2200)	*Night (2200 - 0700)*	*Reported*	*Modeled (if different)*		
EA-18G	F414-GE-400	Water Wash	Lo-Pwr1 Lo-Pwr2 Lo-Pwr3 (1)	135/315	82	45%	55%	Ground Idle	65% NC	10	1
		Low power	Lo-Pwr1 Lo-Pwr2 Lo-Pwr3 [1]	135/315	1230	45%	55%	Ground Idle	65% NC	30	1
					2460			Ground Idle	65% NC	30	2
		High Power	50% Hi-Pwr1 / 50% Hi-Pwr2	311 (Hi-Pwr1) / 127 (Hi-Pwr2)	656	90%	10%	Ground Idle	65% NC	25	2
								80%NC	80% NC	10	2
								Mil	96% NC	3	2
								AB	A/B	3	2
P-8A	CFM56-7B-24	Leak Check	50% Lo-Pwr4 / 50% Lo-Pwr5	126	24	75%	25%	5400 Lbs		5	2
		Pressure Check		126	12			5400 Lbs		12	2
		Leak Check	Runway Hold [2]	100 (Rwy14); 270 (Rwy25); 330 (Rwy32); 140 (Rwy07)	24			5400 Lbs		5	2
		Pressure Check			12			5400 Lbs		12	2

Notes:

[1] Run-up events split 50% Lo-Pwr1, 30% Lo-Pwr2, and 20% Lo-Pwr3

[2] Runway Hold Run-ups split 50% Runway 32, 40% Runway 25, 5% Runway 07, and 5% Runway 14

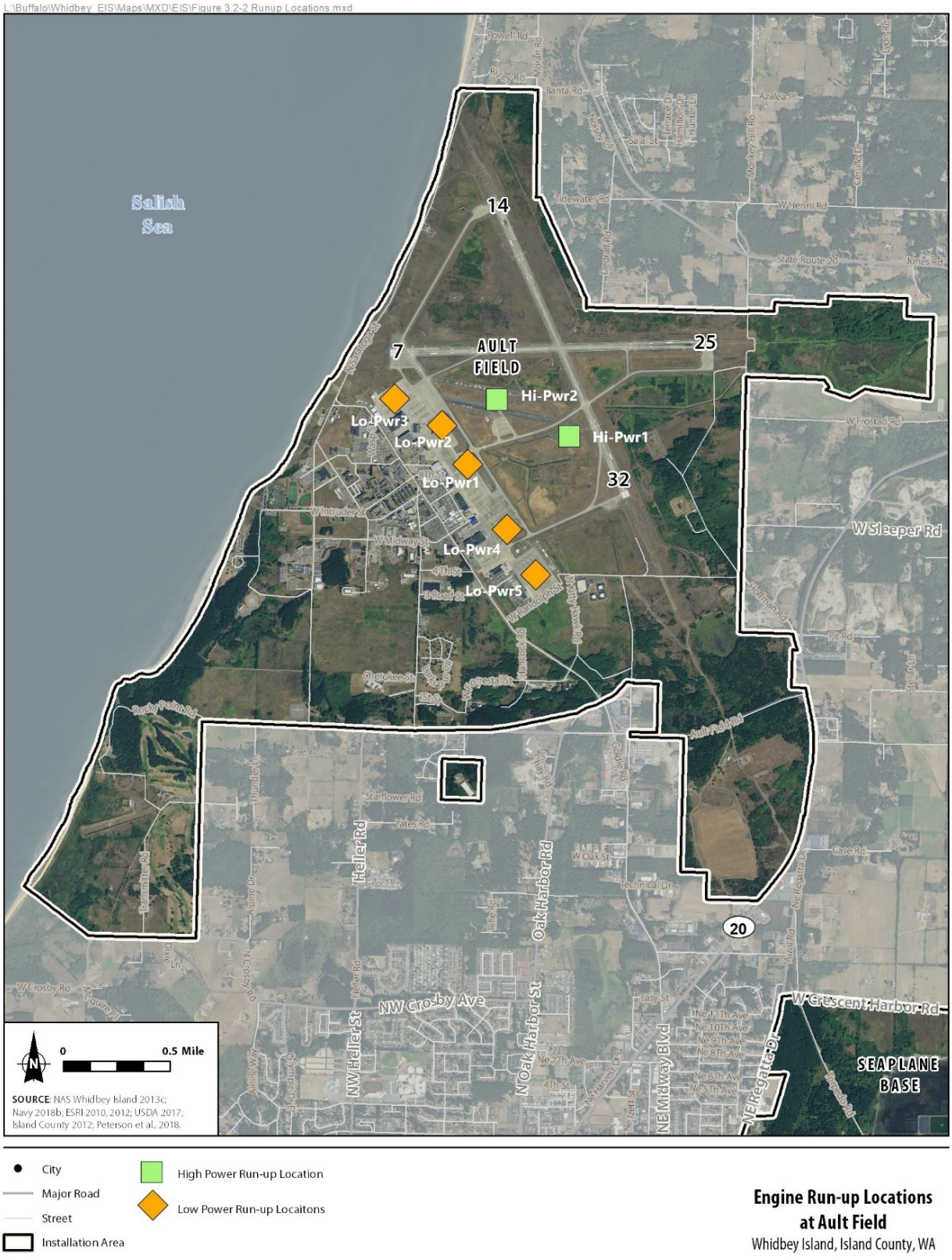

Figure 5-1 Modeled Run-up Pads for Alternatives

5.4 Aircraft Noise Exposure

Using the data described in Sections 5.1 through 5.3, NOISEMAP was used to calculate and plot the 60 dB through 90 dB DNL contours, in 5-dB increments, for AAD events for the average year No Action Alternative. Figure 5-2 shows the resulting DNL contours.

The 65 dB contour surrounding Ault Field would extend approximately 7 to 11 miles from the runway endpoints. The location of these lobes would be primarily attributable to the EA-18G on the approach portion of GCA patterns, where aircraft generally descend on a 3-degree glide slope through 3,000 feet AGL 10 miles from the runway. The 65 dB DNL contour would extend approximately 1.5 miles past the eastern shore of the mainland across Skagit Bay. The 80 dB DNL contour would extend approximately 2.7 miles to the east, outside the station boundary, primarily due to EA-18G GCA and VFR approaches descending from 1,800 feet AGL, as well as the GCA patterns. The 90 dB contour would extend 1,300 feet to the east beyond the station boundary.

The DNL exposure at the OLF would be attributable to the OLF's FCLP operations. The 65 dB DNL contour would extend northward to a point just south of the north shore of Penn Cove and southward approximately 3 miles south of the OLF's runway.

Table 5-4 presents the noise exposure in terms of estimated off-station population for each contour band. A total of 10,731 people would be exposed to DNL of at least 65 dB at Ault Field and OLF Coupeville. The total population exposed would be 384 greater than the average year baseline scenario's total population.

Under the high-tempo FCLP year No Action Alternative (Appendix A7), a total of 11,239 people would be exposed to DNL of at least 65 dB at Ault Field and OLF Coupeville. The total population exposed would be 245 greater than for the high-tempo FCLP year baseline scenario.

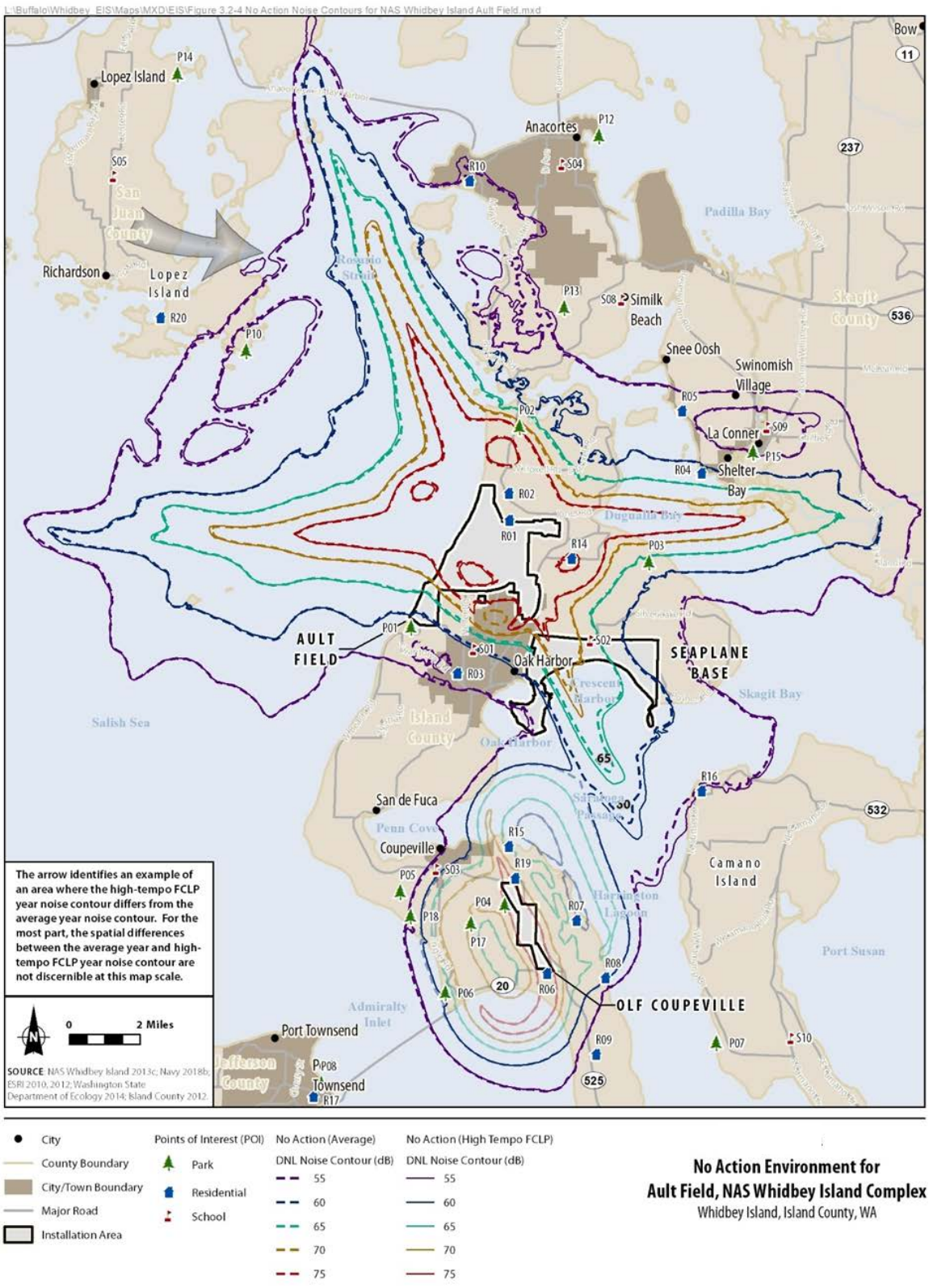

Figure 5-2 DNL Contours for AAD Aircraft Events for the Average Year No Action Alternative

Table 5-4 Estimated Acreage and Population within the DNL Contour Ranges[1] for the Average Year at the NAS Whidbey Island Complex for No Action Scenario

	DNL Contour Ranges							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total[3]*	
DNL Contours	*Area (acres)*	*Pop[2]*	*Area (acres)*	*Pop[2]*	*Area (acres)*	*Pop[2]*	*Area (acres)*	*Pop[2]*
Ault Field	3,596	3,279	3,269	2,283	5,549	3,379	**12,414**	**8,941**
OLF Coupeville	3,681	861	3,088	786	638	583	**7,407**	**2,230**
Total[3]	**7,277**	**4,140**	**6,357**	**3,069**	**6,187**	**3,962**	**19,821**	**11,171**

Notes:

1 Acreage presented does not include areas over water or areas over the NAS Whidbey Island complex.

2 Population counts of people within the DNL contours were computed using 2010 census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contours (NAS Whidbey Island [Ault Field], the Seaplane Base, and OLF Coupeville). All population estimates for areas under the dB DNL contours utilized 2010 U.S. Census Bureau data. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). To simplify the analysis, this growth factor was also used for areas of Skagit County that fall under the 65+ dB DNL contours. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

3 Numbers have been rounded to ensure totals sum.

Key:
dB = decibel
DNL = day-night average sound level

5.4.1 Points of Interest

Table 5-5 shows the DNL for each POI. Under the average year No Action Alternative, 10 POIs would experience DNL greater than or equal to 65 dB, and three residential POIs would experience DNL greater than or equal to 75 dB. Two of the latter category would be near Ault Field (R01 and R02), and one would be near the OLF (R06). Crescent Harbor Elementary School would experience DNL of 67 dB. No other school POI would experience DNL greater than or equal to 65 dB.

Table 5-5 Estimated Aircraft DNL at POIs for the Average Year No Action Alternative

Point of Interest				*DNL (dB)*	
Type	*ID*	*Description*	*Related Field*	*No Action*	*Increase re Baseline*
Park	P01	Joseph Whidbey State Park	Ault	57	-
	P02	Deception Pass State Park	Ault	73	-
	P03	Dugualla State Park	Ault	65	-
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	OLF	74	-
	P05	Ebey's Landing State Park	OLF	52	-
	P06	Fort Casey State Park	OLF	62	-
	P07	Cama Beach State Park	OLF	<45	-
	P08	Port Townsend	None	<45	-
	P09	Moran State Park	None	<45	-
	P10	San Juan Islands National Monument	None	54	-
	P11	San Juan Island Visitors Center	None	<45	-
	P12	Cap Sante Park	Ault	<45	-
	P13	Lake Campbell	Ault	54	-
	P14	Spencer Spit State Park	None	<45	-
	P15	Pioneer Park	Ault	55	-
	P16	Marrowstone Island (Fort Flagler)	OLF	<45	-
	EBLA001	Ferry House	OLF	69	-
	EBLA002	Reuble Farm	OLF	56	-
Residential	R01	Sullivan Rd	Ault	90	-
	R02	Salal St. and N. Northgate Dr	Ault	78	-
	R03	Central Whidbey	Ault	57	-
	R04	Pull and Be Damned Point	Ault	62	-
	R05	Snee-Oosh Point	Ault	57	+1
	R06	Admirals Dr and Byrd Dr	OLF	79	-
	R07	Race Lagoon	OLF	61	-
	R08	Pratts Bluff	OLF	62	-
	R09	Cox Rd and Island Ridge Way	OLF	50	-1
	R10	Skyline	None	56	-
	R11	Sequim	None	<45	-
	R12	Port Angeles	None	<45	-
	R13	Beverly Beach, Freeland	OLF	<45	-
	R14	E Sleeper Rd & Slumber Ln	Ault	74	-1
	R15	Long Point Manor	OLF	64	-1
	R16	Rocky Point Heights	OLF	55	+1
	R17	Port Townsend	None	<45	-
	R18	Marrowstone Island (Nordland)	None	<45	-
	R19	Island Transit Offices, Coupeville	OLF	73	-
	R20	South Lopez Island (Agate Beach)	None	48	-

Table 5-5 Estimated Aircraft DNL at POIs for the Average Year No Action Alternative

Point of Interest				*DNL (dB)*	
Type	*ID*	*Description*	*Related Field*	*No Action*	*Increase re Baseline*
School	S01	Oak Harbor High School	Ault	59	-
	S02	Crescent Harbor Elementary School	Ault	67	-1
	S03	Coupeville Elementary School	OLF	57	-1
	S04	Anacortes High School	Ault	48	-
	S05	Lopez Island School	None	<45	-
	S06	Friday Harbor Elementary School	None	<45	-
	S07	Sir James Douglas Elementary School	None	<45	-
	S08	Fidalgo Elementary School	Ault	51	-
	S09	La Conner Elementary School	Ault	53	-
	S10	Elger Bay Elementary School	OLF	<45	-

All but seven of the POIs would experience less than a 0.5 dB change in DNL compared to the average year baseline scenario, and none would be newly impacted. POIs R09, R14, R15, S01, and S02 would experience a 1 dB decrease in DNL, while R05 and R16 would experience a 1 dB increase in DNL.

See Appendix A6 for lists of the five flight profiles with the greatest SEL at each POI.

Under the high-tempo FCLP year No Action Alternative (Appendix A7), all but five of the POIs would experience less than 0.5 dB change in DNL compared to the high-tempo FCLP year baseline scenario. POIs P06, R08, R10, R14, and R15 would experience a 1 dB decrease in DNL.

5.4.2 Potential Hearing Loss

Table 5-6 shows estimates of the population within 1-dB bands of $L_{eq(24)}$ and their associated NIPTS. For average and 10th percentile NIPTS categories, 41 and 849 people, respectively, would have the potential for NIPTS greater than or equal to 5 dB. All of the average NIPTS population would be associated with Ault Field (none with the OLF), whereas approximately 12 percent of the 10th percentile NIPTS population would be associated with the OLF.

Under the high-tempo FCLP year scenario (Appendix A7) average and 10th percentile NIPTS categories, 38 and 468 people, respectively, would have the potential for NIPTS greater than or equal to 5 dB. All of the average NIPTS population would be associated with Ault Field (none with the OLF), whereas approximately 6 percent of the 10th percentile NIPTS population would be associated with the OLF.

The potential NIPTS values presented in Table 5-6 are only applicable in the extreme case of outdoor exposure at one's residence to all aircraft events occurring over a period of 40 years. As it is highly unlikely any individuals would meet all of those criteria, the actual potential NIPTS for most individuals would be much less than the values presented here.

Table 5-6 Estimated Potential Hearing Loss for the Average Year No Action Alternative

Band of $L_{eq(24)}$ (dB)	Average NIPTS (dB) [1]	10th Percentile NIPTS (dB) [1]	Estimated Population				Change in population re Baseline			
			Ault Field (on-Station)	Ault Field (off-Station)	OLF Coupeville (off-Station)	TOTAL	Ault Field (on-Station)	Ault Field (off-Station)	OLF Coupeville (off-Station)	TOTAL
74-75	0.5	3.5	-	-	-	-	-	-	(12)	(12)
75-76	1.0	4.0	-	-	30	30	-	-	(36)	(36)
76-77	1.0	4.5	-	119	42	161	-	56	(2)	54
77-78	1.5	5.0	-	208	43	251	-	(60)	1	(59)
78-79	2.0	5.5	-	139	23	162	-	(52)	3	(49)
79-80	2.5	6.0	-	84	7	91	-	(34)	1	(33)
80-81	3.0	7.0	-	68	1	69	-	(5)	-	(5)
81-82	3.5	8.0	-	47	-	47	-	(12)	-	(12)
82-83	4.0	9.0	-	36	-	36	-	(1)	-	(1)
83-84	4.5	10.0	-	25	-	25	-	(2)	-	(2)
84-85	5.5	11.0	-	15	-	15	-	(3)	-	(3)
85-86	6.0	12.0	-	11	-	11	-	(1)	-	(1)
86-87	7.0	13.5	-	6	-	6	-	(3)	-	(3)
87-88	7.5	15.0	-	4	-	4	-	(1)	-	(1)
88-89	8.5	16.5	-	2	-	2	-	-	-	-
89-90	9.5	18.0	-	-	-	-	-	-	-	-
90-91	10.5	19.5	-	-	-	-	-	-	-	-
91-92	11.5	21.0	-	-	-	-	-	-	-	-
						468				

Note: Average NIPTS values greater than 10 dB, and 10th Percentile NIPTS values greater than 12 dB, are estimated based on extrapolating available data from USEPA guidance (USEPA, 1982).

[1] Rounded to nearest 0.5 dB

5.4.3 Residential Nighttime Sleep Disturbance

Table 5-7 lists the PA for applicable POIs for average daily nighttime (10:00 p.m. to 7:00 a.m.) events. Under the average year No Action Alternative, the PA would average 10 percent and 6 percent, respectively, across the listed POIs for windows open and closed. The two most impacted POIs (R01 and R02) would have between 29 percent and 58 percent PA, depending upon whether windows are open or closed. This PA would be identical to the PA for the average year baseline scenario except there would be 10 POIs with a 1 dB decrease in PA and two POIs with a 1 dB increase in PA.

Table 5-7 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year No Action Alternative

Point of Interest				*Annual Average Nightly (2200-0700) Probability of Awakening (%)* [1]			
				No Action		*Increase re Baseline*	
Type	*ID*	*Description*	*Related Field*	*Windows Open*	*Windows Closed*	*Windows Open*	*Windows Closed*
Residential	R01	Sullivan Rd	Ault	58%	43%	-1%	-1%
	R02	Salal St. and N. Northgate Dr	Ault	41%	29%	-1%	-1%
	R03	Central Whidbey	Ault	16%	8%	-	-
	R04	Pull and Be Damned Point	Ault	19%	9%	-	-
	R05	Snee-Oosh Point	Ault	15%	5%	-	-
	R06	Admirals Dr and Byrd Dr	OLF	9%	6%	-1%	-1%
	R07	Race Lagoon	OLF	5%	2%	-	-
	R08	Pratts Bluff	OLF	4%	2%	-1%	-1%
	R09	Cox Rd and Island Ridge Way	OLF	3%	2%	-	-
	R10	Skyline	None	5%	2%	-1%	-
	R11	Sequim	None	0%	0%	-	-
	R12	Port Angeles	None	0%	0%	-	-
	R13	Beverly Beach, Freeland	OLF	2%	0%	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	37%	25%	-1%	-1%
	R15	Long Point Manor	OLF	11%	4%	-	-
	R16	Rocky Point Heights	OLF	9%	3%	-	-
	R17	Port Townsend	None	1%	0%	-	-
	R18	Marrowstone Island (Nordland)	None	0%	0%	-	-
	R19	Island Transit Offices, Coupeville	OLF	9%	5%	-1%	-
	R20	South Lopez Island (Agate Beach)	None	3%	1%	1%	-
School (near residential)	S01	Oak Harbor High School	Ault	20%	12%	-1%	-
	S02	Crescent Harbor Elementary School	Ault	21%	12%	-1%	-1%
	S03	Coupeville Elementary School	OLF	5%	3%	-1%	-
	S04	Anacortes High School	Ault	2%	1%	-	-
	S05	Lopez Island School	None	0%	0%	-	-
	S06	Friday Harbor Elementary School	None	0%	0%	-	-
	S07	Sir James Douglas Elementary School	None	0%	0%	-	-
	S08	Fidalgo Elementary School	Ault	6%	2%	-	-
	S09	La Conner Elementary School	Ault	8%	3%	1%	-
	S10	Elger Bay Elementary School	OLF	0%	0%	-	-

[1] Assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] R01 and R06 include interior SELs greater than 100 dB with windows open

Under the high-tempo FCLP year baseline scenario (Appendix A7), the PA would average 11 percent and 6 percent, respectively, across the listed POIs for windows open and closed. The two most impacted POIs (R01 and R02) would have between 31 percent and 62 percent PA, depending upon whether their windows are open or closed.

5.4.4 Residential Daytime Indoor Speech Interference

Table 5-8 presents the average daily indoor daytime (7:00 a.m. to 10:00 p.m.) events per hour for the applicable POIs that would experience indoor maximum sound levels of at least 50 dB with windows closed and open, for the average year No Action Alternative. Events per hour would be less than one at 17 of the 30 POIs and would range between one and eight for the remaining POIs, regardless of the window status. Relative to the average year baseline scenario, decreases of up to two events per hour would be experienced at one of the POIs (R01). No POI would experience increases in events per hour for either window status.

For the high-tempo FCLP year No Action Alternative (Appendix A7), the above-cited statistics would not change compared to the average year No Action Alterative.

Table 5-8 Indoor Speech Interference for the Average Year No Action Alternative

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]			
				No Action		Increase re Baseline	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential	R01	Sullivan Rd	Ault	8	8	-2	-2
	R02	Salal St. and N. Northgate Dr	Ault	8	8	-1	0
	R03	Central Whidbey	Ault	5	-	0	0
	R04	Pull and Be Damned Point	Ault	2	1	0	0
	R05	Snee-Oosh Point	Ault	2	1	0	0
	R06	Admirals Dr and Byrd Dr	OLF	-	-	0	0
	R07	Race Lagoon	OLF	-	-	0	0
	R08	Pratts Bluff	OLF	-	-	0	0
	R09	Cox Rd and Island Ridge Way	OLF	-	-	0	0
	R10	Skyline	None	-	-	0	0
	R11	Sequim	None	-	-	0	0
	R12	Port Angeles	None	-	-	0	0
	R13	Beverly Beach, Freeland	OLF	-	-	0	0
	R14	E Sleeper Rd & Slumber Ln	Ault	8	7	0	0
	R15	Long Point Manor	OLF	1	1	0	0
	R16	Rocky Point Heights	OLF	2	1	0	0
	R17	Port Townsend	None	-	-	0	0
	R18	Marrowstone Island (Nordland)	None	-	-	0	0
	R19	Island Transit Offices, Coupeville	OLF	1	1	0	0
	R20	South Lopez Island (Agate Beach)	None	-	-	0	0
School	S01	Oak Harbor High School	Ault	6	2	0	0
	S02	Crescent Harbor Elementary School	Ault	5	2	0	0
	S03	Coupeville Elementary School	OLF	1	-	0	0
	S04	Anacortes High School	Ault	-	-	0	0
	S05	Lopez Island School	None	-	-	0	0
	S06	Friday Harbor Elementary School	None	-	-	0	0
	S07	Sir James Douglas Elementary School	None	-	-	0	0
	S08	Fidalgo Elementary School	Ault	-	-	0	0
	S09	La Conner Elementary School	Ault	1	-	0	0
	S10	Elger Bay Elementary School	OLF	-	-	0	0

[1] With an indoor maximum sound level of at least 50 dB; assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] The Whidbey General Hospital is located within approximately 1,000 feet of the Coupeville Elementary School; therefore, this location was not modeled individually, but similar result for indoor speech interference for POI S03 would apply.

5.4.5 Classroom Learning Interference

Table 5-9 presents the potential learning interference for students in classrooms under the average year No Action Alternative. One of the schools, POI S02 (Crescent Harbor Elementary), would have an outdoor $L_{eq(8h)}$ of 67 dB, which is greater than or equal to the screening threshold of 60 dB. Three of the POIs would have more than one event per hour with windows open (S01, S02, and R03), and two POIs (S01 and S02) would have more than one event per hour with windows closed. POIs S01 (Oak Harbor High School) and S02 (Crescent Harbor Elementary School) would have the most events per hour: four to five with windows open and two with windows closed. Relative to the average year baseline scenario, four POIs (S01, S02, S03, and R03) would experience decreases in interference by one event per hour. $L_{eq(8h)}$ would decrease by 1 dB at S02 and S03 and would increase by 1 dB at S07.

Under the high-tempo FCLP year No Action Alternative (Appendix A7), the above statistics would be identical except that $L_{eq(8h)}$ would decrease by 1 dB at three additional POIs.

Table 5-9 Classroom Learning Interference for the Average Year No Action Alternative

Point of Interest									Increase re Baseline				
					Indoor[1]					Indoor[1]			
					Windows Open		Windows Closed			Windows Open		Windows Closed	
Type	ID	Description	Related Field	Outdoor $L_{eq(8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour[2]	$L_{eq(8h)}$ (dB)	Events per Hour[2]	Outdoor $L_{eq(8h)}$ (dB)	$L_{eq(8h)}$ (dB))	Events per Hour[2]	$L_{eq(8h)}$ (dB)	Events per Hour[2]
School	R03	Central Whidbey	Ault	57	<45	4	<45	-	-	-	-1	-	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	-	-	-	-	-
School	S01	Oak Harbor High School	Ault	57	<45	5	<45	2	-	-	-1	-	-
	S02	Crescent Harbor Elementary School	Ault	67	52	4	<45	2	-1	-1	-1	-1	-
	S03	Coupeville Elementary School	OLF	51	<45	-	<45	-	-1	-1	-1	-1	-
	S04	Anacortes High School	Ault	46	<45	-	<45	-	-	-	-	-	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S08	Fidalgo Elementary School	Ault	49	<45	-	<45	-	-	-	-	-	-
	S09	La Conner Elementary School	Ault	51	<45	1	<45	-	-	-	-	-	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	-	-	-	-	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**3**		**2**			**-**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding 1						**4**		**2**			**-**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding 1						**5**		**2**			**-**		**-**

Notes:

1 Assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

2 Number of average school-day events per hour during 8-hour school day (0800-1600) at or above an indoor maximum (single-event) sound level (L_{max}) of 50 dB.

5.4.6 Recreational Speech Interference

Table 5-10 lists the AAD daytime NA 50 L_{max} per hour for the recreational POIs. The average NA across the 48 POIs would be 3.2 events per daytime hour and less than one event per nighttime hour. Six POIs would have the most daytime events per hour, at eight. Nighttime events would vary from less than one up to two per hour. Relative to the average year baseline scenario, 13 POIs would experience a decrease of up to two events per daytime hour. Only one POI (R17) would experience an increase in events compared to the average year baseline scenario of one per hour. During nighttime hours, five POIs would experience a decrease of one event per hour.

Under the high-tempo FCLP year No Action Alternative (Appendix A7), the above-cited statistics would not change compared to the average year No Action Alternative except that one additional POI would experience eight events per hour, and 16 POIs would experience a decrease of up to two events per daytime hour. There would be no nighttime decreases of events compared to the high-tempo FCLP year baseline scenario.

Table 5-10 Recreational Speech Interference for the Average Year No Action Alternative

Representative Park Receptor				*Annual Average Outdoor Daily Daytime Events per Hour NA50 L_{max}*			
				No Action		*Increase re No Action*	
Type	*ID*	*Description*	*Related Field*	*Daytime*	*Nighttime*	*Daytime*	*Nighttime*
Park	P01	Joseph Whidbey State Park	8	2	-1	-	
	P02	Deception Pass State Park	8	2	-1	-	
	P03	Dugualla State Park	7	2	-2	-	
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	3	0	-	-1	
	P05	Ebey's Landing State Park	2	0	-	-	
	P06	Fort Casey State Park	1	0	-	-	
	P07	Cama Beach State Park	3	0	-	-	
	P08	Port Townsend	1	0	-	-	
	P09	Moran State Park	0	0	-	-	
	P10	San Juan Islands National Monument	7	1	-	-1	
	P11	San Juan Island Visitors Center	0	0	-	-	
	P12	Cap Sante Park	0	0	-	-	
	P13	Lake Campbell	4	1	-	-	
	P14	Spencer Spit State Park	0	0	-	-	
	P15	Pioneer Park	4	1	-	-	
	P16	Marrowstone Island (Fort Flagler)	0	0	-	-	
	EBLA001	Ferry House	2	0	-	-	
	EBLA002	Reuble Farm	2	0	-	-	

Table 5-10 Recreational Speech Interference for the Average Year No Action Alternative

Representative Park Receptor				*Annual Average Outdoor Daily Daytime Events per Hour NA50 L_{max}*			
				No Action		*Increase re No Action*	
Type	*ID*	*Description*	*Related Field*	*Daytime*	*Nighttime*	*Daytime*	*Nighttime*
Residential	R01	Sullivan Rd	8	2	-2	-	
	R02	Salal St. and N. Northgate Dr	8	2	-2	-	
	R03	Central Whidbey	7	2	-1	-	
	R04	Pull and Be Damned Point	7	2	-1	-	
	R05	Snee-Oosh Point	7	1	-	-1	
	R06	Admirals Dr and Byrd Dr	1	0	-	-	
	R07	Race Lagoon	3	0	-	-1	
	R08	Pratts Bluff	1	0	-	-	
	R09	Cox Rd and Island Ridge Way	1	0	-	-	
	R10	Skyline	4	1	-	-	
	R11	Sequim	0	0	-1	-	
	R12	Port Angeles	1	0	-	-	
	R13	Beverly Beach, Freeland	0	0	-	-	
	R14	E Sleeper Rd & Slumber Ln	8	2	-2	-	
	R15	Long Point Manor	7	1	-	-1	
	R16	Rocky Point Heights	4	1	-1	-	
	R17	Port Townsend	1	0	+1	-	
	R18	Marrowstone Island (Nordland)	0	0	-	-	
	R19	Island Transit Offices, Coupeville	3	1	-	-	
	R20	South Lopez Island (Agate Beach)	3	1	-	-	
School	S01	Oak Harbor High School	8	2	-1	-	
	S02	Crescent Harbor Elementary School	7	2	-1	-	
	S03	Coupeville Elementary School	3	0	-	-1	
	S04	Anacortes High School	1	0	-	-	
	S05	Lopez Island School	0	0	-	-	
	S06	Friday Harbor Elementary School	0	0	-	-	
	S07	Sir James Douglas Elementary School	0	0	-	-	
	S08	Fidalgo Elementary School	4	1	-	-	
	S09	La Conner Elementary School	3	1	-	-	
	S10	Elger Bay Elementary School	0	0	-1	-	

6 Average Year Alternative 1 Scenarios

Relative to the No Action Alternative, Alternative 1 would add three EA-18G aircraft to each Carrier Air Wing squadron and eight EA-18G aircraft to the FRS, as shown in Table 2-1. Section 6.1 details the flight operations. Section 6.2 presents the runway/flight track utilization, flight profiles, and derivation of AAD flight operations. Sections 6.3 and 6.4 contain the maintenance run-ups and resultant aircraft noise exposure.

6.1 Flight Operations

From the methodology described in Chapter 2, Tables 6-1 through 6-9 show the modeled flight operations for the average year for Alternative 1 under all scenarios. All of these five scenarios under Alternative 1 would have approximately 112,000 total annual flight operations for the complex. The EA-18G would dominate operations, with 87 percent of the complex's annual flight operations. Annual FCLP-related operations at the OLF would vary between 6,200 in Alternative 1, Scenario C, and 24,900 in Alternative 1, Scenario A. As shown in Tables 6-2, 6-4, and 6-10, approximately 15 percent and 21 percent, respectively, of the overall total flight operations and OLF FCLP operations would be conducted during the DNL nighttime period.

Relative to the average year No Action Alternative, Tables 6-1, 6-3, 6-5, 6-7, and 6-9 show that the complex's total annual flight operations would increase by approximately 26,000, with more than half due to increased FCLP operations.

The high-tempo FCLP year alternatives (Appendix A2) would have approximately 114,000 total annual flight operations for the complex, with the EA-18G generating 87 percent of the complex's annual flight operations.

Table 6-1 Summary of Annual Flight Operations for the Average Year Alternative 1A

		Alternative 1A (Average Year)			*Change from No Action*		
		Type of Flight Operation			*Type of Flight Operation*		
Airfield	*Aircraft Type or Category*	*FCLP [2, 3]*	*Other [4]*	*Total*	*FCLP [2, 5]*	*Other*	*Total*
Ault Field	EA-18G	6,100	67,000	73,100	-5,200	+14,000	+8,800
	Other Based	-	11,900	11,900	-	+300	+300
	Transient	-	2,300	2,300	-	-	-
	Subtotal	6,100	81,200	87,300	-5,200	+14,300	+9,100
OLF Coupeville [4]	EA-18G	24,900	-	24,900	+18,800	-	+18,800
	Other	-	400	400	-	-	-
	Subtotal	24,900	400	25,300	+18,800	-	+18,800
TOTAL (both airfields)		**31,000**	**81,600**	**112,600**	**+13,600**	**+14,300**	**+27,900**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 3,102 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 6-2 Detailed Annual Flight Operations for the Average Year Alternative 1A

Airfield	Aircraft	Squadron	Departure			Arrival									Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)			Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,592	419	8,011	2,751	86	2,837	4,463	0	184	4,647	517	11	528	483	212	279	974	787	0	187	974						
		FRS	5,627	384	6,011	2,158	315	2,473	2,376	320	594	3,290	218	31	249	291	154	119	564	489	0	77	566						
		RES	1,161	75	1,236	386	21	407	721	0	27	748	76	5	81	6	5	2	13	13	0	2	15						
		EXP	1,562	79	1,641	573	20	593	885	0	43	928	118	3	121	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-													
	P8	All	1,937	100	2,037	1,393	272	1,665	-	-	-	-	311	61	372													
	H60	SAR	388	-	388	388	-	388	-	-	-	-	-	-	-									91	-	91	91	-	91
	C-40	-	394	-	394	282	-	282	-	-	-	-	112	-	112														
	JET_LRG	-	413	102	515	382	99	481	-	-	-	-	25	9	34														
Total			**19,074**	**1,159**	**20,233**	**8,313**	**813**	**9,126**	**8,445**	**320**	**848**	**9,613**	**1,377**	**120**	**1,497**	**780**	**371**	**400**	**1,551**	**1,289**	**-**	**266**	**1,555**	**91**	**-**	**91**	**91**	**-**	**91**

Airfield	Aircraft	Squadron													Interfacility													
															Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
															Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
															DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW													787	-	187	974	483	212	279	974						
		FRS													489	-	77	566	291	154	119	564						
		RES													13	-	2	15	6	5	2	13						
	H60	SAR																					91	-	91	91	-	91
Total															**1,289**	**-**	**266**	**1,555**	**780**	**371**	**400**	**1,551**	**91**	**-**	**91**	**91**	**-**	**91**

Table 6-2 Detailed Annual Flight Operations for the Average Year Alternative 1A

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	1,753	1,099	1,014	3,866	3,633	654	1,086	5,373	2,574	95	2,669	4,695	3,029	7,724	29,248	1,965	6,390	37,603
		FRS	1,358	462	320	2,140	3,641	731	1,016	5,388	-	-	0	4,716	1,028	5,744	20,874	1,667	3,884	26,425
		RES	94	25	20	139	532	10	19	561	435	13	448	522	43	565	3,946	40	227	4,213
		EXP	-	-	-	0	535	-	24	559	500	36	536	533	20	553	4,706	-	225	4,931
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,160	0	675	4,835	-	-	-	1,794	190	1,984	9,595	-	1,298	10,893
	H60	SAR					-	-	-	-	-	-	-	-	-	-	958	-	-	958
	C-40	-					328	-	-	328	-	-	-	164	-	164	1,280	-	-	1,280
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	820	-	210	1,030
Total			**3,205**	**1,586**	**1,354**	**6,145**	**12,829**	**1,395**	**2,820**	**17,044**	**3,509**	**144**	**3,653**	**12,424**	**4,310**	**16,734**	**71,427**	**3,672**	**12,234**	**87,333**
OLF	EA18	CVW	6,464	3,847	3,322	13,633											7,734	4,059	3,788	15,581
		FRS	3,879	2,701	1,329	7,909											4,659	2,855	1,525	9,039
		RES	91	88	28	207											110	93	32	235
	H60	SAR					184	-	-	184							366	-	-	366
Total			**10,434**	**6,636**	**4,679**	**21,749**	**184**	-	-	**184**							**12,869**	**7,007**	**5,345**	**25,221**
														Grand Totals (Ault+OLF)			**84,296**	**10,679**	**17,579**	**112,554**

Total Annual EA-18G FCLP Related Ops **Ault = 6,145 (19.8%)** **OLF = 24,855 (80.2%)** **Total = 31,000**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 6-3 Summary of Annual Flight Operations for the Average Year Alternative 1B

Airfield	Aircraft Type or Category	Alternative 1B (Average Year) Type of Flight Operation FCLP [2, 3]	Other [4]	Total	Change from No Action Type of Flight Operation FCLP [2, 5]	Other	Total
Ault Field	EA-18G	15,500	65,600	81,100	+4,200	+12,600	+16,800
	Other Based	-	11,900	11,900	-	+300	+300
	Transient	-	2,300	2,300	-	-	-
	Subtotal	15,500	79,800	95,300	+4,200	+12,900	+17,100
OLF Coupeville [4]	EA-18G	15,500	-	15,500	+9,400	-	+9,400
	Other	-	400	400	-	-	-
	Subtotal	15,500	400	15,900	+9,400	-	+9,400
TOTAL (both airfields)		**31,000**	**80,200**	**111,200**	**+13,600**	**+12,900**	**+26,500**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 1,944 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 6-4 Detailed Annual Flight Operations for the Average Year Alternative 1B

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility												
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,502	438	7,940	2,695	82	2,777	4,459	-	176	4,635	516	12	528	306	146	160	612	500	-	112	612						
		FRS	5,590	374	5,964	2,134	307	2,441	2,369	322	596	3,287	205	31	236	178	94	75	347	298	-	48	346						
		RES	1,144	83	1,227	391	18	409	714	-	26	740	75	3	78	6	4	3	13	12	-	2	14						
		EXP	1,541	82	1,623	567	29	596	884	-	43	927	96	3	99	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,909	104	2,013	1,382	260	1,642	-	-	-	-	309	62	371														
	H60	SAR	385	-	385	385	-	385	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	390	-	390	280	-	280	-	-	-	-	110	-	110														
	JET_LRG	-	412	99	511	372	99	471	-	-	-	-	25	14	39														
Total			**18,873**	**1,180**	**20,053**	**8,206**	**795**	**9,001**	**8,426**	**322**	**841**	**9,589**	**1,336**	**125**	**1,461**	**490**	**244**	**238**	**972**	**810**	**-**	**162**	**972**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility																									
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault														
			Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)																			
			DL	DK	DK	Total	DL	DK	DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total													
OLF	EA18	CVW	500	-	112	612	306	146	160	612																		
		FRS	298	-	48	346	178	94	75	347																		
		RES	12	-	2	14	6	4	3	13																		
	H60	SAR									90	-	90	90	-	90												
Total			**1,289**	**-**	**810**	**-**	**162**	**972**	**490**	**244**	**238**	**972**	**90**	**-**	**90**	**90**	**-**	**90**										

Table 6-4 Detailed Annual Flight Operations for the Average Year Alternative 1B

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	4,427	2,776	2,559	9,762	3,633	654	1,086	5,373	2,574	95	2,669	4,695	3,029	7,724	31,307	3,576	7,749	42,632
		FRS	3,614	1,232	756	5,602	3,641	731	1,016	5,388	-	-	0	4,716	1,028	5,744	22,745	2,379	4,231	29,355
		RES	107	42	26	175	532	10	19	561	435	13	448	522	43	565	3,938	56	236	4,230
		EXP	-	-	-	0	535	-	24	559	500	36	536	533	20	553	4,656	-	237	4,893
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,271	-	634	4,905	-	-	-	1,849	173	2,022	9,720	-	1,233	10,953
	H60	SAR					-	-	-	-	-	-	-	-	-	-	950	-	-	950
	C-40	-					335	-	-	335	-	-	-	167	-	167	1,282	-	-	1,282
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	809	-	212	1,021
Total			**8,148**	**4,050**	**3,341**	**15,539**	**12,947**	**1,395**	**2,779**	**17,121**	**3,509**	**144**	**3,653**	**12,482**	**4,293**	**16,775**	**75,407**	**6,011**	**13,898**	**95,316**
OLF	EA18	CVW	4,082	2,551	1,926	8,559											4,888	2,697	2,198	9,783
		FRS	2,369	1,617	863	4,849											2,845	1,711	986	5,542
		RES	83	74	32	189											101	78	37	216
	H60	SAR					180	-	-	180							360	-	-	360
Total			**6,534**	**4,242**	**2,821**	**13,597**	**180**	**-**	**-**	**180**							**8,194**	**4,486**	**3,221**	**15,901**
														Grand Totals (Ault+OLF)			**83,601**	**10,497**	**17,119**	**111,217**

Total Annual EA-18G FCLP Related Ops **Ault = 15,539 (50%)** **OLF = 15,541 (50%)** **Total = 31,080**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 6-5 Summary of Annual Flight Operations for the Average Year Alternative 1C

Airfield	Aircraft Type or Category	Alternative 1C (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	24,900	64,400	89,300	+13,600	+11,400	+25,000
	Other Based	-	11,600	11,600	-	-	-
	Transient	-	2,300	2,300	-	-	-
	Subtotal	24,900	78,300	103,200	+13,600	+11,400	+25,000
OLF Coupeville [4]	EA-18G	6,200	-	6,200	+100	-	+100
	Other	-	400	400	-	-	-
	Subtotal	6,200	400	6,600	+100	-	+100
TOTAL (both airfields)		**31,100**	**78,700**	**109,800**	**+13,700**	**+11,400**	**+25,100**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 780 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 6-6 Detailed Annual Flight Operations for the Average Year Alternative 1C

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility												
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,508	445	7,953	2,724	92	2,816	4,474	-	157	4,631	501	4	505	120	59	64	243	199	-	45	244						
		FRS	5,606	356	5,962	2,117	315	2,432	2,398	300	617	3,315	197	19	216	69	40	27	136	120	-	17	137						
		RES	1,139	89	1,228	392	21	413	707	-	30	737	77	1	78	6	3	2	11	9	-	2	11						
		EXP	1,543	81	1,624	565	25	590	888	-	47	935	97	3	100	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,929	95	2,024	1,397	267	1,664	-	-	-	-	306	54	360														
	H60	SAR	385	-	385	385	-	385	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	391	-	391	279	-	279	-	-	-	-	112	-	112														
	JET_LRG	-	407	104	511	372	100	472	-	-	-	-	23	14	37														
Total			**18,908**	**1,170**	**20,078**	**8,231**	**820**	**9,051**	**8,467**	**300**	**851**	**9,618**	**1,313**	**95**	**1,408**	**195**	**102**	**93**	**390**	**328**	**-**	**64**	**392**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility															
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
			Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW	199	-	45	244	120	59	64	243						
		FRS	120	-	17	137	69	40	27	136						
		RES	9	-	2	11	6	3	2	11						
	H60	SAR									90	-	90	90	-	90
Total			**328**	**-**	**64**	**392**	**195**	**102**	**93**	**390**	**90**	**-**	**90**	**90**	**-**	**90**

Table 6-6 Detailed Annual Flight Operations for the Average Year Alternative 1C

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	7,067	3,828	4,714	15,609	3,633	654	1,086	5,373	2,574	95	2,669	4,695	3,029	7,724	33,495	4,541	9,731	47,767
		FRS	5,827	2,043	1,197	9,067	3,641	731	1,016	5,388	-	-	0	4,716	1,028	5,744	24,691	3,114	4,592	32,397
		RES	102	52	21	175	532	10	19	561	435	13	448	522	43	565	3,921	65	241	4,227
		EXP	-	-	-	0	535	-	24	559	500	36	536	533	20	553	4,661	-	236	4,897
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,069	-	600	4,669	-	-	-	1,761	160	1,921	9,462	-	1,176	10,638
	H60	SAR					-	-	-	-	-	-	-	-	-	-	950	-	-	950
	C-40	-					327	-	-	327	-	-	-	164	-	164	1,273	-	-	1,273
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	802	-	218	1,020
Total			**12,996**	**5,923**	**5,932**	**24,851**	**12,737**	**1,395**	**2,745**	**16,877**	**3,509**	**144**	**3,653**	**12,391**	**4,280**	**16,671**	**79,255**	**7,720**	**16,194**	**103,169**
OLF	EA18	CVW	1,609	1,026	769	3,404											1,928	1,085	878	3,891
		FRS	920	680	303	1,903											1,109	720	347	2,176
		RES	65	43	30	138											80	46	34	160
	H60	SAR					181	-	-	181							361	-	-	361
Total			**2,594**	**1,749**	**1,102**	**5,445**	**181**	**-**	**-**	**181**							**3,478**	**1,851**	**1,259**	**6,588**
														Grand Totals (Ault+OLF)			**82,733**	**9,571**	**17,453**	**109,757**

Total Annual EA-18G FCLP Related Ops **Ault = 24,851 (80%)** **OLF = 6,227 (20%)** **Total = 31,078**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 6-7 Summary of Annual Flight Operations for the Average Year Alternative 1D

Airfield	Aircraft Type or Category	Alternative 1D (Average Year) Type of Flight Operation FCLP [2, 3]	Other [4]	Total	Change from No Action Type of Flight Operation FCLP [2, 5]	Other	Total
Ault Field	EA-18G	9,200	66,600	75,800	-2,100	+13,600	+11,500
	Other Based	-	11,900	11,900	-	+300	+300
	Transient	-	2,300	2,300	-	-	-
	Subtotal	9,200	80,800	90,000	-2,100	+13,900	+11,800
OLF Coupeville [4]	EA-18G	21,800	-	21,800	+15,700	-	+15,700
	Other	-	400	400	-	-	-
	Subtotal	21,800	400	22,200	+15,700	-	+15,700
TOTAL (both airfields)		**31,000**	**81,200**	**112,200**	**+13,600**	**+13,900**	**+27,500**

Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.
Each closed pattern is counted as two operations.
For Growlers at the OLF, values include 2,716 interfacility (FCLP-related) operations; not shown separately.
For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.
No Action excludes 900 interfacility Growler operations (FCLP related).

Table 6-8 Detailed Annual Flight Operations for the Average Year Alternative 1D

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,592	419	8,011	2,751	86	2,837	4,463	-	184	4,647	517	11	528	423	186	244	853	689	-	164	853						
		FRS	5,627	384	6,011	2,158	315	2,473	2,376	320	594	3,290	218	31	249	255	135	104	494	428	-	67	495						
		RES	1,161	75	1,236	386	21	407	721	-	27	748	76	5	81	5	4	2	11	11	-	2	13						
		EXP	1,562	79	1,641	573	20	593	885	-	43	928	118	3	121	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-													
	P8	All	1,937	100	2,037	1,393	272	1,665	-	-	-	-	311	61	372													
	H60	SAR	388	-	388	388	-	388	-	-	-	-	-	-	-									91	-	91	91	-	91
	C-40	-	394	-	394	282	-	282	-	-	-	-	112	-	112														
	JET_LRG	-	413	102	515	382	99	481	-	-	-	-	25	9	34														
Total			**19,074**	**1,159**	**20,233**	**8,313**	**813**	**9,126**	**8,445**	**320**	**848**	**9,613**	**1,377**	**120**	**1,497**	**683**	**325**	**350**	**1,358**	**1,128**	**-**	**233**	**1,361**	**91**	**-**	**91**	**91**	**-**	**91**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
																DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW														689	-	164	853	423	186	244	853						
		FRS														428	-	67	495	255	135	104	494						
		RES														11	-	2	13	5	4	2	11						
	H60	SAR																					91	-	91	91	-	91
Total																**1,128**	**-**	**233**	**1,361**	**683**	**325**	**350**	**1,358**	**91**	**-**	**91**	**91**	**-**	**91**

Table 6-8 Detailed Annual Flight Operations for the Average Year Alternative 1D

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	2,630	1,649	1,521	5,800	3,633	654	1,086	5,373	2,574	95	2,669	4,695	3,029	7,724	29,967	2,489	6,839	39,295
		FRS	2,037	693	480	3,210	3,641	731	1,016	5,388	-	-	0	4,716	1,028	5,744	21,456	1,879	4,019	27,354
		RES	141	38	30	209	532	10	19	561	435	13	448	522	43	565	3,990	52	237	4,279
		EXP	-	-	-	0	535	-	24	559	500	36	536	533	20	553	4,706	-	225	4,931
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,160	-	675	4,835	-	-	-	1,794	190	1,984	9,595	-	1,298	10,893
	H60	SAR					-	-	-	-	-	-	-	-	-	-	958	-	-	958
	C-40	-					328	-	-	328	-	-	-	164	-	164	1,280	-	-	1,280
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	820	-	210	1,030
Total			**4,808**	**2,380**	**2,031**	**9,219**	**12,829**	**1,395**	**2,820**	**17,044**	**3,509**	**144**	**3,653**	**12,424**	**4,310**	**16,734**	**72,772**	**4,420**	**12,828**	**90,020**
OLF	EA18	CVW	5,656	3,366	2,907	11,929											6,768	3,552	3,315	13,635
		FRS	3,394	2,363	1,163	6,920											4,077	2,498	1,334	7,909
		RES	80	77	25	182											96	81	29	206
	H60	SAR					184	-	-	184							366	-	-	366
Total			**9,130**	**5,806**	**4,095**	**19,031**	**184**	**-**	**-**	**184**							**11,307**	**6,131**	**4,678**	**22,116**
														Grand Totals (Ault+OLF)			**84,079**	**10,551**	**17,506**	**112,136**

Total Annual EA-18G FCLP Related Ops **Ault = 9,219 (29.8%)** **OLF = 21,750 (70.2%)** **Total = 30,969**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 6-9 Summary of Annual Flight Operations for the Average Year Alternative 1E

Airfield	Aircraft Type or Category	Alternative 1E (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	21,700	64,800	86,500	+10,400	+11,800	+22,200
	Other Based	-	11,600	11,600	-	-	-
	Transient	-	2,300	2,300	-	-	-
	Subtotal	21,700	78,700	100,400	+10,400	+11,800	+22,200
OLF Coupeville [4]	EA-18G	9,300	-	9,300	+3,200	-	+3,200
	Other	-	400	400	-	-	-
	Subtotal	9,300	400	9,700	+3,200	-	+3,200
TOTAL (both airfields)		**31,000**	**79,100**	**110,100**	**+13,600**	**+11,800**	**+25,400**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 1,174 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 6-10 Detailed Annual Flight Operations for the Average Year Alternative 1E

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	7,508	445	7,953	2,724	92	2,816	4,474	-	157	4,631	501	4	505	180	89	96	365	299	-	68	367						
		FRS	5,606	356	5,962	2,117	315	2,432	2,398	300	617	3,315	197	19	216	104	60	41	205	180	-	26	206						
		RES	1,139	89	1,228	392	21	413	707	-	30	737	77	1	78	9	5	3	17	14	-	3	17						
		EXP	1,543	81	1,624	565	25	590	888	-	47	935	97	3	100	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,929	95	2,024	1,397	267	1,664	-	-	-	-	306	54	360														
	H60	SAR	385	-	385	385	-	385	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	391	-	391	279	-	279	-	-	-	-	112	-	112														
	JET_LRG	-	407	104	511	372	100	472	-	-	-	-	23	14	37														
Total			**18,908**	**1,170**	**20,078**	**8,231**	**820**	**9,051**	**8,467**	**300**	**851**	**9,618**	**1,313**	**95**	**1,408**	**293**	**154**	**140**	**587**	**493**	**-**	**97**	**590**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility															
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
			Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW	299	-	68	367	180	89	96	365						
		FRS	180	-	26	206	104	60	41	205						
		RES	14	-	3	17	9	5	3	17						
	H60	SAR									90	-	90	90	-	90
Total			**493**	**-**	**97**	**590**	**293**	**154**	**140**	**587**	**90**	**-**	**90**	**90**	**-**	**90**

Table 6-10 Detailed Annual Flight Operations for the Average Year Alternative 1E

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	6,184	3,350	4,125	13,659	3,633	654	1,086	5,373	2,574	95	2,669	4,695	3,029	7,724	32,772	4,093	9,197	46,062
		FRS	5,099	1,788	1,047	7,934	3,641	731	1,016	5,388	-	-	0	4,716	1,028	5,744	24,058	2,879	4,465	31,402
		RES	89	46	18	153	532	10	19	561	435	13	448	522	43	565	3,916	61	240	4,217
		EXP	-	-	-	0	535	-	24	559	500	36	536	533	20	553	4,661	-	236	4,897
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,069	-	600	4,669	-	-	-	1,761	160	1,921	9,462	-	1,176	10,638
	H60	SAR					-	-	-	-	-	-	-	-	-	-	950	-	-	950
	C-40	-					327	-	-	327	-	-	-	164	-	164	1,273	-	-	1,273
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	802	-	218	1,020
Total			**11,372**	**5,184**	**5,190**	**21,746**	**12,737**	**1,395**	**2,745**	**16,877**	**3,509**	**144**	**3,653**	**12,391**	**4,280**	**16,671**	**77,894**	**7,033**	**15,532**	**100,459**
OLF	EA18	CVW	2,414	1,539	1,154	5,107											2,893	1,628	1,318	5,839
		FRS	1,380	1,020	455	2,855											1,664	1,080	522	3,266
		RES	98	65	45	208											121	70	51	242
	H60	SAR					181	-	-	181							361	-	-	361
Total			**3,892**	**2,624**	**1,654**	**8,170**	**181**	**-**	**-**	**181**							**5,039**	**2,778**	**1,891**	**9,708**
														Grand Totals (Ault+OLF)			**82,933**	**9,811**	**17,424**	**110,167**

Total Annual EA-18G FCLP Related Ops **Ault = 21,746 (69.9%)** **OLF = 9,347 (30.1%)** **Total = 31,093**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

6.1.1 Standard Pattern

The Proposed Action involves modifications to the FCLP patterns at OLF Coupeville primarily due to the non-standard pattern on Runway 14. The narrower pattern on Runway 14 requires an unacceptably steep bank angle for the Growler due to its performance differences from the Prowler's flight capabilities, resulting in limited use of Runway 14. The modifications of the FCLP patterns will also maintain the same pattern for both day and night operations as opposed to the current operations, which change the pattern between day and night. A comparison of the current and proposed (for all alternatives) FCLP patterns is provided in Figure 6-1 for Runway 14 and Figure 6-2 for Runway 32. The proposed flight profile will be similar to the current one, with the downwind leg having a 600-foot altitude relative to the runway. These new patterns will be used to improve the standardization of training and enable greater use of Runway 14. The standard FCLP patterns will result in runway use percentages based on the prevailing winds rather than aircraft performance and quality of training.

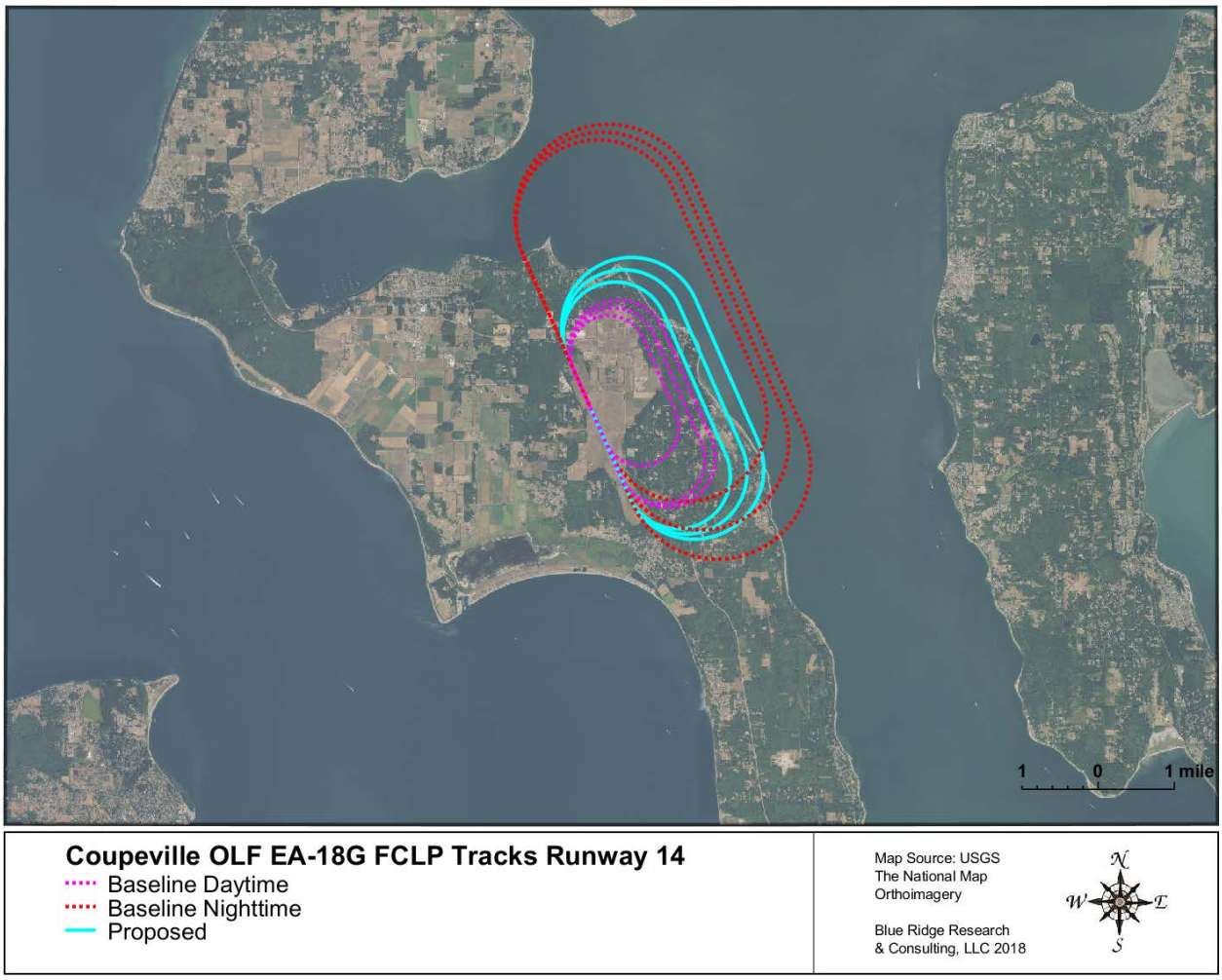

Figure 6-1 Comparison of Baseline and Proposed FCLP Pattern for Runway 14 at OLF Coupeville

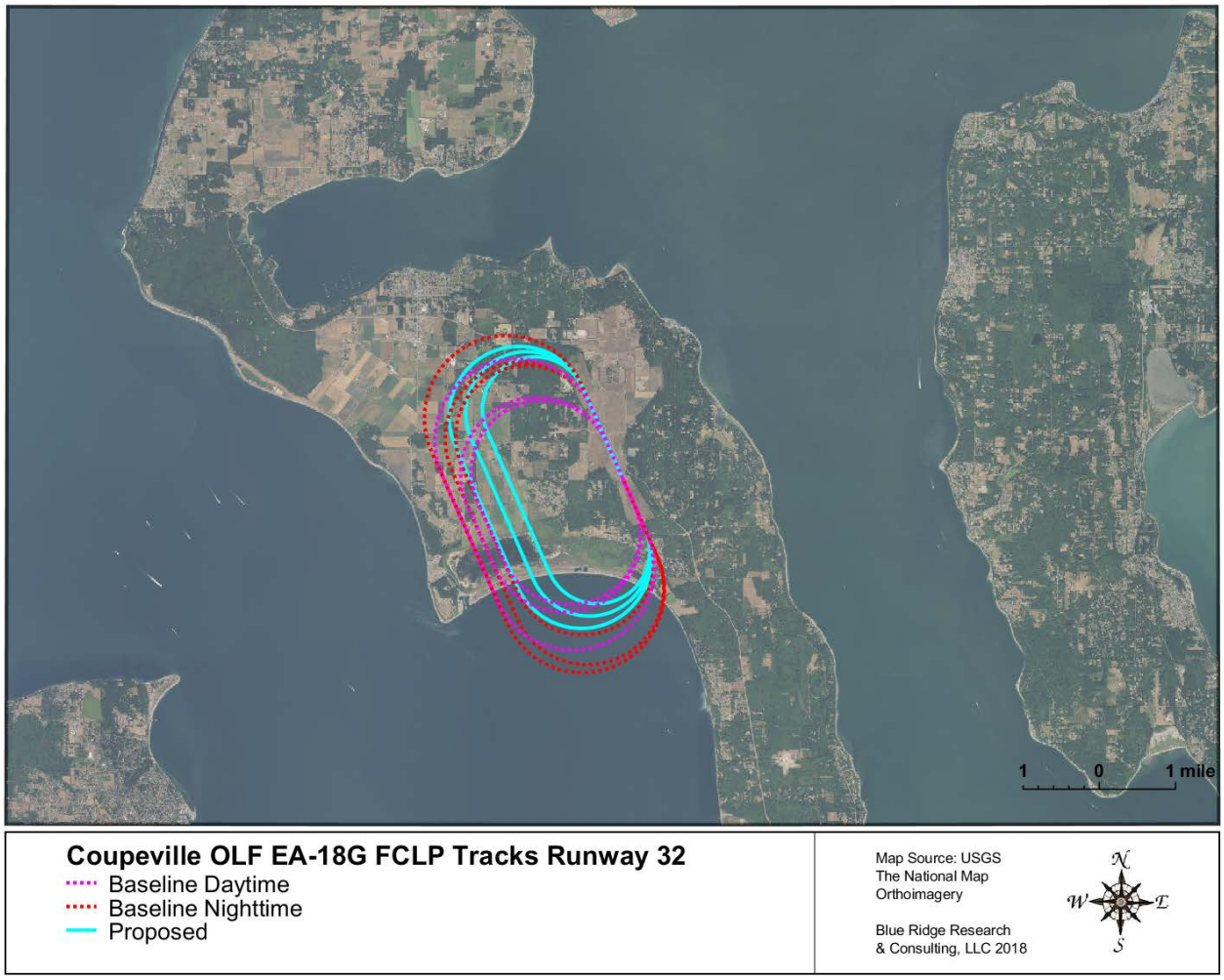

Figure 6-2 Comparison of Baseline and Proposed FCLP Pattern for Runway 32 at OLF Coupeville

6.2 Other Modeling Parameters

Appendix A3 contains tables of runway utilization percentages as extracted from the NASMOD study output. Flight tracks and their utilization would be identical to the No Action Alternative except for the overhead break/pattern portion of the interfacility arrival tracks to the OLF and the FCLPs at the OLF. The primary changes in these tracks are the abeam distances (shortened compared to the No Action Alternative). Modeled flight tracks are depicted in Appendix A4.

Flight profiles would be identical to those of the No Action Alternative except for the adjustments made to the aforementioned revised overhead break/pattern and FCLP flight tracks. The representative profiles for each modeled aircraft type are contained in Appendix A5.

Depending on whether scenario A, B, C, D, or E is selected, Alternative 1 would have between approximately 180 and 198 AAD flight events at Ault Field and between approximately 11 and 39 AAD flight events at the OLF. For the high-tempo FCLP year, Alternative 1 would have between approximately 181 and 201 AAD flight events at Ault Field and between approximately 12 and 43 AAD flight events at the OLF.

6.3 Run-up Operations

Table 6-11 lists the modeled run-ups with their locations depicted on Figure 5-1. For average year Alternative 1, numbers of annual run-up events for the EA-18G were scaled proportionally to the change in number of based aircraft compared to the average year No Action Alternative.

For the high-tempo FCLP year Alternative 1, it was assumed the run-ups would not change compared to those of average year Alternative 1.

Table 6-11 Modeled Run-Up Operations and Profiles for Alternatives 1 through 3

Modeled Maintenance Run-up Operations at NAS Whidbey Island for No Action Max Year and Average Year Scenario

Aircraft Type	*Engine Type*	*Run-up Type*	*Pad ID*	*Magnetic Heading (degrees)*	*Alternative*			*Percentage During*		*Power Setting*		*Duration of Each Event (Minutes)*	*No. of Engines Running (each event)*
					1	*2*	*3*	*Day (0700 - 2200)*	*Night (2200 - 0700)*	*Reported*	*Modeled (if different)*		
EA-18G	F414-GE-400	Water Wash	Lo-Pwr1 Lo-Pwr2 Lo-Pwr3 (2)	135/315	117	118	118	45%	55%	Ground Idle	65% NC	10	1
		Low power	Lo-Pwr1 Lo-Pwr2 Lo-Pwr3 (2)	135/315	1755	1770	1770	45%	55%	Ground Idle	65% NC	30	1
					3510	3540	3540			Ground Idle	65% NC	30	2
		High Power	50% Hi-Pwr1 / 50% Hi-Pwr2	311 (Hi-Pwr1) / 127 (Hi-Pwr2)	936	944	944	90%	10%	Ground Idle	65% NC	25	2
										80%NC	80% NC	10	2
										Mil	96% NC	3	2
										AB	A/B	3	2
P-8A	CFM56-7B-24	Leak Check	50% Lo-Pwr4 / 50% Lo-Pwr5	126	24			75%	25%	5400 Lbs		5	2
		Pressure Check		126	12					5400 Lbs		12	2
		Leak Check	Runway Hold (3)	100 (Rwy14); 270 (Rwy25); 330 (Rwy32); 140 (Rwy07)	24					5400 Lbs		5	2
		Pressure Check			12					5400 Lbs		12	2

Notes:

1 EA-18G events increase proportionally with number of aircraft for Alternatives

2 Run-up events split 50% Lo-Pwr1, 30% Lo-Pwr2, and 20% Lo-Pwr3

3 Runway Hold Run-ups split 50% Runway 32, 40% Runway 25, 5% Runway 07, and 5% Runway 14

6.4 Aircraft Noise Exposure

Using the data described in Sections 6.1 through 6.3, NOISEMAP was used to calculate and plot the 55 dB through 95 dB DNL contours, in 5-dB increments, for the AAD events for the average year for Alternative 1 under all scenarios. Figures 6-3 through 6-7 show the resulting DNL contours.

At Ault Field, the DNL contours for the average year for Alternatives 1 under all scenarios would vary by roughly 1,000 feet of each other. The 65 dB contour surrounding Ault Field would extend approximately 7 to 13 miles from the runway endpoints. The location of these lobes would be primarily attributable to the EA-18G on the approach portion of GCA patterns. The 65 dB DNL contour would extend approximately 2 miles past the eastern shore of the mainland across Skagit Bay, primarily due to EA-18G GCA and VFR approaches. The 80 dB DNL contour would extend approximately 4 miles to the east outside the station boundary, primarily due to EA-18G GCA and VFR approaches descending from 1,800 feet AGL, as well as the GCA patterns. The 90 dB contour would extend approximately a half mile to the east beyond the station boundary.

The DNL exposure at the OLF would be attributable to the OLF's FCLP operations. The 65 dB contours would extend 2.2 to 2.8 miles north of the OLF's runway. The 65 dB contours would extend 2.5 to 3.1 miles south of the OLF's runway.

As an overview comparison map, Figure 6-8 compares the 65 dB DNL contours of the average year Alternative 1 under all scenarios to the 65 dB DNL contours of the No Action Alternative. Because FCLPs comprise the majority of operations at the OLF, changes in location of FCLPs between Ault Field and OLF cause a larger difference in DNL contours at the OLF from one scenario to the next.

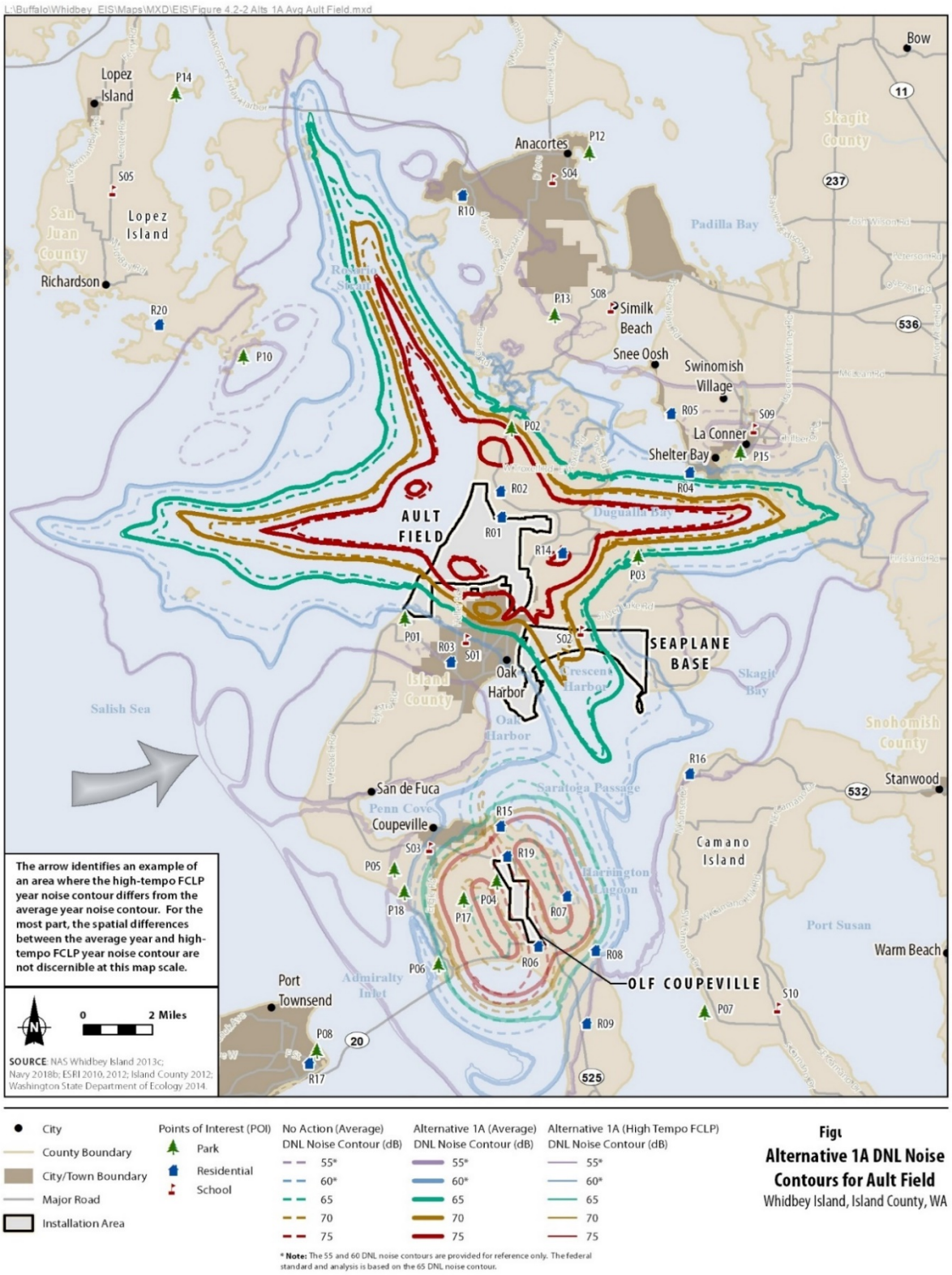

Figure 6-3 DNL Contours for AAD Aircraft Events for the Average Year Alternative 1A

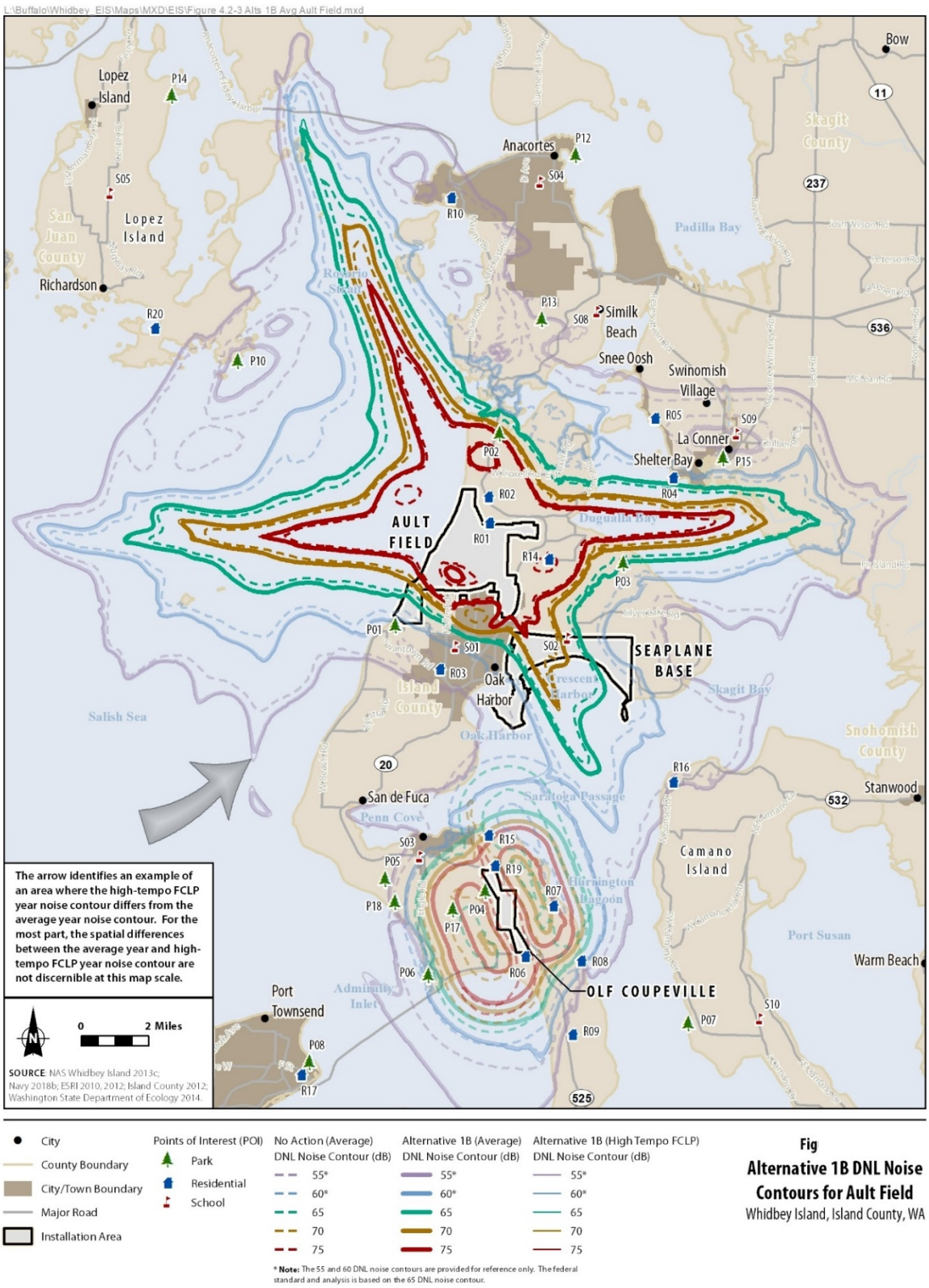

Figure 6-4 DNL Contours for AAD Aircraft Events for the Average Year Alternative 1B

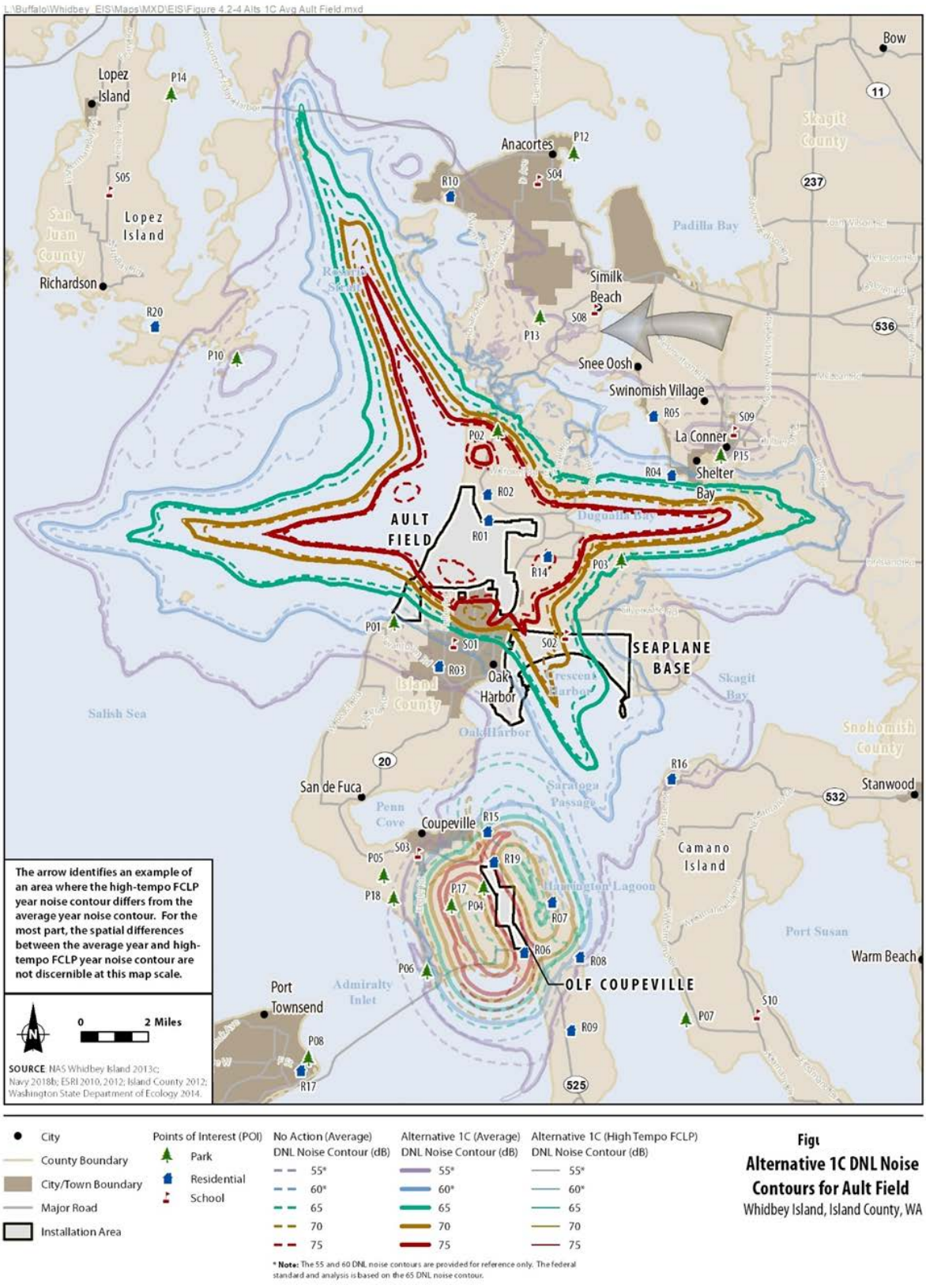

Figure 6-5 DNL Contours for AAD Aircraft Events for the Average Year Alternative 1C

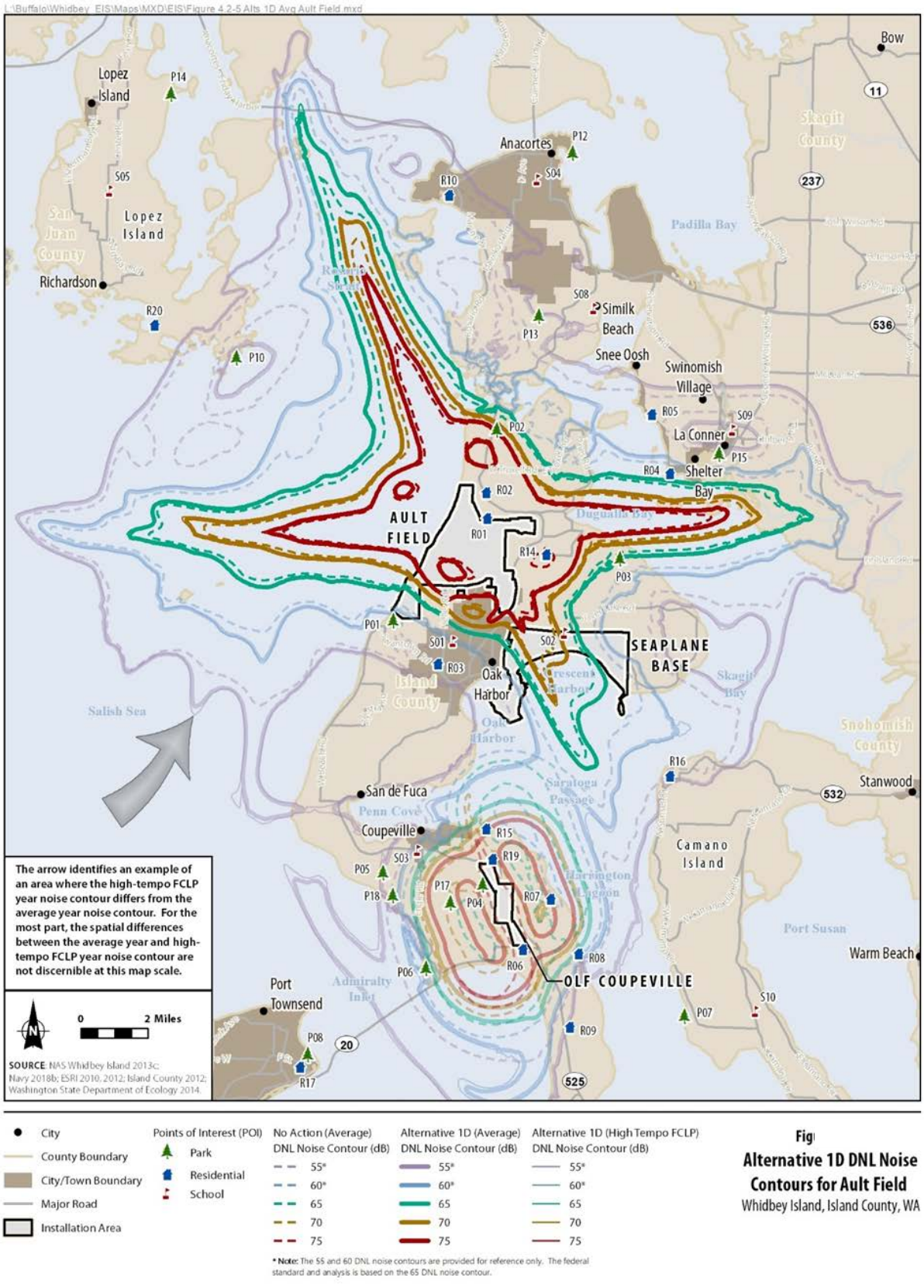

Figure 6-6 DNL Contours for AAD Aircraft Events for the Average Year Alternative 1D

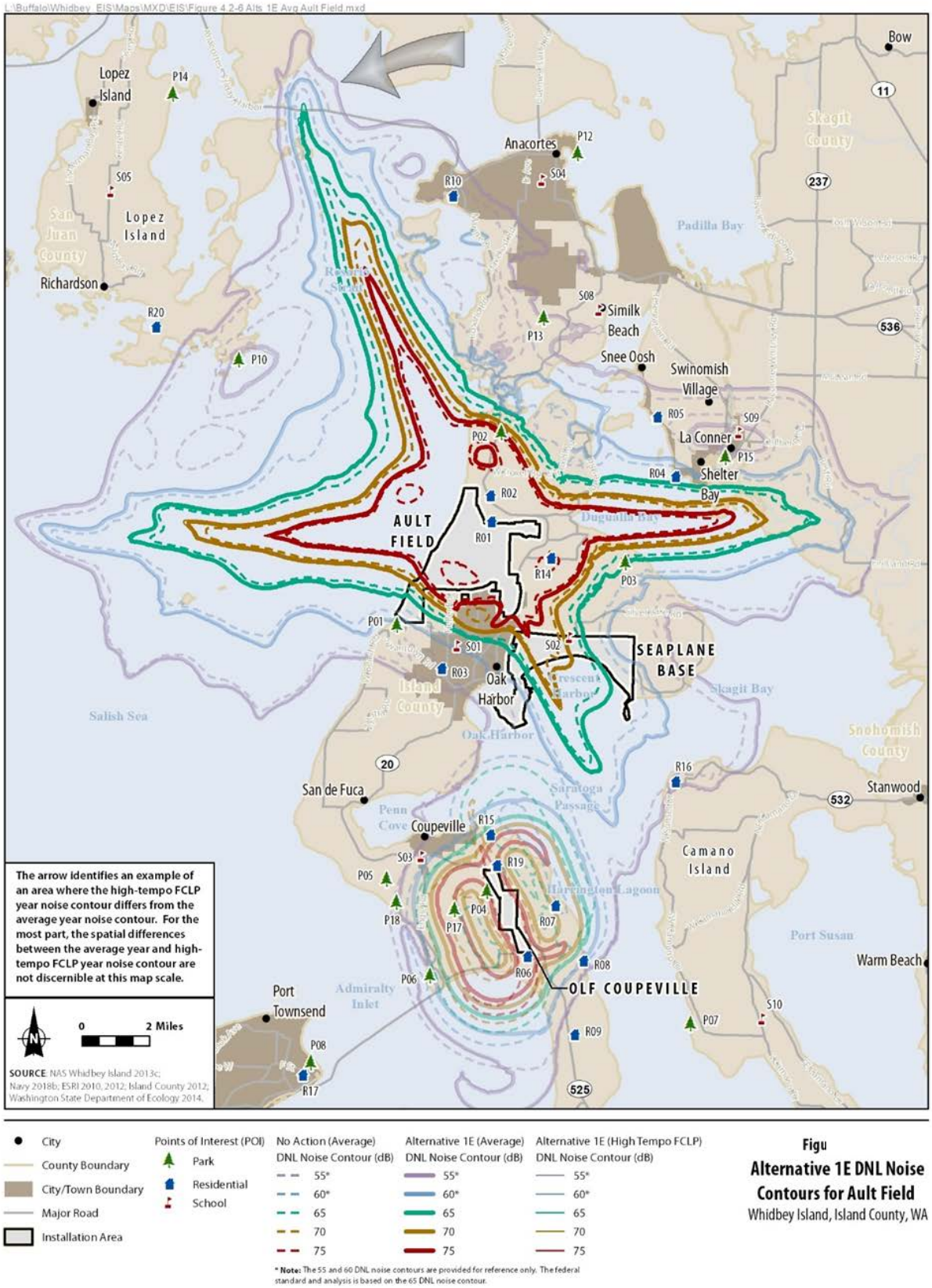

Figure 6-7 DNL Contours for AAD Aircraft Events for the Average Year Alternative 1E

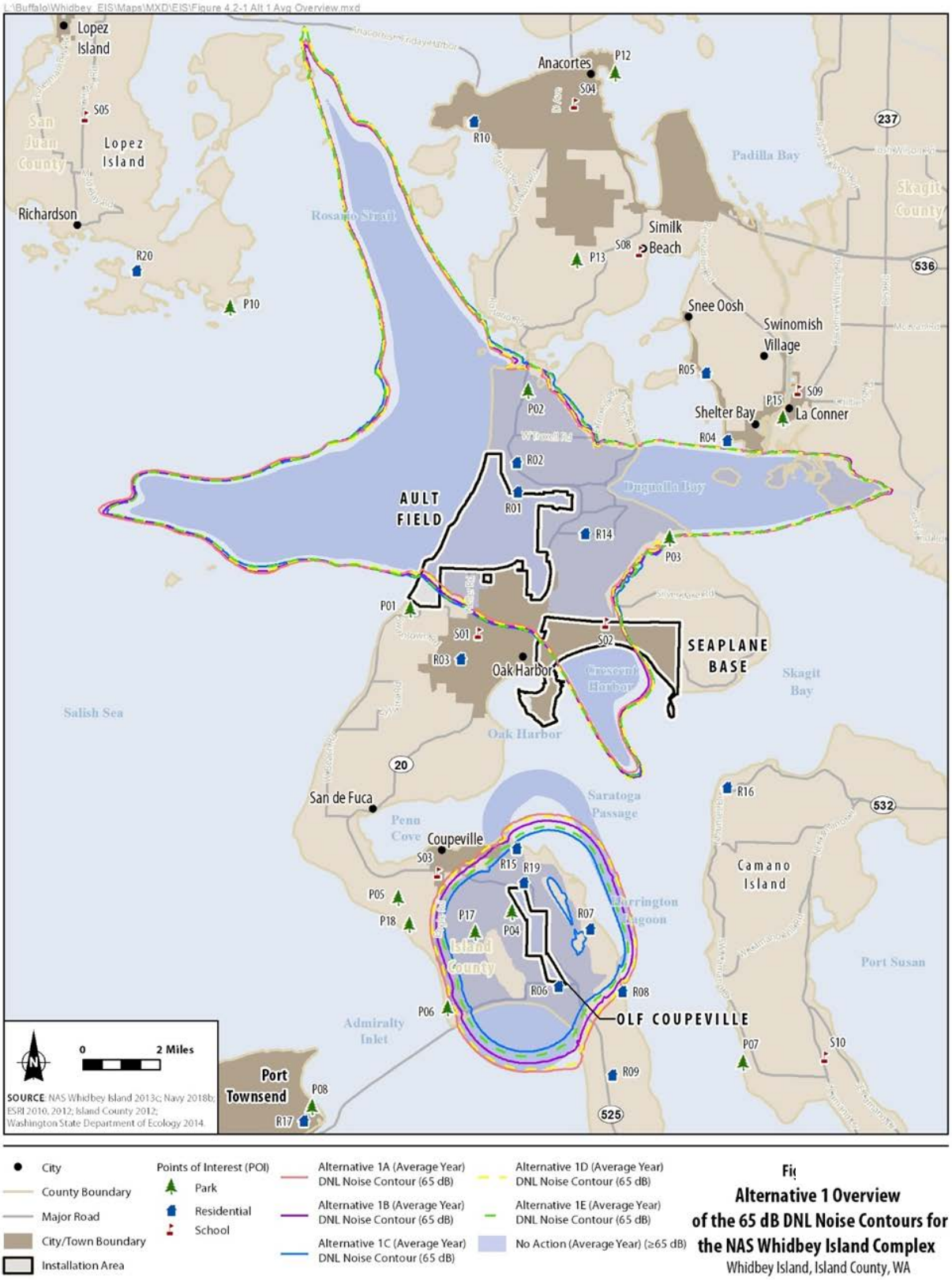

Figure 6-8 Comparison of 65 dB DNL Contours for Average Year Alternatives and the No Action Alternative

Table 6-12 depicts the estimated off-station population exposed to DNL greater than or equal to 65 dB and its change compared to the No Action Alternative. Overall, the affected population would increase by 13 percent to 17 percent, with the smallest increase occurring under Alternative 1, Scenario A, and the largest under Alternative 1, Scenarios B and E.

Under the high-tempo FCLP year Alternative 1 (Appendix A7), the population exposed to DNL greater than or equal to 65 dB would increase by 15 percent to 19 percent, with the smallest increase occurring under high-tempo FCLP year Alternative 1, Scenario A, and the largest attributable to high-tempo FCLP year Alternative 1, Scenarios C and E. As shown in Table 6-13, the population exposed to DNL greater than or equal to 65 dB would, on average, be 2 percent higher than the average year Alternative 1.

Table 6-12 Estimated Acreage and Population within the DNL Contour Ranges[1] for the NAS Whidbey Island Complex, Alternative 1 (Average Year)[2,3]

	DNL Contour Ranges							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
	Area (acres)	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*
Ault Field								
No Action Alternative								
Average Year	3,596	3,279	3,269	2,283	5,549	3,379	12,414	8,941
Alternative 1								
Scenario A (20/80 FCLP split)	4,033 (+437)	3,684 (+405)	3,259 (-10)	1,908 (-375)	5,934 (+385)	3,518 (+139)	13,226 (+812)	9,110 (+169)
Scenario B (50/50 FCLP split)	3,922 (+326)	3,619 (+340)	3,271 (+2)	2,450 (+167)	6,423 (+874)	3,786 (+407)	13,616 (+1,202)	9,855 (+914)
Scenario C (80/20 FCLP split)	3,947 (+351)	3,761 (+482)	3,115 (-154)	2,515 (+232)	6,860 (+1,311)	3,977 (+598)	13,922 (+1,508)	10,253 (+1,312)
Scenario D (30/70 FCLP split)	3,976 (+380)	3,712 (+433)	3,184 (-85)	2,171 (-112)	6,235 (+686)	3,679 (+300)	13,395 (+981)	9,562 (+621)
Scenario E (70/30 FCLP split)	3,924 (+328)	3,713 (+434)	3,139 (-130)	2,487 (+204)	6,755 (+1,206)	3,919 (+540)	13,818 (+1,404)	10,119 (+1,178)
OLF Coupeville								
No Action Alternative								
Average Year	3,681	861	3,088	786	638	583	7,407	2,230
Alternative 1								
Scenario A (20/80 FCLP split)	1,562 (-2,119)	573 (-288)	3,248 (+160)	936 (+150)	5,387 (+4,749)	1,957 (+1,374)	10,197 (+2,790)	3,466 (+1,236)
Scenario B (50/50 FCLP split)	2,015 (-1,666)	542 (-319)	3,451 (+363)	1,061 (+275)	4,025 (+3,387)	1,531 (+948)	9,491 (+2,084)	3,134 (+904)
Scenario C (80/20 FCLP split)	3,447 (-234)	1,041 (+180)	3,180 (+92)	1,036 (+250)	1,465 (+827)	691 (+108)	8,092 (+685)	2,768 (+538)
Scenario D (30/70 FCLP split)	1,588 (-2,093)	531 (-330)	3,387 (+299)	992 (+206)	5,032 (+4,394)	1,850 (+1,267)	10,007 (+2,600)	3,373 (+1,143)
Scenario E (70/30 FCLP split)	3,014 (-667)	855 (-6)	3,198 (+110)	1,058 (+272)	2,580 (+1,942)	1,018 (+435)	8,792 (+1,385)	2,931 (+701)

Table 6-12 Estimated Acreage and Population within the DNL Contour Ranges[1] for the NAS Whidbey Island Complex, Alternative 1 (Average Year)[2,3]

	DNL Contour Ranges							
	65 to <70 dB DNL		70 to <75 dB DNL		Greater than or equal to 75 dB DNL		Total	
	Area (acres)	Pop[4]	Area (acres)	Pop[4]	Area (acres)	Pop[4]	Area (acres)	Pop[4]
NAS Whidbey Island Complex								
No Action Alternative								
Average Year	7,277	4,140	6,357	3,069	6,187	3,962	19,821	11,171
Alternative 1								
Scenario A (20/80 FCLP split)	5,595 (-1,682)	4,257 (+117)	6,507 (+150)	2,844 (-225)	11,321 (+5,134)	5,475 (+1,513)	23,423 (+3,602)	12,576 (+1,405)
Scenario B (50/50 FCLP split)	5,937 (-1,340)	4,161 (+21)	6,722 (+365)	3,511 (+442)	10,448 (+4,261)	5,317 (+1,355)	23,107 (+3,286)	12,989 (+1,818)
Scenario C (80/20 FCLP split)	7,394 (+117)	4,802 (+662)	6,295 (-62)	3,551 (+482)	8,325 (+2,138)	4,668 (+706)	22,014 (+2,193)	13,021 (+1,850)
Scenario D (30/70 FCLP split)	5,564 (-1,713)	4,243 (+103)	6,571 (+214)	3,163 (+94)	11,267 (+5,080)	5,529 (+1,567)	23,402 (+3,581)	12,935 (+1,764)
Scenario E (70/30 FCLP split)	6,938 (-339)	4,568 (+428)	6,337 (-20)	3,545 (+476)	9,335 (+3,148)	4,937 (+975)	22,610 (+2,789)	13,050 (+1,879)

Notes:

[1] All five scenarios are outlined in Section 2.3.3, where the split represents the percent of FCLPs conducted at Ault Field and OLF Coupeville, respectively (i.e., 20/80 FCLP split = 20 percent of FCLPs at Ault Field and 80 percent of FCLPs at OLF Coupeville).

[2] Acreage presented does not include areas over water or areas over the NAS Whidbey Island complex.

[3] The difference between the No Action Alternative and Alternative 1 is noted in parentheses.

[4] Population counts of people within the DNL contour ranges were computed using 2010 Census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour range, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contour ranges (NAS Whidbey Island [Ault Field], the Seaplane Base, and OLF Coupeville). All population estimates for areas within the dB DNL contours utilized 2010 U.S. Census Bureau data. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). To simplify the analysis, this growth factor was also used for areas of Skagit County that fall within the 65+ dB DNL contours. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

[5] Numbers have been rounded to ensure totals sum.

Key:
dB = decibel
DNL = day-night average sound level
FCLP = Field Carrier Landing Practice

Table 6-13 Percent Difference in the Estimated Acreage and Population within the Average and High-Tempo FCLP Year DNL Contour Ranges for the NAS Whidbey Island Complex, Alternative 1

	DNL Contour Ranges[1]							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
DNL Contours	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*
Ault Field								
Scenario A	0.8%	0.2%	0.6%	3.4%	1.2%	0.9%	0.9%	1.1%
Scenario B	1.3%	1.3%	0.1%	2.2%	1.6%	1.1%	1.2%	1.4%
Scenario C	1.3%	2.5%	<0.0%	2.0%	2.2%	2.2%	1.4%	2.2%
Scenario D	0.5%	0.6%	0.6%	2.6%	1.2%	1.0%	0.9%	1.2%
Scenario E	1.6%	2.1%	-0.1%	2.4%	2.1%	1.8%	1.4%	2.1%
OLF Coupeville								
Scenario A	1.3%	6.9%	-5.7%	-7.0%	6.0%	4.9%	1.5%	2.0%
Scenario B	-5.8%	-9.1%	0.5%	2.3%	4.7%	4.0%	0.9%	1.1%
Scenario C	0.2%	-0.2%	0.1%	0.2%	2.2%	1.3%	0.5%	0.4%
Scenario D	-2.0%	4.7%	-3.6%	-5.0%	6.1%	5.2%	1.6%	2.1%
Scenario E	-0.6%	-0.8%	-0.1%	-1.0%	1.4%	2.0%	0.2%	0.1%
NAS Whidbey Island Complex								
Scenario A	0.9%	1.1%	-2.5%	-<0.1%	3.5%	2.3%	1.2%	1.4%
Scenario B	-1.1%	-<0.1%	0.3%	2.2%	2.8%	1.9%	1.1%	1.4%
Scenario C	0.8%	1.9%	0.1%	1.5%	2.2%	2.1%	1.1%	1.8%
Scenario D	-0.2%	1.1%	-1.6%	0.3%	3.4%	2.4%	1.2%	1.5%
Scenario E	0.6%	1.6%	-0.1%	1.4%	1.9%	1.9%	1.0%	1.6%

Key:
dB = decibel
DNL = day-night average sound level
NAS = Naval Air Station
OLF = outlying landing field

6.4.1 Points of Interest

Figure 6-9 shows the DNL for each POI and compares the DNLs for this alternative's scenarios and the No Action Alternative. Under the average year for Alternative 1 under all scenarios, 12 POIs would experience DNL greater than or equal to 65 dB, and five to six residential POIs would experience DNL greater than or equal to 75 dB. Three of the latter category would be near Ault Field (R01, R02, and R14), and three would be near the OLF (R06, R07, and R19). One of the seven schools, POI S02, would experience DNL greater than or equal to 65 dB—i.e., 69 dB.

For all scenarios under Alternative 1, an increase in DNL would be greatest for Alternative 1, Scenario A, and smallest for Alternative 1, Scenario C. Increases in DNL would range from 1 to 16 dB compared to the No Action Alternative. POIs R06 and R07 would experience the greatest increases in DNL of up to 10 and 16 dB, respectively. POI R07 would be newly impacted, with DNL of 70 to 75 dB. POI R15 would also be newly impacted, with DNL of 67 to 73 dB.

See Appendix A6 for lists of the five flight profiles with the greatest SEL at each POI.

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)																								
ID	Description	Related Field	A	B	C	D	E	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
P01	Joseph Whidbey State Park	Ault	58																													
				59																												
					59																											
						58																										
							59																									
P02	Deception Pass State Park	Ault	73																													
				74																												
					76																											
						74																										
							75																									
P03	Dugualla State Park	Ault	66																													
				66																												
					66																											
						66																										
							66																									
P04	Baseball Field (Ebey's Landing National Historical Reserve)	OLF	79																													
				77																												
					73																											
						79																										
							75																									
P05	Ebey's Prairie	OLF	56																													
				54																												
					50																											
						55																										
							52																									
P06	Fort Casey State Park	OLF	63																													
				61																												
					57																											
						62																										
							59																									
P07	Cama Beach State Park	OLF	47																													
				46																												
					<45																											
						47																										
							<45																									
P08	Port Townsend	OLF	<45																													
				<45																												
					<45																											
						<45																										
							<45																									
P09	Moran State Park	Ault	<45																													
				<45																												
					<45																											
						<45																										
							<45																									
P10	San Juan Islands National Monument	Ault	55																													
				55																												
					55																											
						55																										
							55																									
P11	San Juan Island Visitors Center	Ault	<45																													
				<45																												
					<45																											
						<45																										
							<45																									
P12	Cap Sante Park	Ault	<45																													
				<45																												
					<45																											
						<45																										
							<45																									
P13	Lake Campbell	Ault	55																													
				55																												
					56																											
						56																										
							56																									

Figure 6-9 Estimated Aircraft DNL at POIs for the Average Year Alternative 1

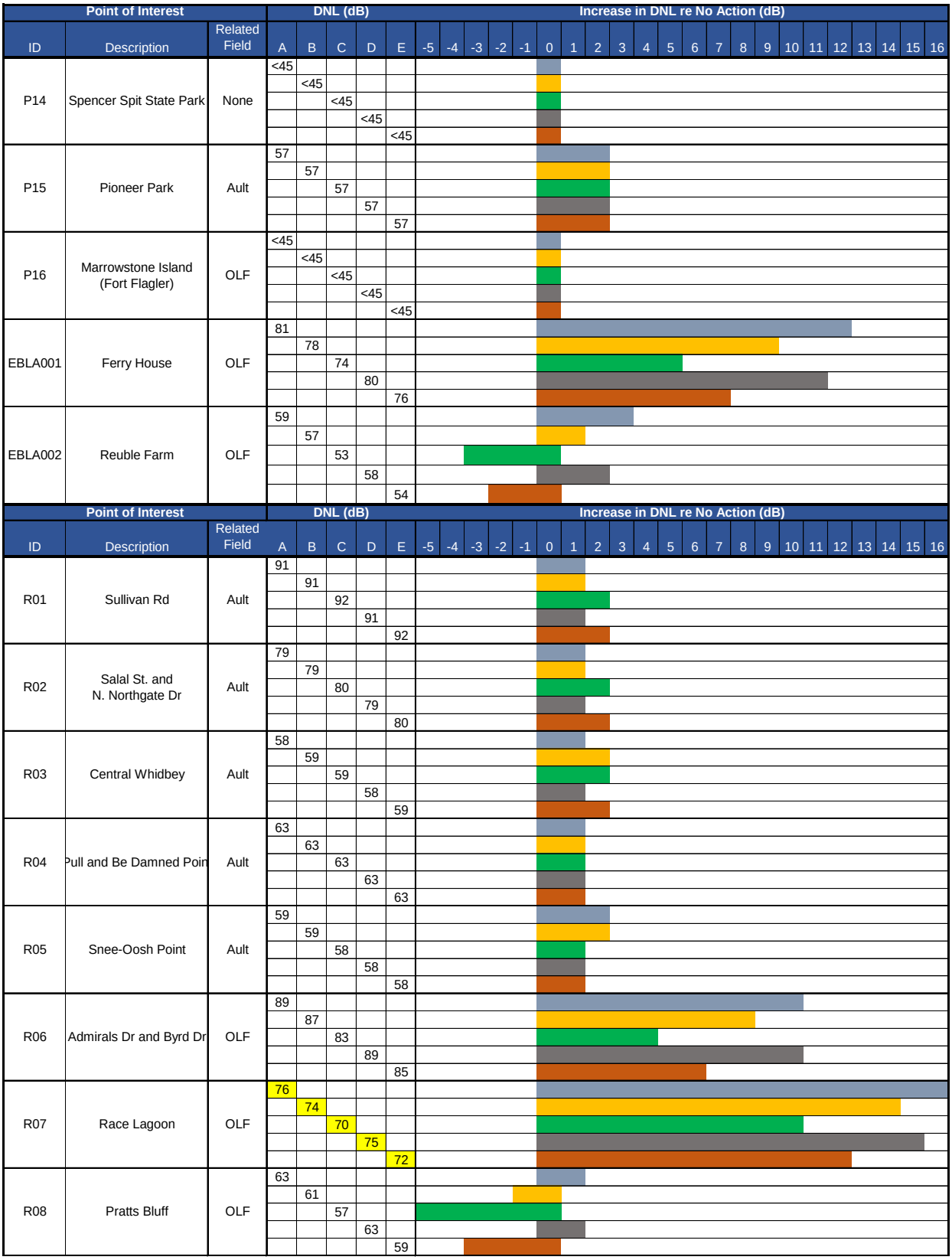

Figure 6-9 Estimated Aircraft DNL at POIs for the Average Year Alternative 1 (continued)

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)																						
ID	Description	Related Field	A	B	C	D	E	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
R09	Cox Rd and Island Ridge Way	OLF	55																										
				52																									
					48																								
						54																							
							50																						
R10	Skyline	None	58																										
				57																									
					58																								
						58																							
							58																						
R11	Sequim	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R12	Port Angeles	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R13	Beverly Beach, Freeland	OLF	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R14	Sleeper Rd & Slumber L	Ault	75																										
				76																									
					76																								
						75																							
							76																						
R15	Long Point Manor	OLF	73																										
				71																									
					67																								
						72																							
							69																						
R16	Rocky Point Heights	OLF	56																										
				55																									
					56																								
						56																							
							56																						
R17	Port Townsend	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R18	Marrowstone Island (Nordland)	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R19	Island Transit Offices, Coupeville	OLF	80																										
				78																									
					74																								
						80																							
							76																						
R20	South Lopez Island (Agate Beach)	None	49																										
				48																									
					49																								
						49																							
							49																						

Figure 6-9 Estimated Aircraft DNL at POIs for the Average Year Alternative 1 (continued)

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)																							
ID	Description	Related Field	A	B	C	D	E	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
S01	Oak Harbor High School	Ault	59																										
				60																									
					61																								
						60																							
							61																						
S02	Crescent Harbor Elementary School	Ault	68																										
				68																									
					69																								
						69																							
							69																						
S03	Coupeville Elementary School	OLF	62																										
				60																									
					56																								
						61																							
							57																						
S04	Anacortes High School	Ault	50																										
				50																									
					50																								
						50																							
							50																						
S05	Lopez Island School	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
S06	Friday Harbor Elementary School	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
S07	Sir James Douglas Elementary School	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
S08	Fidalgo Elementary School	Ault	53																										
				53																									
					53																								
						53																							
							53																						
S09	La Conner Elementary School	Ault	55																										
				55																									
					55																								
						55																							
							55																						
S10	Elger Bay Elementary School	OLF	<45																										
				<45																									
					<45																								
						<45																							
							<45																						

Figure 6-9 Estimated Aircraft DNL at POIs for the Average Year Alternative 1 (concluded)

Under the high-tempo FCLP year Alternative 1 for all scenarios (Appendix A7), 12 POIs would experience DNL greater than or equal to 65 dB, and five or six residential POIs would experience DNL greater than or equal to 75 dB. Three of the latter category would be near Ault Field (POIs R01, R02, and R14), and three would be near the OLF (POIs R06, R07, and R19). One of the seven schools, POI S02, would experience DNL greater than or equal to 65 dB--i.e., 69 dB.

Under the high-tempo FCLP year Alternative for all scenarios, the increase in DNL would be greatest for Alternative 1, Scenario A, and least for Alternative 1, Scenario C. Increases in DNL would range from 1 to 15 dB compared to the high-tempo FCLP year No Action Alternative. POIs R06 and R07 would experience the greatest increases in DNL, up to 11 and 15 dB, respectively. POI R07 would be newly impacted, with DNL of 70 to 76 dB.

6.4.2 Potential Hearing Loss

Table 6-14 shows estimates of the populations within 1-dB bands of $L_{eq(24h)}$ and their associated NIPTS for the average year Alternative 1. The level at which there may be a noticeable NIPTS would be at the 84 to 85 dB $L_{eq(24)}$ range and above. There is an increase in the population within the 80 dB DNL noise contour (i.e., potential at-risk population) under Alternative 1 at both Ault Field and OLF Coupeville. The largest increase in the potential at-risk population in the vicinity of Ault Field would be under Scenario C (47 additional people) and in the vicinity of OLF Coupeville would be under Scenario A (45 additional people). The range of potential NIPTS could be up to 9.5 dB at Ault Field and 6.0 dB at OLF Coupeville. The potential NIPTS values presented in Table 6-14 are only applicable in the extreme case of continuous outdoor exposure at one's residence to all aircraft events occurring over a period of 40 years. Because it is highly unlikely for any individuals to meet all those criteria, the actual potential NIPTS for individuals would be far less than the values reported here.

The USEPA guidelines provided information on the estimated NIPTS exceeded by the 10 percent of the population most sensitive to noise. Using the same 1 dB incremental data in Tables 4-2 through 4-9 and the column identified as the 10th Percentile NIPTS, those individuals are vulnerable to noticeable NIPTS at the 77 to 78 dB $L_{eq(24)}$ range and above. Using this even more conservative estimate, the range of potential NIPTS could be up to 18.0 dB for the most noise-sensitive population around Ault Field and up to 12.0 dB for the most noise-sensitive population around OLF Coupeville.

Table 6-14 Average and 10th Percentile Noise Induced Permanent Threshold Shifts as a Function of Equivalent Sound Level (L_{eq}) under Alternative 1 at NAS Whidbey Island Complex (Average Year)

Band of $L_{eq(24)}$ (dB)[1]	Avg NIPTS (dB)[2,3]	10^{th} Pct NIPTS (dB)[2,]	Estimated Population[4,5,6]											
			Ault Field						OLF Coupeville					
			No Action	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 1E	No Action	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 1E
75-76	1.0	4.0	0	0 (0)	3 (+3)	38 (+38)	0 (0)	30 (+30)	31	141 (+110)	73 (+42)	32 (+1)	125 (+94)	39 (+8)
76-77	1.0	4.5	123	176 (+53)	393[7] (+270)	561[8] (+438)	214 (+91)	507[9] (+384)	45	168 (+123)	94 (+49)	57 (+12)	167 (+122)	65 (+20)
77-78	1.5	5.0	233	262 (+29)	337 (+104)	434 (+201)	310 (+77)	357 (+124)	47	144 (+97)	77 (+30)	66 (+19)	102 (+55)	58 (+11)
78-79	2.0	5.5	145	147 (+2)	246 (+101)	296 (+151)	174 (+29)	294 (+149)	24	96 (+72)	67 (+43)	39 (+15)	85 (+61)	59 (+35)
79-80	2.5	6.0	92	132 (+40)	165 (+73)	250 (+158)	142 (+50)	221 (+129)	7	76 (+69)	60 (+53)	1 (-6)	72 (+65)	86 (+79)
80-81	3.0	7.0	73	78 (+5)	94 (+21)	130 (+57)	81 (+8)	117 (+44)	0	68 (+60)	58 (+58)	0 (0)	64 (+64)	4 (+4)
81-82	3.5	8.0	51	62 (+11)	72 (+21)	80 (+29)	67 (+16)	76 (+25)	0	60 (+60)	67 (+67)	0 (0)	54 (+54)	0 (0)
82-83	4.0	9.0	37	48 (+11)	58 (+21)	64 (+27)	48 (+11)	61 (+24)	0	56 (+56)	32 (+32)	0 (0)	62 (+62)	0 (0)
83-84	4.5	10.0	34	33 (-1)	35 (+1)	38 (+4)	35 (+1)	36 (+2)	0	65 (+65)	1 (+1)	0 (0)	69 (+69)	0 (0)
84-85	5.5	11.0	11	26 (+15)	26 (+15)	29 (+18)	28 (+17)	28 (+17)	0	44 (+44)	0 (0)	0 (0)	2 (+2)	0 (0)
85-86	6.0	12.0	9	9 (0)	22 (+13)	26 (+17)	10 (+1)	24 (+15)	0	1 (+1)	0 (0)	0 (0)	0 (0)	0 (0)
86-87	7.0	13.5	6	8 (+2)	9 (+3)	10 (+4)	9 (+3)	10 (+4)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
87-88	7.5	15.0	4	6 (+2)	6 (+2)	7 (+3)	6 (+2)	7 (+3)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
88-89	8.5	16.5	2	4 (+2)	4 (+2)	5 (+3)	4 (+2)	4 (+2)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
89-90	9.5	18.0	0	1 (+1)	2 (+2)	2 (+2)	1 (+1)	2 (+2)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 6-14 Average and 10th Percentile Noise Induced Permanent Threshold Shifts as a Function of Equivalent Sound Level (L_{eq}) under Alternative 1 at NAS Whidbey Island Complex (Average Year)

Band of $L_{eq(24)}$ (dB)[1]	Avg NIPTS (dB)[2,3]	10th Pct NIPTS (dB)[2,]	Estimated Population[4,5,6]											
			Ault Field						OLF Coupeville					
			No Action	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 1E	No Action	Alt 1A	Alt 1B	Alt 1C	Alt 1D	Alt 1E
90-91	10.5	19.5	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Notes:

1 L_{eq} bands with no population were omitted from table.

2 NIPTS values rounded to nearest 0.5 dB.

3 NIPTS below 5 dB are generally not considered noticeable.

4 This analysis assumes the population is outdoors at one's residence and exposed to all aircraft noise events for 40 years. Given the amount of time spent indoors and the intermittent occurrence of aircraft noise events, it is highly unlikely that individuals would meet all those criteria, and the actual potential for hearing loss would be far less than the values reported here.

5 Estimated Population was determined by those living within the 80 dB DNL noise contour around each airfield, including those living on base at Ault Field (there is no on-base population at OLF Coupeville).

6 Population counts of people within the DNL contours were computed using 2010 census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). In addition, per guidance on potential hearing loss, on-base populations at Ault Field have been included in the analysis. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

7 Of this estimated population, 58 are military personnel living on base at Ault Field.

8 Of this estimated population, 195 are military personnel living on base at Ault Field.

9 Of this estimated population, 96 are military personnel living on base at Ault Field.

Key:
dB = decibel
$L_{eq(24)}$ = 24-hour Equivalent Sound Level
NIPTS = Noise Induced Permanent Threshold Shift

6.4.3 Residential Nighttime Sleep Disturbance

Table 6-15 lists the PA for applicable POIs for average daily nighttime (10:00 p.m. to 7:00 a.m.) events for the average year Alternatives 1 under all scenarios. Average PA would range from 5 percent to 16 percent across the listed POIs for either window condition. POIs R01 and R02 would have the greatest PA, 36 percent to 77 percent, depending upon whether windows are open or closed. At five of the POIs, there would be no change in PA compared to the No Action Alternative, but at the remaining 25 POIs, increases in PA would range from 1 percent at several POIs to 32 percent (R06 under Alternative 1, Scenario A).

Under the high-tempo FCLP year Alternative 1 (Appendix A7), the statistics cited above would be 1 percent to 3 percent greater than those listed for the average year Alternative 1, except for the change statistics. At six of the POIs, there would be no change in PA compared to the high-tempo FCLP year No Action Alternative, but at the remaining 24 POIs, increases in PA would range from 1 percent at several POIs to 36 percent (R06 under Alternative 1, Scenario A).

Table 6-15 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Alternative 1

Point of Interest				Annual Average Nightly (2200-0700) Probability of Awakening (%) [1]																			
				Alt 1A		Change from No Action		Alt 1B		Change from No Action		Alt 1C		Change from No Action		Alt 1D		Change from No Action		Alt 1E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential[2]	R01	Sullivan Rd	Ault	68%	52%	10%	9%	72%	56%	14%	13%	77%	61%	19%	18%	69%	53%	11%	10%	75%	60%	17%	17%
	R02	Salal St. and N. Northgate Dr	Ault	50%	36%	9%	7%	53%	39%	12%	10%	58%	43%	17%	14%	51%	37%	10%	8%	57%	42%	16%	13%
	R03	Central Whidbey	Ault	20%	11%	4%	3%	22%	12%	6%	4%	25%	13%	9%	5%	21%	11%	5%	3%	24%	13%	8%	5%
	R04	Pull and Be Damned Point	Ault	25%	12%	6%	3%	27%	13%	8%	4%	29%	13%	10%	4%	26%	12%	7%	3%	28%	13%	9%	4%
	R05	Snee-Oosh Point	Ault	21%	8%	6%	3%	22%	8%	7%	3%	24%	8%	9%	3%	21%	8%	6%	3%	23%	8%	8%	3%
	R06	Admirals Dr and Byrd Dr	OLF	41%	29%	32%	23%	27%	19%	18%	13%	12%	8%	3%	2%	37%	26%	28%	20%	17%	11%	8%	5%
	R07	Race Lagoon	OLF	19%	9%	14%	7%	14%	6%	9%	4%	7%	2%	2%	-	18%	8%	13%	6%	9%	3%	4%	1%
	R08	Pratts Bluff	OLF	15%	9%	11%	7%	10%	6%	6%	4%	4%	2%	-	-	13%	8%	9%	6%	6%	4%	2%	2%
	R09	Cox Rd and Island Ridge Way	OLF	12%	8%	9%	6%	7%	5%	4%	3%	3%	2%	-	-	11%	7%	8%	5%	5%	3%	2%	1%
	R10	Skyline	None	8%	3%	3%	1%	8%	3%	3%	1%	10%	3%	5%	1%	9%	3%	4%	1%	10%	3%	5%	1%
	R11	Sequim	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R12	Port Angeles	None	1%	0%	1%	-	1%	0%	1%	-	1%	0%	1%	-	0%	0%	-	-	1%	0%	1%	-
	R13	Beverly Beach, Freeland	OLF	6%	-	4%	-	4%	-	2%	-	2%	-	-	-	5%	-	3%	-	2%	-	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	45%	32%	8%	7%	49%	35%	12%	10%	53%	39%	16%	14%	46%	33%	9%	8%	52%	37%	15%	12%
	R15	Long Point Manor	OLF	24%	13%	13%	9%	19%	8%	8%	4%	14%	4%	3%	-	22%	11%	11%	7%	16%	5%	5%	1%
	R16	Rocky Point Heights	OLF	11%	4%	2%	1%	12%	4%	3%	1%	14%	4%	5%	1%	12%	4%	3%	1%	13%	4%	4%	1%
	R17	Port Townsend	None	1%	-	-	-	1%	-	-	-	0%	-	-1%	-	1%	-	-	-	1%	-	-	-
	R18	Marrowstone Island (Nordland)	None	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%	-	-	-
	R19	Island Transit Offices, Coupeville	OLF	34%	22%	25%	17%	23%	14%	14%	9%	12%	6%	3%	1%	31%	19%	22%	14%	16%	9%	7%	4%

Table 6-15 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Alternative 1

Point of Interest				Annual Average Nightly (2200-0700) Probability of Awakening (%) [1]																	
				Alt 1A		Change from No Action		Alt 1B		Change from No Action		Alt 1C		Change from No Action		Alt 1D		Change from No Action		Alt 1E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
	R20	South Lopez Island (Agate Beach)	None	4%	1%	1%	-	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-
School (near residential)	S01	Oak Harbor High School	Ault	26%	15%	6%	3%	28%	17%	8%	5%	31%	19%	11%	7%	27%	16%	7%	4%	30%	19%	10%	7%
	S02	Crescent Harbor Elementary School	Ault	27%	16%	6%	4%	29%	18%	8%	6%	32%	20%	11%	8%	28%	17%	7%	5%	31%	19%	10%	7%
	S03	Coupeville Elementary School	OLF	17%	11%	12%	8%	11%	7%	6%	4%	6%	3%	1%	-	16%	10%	11%	7%	8%	4%	3%	1%
	S04	Anacortes High School	Ault	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-
	S05	Lopez Island School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	9%	3%	3%	1%	9%	3%	3%	1%	10%	3%	4%	1%	10%	3%	4%	1%	10%	3%	4%	1%
	S09	La Conner Elementary School	Ault	11%	5%	3%	2%	11%	5%	3%	2%	10%	5%	2%	2%	11%	5%	3%	2%	10%	5%	2%	2%
	S10	Elger Bay Elementary School	OLF	0%	0%	-	-	0%	0%	-	-	0%	0%	-	-	0%	0%	-	-	0%	0%	-	-

[1] Assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] R01 and R06 include interior SELs greater than 100 dB with windows open.

6.4.4 Residential Daytime Indoor Speech Interference

Table 6-16 presents the average daily indoor daytime (7:00 a.m. to 10:00 p.m.) events per hour for the applicable POIs that would experience indoor maximum sound levels of at least 50 dB with windows closed and open, for the average year Alternative 1. Events per hour would be less than one at 12 of the 30 POIs and would range between one and 10 for the remaining 18 POIs, regardless of the window status. Relative to the average year No Action Alternative, increases of one or two events per hour would be experienced by 16 of the POIs.

For the high-tempo FCLP year Alternative 1 (Appendix A7), the above-cited statistics would not change compared to the high-tempo FCLP year No Action Alternative, except that the change statistics would vary but remain within the range of one or two additional events per hour.

Table 6-16 Indoor Speech Interference for the Average Year Alternative 1

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]																	
				Alt 1A		Change from No Action		Alt 1B		Change from No Action		Alt 1C		Change from No Action		Alt 1D		Change from No Action		Alt 1E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential[2]	R01	Sullivan Rd	Ault	9	9	+1	+1	10	10	+2	+2	10	10	+2	+2	9	9	+1	+1	10	10	+2	+2
	R02	Salal St. and N. Northgate Dr	Ault	9	9	+1	+1	9	9	+1	+1	10	10	+2	+2	9	9	+1	+1	10	10	+2	+2
	R03	Central Whidbey	Ault	5	-	-	-	6	-	+1	-	6	-	+1	-	5	-	-	-	6	-	+1	-
	R04	Pull and Be Damned Point	Ault	3	1	+1	-	3	1	+1	-	3	1	+1	-	3	1	+1	-	3	1	+1	-
	R05	Snee-Oosh Point	Ault	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-
	R06	Admirals Dr and Byrd Dr	OLF	2	2	+2	+2	1	1	+1	+1	-	-	-	-	2	2	+2	+2	1	1	+1	+1
	R07	Race Lagoon	OLF	2	1	+2	+1	1	-	+1	-	1	-	+1	-	2	1	+2	+1	1	-	+1	-
	R08	Pratts Bluff	OLF	2	1	+2	+1	1	-	+1	-	-	-	-	-	2	1	+2	+1	1	-	+1	-
	R09	Cox Rd and Island Ridge Way	OLF	1	-	+1	-	1	-	+1	-	-	-	-	-	1	-	+1	-	-	-	-	-
	R10	Skyline	None	-	-	-	-	-	-	-	-	1	-	+1	-	1	-	+1	-	1	-	+1	-
	R11	Sequim	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R12	Port Angeles	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R13	Beverly Beach, Freeland	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	9	8	+1	+1	9	8	+1	+1	10	9	+2	+2	9	8	+1	+1	10	9	+2	+2
	R15	Long Point Manor	OLF	3	2	+2	+1	2	1	+1	-	1	1	-	-	2	2	+1	+1	1	1	-	-
	R16	Rocky Point Heights	OLF	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-
	R17	Port Townsend	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R18	Marrowstone Island (Nordland)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R19	Island Transit Offices, Coupeville	OLF	2	2	+1	+1	1	1	-	-	1	1	-	-	2	2	+1	+1	1	1	-	-

Table 6-16 Indoor Speech Interference for the Average Year Alternative 1

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]																	
				Alt 1A		Change from No Action		Alt 1B		Change from No Action		Alt 1C		Change from No Action		Alt 1D		Change from No Action		Alt 1E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
	R20	South Lopez Island (Agate Beach)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School (near residential)	S01	Oak Harbor High School	Ault	6	2	-	-	7	3	+1	+1	7	3	+1	+1	6	3	-	+1	7	3	+1	+1
	S02	Crescent Harbor Elementary School	Ault	5	2	-	-	6	2	+1	-	6	3	+1	+1	6	2	+1	-	6	3	+1	+1
	S03	Coupeville Elementary School	OLF	2	1	+1	+1	1	1	-	+1	1	-	-	-	2	1	+1	+1	1	-	-	-
	S04	Anacortes High School	Ault	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S05	Lopez Island School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S09	La Conner Elementary School	Ault	1	-	-	-	1	1	-	+1	1	-	-	-	1	-	-	-	1	-	-	-
	S10	Elger Bay Elementary School	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

1 With an indoor maximum sound level of at least 50 dB; assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

2 The Whidbey General Hospital is located within approximately 1,000 feet of the Coupeville Elementary School; therefore, this location was not modeled individually, but similar results for indoor speech interference for POI S03 would apply.

6.4.5 Classroom Learning Interference

Table 6-17 presents the potential learning interference data for classrooms under the average year Alternative 1. With an $L_{eq(8h)}$ of 69 dB, S02 (Crescent Harbor Elementary) would experience the greatest outdoor $L_{eq(8h)}$. No other locations would experience $L_{eq(8h)}$ greater than or equal to the screening threshold of 60 dB under any of the three alternatives. With windows open, three or four of the POIs would have more than one event per hour. With windows closed, two of the POIs would have more than one event per hour. POI S01, Oak Harbor High School, would have the most events per hour, with up to seven with windows open. POIs S01 and S02 would have the most events per hour (three) with windows closed.

All POIs would experience between 1 and 6 dB increases in $L_{eq(8h)}$ and increases in one or two events per hour.

Under the high-tempo FCLP year Alternative 1 (Appendix A7), S02 (Crescent Harbor Elementary) would have an outdoor $L_{eq(8h)}$ of 68 dB. Four of the POIs would have more than one event per hour with windows open (S01, S02, S03, and R03), and two would have more than one event per hour with windows closed (S01 and S02). POI S01, Oak Harbor High School, would have the most events per hour, with seven with windows open and three with windows closed. Relative to the high-tempo FCLP year No Action Alternative, four POIs would experience increases up to two events per hour. Three POIs would experience a change in outdoor $L_{eq(8h)}$ of 2 dB or greater.

Table 6-17 Classroom Learning Interference for Average Year Alternative 1

Point of Interest				Alt 1A					Change from No Action				
				Outdoor	Indoor[1]				Outdoor	Indoor[1]			
					Windows Open		Windows Closed			Windows Open		Windows Closed	
Type	ID	Description	Related Field	$L_{eq\ (8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq\ (8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq(8h)}$ (dB)	Events per Hour [2]
School	R03	Central Whidbey	Ault	58	<45	5	<45	-	+1	+1	+1	+1	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2	-	-	+1	-	-
	S02	Crescent Harbor Elementary School	Ault	68	53	5	<45	2	+1	+1	+1	+1	-
	S03	Coupeville Elementary School	OLF	57	<45	2	<45	1	+6	+6	+2	+6	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	51	<45	1	<45	-	-	-	-	-	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**4**		**2**			**1**		
Minimum Number of Intrusive Events per Hour if Exceeding 1						**2**		**2**			**+2**		
Maximum Number of Intrusive Events per Hour if Exceeding 1						**6**		**2**			**+2**		

Table 6-17 Classroom Learning Interference for Average Year Alternative 1

Point of Interest				*Alt 1B*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	5	<45	-	+2	+2	+1	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	2	+1	+1	+2	+1	-
	S02	Crescent Harbor Elementary School	Ault	68	53	6	<45	2	+1	+1	+2	+1	-
	S03	Coupeville Elementary School	OLF	55	<45	1	<45	1	+4	+4	+1	+4	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**3**		**2**			**2**		
Minimum Number of Intrusive Events per Hour if Exceeding 1						**5**		**2**			**+2**		
Maximum Number of Intrusive Events per Hour if Exceeding 1						**7**		**2**			**+2**		

Table 6-17 Classroom Learning Interference for Average Year Alternative 1

Point of Interest				*Alt 1C*					*Change from No Action*				
School	R03	Central Whidbey	Ault	58	<45	6	<45	-	+1	+1	+2	+1	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	69	54	6	<45	3	+2	+2	+2	+2	+1
	S03	Coupeville Elementary School	OLF	51	<45	1	<45	-	-	-	+1	-	-
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	51	<45	1	<45	-	-	-	-	-	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**3**		**2**			**3**		
Minimum Number of Intrusive Events per Hour if Exceeding 1						**6**		**3**			**+2**		
Maximum Number of Intrusive Events per Hour if Exceeding 1						**7**		**3**			**+2**		

Table 6-17 Classroom Learning Interference for Average Year Alternative 1

Point of Interest				*Alt 1D*					*Change from No Action*				
School	R03	Central Whidbey	Ault	58	<45	5	<45	-	+1	+1	+1	+1	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2	-	-	+1	-	-
	S02	Crescent Harbor Elementary School	Ault	68	53	5	<45	2	+1	+1	+1	+1	-
	S03	Coupeville Elementary School	OLF	56	<45	2	<45	1	+5	+5	+2	+5	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	51	<45	1	<45	-	-	-	-	-	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**4**		**2**			**1**		
Minimum Number of Intrusive Events per Hour if Exceeding 1						**2**		**2**			**2**		
Maximum Number of Intrusive Events per Hour if Exceeding 1						**6**		**2**			**2**		

Table 6-17 Classroom Learning Interference for Average Year Alternative 1

Point of Interest				*Alt 1E*					*Change from No Action*				
School	R03	Central Whidbey	Ault	58	<45	6	<45	-	+1	+1	+2	+1	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	69	54	6	<45	2	+2	+2	+2	+2	-
	S03	Coupeville Elementary School	OLF	53	<45	1	<45	-	+2	+2	+1	+2	-
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	51	<45	1	<45	-	-	-	-	-	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding 1 Intrusive Event per Hour						**3**		**2**			**3**		
Minimum Number of Intrusive Events per Hour if Exceeding 1						**6**		**2**			**+2**		
Maximum Number of Intrusive Events per Hour if Exceeding 1						**7**		**3**			**+2**		

Notes:

[1] Assumes 15 dB and 25 dB of noise level reductions for windows open and closed, respectively.

[2] Number of average school-day events per hour during 8-hour school day (0800-1600) at or above an indoor maximum (single-event) sound level (L_{max}) of 50 dB.

6.4.6 Recreational Speech Interference

Table 6-18 lists the AAD daytime NA 50 L_{max} per hour for the recreational POIs. The average NA across the 48 POIs would be four events per daytime hour and one event per nighttime hour. Six POIs would be exposed to less than one event per hour. POIs R01, R02, and R14 would have the most events per hour, at 10, under Alternative 1, Scenario C. Relative to the average year No Action Alternative, increases of up to two events per hour would be experienced at all but 10 of the POIs. The latter 10 POIs would experience no change.

Under the high-tempo FCLP year Alternative 1 (Appendix A7), the average year statistics above would apply.

Table 6-18 Recreational Speech Interference for Average Year Alternative 1

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 50 L_{max}																			
			Alt1A		Increase re No Action		Alt1B		Increase re No Action		Alt1C		Increase re No Action		Alt1D		Increase re No Action		Alt1E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Park	P01	Joseph Whidbey State Park	9	2	+1	-	9	2	+1	-	10	3	+2	+1	9	2	+1	-	9	3	+1	+1
	P02	Deception Pass State Park	9	2	+1	-	9	2	+1	-	10	3	+2	+1	9	2	+1	-	10	3	+2	+1
	P03	Dugualla State Park	8	2	+1	-	9	2	+2	-	9	3	+2	+1	9	2	+2	-	9	3	+2	+1
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	P05	Ebey's Landing State Park	4	1	+2	+1	3	1	+1	+1	3	1	+1	+1	4	1	+2	+1	3	1	+1	+1
	P06	Fort Casey State Park	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2	0	+1	-
	P07	Cama Beach State Park	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	5	1	+2	+1	4	1	+1	+1
	P08	Port Townsend	2	1	+1	+1	1	1	-	+1	1	-	-	-	2	1	+1	+1	1	0	-	-
	P09	Moran State Park	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	P10	San Juan Islands National Monument	8	2	+1	+1	8	2	+1	+1	9	3	+2	+2	8	2	+1	+1	9	2	+2	+1
	P11	San Juan Island Visitors Center	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	P12	Cap Sante Park	0	-	-	-	0	-	-	-	1	-	+1	-	1	0	+1	-	1	0	+1	-
	P13	Lake Campbell	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-
	P14	Spencer Spit State Park	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	P15	Pioneer Park	4	1	-	-	4	1	-	-	4	1	-	-	4	1	-	-	4	1	-	-
	P16	Marrowstone Island (Fort Flagler)	1	1	+1	+1	1	0	+1	-	0	-	-	-	1	1	+1	+1	1	0	+1	-
	EBLA001	Ferry House	4	1	+2	+1	3	1	+1	+1	2	0	-	-	4	1	+2	+1	3	1	+1	+1
	EBLA002	Reuble Farm	4	1	+2	+1	3	1	+1	+1	2	0	-	-	4	1	+2	+1	3	1	+1	+1

Table 6-18 Recreational Speech Interference for Average Year Alternative 1

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 50 L_{max}																			
			Alt1A		Increase re No Action		Alt1B		Increase re No Action		Alt1C		Increase re No Action		Alt1D		Increase re No Action		Alt1E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Residential	R01	Sullivan Rd	9	2	+1	-	10	2	+2	-	10	3	+2	+1	9	2	+1	-	10	3	+2	+1
	R02	Salal St. and N. Northgate Dr	9	2	+1	-	10	2	+2	-	10	3	+2	+1	9	2	+1	-	10	3	+2	+1
	R03	Central Whidbey	8	2	+1	-	9	2	+2	-	9	3	+2	+1	8	2	+1	-	9	2	+2	-
	R04	Pull and Be Damned Point	8	2	+1	-	9	2	+2	-	9	3	+2	+1	9	2	+2	-	9	2	+2	-
	R05	Snee-Oosh Point	8	2	+1	+1	8	2	+1	+1	9	3	+2	+2	8	2	+1	+1	9	2	+2	+1
	R06	Admirals Dr and Byrd Dr	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2	0	+1	-
	R07	Race Lagoon	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	R08	Pratts Bluff	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2	0	+1	-
	R09	Cox Rd and Island Ridge Way	2	1	+1	+1	2	1	+1	+1	1	-	-	-	2	1	+1	+1	1	0	-	-
	R10	Skyline	4	1	-	-	4	1	-	-	5	1	+1	-	4	1	-	-	4	1	-	-
	R11	Sequim	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	0	+1	-	1	0	+1	-
	R12	Port Angeles	1	-	-	-	1	-	-	-	1	-	-	-	1	0	-	-	1	0	-	-
	R13	Beverly Beach, Freeland	1	-	+1	-	0	-	-	-	-	-	-	-	1	0	+1	-	0	0	-	-
	R14	E Sleeper Rd & Slumber Ln	9	2	+1	-	10	2	+2	-	10	3	+2	+1	9	2	+1	-	10	3	+2	+1
	R15	Long Point Manor	8	3	+1	+2	8	2	+1	+1	8	3	+1	+2	8	2	+1	+1	8	3	+1	+2
	R16	Rocky Point Heights	5	1	+1	-	5	2	+1	+1	5	2	+1	+1	5	1	+1	-	5	2	+1	+1
	R17	Port Townsend	2	1	+1	+1	1	0	-	-	0	-	-1	-	1	1	-	+1	1	0	-	-
	R18	Marrowstone Island (Nordland)	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	R19	Island Transit Offices, Coupeville	5	1	+2	-	4	1	+1	-	3	1	-	-	4	1	+1	-	3	1	-	-
	R20	South Lopez Island (Agate Beach)	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-

Table 6-18 Recreational Speech Interference for Average Year Alternative 1

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 50 L_{max}																			
			Alt1A		Increase re No Action		Alt1B		Increase re No Action		Alt1C		Increase re No Action		Alt1D		Increase re No Action		Alt1E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
School	S01	Oak Harbor High School	9	2	+1	-	9	2	+1	-	10	3	+2	+1	9	2	+1	-	9	3	+1	+1
	S02	Crescent Harbor Elementary School	8	2	+1	-	9	2	+2	-	9	3	+2	+1	8	2	+1	-	9	2	+2	-
	S03	Coupeville Elementary School	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	S04	Anacortes High School	1	-	-	-	1	-	-	-	1	-	-	-	1	0	-	-	1	0	-	-
	S05	Lopez Island School	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	S06	Friday Harbor Elementary School	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	S07	Sir James Douglas Elementary School	-	-	-	-	-	-	-	-	-	-	-	-	0	0	-	-	0	0	-	-
	S08	Fidalgo Elementary School	4	1	-	-	4	1	-	-	5	1	+1	-	5	1	+1	-	5	1	+1	-
	S09	La Conner Elementary School	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-
	S10	Elger Bay Elementary School	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	0	+1	-	1	0	+1	-

7 Average Year Alternative 2 Scenarios

Relative to the No Action Alternative, Alternative 2 would add two EA-18G aircraft to each CVW squadron, add eight EA-18G aircraft to the FRS, and increase the number of Expeditionary Squadrons from three to five, with five aircraft in each, as shown in Table 2-1. Section 7.1 details the flight operations. Section 7.2 presents the runway/flight track utilization, flight profiles, and derivation of AAD flight operations. Sections 7.3 and 7.4 contain the maintenance run-ups and resultant aircraft noise exposure.

7.1 Flight Operations

From the methodology described in Chapter 2, Tables 7-1 through 7-9 show the modeled flight operations for the average year Alternative 2 under all scenarios. Any of these five scenarios would have approximately 110,000 total annual flight operations for the complex. The EA-18G would dominate operations, with 87 percent of the complex's annual flight operations. Annual FCLP-related operations at the OLF would vary between 6,200 under Alternative 2, Scenario C, to 24,900 under Alternative 2, Scenario A. As shown in Tables 7-2, 7-4, and 7-10, approximately 15 percent and 20 percent of the overall total flight operations and the OLF FCLP operations, respectively, would occur during the DNL nighttime period.

Relative to the average year No Action Alternative, Tables 7-1, 7-3, 7-5, 7-7, and 7-9 show that the complex's total annual flight operations would increase by approximately 26,000, with most of the increase attributable to increased FCLP operations.

The high-tempo FCLP year Alternative 2, Scenario A (Appendix A2), has approximately 114,000 total annual flight operations for the complex, with the EA-18G having 89 percent of the complex's annual flight operations.

Table 7-1 Summary of Annual Flight Operations for the Average Year Alternative 2A

		Alternative 2A (Average Year)			*Change from No Action*		
		Type of Flight Operation			*Type of Flight Operation*		
Airfield	*Aircraft Type or Category*	*FCLP [2, 3]*	*Other [4]*	*Total*	*FCLP [2, 5]*	*Other*	*Total*
Ault Field	EA-18G	5,900	67,900	73,800	-5,400	+14,900	+9,500
	Other Based	-	11,900	11,900	-	+300	+300
	Transient	-	2,300	2,300	-	-	-
	Subtotal	5,900	67,900	73,800	-5,400	+14,900	+9,500
OLF Coupeville	EA-18G	23,700	-	23,700	+17,600	-	+17,600
	Other	-	400	400	-	-	-
	Subtotal	23,700	400	24,100	+17,600	-	+17,600
TOTAL (both airfields)		**29,600**	**82,500**	**112,100**	**+12,200**	**+15,200**	**+27,400**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 2,962 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 7-2 Detailed Annual Flight Operations for the Average Year Alternative 2A

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,020	404	7,424	2,577	85	2,662	4,134	-	164	4,298	453	10	463	453	212	236	901	741	-	162	903						
		FRS	5,655	389	6,044	2,153	316	2,469	2,423	317	620	3,360	188	28	216	290	151	125	566	486	-	80	566						
		RES	1,146	90	1,236	416	17	433	697	-	24	721	75	7	82	6	4	4	14	12	-	2	14						
		EXP	2,569	142	2,711	931	35	966	1,514	-	70	1,584	157	4	161	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,941	97	2,038	1,415	264	1,679	-	-	-	-	300	59	359														
	H60	SAR	388	-	388	388	-	388	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	394	-	394	283	-	283	-	-	-	-	111	-	111														
	JET_LRG	-	415	100	515	377	99	476	-	-	-	-	26	13	39														
Total			**19,528**	**1,222**	**20,750**	**8,540**	**816**	**9,356**	**8,768**	**317**	**878**	**9,963**	**1,310**	**121**	**1,431**	**749**	**367**	**365**	**1,481**	**1,239**	**-**	**244**	**1,483**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility											
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
			Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW	741	-	162	903	453	212	236	901						
		FRS	486	-	80	566	290	151	125	566						
		RES	12	-	2	14	6	4	4	14						
	H60	SAR									90	-	90	90	-	90
Total			**1,239**	**-**	**244**	**1,483**	**749**	**367**	**365**	**1,481**	**90**	**-**	**90**	**90**	**-**	**90**

Table 7-2 Detailed Annual Flight Operations for the Average Year Alternative 2A

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	1,639	1,084	908	3,631	3,437	655	960	5,052	2,379	77	2,456	4,436	2,778	7,214	27,269	1,951	5,784	35,004
		FRS	1,377	500	281	2,158	3,683	768	981	5,432	-	-	0	4,781	1,014	5,795	21,036	1,736	3,834	26,606
		RES	94	33	20	147	458	10	21	489	444	9	453	458	49	507	3,806	47	243	4,096
		EXP	-	-	-	0	838	-	44	882	913	37	950	840	35	875	7,762	-	367	8,129
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,165	-	661	4,826	-	-	-	1,800	192	1,992	9,621	-	1,273	10,894
	H60	SAR					-	-	-	-	-	-	-	-	-	-	956	-	-	956
	C-40	-					334	-	-	334	-	-	-	168	-	168	1,290	-	-	1,290
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	818	-	212	1,030
Total			**3,110**	**1,617**	**1,209**	**5,936**	**12,915**	**1,433**	**2,667**	**17,015**	**3,736**	**123**	**3,859**	**12,483**	**4,068**	**16,551**	**72,558**	**3,734**	**11,713**	**88,005**
OLF	EA18	CVW	6,076	3,763	2,802	12,641											7,270	3,975	3,200	14,445
		FRS	3,868	2,701	1,350	7,919											4,644	2,852	1,555	9,051
		RES	91	73	41	205											109	77	47	233
	H60	SAR					181	-	-	181							361	-	-	361
Total			**10,035**	**6,537**	**4,193**	**20,765**	**181**	**-**	**-**	**181**							**12,384**	**6,904**	**4,802**	**24,090**
														Grand Totals (Ault+OLF)			**84,942**	**10,638**	**16,515**	**112,095**

Total Annual EA-18G FCLP Related Ops **Ault = 5,936 (20%)** **OLF = 23,729 (80%)** **Total = 29,665**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 7-3 Summary of Annual Flight Operations for the Average Year Alternative 2B

Airfield	Aircraft Type or Category	Alternative 2B (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	66,500	81,300	+3,500	+13,500	+17,000	66,500
	Other Based	11,900	11,900	-	+300	+300	11,900
	Transient	2,300	2,300	-	-	-	2,300
	Subtotal	80,700	95,500	+3,500	+13,800	+17,300	80,700
OLF Coupeville	EA-18G	-	14,800	+8,700	-	+8,700	-
	Other	400	400	-	-	-	400
	Subtotal	400	15,200	+8,700	-	+8,700	400
TOTAL (both airfields)		**29,600**	**81,100**	**110,700**	**+12,200**	**+13,800**	**+26,000**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 1,854 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 7-4 Detailed Annual Flight Operations for the Average Year Alternative 2B

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	6,975	385	7,360	2,552	75	2,627	4,173	-	149	4,322	406	4	410	285	136	143	564	468	-	96	564						
		FRS	5,605	387	5,992	2,165	300	2,465	2,389	305	634	3,328	174	24	198	181	96	73	350	304	-	46	350						
		RES	1,141	83	1,224	405	20	425	706	-	23	729	66	5	71	6	5	2	13	13	-	1	14						
		EXP	2,540	147	2,687	912	30	942	1,509	-	79	1,588	154	4	158	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,912	93	2,005	1,397	270	1,667	-	-	-	-	282	57	339														
	H60	SAR	384	-	384	384	-	384	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	391	-	391	286	-	286	-	-	-	-	105	-	105														
	JET_LRG	-	404	107	511	376	97	473	-	-	-	-	24	13	37														
Total			**19,352**	**1,202**	**20,554**	**8,477**	**792**	**9,269**	**8,777**	**305**	**885**	**9,967**	**1,211**	**107**	**1,318**	**472**	**237**	**218**	**927**	**785**	**-**	**143**	**928**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility											
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
			Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW	468	-	96	564	285	136	143	564						
		FRS	304	-	46	350	181	96	73	350						
		RES	13	-	1	14	6	5	2	13						
	H60	SAR									90	-	90	90	-	90
Total			**785**	**-**	**143**	**928**	**472**	**237**	**218**	**927**	**90**	**-**	**90**	**90**	**-**	**90**

Table 7-4 Detailed Annual Flight Operations for the Average Year Alternative 2B

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total							DL	DK	DK	Total
Ault Field	EA18	CVW	4,068	2,622	2,357	9,047	3,437	655	960	5,052	2,379	77	2,456	4,436	2,778	7,214	29,179	3,413	7,024	39,616
		FRS	3,599	1,236	777	5,612	3,683	768	981	5,432	-	-	0	4,781	1,014	5,795	22,881	2,405	4,236	29,522
		RES	108	42	26	176	458	10	21	489	444	9	453	458	49	507	3,805	57	239	4,101
		EXP	-	-	-	0	838	-	44	882	913	37	950	840	35	875	7,706	-	376	8,082
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,233	-	668	4,901	-	-	-	1,832	193	2,025	9,656	-	1,281	10,937
	H60	SAR					-	-	-	-	-	-	-	-	-	-	948	-	-	948
	C-40	-					333	-	-	333	-	-	-	167	-	167	1,282	-	-	1,282
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	804	-	217	1,021
Total			**7,775**	**3,900**	**3,160**	**14,835**	**12,982**	**1,433**	**2,674**	**17,089**	**3,736**	**123**	**3,859**	**12,514**	**4,069**	**16,583**	**76,261**	**5,875**	**13,373**	**95,509**
OLF	EA18	CVW	3,815	2,387	1,687	7,889											4,568	2,523	1,926	9,017
		FRS	2,417	1,661	829	4,907											2,902	1,757	948	5,607
		RES	82	75	30	187											101	80	33	214
	H60	SAR					180	-	-	180							360	-	-	360
Total			**6,314**	**4,123**	**2,546**	**12,983**	**180**	**-**	**-**	**180**							**7,931**	**4,360**	**2,907**	**15,198**
														Grand Totals (Ault+OLF)			**84,192**	**10,235**	**16,280**	**110,707**

Total Annual EA-18G FCLP Related Ops **Ault = 14,835 (50%)** **OLF = 14,838 (50%)** **Total = 29,673**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 7-5 Summary of Annual Flight Operations for the Average Year Alternative 2C

Airfield	Aircraft Type or Category	Alternative 2C (Average Year) Type of Flight Operation FCLP [2, 3]	Other [4]	Total	Change from No Action Type of Flight Operation FCLP [2, 5]	Other	Total
Ault Field	EA-18G	23,700	65,400	89,100	+12,400	+12,400	+24,800
	Other Based	-	11,800	11,800	-	+200	+200
	Transient	-	2,300	2,300	-	-	-
	Subtotal	23,700	79,500	103,200	+12,400	+12,600	+25,000
OLF Coupeville	EA-18G	5,900	-	5,900	-200	-	-200
	Other	-	400	400	-	-	-
	Subtotal	5,900	400	6,300	-200	-	-200
TOTAL (both airfields)		**29,600**	**79,900**	**109,500**	**+12,200**	**+12,600**	**+24,800**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 742 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 7-6 Detailed Annual Flight Operations for the Average Year Alternative 2C

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	6,984	376	7,360	2,558	81	2,639	4,165	-	142	4,307	406	9	415	113	49	63	225	184	-	42	226						
		FRS	5,638	355	5,993	2,153	312	2,465	2,411	311	616	3,338	161	28	189	69	40	27	136	119	-	17	136						
		RES	1,141	82	1,223	392	25	417	702	-	27	729	73	4	77	6	2	2	10	9	-	2	11						
		EXP	2,560	133	2,693	934	38	972	1,509	-	61	1,570	148	3	151	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,917	98	2,015	1,388	261	1,649	-	-	-	-	305	61	366														
	H60	SAR	384	-	384	384	-	384	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	390	-	390	288	-	288	-	-	-	-	102	-	102														
	JET_LRG	-	411	100	511	381	95	476	-	-	-	-	23	12	35														
Total			**19,425**	**1,144**	**20,569**	**8,478**	**812**	**9,290**	**8,787**	**311**	**846**	**9,944**	**1,218**	**117**	**1,335**	**188**	**91**	**92**	**371**	**312**	**-**	**61**	**373**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron	Interfacility											
			Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
			Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW	184	-	42	226	113	49	63	225						
		FRS	119	-	17	136	69	40	27	136						
		RES	9	-	2	11	6	2	2	10						
	H60	SAR									90	-	90	90	-	90
Total			**312**	**-**	**61**	**373**	**188**	**91**	**92**	**371**	**90**	**-**	**90**	**90**	**-**	**90**

Table 7-6 Detailed Annual Flight Operations for the Average Year Alternative 2C

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total							DL	DK	DK	Total
Ault Field	EA18	CVW	6,469	3,890	4,025	14,384	3,437	655	960	5,052	2,379	77	2,456	4,436	2,778	7,214	31,131	4,594	8,553	44,278
		FRS	5,855	2,056	1,237	9,148	3,683	768	981	5,432	-	-	0	4,781	1,014	5,795	24,870	3,175	4,587	32,632
		RES	117	63	21	201	458	10	21	489	444	9	453	458	49	507	3,800	75	242	4,117
		EXP	-	-	-	0	838	-	44	882	913	37	950	840	35	875	7,742	-	351	8,093
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,221	-	610	4,831	-	-	-	1,820	177	1,997	9,651	-	1,207	10,858
	H60	SAR					-	-	-	-	-	-	-	-	-	-	948	-	-	948
	C-40	-					331	-	-	331	-	-	-	167	-	167	1,278	-	-	1,278
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	815	-	207	1,022
Total			**12,441**	**6,009**	**5,283**	**23,733**	**12,968**	**1,433**	**2,616**	**17,017**	**3,736**	**123**	**3,859**	**12,502**	**4,053**	**16,555**	**80,235**	**7,844**	**15,147**	**103,226**
OLF	EA18	CVW	1,516	929	715	3,160											1,813	978	820	3,611
		FRS	913	716	266	1,895											1,101	756	310	2,167
		RES	74	52	20	146											89	54	24	167
	H60	SAR					181	-	-	181							361	-	-	361
Total			**2,503**	**1,697**	**1,001**	**5,201**	**181**	**-**	**-**	**181**							**3,364**	**1,788**	**1,154**	**6,306**
														Grand Totals (Ault+OLF)			**83,599**	**9,632**	**16,301**	**109,532**

Total Annual EA-18G FCLP Related Ops **Ault = 23,733 (80%)** **OLF = 5,945 (20%)** **Total = 29,678**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 7-7 Summary of Annual Flight Operations for the Average Year Alternative 2D

Airfield	Aircraft Type or Category	Alternative 2D (Average Year) Type of Flight Operation FCLP [2, 3]	Other [4]	Total	Change from No Action Type of Flight Operation FCLP [2, 5]	Other	Total
Ault Field	EA-18G	8,900	67,500	76,400	-2,400	+14,500	+12,100
	Other Based	-	11,900	11,900	-	+300	+300
	Transient	-	2,300	2,300	-	-	-
	Subtotal	8,900	81,700	90,600	-2,400	+14,800	+12,400
OLF Coupeville	EA-18G	20,800	-	20,800	+14,700	-	+14,700
	Other	-	400	400	-	-	-
	Subtotal	20,800	400	21,200	+14,700	-	+14,700
TOTAL (both airfields)		**29,700**	**82,100**	**111,800**	**+12,300**	**+14,800**	**+27,100**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 2,594 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 7-8 Detailed Annual Flight Operations for the Average Year Alternative 2D

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,020	404	7,424	2,577	85	2,662	4,134	-	164	4,298	453	10	463	396	186	207	789	648	-	142	790						
		FRS	5,655	389	6,044	2,153	316	2,469	2,423	317	620	3,360	188	28	216	254	132	109	495	425	-	70	495						
		RES	1,146	90	1,236	416	17	433	697	-	24	721	75	7	82	5	4	4	13	11	-	2	13						
		EXP	2,569	142	2,711	931	35	966	1,514	-	70	1,584	157	4	161	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,941	97	2,038	1,415	264	1,679	-	-	-	-	300	59	359														
	H60	SAR	388	-	388	388	-	388	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	394	-	394	283	-	283	-	-	-	-	111	-	111														
	JET_LRG	-	415	100	515	377	99	476	-	-	-	-	26	13	39														
Total			**19,528**	**1,222**	**20,750**	**8,540**	**816**	**9,356**	**8,768**	**317**	**878**	**9,963**	**1,310**	**121**	**1,431**	**655**	**322**	**320**	**1,297**	**1,084**	**-**	**214**	**1,298**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
																DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW														648	-	142	790	396	186	207	789						
		FRS														425	-	70	495	254	132	109	495						
		RES														11	-	2	13	5	4	4	13						
	H60	SAR																						90	-	90	90	-	90
Total																**1,084**	**-**	**214**	**1,298**	**655**	**322**	**320**	**1,297**	**90**	**-**	**90**	**90**	**-**	**90**

Table 7-8 Detailed Annual Flight Operations for the Average Year Alternative 2D

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total							DL	DK	DK	Total
Ault Field	EA18	CVW	2,459	1,626	1,362	5,447	3,437	655	960	5,052	2,379	77	2,456	4,436	2,778	7,214	27,939	2,467	6,189	36,595
		FRS	2,066	750	422	3,238	3,683	768	981	5,432	-	-	0	4,781	1,014	5,795	21,628	1,967	3,949	27,544
		RES	141	50	30	221	458	10	21	489	444	9	453	458	49	507	3,851	64	253	4,168
		EXP	-	-	-	0	838	-	44	882	913	37	950	840	35	875	7,762	-	367	8,129
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,165	-	661	4,826	-	-	-	1,800	192	1,992	9,621	-	1,273	10,894
	H60	SAR					-	-	-	-	-	-	-	-	-	-	956	-	-	956
	C-40	-					334	-	-	334	-	-	-	168	-	168	1,290	-	-	1,290
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	818	-	212	1,030
Total			**4,666**	**2,426**	**1,814**	**8,906**	**12,915**	**1,433**	**2,667**	**17,015**	**3,736**	**123**	**3,859**	**12,483**	**4,068**	**16,551**	**73,865**	**4,498**	**12,243**	**90,606**
OLF	EA18	CVW	5,317	3,293	2,452	11,062											6,361	3,479	2,801	12,641
		FRS	3,385	2,363	1,181	6,929											4,064	2,495	1,360	7,919
		RES	80	64	36	180											96	68	42	206
	H60	SAR					181	-	-	181							361	-	-	361
Total			**8,782**	**5,720**	**3,669**	**18,171**	**181**	**-**	**-**	**181**							**10,882**	**6,042**	**4,203**	**21,127**
														Grand Totals (Ault+OLF)			**84,747**	**10,540**	**16,446**	**111,733**

Total Annual EA-18G FCLP Related Ops **Ault = 8,906 (30%)** **OLF = 20,766 (70%)** **Total = 29,672**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 7-9 Summary of Annual Flight Operations for the Average Year Alternative 2E

Airfield	Aircraft Type or Category	Alternative 2E (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	20,800	65,800	86,600	+9,500	+12,800	+22,300
	Other Based	-	11,800	11,800	-	+200	+200
	Transient	-	2,300	2,300	-	-	-
	Subtotal	20,800	79,900	100,700	+9,500	+13,000	+22,500
OLF Coupeville	EA-18G	8,900	-	8,900	+2,800	-	+2,800
	Other	-	400	400	-	-	-
	Subtotal	8,900	400	9,300	+2,800	-	+2,800
TOTAL (both airfields)		**29,700**	**80,300**	**110,000**	**+12,300**	**+13,000**	**+25,300**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 1,118 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 7-10 Detailed Annual Flight Operations for the Average Year Alternative 2E

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	6,984	376	7,360	2,558	81	2,639	4,165	-	142	4,307	406	9	415	170	74	95	339	276	-	63	339						
		FRS	5,638	355	5,993	2,153	312	2,465	2,411	311	616	3,338	161	28	189	104	60	41	205	179	-	26	205						
		RES	1,141	82	1,223	392	25	417	702	-	27	729	73	4	77	9	3	3	15	14	-	3	17						
		EXP	2,560	133	2,693	934	38	972	1,509	-	61	1,570	148	3	151	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,917	98	2,015	1,388	261	1,649	-	-	-	-	305	61	366														
	H60	SAR	384	-	384	384	-	384	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	390	-	390	288	-	288	-	-	-	-	102	-	102														
	JET_LRG	-	411	100	511	381	95	476	-	-	-	-	23	12	35														
Total			**19,425**	**1,144**	**20,569**	**8,478**	**812**	**9,290**	**8,787**	**311**	**846**	**9,944**	**1,218**	**117**	**1,335**	**283**	**137**	**139**	**559**	**469**	**-**	**92**	**561**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)							
																DL	DK	DK	Total	DL	DK	DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW														276	-	63	339	170	74	95	339						
		FRS														179	-	26	205	104	60	41	205						
		RES														14	-	3	17	9	3	3	15						
	H60	SAR																						90	-	90	90	-	90
Total																**469**	**-**	**92**	**561**	**283**	**137**	**139**	**559**	**90**	**-**	**90**	**90**	**-**	**90**

Table 7-10 Detailed Annual Flight Operations for the Average Year Alternative 2E

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	5,660	3,404	3,522	12,586	3,437	655	960	5,052	2,379	77	2,456	4,436	2,778	7,214	30,471	4,133	8,103	42,707
		FRS	5,123	1,799	1,082	8,004	3,683	768	981	5,432	-	-	0	4,781	1,014	5,795	24,233	2,938	4,455	31,626
		RES	102	55	18	175	458	10	21	489	444	9	453	458	49	507	3,793	68	241	4,102
		EXP	-	-	-	0	838	-	44	882	913	37	950	840	35	875	7,742	-	351	8,093
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,221	-	610	4,831	-	-	-	1,820	177	1,997	9,651	-	1,207	10,858
	H60	SAR					-	-	-	-	-	-	-	-	-	-	948	-	-	948
	C-40	-					331	-	-	331	-	-	-	167	-	167	1,278	-	-	1,278
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	815	-	207	1,022
Total			**10,885**	**5,258**	**4,622**	**20,765**	**12,968**	**1,433**	**2,616**	**17,017**	**3,736**	**123**	**3,859**	**12,502**	**4,053**	**16,555**	**78,931**	**7,139**	**14,564**	**100,634**
OLF	EA18	CVW	2,274	1,394	1,073	4,741											2,720	1,468	1,231	5,419
		FRS	1,370	1,074	399	2,843											1,653	1,134	466	3,253
		RES	111	78	30	219											134	81	36	251
	H60	SAR					181	-	-	181							361	-	-	361
Total			2,274	1,394	1,073	4,741											2,720	1,468	1,231	5,419
														Grand Totals (Ault+OLF)			**83,799**	**9,822**	**16,297**	**109,918**

Total Annual EA-18G FCLP Related Ops **Ault = 20,765 (69.9%)** **OLF = 8,923 (30.1%)** **Total = 29,688**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

7.2 Other Modeling Parameters

Appendix A3 contains tables of runway utilization percentages as extracted from the NASMOD study output. Flight tracks and their utilization would be identical to those of the No Action Alternative except for the overhead break/pattern portion of the interfacility arrival tracks to the OLF and the FCLPs at the OLF. The primary changes in these tracks are the abeam distances (shortened compared to the No Action Alternative). Modeled flight tracks are depicted in Appendix A4.

Flight profiles would be identical to the No Action Alternative except for the adjustments made to the aforementioned revised overhead break/pattern and FCLP flight tracks. The representative profiles for each modeled aircraft type are contained in Appendix A5.

Depending on whether Scenario A, B, C, D, or E is selected, Alternative 2 would have between approximately 181 and 200 AAD flight events at Ault Field and between approximately 12 and 40 AAD flight events at the OLF. For the high-tempo FCLP year, Alternative 2 would have between approximately 182 and 204 AAD flight events at Ault Field and between approximately 12 and 43 AAD flight events at the OLF.

7.3 Run-up Operations

Table 6-11 lists the modeled run-ups, with their locations depicted in Figure 5-1. For average year Alternative 2, numbers of annual run-up events for the EA-18G were scaled proportionally to that alternative's change in number of based aircraft compared to the average year No Action Alternative.

For the high-tempo FCLP year Alternative 2, it was assumed the run-ups would not change compared to those of the average year Alternative 2.

7.4 Aircraft Noise Exposure

Using the data described in Sections 7.1 through 7.3, NOISEMAP was used to calculate and plot the 60 dB through 95 dB DNL contours, in 5-dB increments, for the AAD events for average year Alternative 2 under all scenarios. Figures 7-1 through 7-5 show the resulting DNL contours.

At Ault Field, the DNL contours for average year Alternative 2 under all scenarios would be up to roughly 1,000 feet of each other on average. The 65 dB contour surrounding Ault Field would extend approximately 7 to 13 miles from the runway endpoints. These lobes would be primarily attributable to EA-18G aircraft flying on the approach portion of GCA patterns. The 65 dB DNL contour would extend approximately 2 miles past the eastern shore of the mainland across Skagit Bay, primarily due to EA-18G GCA and VFR approaches. The 80 dB DNL contour would extend approximately 4 miles to the east outside the station boundary, primarily due to EA-18G GCA and VFR approaches descending from 1,800 feet AGL, as well as the GCA patterns. The 90 dB contour would extend approximately 0.5 mile to the east beyond the station boundary.

The DNL exposure at the OLF would be attributable to the OLF's FCLP operations. The 65 dB contours would extend 2.2 to 2.8 miles north of the OLF's runway. The 65 dB contours would extend 2.5 to 3.1 miles south of the OLF's runway.

As an overview comparison map, Figure 7-6 compares the 65 dB DNL contours of average year Alternative 2 under all scenarios to the 65 dB DNL contours of the No Action Alternative. Because FCLPs comprise the majority of operations at the OLF, changes in location of FCLPs between Ault Field and the OLF cause a larger difference in DNL contours at the OLF from one scenario to the next.

Table 7-11 depicts the estimated off-station population exposed to DNL greater than or equal to 65 dB and its change compared to the No Action Alternative. Overall, the affected population would increase by 12 percent to 16 percent, with the smallest increase occurring under Alternative 2, Scenario A, and the largest under Alternative 2, Scenarios B and E.

Under the high-tempo FCLP year Alternative 2 (Appendix A7), the population exposed to DNL greater than or equal to 65 dB would increase by 14 percent to 17 percent, with the smallest increase occurring under high-tempo FCLP year Alternative 2, Scenario A, and the largest increase attributable to high-tempo FCLP year Alternative 2, Scenarios B and E. As shown in Table 7-12, the population exposed to DNL greater than or equal to 65 dB would, on average, be 2 percent greater than that exposed under the average year Alternative 2.

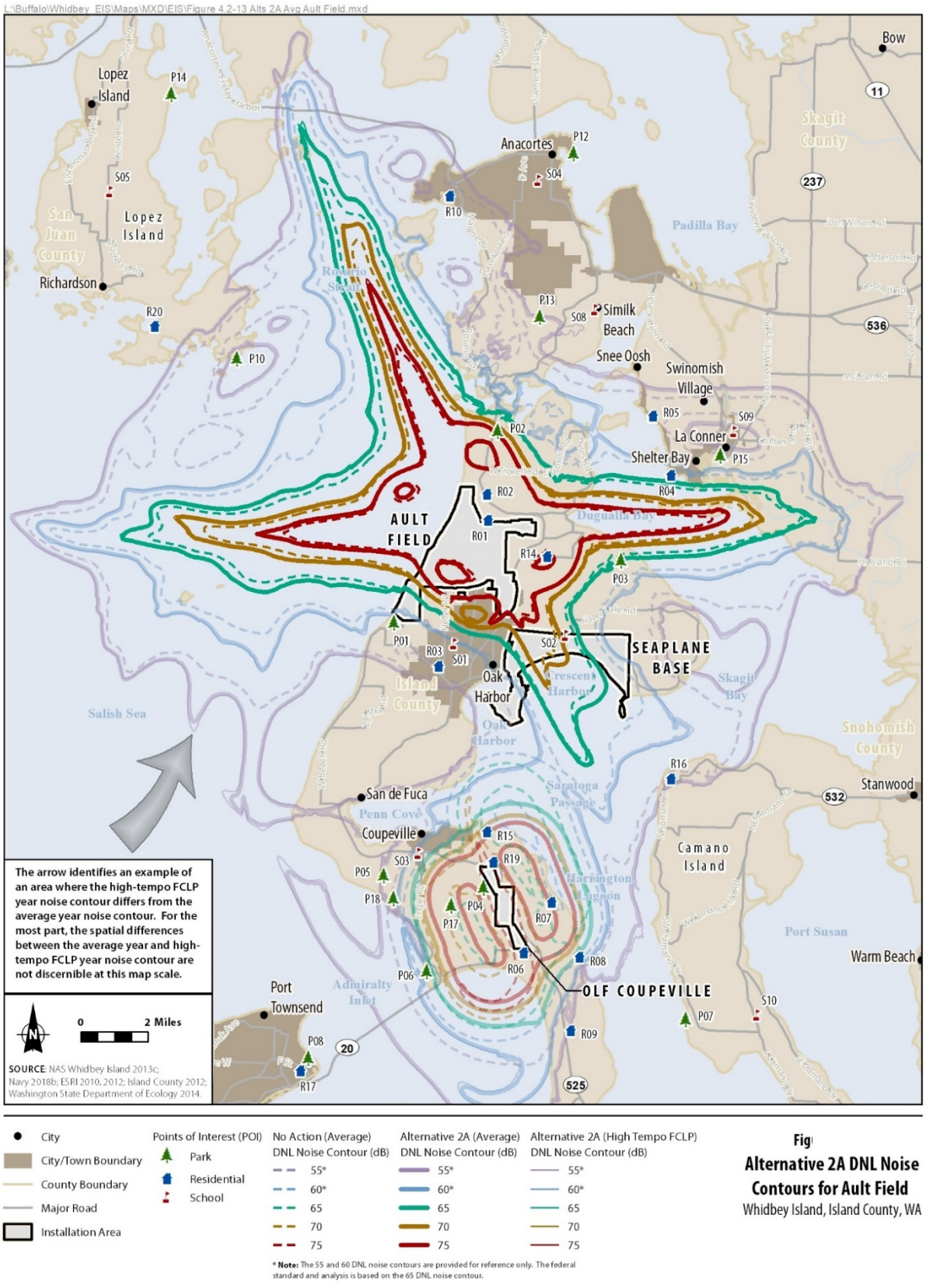

Figure 7-1 DNL Contours for AAD Aircraft Events for the Average Year Alternative 2A

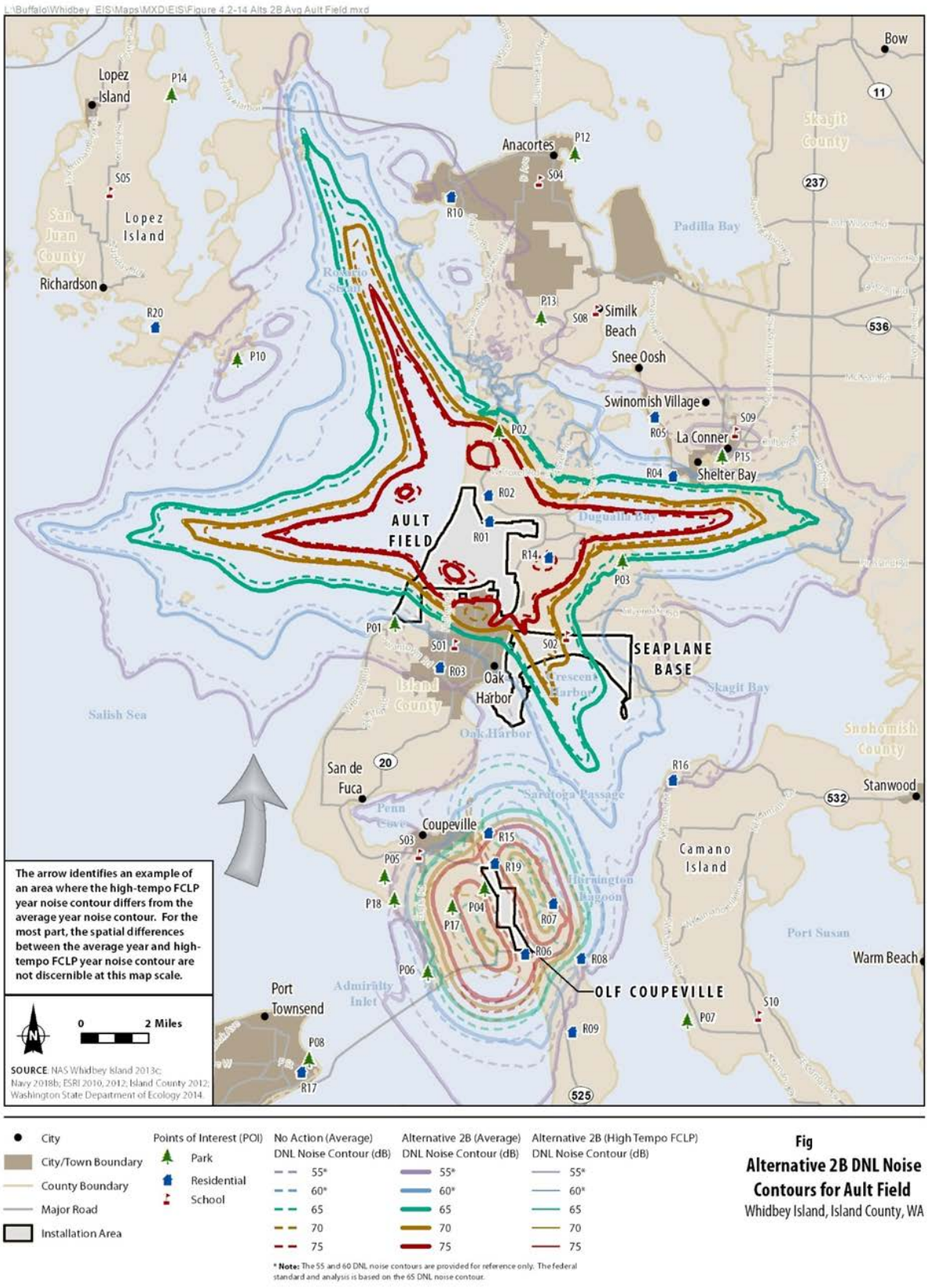

Figure 7-2 DNL Contours for AAD Aircraft Events for the Average Year Alternative 2B

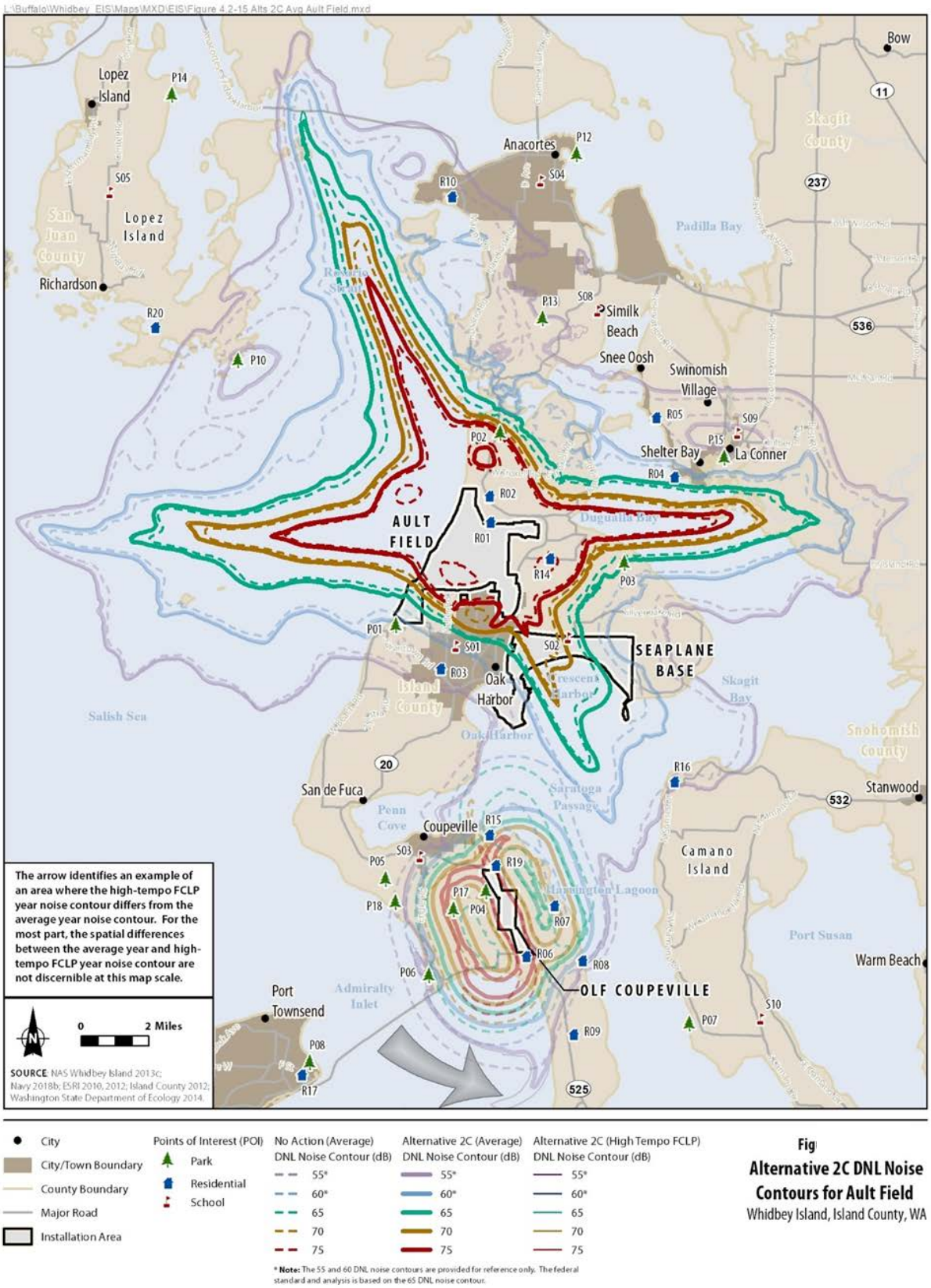

Figure 7-3 DNL Contours for AAD Aircraft Events for the Average Year Alternative 2C

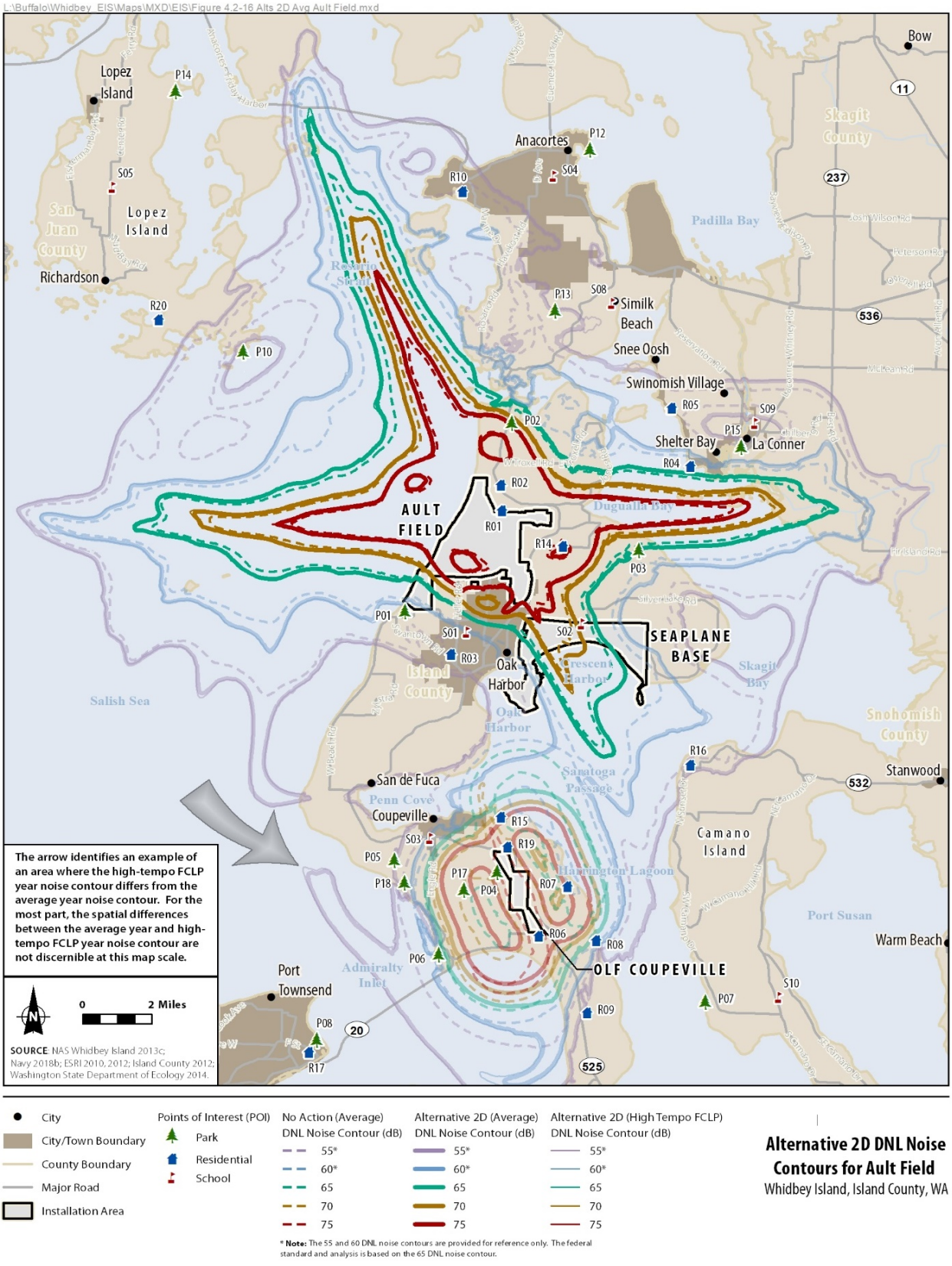

Figure 7-4 DNL Contours for AAD Aircraft Events for the Average Year Alternative 2D

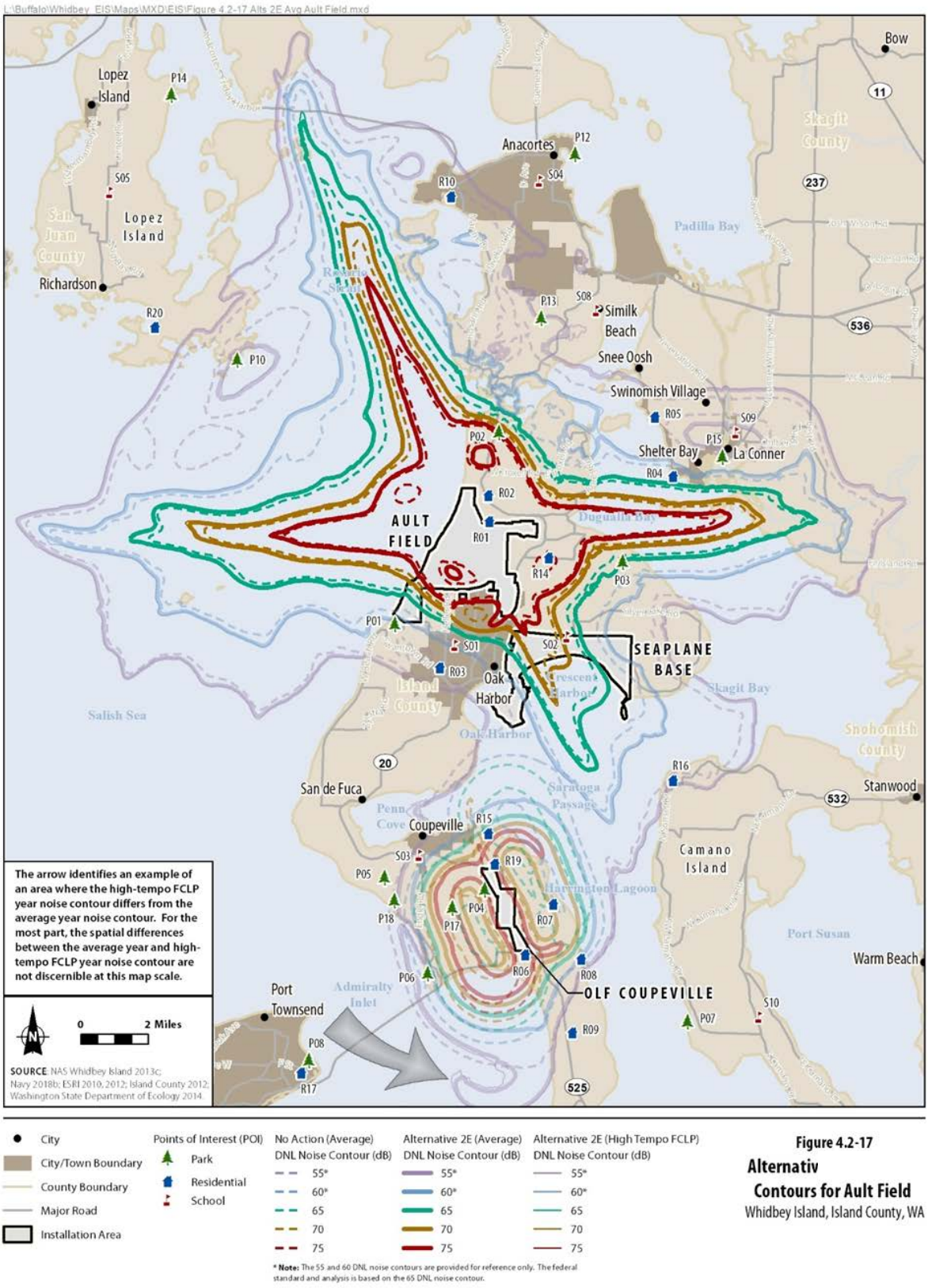

Figure 7-5 DNL Contours for AAD Aircraft Events for the Average Year Alternative 2E

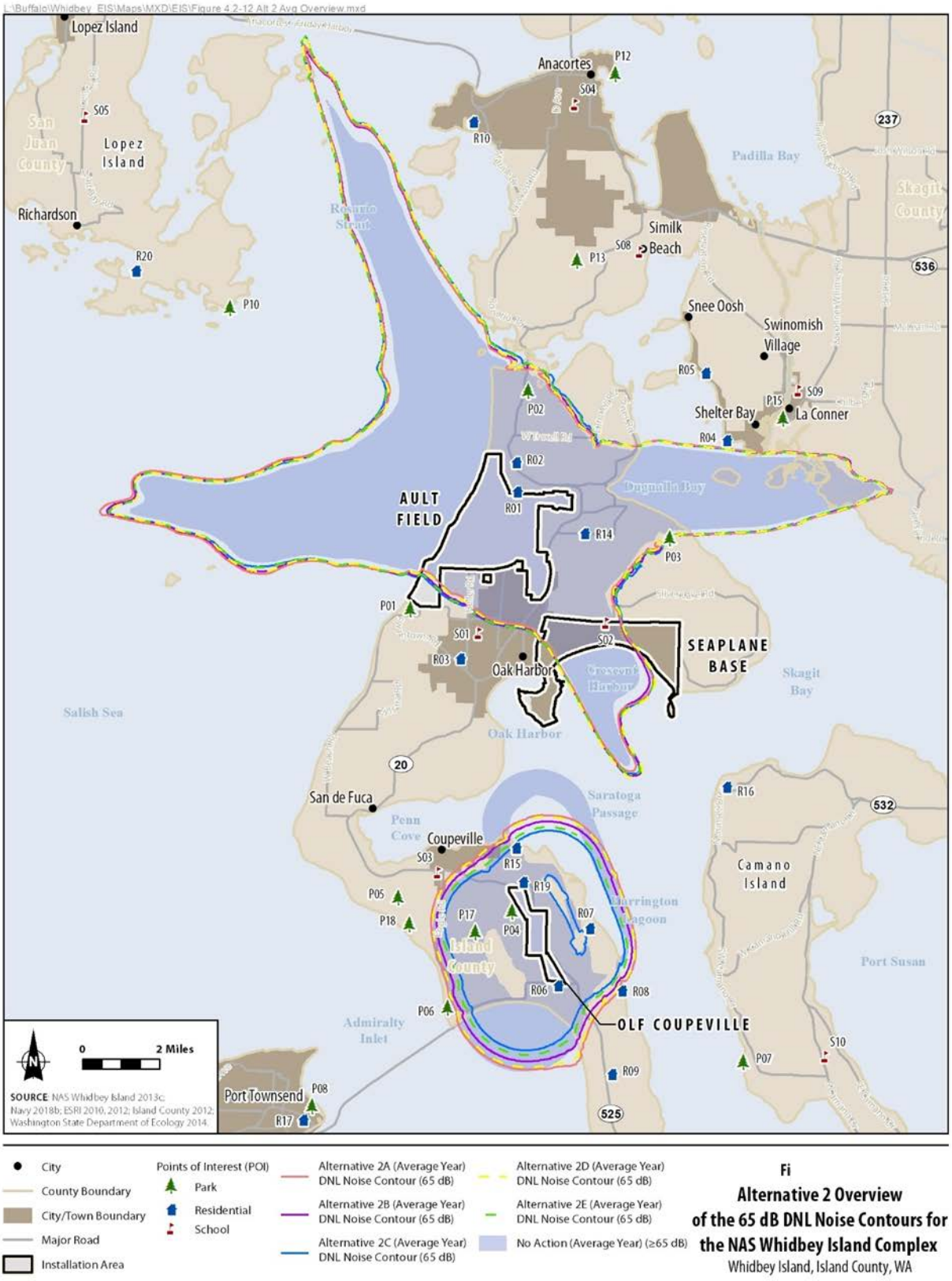

Figure 7-6 Comparison of 65 dB DNL Contours for Average Year Alternative 2 and the No Action Alternative

Table 7-11 Estimated Acreage and Population within the DNL Contour Ranges[1] for the NAS Whidbey Island Complex, Alternative 2 (Average Year)[2,3]

	DNL Contour Ranges							
	65 to <70 dB DNL		70 to <75 dB DNL		Greater than or equal to 75 dB DNL		Total	
	Area (acres)	Pop[4]	Area (acres)	Pop[4]	Area (acres)	Pop[4]	Area (acres)	Pop[4]
Ault Field								
No Action Alternative								
Average Year	3,596	3,279	3,269	2,283	5,549	3,379	12,414	8,941
Alternative 2								
Scenario A (20/80 FCLP split)	4,015 (+419)	3,699 (+420)	3,263 (-6)	1,886 (-397)	5,886 (+337)	3,493 (+114)	13,164 (+750)	9,078 (+137)
Scenario B (50/50 FCLP split)	3,899 (+303)	3,595 (+316)	3,266 (-3)	2,423 (+140)	6,370 (+821)	3,763 (+384)	13,535 (+1,121)	9,781 (+840)
Scenario C (80/20 FCLP split)	3,903 (+307)	3,701 (+422)	3,130 (-139)	2,472 (+189)	6,755 (+1,206)	3,922 (+543)	13,788 (+1,374)	10,095 (+1,154)
Scenario D (30/70 FCLP split)	3,966 (+370)	3,703 (+424)	3,234 (-35)	2,189 (-94)	6,129 (+580)	3,606 (+227)	13,329 (+915)	9,498 (+557)
Scenario E (70/30 FCLP split)	3,898 (+302)	3,667 (+388)	3,152 (-117)	2,435 (+152)	6,657 (+1,108)	3,876 (+497)	13,707 (+1,293)	9,978 (+1,037)
OLF Coupeville								
No Action Alternative								
Average Year	3,681	861	3,088	786	638	583	7,407	2,230
Alternative 2								
Scenario A (20/80 FCLP split)	1,553 (-2,128)	539 (-322)	3,380 (+292)	987 (+201)	5,149 (+4,511)	1,883 (+1,300)	10,082 (+2,675)	3,409 (+1,179)
Scenario B (50/50 FCLP split)	2,124 (-1,557)	583 (-278)	3,470 (+382)	1,065 (+279)	3,784 (+3,146)	1,447 (+864)	9,378 (+1,971)	3,095 (+865)
Scenario C (80/20 FCLP split)	3,442 (-239)	1,059 (+198)	3,148 (+60)	1,018 (+232)	1,287 (+649)	642 (+59)	7,877 (+470)	2,719 (+489)
Scenario D (30/70 FCLP split)	1,651 (-2,030)	518 (-343)	3,443 (+355)	1,027 (+241)	4,793 (+4,155)	1,774 (+1,191)	9,887 (+2,480)	3,319 (+1,089)
Scenario E (70/30 FCLP split)	3,136 (-545)	896 (+35)	3,157 (+69)	1,047 (+261)	2,413 (+1,775)	968 (+385)	8,706 (+1,299)	2,911 (+681)
NAS Whidbey Island Complex								
No Action Alternative								
Average Year	7,277	4,140	6,357	3,069	6,187	3,962	19,821	11,171
Alternative 2								
Scenario A (20/80 FCLP split)	5,568 (-1,709)	4,238 (+98)	6,643 (+286)	2,873 (-196)	11,035 (+4,848)	5,376 (+1,414)	23,246 (+3,425)	12,487 (+1,316)
Scenario B (50/50 FCLP split)	6,023 (-1,254)	4,178 (+38)	6,736 (+379)	3,488 (+419)	10,154 (+3,967)	5,210 (+1,248)	22,913 (+3,092)	12,876 (+1,705)
Scenario C (80/20 FCLP split)	7,345 (+68)	4,760 (+620)	6,278 (-79)	3,490 (+421)	8,042 (+1,855)	4,564 (+602)	21,665 (+1,844)	12,814 (+1,643)

Table 7-11 Estimated Acreage and Population within the DNL Contour Ranges[1] for the NAS Whidbey Island Complex, Alternative 2 (Average Year)[2,3]

	DNL Contour Ranges							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
	Area (acres)	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*
Scenario D (30/70 FCLP split)	5,617 (-1,660)	4,221 (+81)	6,677 (+320)	3,216 (+147)	10,922 (+4,735)	5,380 (+1,418)	23,216 (+3,395)	12,817 (+1,646)
Scenario E (70/30 FCLP split)	7,034 (-243)	4,563 (+423)	6,309 (-48)	3,482 (+413)	9,070 (+2,883)	4,844 (+882)	22,413 (+2,592)	12,889 (+1,718)

Notes:

[1] All five scenarios are outlined in Section 2.3.3, where the split represents the percent of FCLPs conducted at Ault Field and OLF Coupeville, respectively (i.e., 20/80 FCLP split = 20 percent of FCLPs at Ault Field and 80 percent of FCLPs at OLF Coupeville).

[2] Acreage presented does not include areas over water or areas over the NAS Whidbey Island complex.

[3] The difference between the No Action Alternative and Alternative 1 is noted in parentheses.

[4] Population counts of people within the DNL contour ranges were computed using 2010 Census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour range, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contour ranges (NAS Whidbey Island [Ault Field], the Seaplane Base, and OLF Coupeville). A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

[5] Numbers have been rounded to ensure totals sum.

Key:
dB = decibel
DNL = day-night average sound level
FCLP = Field Carrier Landing Practice

Table 7-12 Percent Difference in the Estimated Acreage and Population within the Average and High-Tempo FCLP Year DNL Contour Ranges for the NAS Whidbey Island Complex, Alternative 2

	DNL Contour Ranges[1]							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
DNL Contours	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*
Ault Field								
Scenario A	1.7%	1.1%	0.3%	2.3%	1.1%	0.6%	1.1%	1.2%
Scenario B	1.4%	1.8%	0.0%	2.8%	1.9%	1.4%	1.3%	1.9%
Scenario C	2.3%	1.8%	0.3%	1.8%	1.3%	1.0%	1.4%	1.5%
Scenario D	1.5%	1.4%	0.3%	1.6%	1.0%	0.7%	1.0%	1.2%
Scenario E	1.8%	1.5%	0.3%	2.1%	1.3%	0.8%	1.2%	1.4%
OLF Coupeville								
Scenario A	0.6%	4.3%	-2.9%	-3.9%	3.4%	2.9%	0.9%	1.2%
Scenario B	-2.9%	-3.7%	-0.3%	-0.5%	3.6%	3.4%	0.7%	0.7%
Scenario C	0.1%	-3.1%	0.9%	2.4%	26.6%	14.6%	4.8%	3.1%
Scenario D	-3.9%	1.8%	-0.5%	-2.0%	3.6%	3.2%	0.9%	1.3%
Scenario E	-6.8%	-7.9%	2.1%	0.4%	12.6%	10.9%	1.8%	1.3%
NAS Whidbey Island Complex								
Scenario A	1.4%	1.5%	-1.3%	0.2%	2.2%	1.4%	1.0%	1.2%
Scenario B	-0.1%	1.1%	-0.1%	1.8%	2.5%	1.9%	1.1%	1.6%
Scenario C	1.3%	0.7%	0.6%	2.0%	5.4%	2.9%	2.6%	1.8%
Scenario D	-0.1%	1.4%	-0.1%	0.5%	2.2%	1.5%	1.0%	1.2%
Scenario E	-2.0%	-0.4%	1.2%	1.6%	4.3%	2.8%	1.4%	1.4%

Key:
dB = decibel
DNL = day-night average sound level
NAS = Naval Air Station
OLF = outlying landing field

7.4.1 Points of Interest

Figure 7-7 shows the DNL for each POI and comparisons of the DNLs for this alternative's scenarios to those for the No Action Alternative. The average year Alternative 2 under all scenarios would have 12 POIs experience DNL greater than or equal to 65 dB, and five residential POIs would experience DNL greater than or equal to 75 dB. Three of the latter category would be near Ault Field (POIs R01, R02, and R14), and three would be near the OLF (POIs R06, R07, and R19). One of the seven schools, POI S02, would experience DNL greater than or equal to 65 dB--i.e., 69 dB.

Among alternatives under all scenarios, the increase in DNL would be greatest for Alternative 2, Scenario A, and smallest for Alternative 2, Scenario C. Increases in DNL would range from 1 to 15 dB compared to the No Action Alternative. POIs R06, R07, and EBLA001 would experience the greatest increases in DNL, 11 to 15 dB. POI R07 would be newly impacted, with DNL of 71 to 76 dB.

See Appendix A6 for lists of the five flight profiles that generate the greatest SEL at each POI.

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)																											
ID	Description	Related Field	A	B	C	D	E	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
P01	Joseph Whidbey State Park	Ault	58																										
				59																									
					59																								
						58																							
							59																						
P02	Deception Pass State Park	Ault	73																										
				74																									
					75																								
						74																							
							75																						
P03	Dugualla State Park	Ault	66																										
				66																									
					66																								
						66																							
							66																						
P04	Baseball Field (Ebey's Landing National Historical Reserve)	OLF	79																										
				77																									
					73																								
						78																							
							74																						
P05	Ebey's Prairie	OLF	56																										
				54																									
					50																								
						55																							
							51																						
P06	Fort Casey State Park	OLF	63																										
				60																									
					57																								
						62																							
							58																						
P07	Cama Beach State Park	OLF	47																										
				46																									
					<45																								
						47																							
							<45																						
P08	Port Townsend	OLF	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
P09	Moran State Park	Ault	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
P10	San Juan Islands National Monument	Ault	55																										
				55																									
					55																								
						55																							
							55																						
P11	San Juan Island Visitors Center	Ault	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
P12	Cap Sante Park	Ault	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
P13	Lake Campbell	Ault	55																										
				55																									
					56																								
						56																							
							56																						

Figure 7-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 2

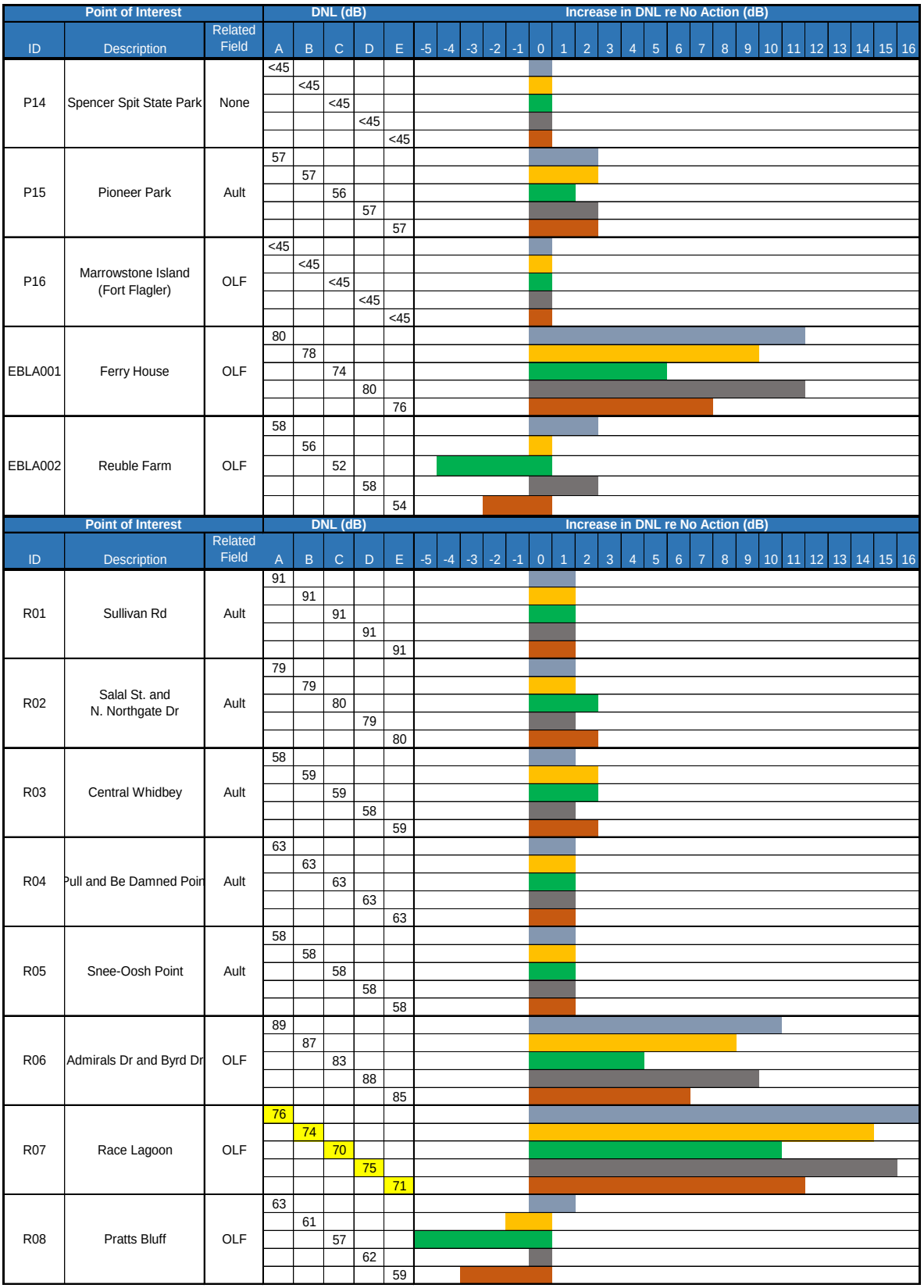

Figure 7-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 2 (continued)

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)
ID	Description	Related Field	A	B	C	D	E	-5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
R09	Cox Rd and Island Ridge Way	OLF	54					
				52				
					48			
						54		
							50	
R10	Skyline	None	58					
				57				
					58			
						58		
							58	
R11	Sequim	None	<45					
				<45				
					<45			
						<45		
							<45	
R12	Port Angeles	None	<45					
				<45				
					<45			
						<45		
							<45	
R13	Beverly Beach, Freeland	OLF	<45					
				<45				
					<45			
						<45		
							<45	
R14	Sleeper Rd & Slumber L	Ault	75					
				76				
					76			
						75		
							76	
R15	Long Point Manor	OLF	73					
				71				
					67			
						72		
							68	
R16	Rocky Point Heights	OLF	56					
				56				
					56			
						56		
							56	
R17	Port Townsend	None	<45					
				<45				
					<45			
						<45		
							<45	
R18	Marrowstone Island (Nordland)	None	<45					
				<45				
					<45			
						<45		
							<45	
R19	Island Transit Offices, Coupeville	OLF	80					
				78				
					74			
						79		
							76	
R20	South Lopez Island (Agate Beach)	None	49					
				48				
					49			
						49		
							49	

Figure 7-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 2 (continued)

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)																							
ID	Description	Related Field	A	B	C	D	E	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
S01	Oak Harbor High School	Ault	59																										
				60																									
					61																								
						60																							
							61																						
S02	Crescent Harbor Elementary School	Ault	69																										
				68																									
					69																								
						69																							
							69																						
S03	Coupeville Elementary School	OLF	61																										
				59																									
					55																								
						61																							
							57																						
S04	Anacortes High School	Ault	50																										
				49																									
					50																								
						50																							
							50																						
S05	Lopez Island School	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
S06	Friday Harbor Elementary School	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
S07	Sir James Douglas Elementary School	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
S08	Fidalgo Elementary School	Ault	53																										
				53																									
					53																								
						53																							
							53																						
S09	La Conner Elementary School	Ault	55																										
				55																									
					54																								
						54																							
							54																						
S10	Elger Bay Elementary School	OLF	<45																										
				<45																									
					<45																								
						<45																							
							<45																						

Figure 7-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 2 (concluded)

The high-tempo FCLP year Alternative 2 under all scenarios (Appendix A7) would have 12 POIs experience DNL greater than or equal to 65 dB, and five or six residential POIs would experience DNL greater than or equal to 75 dB. Three of the latter category would be near Ault Field (POIs R01, R02, and R14), and three would be near the OLF (POIs R06, R07, and R19). One of the seven schools, POI S02, would experience DNL greater than or equal to 65 dB--i.e., 69 dB.

Among high-tempo FCLP year Alternative 2 under all scenarios, the increase in DNL would be greatest for Alternative 2, Scenario A, and smallest for Alternative 2, Scenario C. Increases in DNL would range from 1 to 15 dB, compared to the high-tempo FCLP year No Action Alternative. POIs R07 and R06 would experience increases in DNL, respectively, of up to 15 and 10 dB. POI R07 would be newly impacted, with DNL of 70 to 76 dB.

7.4.2 Potential Hearing Loss

Table 7-13 shows estimates of the population within 1-dB bands of $L_{eq(24h)}$ and their associated NIPTS for the average year Alternative 2. The level at which there may be a noticeable NIPTS would be at the 84 to 85 dB $L_{eq(24)}$ range and above. There is an increase in the population within the 80 dB DNL noise contour (i.e., potential at-risk population) under Alternative 2 at both Ault Field and OLF Coupeville. The largest increase in the potential at-risk population in the vicinity of Ault Field would be under Scenario C (48 additional people) and in the vicinity of OLF Coupeville would be under Scenario A (29 additional people). The range of potential NIPTS could be up to 9.5 dB at Ault Field and 6.0 dB at OLF Coupeville. The potential NIPTS values presented in Table 7-13 are only applicable in the extreme case of continuous outdoor exposure at one's residence to all aircraft events occurring over a period of 40 years. Because it is highly unlikely for any individuals to meet all those criteria, the actual potential NIPTS for individuals would be far less than the values reported here.

The USEPA guidelines provided information on the estimated NIPTS exceeded by the 10 percent of the population most sensitive to noise. Using the same 1 dB incremental data in Table 7-13 and the column identified as the 10th Percentile NIPTS, those individuals are vulnerable to noticeable NIPTS at the 77 to 78 dB $L_{eq(24)}$ range and above. Using this even more conservative estimate, the range of potential NIPTS could be up to 18.0 dB for the population most sensitive to noise around Ault Field and up to 12.0 dB for the population most sensitive to noise around OLF Coupeville.

Table 7-13 Average and 10th Percentile Noise Induced Permanent Threshold Shifts as a Function of Equivalent Sound Level under Alternative 2 at the NAS Whidbey Island Complex (Average Year)

Band of $L_{eq(24)}$ (dB)[1]	Avg NIPTS (dB)[2,3]	10th Pct NIPTS (dB)[2,]	Estimated Population[4,5,6]											
			Ault Field						OLF Coupeville					
			No Action	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 2E	No Action	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 2E
75-76	1.0	4.0	0	0 (0)	1 (+1)	9 (+9)	0 (0)	5 (+5)	31	102 (+71)	47 (+16)	24 (-7)	83 (+52)	31 (0)
76-77	1.0	4.5	123	127 (+4)	319[7] (+196)	411[8] (+288)	165[9] (+42)	355 (+232)	45	164 (+119)	90 (+45)	58 (+13)	160 (+115)	63 (+18)
77-78	1.5	5.0	233	263 (+30)	336 (+103)	402 (+169)	310 (+77)	354 (+121)	47	127 (+80)	75 (+28)	88 (+41)	100 (+53)	57 (+10)
78-79	2.0	5.5	145	148 (+3)	243 (+98)	296 (+151)	175 (+30)	295 (+150)	24	92 (+68)	65 (+41)	5 (-19)	78 (+54)	61 (+37)
79-80	2.5	6.0	92	135 (+43)	163 (+71)	241 (+149)	141 (+49)	211 (+119)	7	75 (+68)	59 (+52)	0 (-7)	70 (+63)	76 (+69)
80-81	3.0	7.0	73	78 (+5)	97 (+24)	130 (+57)	85 (+12)	119 (+46)	0	66 (+66)	59 (+59)	0 (0)	62 (+62)	3 (+3)
81-82	3.5	8.0	51	63 (+12)	72 (+21)	80 (+29)	68 (+17)	77 (+26)	0	58 (+58)	84 (+84)	0 (0)	55 (+55)	0 (0)
82-83	4.0	9.0	37	48 (+11)	58 (+21)	63 (+26)	48 (+11)	61 (+24)	0	58 (+58)	4 (+4)	0 (0)	64 (+64)	0 (0)
83-84	4.5	10.0	34	35 (+1)	36 (+2)	38 (+4)	35 (+1)	37 (+3)	0	69 (+69)	0 (0)	0 (0)	56 (+56)	0 (0)
84-85	5.5	11.0	11	27 (+16)	26 (+15)	29 (+18)	29 (+18)	28 (+17)	0	28 (+28)	0 (0)	0 (0)	1 (+1)	0 (0)
85-86	6.0	12.0	9	10 (+1)	22 (+13)	26 (+17)	10 (+1)	24 (+15)	0	1 (+1)	0 (0)	0 (0)	0 (0)	0 (0)
86-87	7.0	13.5	6	9 (+3)	9 (+3)	10 (+4)	9 (+3)	10 (+4)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
87-88	7.5	15.0	4	6 (+2)	6 (+2)	8 (+4)	6 (+2)	7 (+3)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
88-89	8.5	16.5	2	4 (+2)	4 (+2)	5 (+3)	4 (+2)	5 (+3)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
89-90	9.5	18.0	0	1 (+1)	2 (+2)	2 (+2)	1 (+1)	2 (+2)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 7-13 Average and 10th Percentile Noise Induced Permanent Threshold Shifts as a Function of Equivalent Sound Level under Alternative 2 at the NAS Whidbey Island Complex (Average Year)

Band of $L_{eq(24)}$ (dB)[1]	Avg NIPTS (dB)[2,3]	10th Pct NIPTS (dB)[2,]	Estimated Population[4,5,6]											
			Ault Field						OLF Coupeville					
			No Action	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 2E	No Action	Alt 2A	Alt 2B	Alt 2C	Alt 2D	Alt 2E
90-91	10.5	19.5	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Notes:

1 L_{eq} bands with no population were omitted from table.

2 NIPTS values rounded to nearest 0.5 dB.

3 NIPTS below 5 dB are generally not considered noticeable.

4 This analysis assumes the population is outdoors at one's residence and exposed to all aircraft noise events for 40 years. Given the amount of time spent indoors and the intermittent occurrence of aircraft noise events, it is highly unlikely that individuals would meet all those criteria, and the actual potential for hearing loss would be far less than the values reported here.

5 Estimated Population was determined by those living within the 80 dB DNL noise contour around each airfield, including those living on-base at Ault Field (there is no on-base population at OLF Coupeville).

6 Population counts of people within the DNL contours were computed using 2010 census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). In addition, per guidance on potential hearing loss, on-base populations at Ault Field have been included in the analysis. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

7 Of this estimated population, 25 are military personnel living on base at Ault Field.

8 Of this estimated population, 70 are military personnel living on base at Ault Field.

9 Of this estimated population, 24 are military personnel living on base at Ault Field.

Key:

dB = decibel

$L_{eq(24)}$ = 24-hour Equivalent Sound Level

NIPTS = Noise Induced Permanent Threshold Shift

7.4.3 Residential Nighttime Sleep Disturbance

Table 7-14 lists the PA for applicable POIs for average daily nighttime (10:00 p.m. to 7:00 a.m.) events for average year Alternative 2 under all scenarios. Average PA would range from 8 percent to 16 percent across the listed POIs for either window condition. POIs R01 and R02 would have the greatest PA, 35 percent to 74 percent, depending upon whether windows are open or closed. At eight of the POIs, there would be no change in PA compared to the No Action Alternative, but at the remaining 22 POIs, increases in PA would range from 1 percent at several POIs to 29 percent (at POI R06 under Alternative 2, Scenario A).

Under the high-tempo FCLP year Alternative 2 (Appendix A7), the statistics cited above would be 1 percent to 2 percent greater than those listed for the average year Alternative 2, except for the change statistics. At six of the POIs, there would be no change in PA compared to the No Action Alternative, but at the remaining 24 POIs, increases in PA would range from 1 percent at several POIs to 39 percent (at POI R06 under Alternative 2, Scenario A).

Table 7-14 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Alternative 2

Point of Interest				Annual Average Nightly (2200-0700) Probability of Awakening (%) [1]																			
				Alt2A		Change from No Action		Alt2B		Change from No Action		Alt2C		Change from No Action		Alt2D		Change from No Action		Alt2E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential[2]	R01	Sullivan Rd	Ault	67%	51%	9%	8%	71%	55%	13%	12%	74%	58%	16%	15%	68%	52%	10%	9%	73%	57%	15%	14%
	R02	Salal St. and N. Northgate Dr	Ault	49%	35%	8%	6%	52%	38%	11%	9%	56%	41%	15%	12%	50%	36%	9%	7%	55%	40%	14%	11%
	R03	Central Whidbey	Ault	19%	10%	3%	2%	21%	11%	5%	3%	23%	12%	7%	4%	20%	11%	4%	3%	23%	12%	7%	4%
	R04	Pull and Be Damned Point	Ault	25%	12%	6%	3%	26%	12%	7%	3%	27%	12%	8%	3%	25%	12%	6%	3%	27%	12%	8%	3%
	R05	Snee-Oosh Point	Ault	20%	7%	5%	2%	21%	7%	6%	2%	22%	7%	7%	2%	20%	7%	5%	2%	22%	7%	7%	2%
	R06	Admirals Dr and Byrd Dr	OLF	38%	27%	29%	21%	25%	17%	16%	11%	11%	7%	2%	1%	34%	24%	25%	18%	16%	11%	7%	5%
	R07	Race Lagoon	OLF	18%	8%	13%	6%	13%	5%	8%	3%	7%	2%	2%	-	17%	7%	12%	5%	9%	3%	4%	1%
	R08	Pratts Bluff	OLF	13%	8%	9%	6%	9%	5%	5%	3%	4%	2%	-	-	12%	8%	8%	6%	6%	3%	2%	1%
	R09	Cox Rd and Island Ridge Way	OLF	11%	7%	8%	5%	7%	4%	4%	2%	3%	2%	-	-	10%	6%	7%	4%	4%	3%	1%	1%
	R10	Skyline	None	8%	3%	3%	1%	8%	3%	3%	1%	9%	3%	4%	1%	8%	3%	3%	1%	9%	3%	4%	1%
	R11	Sequim	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R12	Port Angeles	None	1%	0%	1%	-	1%	0%	1%	-	0%	0%	-	-	1%	0%	1%	-	0%	0%	-	-
	R13	Beverly Beach, Freeland	OLF	5%	-	3%	-	3%	-	1%	-	2%	-	-	-	5%	-	3%	-	2%	-	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	44%	31%	7%	6%	47%	34%	10%	9%	51%	37%	14%	12%	45%	32%	8%	7%	50%	36%	13%	11%
	R15	Long Point Manor	OLF	22%	12%	11%	8%	18%	8%	7%	4%	14%	4%	3%	-	21%	10%	10%	6%	15%	5%	4%	1%
	R16	Rocky Point Heights	OLF	11%	4%	2%	1%	12%	4%	3%	1%	13%	3%	4%	-	12%	4%	3%	1%	13%	3%	4%	-
	R17	Port Townsend	None	1%	-	-	-	1%	-	-	-	0%	-	-1%	-	1%	-	-	-	1%	-	-	-
	R18	Marrowstone Island (Nordland)	None	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%	-	-	-
	R19	Island Transit Offices, Coupeville	OLF	31%	20%	22%	15%	22%	13%	13%	8%	11%	5%	2%	-	28%	18%	19%	13%	15%	8%	6%	3%

Table 7-14 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Alternative 2

Point of Interest				Annual Average Nightly (2200-0700) Probability of Awakening (%) [1]																			
				Alt2A		Change from No Action		Alt2B		Change from No Action		Alt2C		Change from No Action		Alt2D		Change from No Action		Alt2E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
	R20	South Lopez Island (Agate Beach)	None	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-
School (near residential)	S01	Oak Harbor High School	Ault	25%	14%	5%	2%	27%	16%	7%	4%	29%	18%	9%	6%	26%	15%	6%	3%	29%	17%	9%	5%
	S02	Crescent Harbor Elementary School	Ault	26%	15%	5%	3%	28%	17%	7%	5%	30%	19%	9%	7%	27%	16%	6%	4%	30%	18%	9%	6%
	S03	Coupeville Elementary School	OLF	16%	10%	11%	7%	11%	6%	6%	3%	5%	3%	-	-	14%	9%	9%	6%	7%	4%	2%	1%
	S04	Anacortes High School	Ault	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-
	S05	Lopez Island School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	9%	3%	3%	1%	9%	3%	3%	1%	10%	3%	4%	1%	9%	3%	3%	1%	10%	3%	4%	1%
	S09	La Conner Elementary School	Ault	11%	5%	3%	2%	10%	5%	2%	2%	10%	5%	2%	2%	10%	5%	2%	2%	10%	5%	2%	2%
	S10	Elger Bay Elementary School	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] Assumes 15 dB and 25 dB of Noise Level Reductions for windows open and closed, respectively.

[2] R01 and R06 include interior SELs greater than 100 dB with windows open

7.4.4 Residential Daytime Indoor Speech Interference

Table 7-15 presents the average daily indoor daytime (7:00 a.m. to 10:00 p.m.) events per hour for the applicable POIs that would experience indoor maximum sound levels of at least 50 dB with windows closed and open, for average year Alternative 2. Events per hour would be less than one at 12 of the 30 POIs and would range between one and 10 for the remaining 18 POIs, regardless of the window status. Relative to the average year No Action Alternative, increases of one or two events per hour would be experienced by 15 of the POIs.

For the high-tempo FCLP year Alternative 2 (Appendix A7), the above statistics would be the same.

Table 7-15 Indoor Speech Interference for the Average Year Alternative 2

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]																	
				Alt2A		Change from No Action		Alt2B		Change from No Action		Alt2C		Change from No Action		Alt2D		Change from No Action		Alt2E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential[2]	R01	Sullivan Rd	Ault	9	9	+1	+1	10	10	+2	+2	10	10	+2	+2	9	9	+1	+1	10	10	+2	+2
	R02	Salal St. and N. Northgate Dr	Ault	9	9	+1	+1	10	9	+2	+1	10	10	+2	+2	9	9	+1	+1	10	10	+2	+2
	R03	Central Whidbey	Ault	5	-	-	-	6	-	+1	-	6	-	+1	-	5	-	-	-	6	-	+1	-
	R04	Pull and Be Damned Point	Ault	3	1	+1	-	3	1	+1	-	3	1	+1	-	3	1	+1	-	3	1	+1	-
	R05	Snee-Oosh Point	Ault	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-
	R06	Admirals Dr and Byrd Dr	OLF	2	2	+2	+2	1	1	+1	+1	-	-	-	-	2	2	+2	+2	1	1	+1	+1
	R07	Race Lagoon	OLF	2	1	+2	+1	1	-	+1	-	1	-	+1	-	2	1	+2	+1	1	-	+1	-
	R08	Pratts Bluff	OLF	2	1	+2	+1	1	-	+1	-	-	-	-	-	2	1	+2	+1	1	-	+1	-
	R09	Cox Rd and Island Ridge Way	OLF	1	-	+1	-	1	-	+1	-	-	-	-	-	1	-	+1	-	-	-	-	-
	R10	Skyline	None	-	-	-	-	-	-	-	-	1	-	+1	-	1	-	+1	-	1	-	+1	-
	R11	Sequim	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R12	Port Angeles	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R13	Beverly Beach, Freeland	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	9	8	+1	+1	9	9	+1	+2	10	9	+2	+2	9	8	+1	+1	10	9	+2	+2
	R15	Long Point Manor	OLF	3	2	+2	+1	2	1	+1	-	1	1	-	-	2	2	+1	+1	1	1	-	-
	R16	Rocky Point Heights	OLF	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-	2	1	-	-
	R17	Port Townsend	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R18	Marrowstone Island (Nordland)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R19	Island Transit Offices, Coupeville	OLF	2	2	+1	+1	1	1	-	-	1	1	-	-	2	2	+1	+1	1	1	-	-

Table 7-15 Indoor Speech Interference for the Average Year Alternative 2

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]																			
				Alt2A		Change from No Action		Alt2B		Change from No Action		Alt2C		Change from No Action		Alt2D		Change from No Action		Alt2E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
	R20	South Lopez Island (Agate Beach)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School (near residential)	S01	Oak Harbor High School	Ault	6	2	-	-	7	3	+1	+1	7	3	+1	+1	7	3	+1	+1	7	3	+1	+1
	S02	Crescent Harbor Elementary School	Ault	5	2	-	-	6	2	+1	-	6	3	+1	+1	6	2	+1	-	6	3	+1	+1
	S03	Coupeville Elementary School	OLF	2	1	+1	+1	1	1	-	+1	1	-	-	-	2	1	+1	+1	1	-	-	-
	S04	Anacortes High School	Ault	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S05	Lopez Island School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S09	La Conner Elementary School	Ault	1		-	-	1	1	-	+1	1		-	-	1		-	-	1		-	-
	S10	Elger Bay Elementary School	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] With an indoor maximum sound level of at least 50 dB; assumes 15 dB and 25 dB of noise level reductions for windows open and closed, respectively.

[2] The Whidbey General Hospital is located within approximately 1,000 feet of the Coupeville Elementary School; therefore, this location was not modeled individually, but similar result for indoor speech interference for POI S03 would apply

7.4.5 Classroom Learning Interference

Table 7-16 presents the potential learning interference for classrooms under the average year Alternative 2. With an $L_{eq(8h)}$ of 69 dB, POI S02 (Crescent Harbor Elementary School) would experience the greatest outdoor $L_{eq(8h)}$. No other locations would experience $L_{eq(8h)}$ greater than or equal to the screening threshold of 60 dB under any of the three alternatives. With windows open, three or four of the POIs would have more than one event per hour. With windows closed, two of the POIs would have more than one event per hour. POI S01, Oak Harbor High School, would have the most events per hour, with up to seven with windows open. POIs S01 and S02 would have the most events per hour (two or three) with windows closed.

All POIs would experience between 1 and 6 dB increases in $L_{eq(8h)}$ and increases of one or two events per hour.

Under the high-tempo FCLP year Alternative 2 (Appendix A7), POI S02 (Crescent Harbor Elementary School) would have an outdoor $L_{eq(8h)}$ of 69 dB. Up to four of the POIs would have more than one event per hour with windows open (S01, S02, S03, and R03), and up to two POIs would have more than one event per hour with windows closed (S01 and S02). POI S01, Oak Harbor High School, would have the most events per hour, with up to seven with windows open and three with windows closed. Relative to the high-tempo FCLP year No Action Alternative, POIs would experience increases of up to two events per hour. Only one POI would experience a change in indoor $L_{eq(8h)}$ of greater than 2 dB (POI S03.)

Table 7-16 Classroom Learning Interference for Average Year Alternative 2

Point of Interest				Alt 2A					Change from No Action				
				Outdoor	Indoor[1]				Outdoor	Indoor[1]			
					Windows Open		Windows Closed			Windows Open		Windows Closed	
Type	ID	Description	Related Field	$L_{eq\ (8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq\ (8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq(8h)}$ (dB)	Events per Hour [2]
School	R03	Central Whidbey	Ault	59	<45	5	<45	-	+2	+2	+1	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2	-	-	+1	-	-
	S02	Crescent Harbor Elementary School	Ault	69	54	5	<45	2	+2	+2	+1	+2	-
	S03	Coupeville Elementary School	OLF	57	<45	2	<45	1	+6	+6	+2	+6	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**4**		**2**			**1**		-
Minimum Number of Intrusive Events per Hour if Exceeding One						**5**		**2**			**+2**		-
Maximum Number of Intrusive Events per Hour if Exceeding One						**6**		**2**			**+2**		-

Table 7-16 Classroom Learning Interference for Average Year Alternative 2

Point of Interest				*Alt 2B*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	5	<45	-	+2	+2	+1	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	2	+1	+1	+2	+1	-
	S02	Crescent Harbor Elementary School	Ault	68	53	6	<45	2	+1	+1	+2	+1	-
	S03	Coupeville Elementary School	OLF	55	<45	1	<45	1	+4	+4	+1	+4	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**2**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**5**		**2**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**7**		**2**			**+2**		**-**

Table 7-16 Classroom Learning Interference for Average Year Alternative 2

Point of Interest				*Alt 2C*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	6	<45	-	+2	+2	+2	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	69	54	6	<45	3	+2	+2	+2	+2	+1
	S03	Coupeville Elementary School	OLF	51	<45	1	<45	-	-	-	+1	-	-
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**3**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**6**		**3**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**7**		**3**			**+2**		**-**

Table 7-16 Classroom Learning Interference for Average Year Alternative 2

Point of Interest				*Alt 2D*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	5	<45	-	+2	+2	+1	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2	-	-	+1	-	-
	S02	Crescent Harbor Elementary School	Ault	69	54	5	<45	2	+2	+2	+1	+2	-
	S03	Coupeville Elementary School	OLF	56	<45	1	<45	1	+5	+5	+1	+5	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**-**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**5**		**2**			**-**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**6**		**2**			**-**		**-**

Table 7-16 Classroom Learning Interference for Average Year Alternative 2

Point of Interest				*Alt 2E*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	6	<45	-	+2	+2	+2	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	69	54	6	<45	2	+2	+2	+2	+2	-
	S03	Coupeville Elementary School	OLF	53	<45	1	<45	-	+2	+2	+1	+2	-
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**3**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**6**		**2**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**7**		**3**			**+2**		**-**

Notes:

[1] Assumes 15 dB and 25 dB of noise level reductions for windows open and closed, respectively.

[2] Number of average school-day events per hour during 8-hour school day (0800-1600) at or above an indoor maximum (single-event) sound level (L_{max}) of 50 dB.

7.4.6 Recreational Speech Interference

Table 7-17 lists the AAD daytime NA 50 L_{max} per hour for the recreational POIs. The average NA across the 11 POIs would be four events per daytime hour and one event per nighttime hour. Seven POIs would be exposed to less than one event per hour. Seven POIs would have the most events per hour, at 10 under Alternative 2, Scenario C. Relative to the average year No Action Alternative, increases of up to two events per hour would be experienced at all but nine of the POIs. These latter nine POIs would experience no change.

For the high-tempo FCLP year Alternative 2 (Appendix A7), the above statistics would be the same.

Table 7-17 Recreational Speech Interference for Average Year Alternative 2

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 65 L_{max}																			
			Alt2A		Increase re No Action		Alt2B		Increase re No Action		Alt2C		Increase re No Action		Alt2D		Increase re No Action		Alt2E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Park	P01	Joseph Whidbey State Park	9	2	+1	-	9	2	+1	-	10	2	+2	-	9	2	+1	-	10	2	+2	-
	P02	Deception Pass State Park	9	2	+1	-	9	2	+1	-	10	2	+2	-	9	2	+1	-	10	2	+2	-
	P03	Dugualla State Park	9	2	+2	-	9	2	+2	-	10	2	+3	-	9	2	+2	-	9	2	+2	-
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	P05	Ebey's Landing State Park	4	1	+2	+1	3	1	+1	+1	3	1	+1	+1	4	1	+2	+1	3	1	+1	+1
	P06	Fort Casey State Park	3	1	+2	+1	2	1	+1	+1	1	-	-	-	2	1	+1	+1	2		+1	-
	P07	Cama Beach State Park	5	1	+2	+1	4	1	+1	+1	3		-	-	5	1	+2	+1	4	1	+1	+1
	P08	Port Townsend	2	1	+1	+1	1	1	-	+1	1	-	-	-	2	1	+1	+1	1		-	-
	P09	Moran State Park	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	P10	San Juan Islands National Monument	8	2	+1	+1	9	2	+2	+1	9	2	+2	+1	8	2	+1	+1	9	2	+2	+1
	P11	San Juan Island Visitors Center	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	P12	Cap Sante Park		-	-	-		-	-	-	1	-	+1	-	1		+1	-	1		+1	-
	P13	Lake Campbell	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-
	P14	Spencer Spit State Park	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	P15	Pioneer Park	5	1	+1	-	4	1	-	-	4	1	-	-	5	1	+1	-	4	1	-	-
	P16	Marrowstone Island (Fort Flagler)	1	1	+1	+1	1		+1	-		-	-	-	1	1	+1	+1	1		+1	-
	EBLA001	Ferry House	4	1	+2	+1	3	1	+1	+1	2		-	-	4	1	+2	+1	3	1	+1	+1
	EBLA002	Reuble Farm	4	1	+2	+1	3	1	+1	+1	2	-	-	-	4	1	+2	+1	3		+1	-

Table 7-17 Recreational Speech Interference for Average Year Alternative 2

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 65 L_{max}																			
			Alt2A		Increase re No Action		Alt2B		Increase re No Action		Alt2C		Increase re No Action		Alt2D		Increase re No Action		Alt2E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Residential	R01	Sullivan Rd	9	2	+1	-	10	2	+2	-	10	3	+2	+1	10	2	+2	-	10	2	+2	-
	R02	Salal St. and N. Northgate Dr	9	2	+1	-	10	2	+2	-	10	3	+2	+1	10	2	+2	-	10	2	+2	-
	R03	Central Whidbey	8	2	+1	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	R04	Pull and Be Damned Point	8	2	+1	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	R05	Snee-Oosh Point	8	2	+1	+1	8	2	+1	+1	9	2	+2	+1	8	2	+1	+1	9	2	+2	+1
	R06	Admirals Dr and Byrd Dr	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2		+1	-
	R07	Race Lagoon	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	R08	Pratts Bluff	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2		+1	-
	R09	Cox Rd and Island Ridge Way	2	1	+1	+1	2	1	+1	+1	1	-	-	-	2	1	+1	+1	1		-	-
	R10	Skyline	4	1	-	-	4	1	-	-	5	1	+1	-	4	1	-	-	4	1	-	-
	R11	Sequim	1	-	+1	-	1	-	+1	-	1	-	+1	-	1		+1	-	1		+1	-
	R12	Port Angeles	1	-	-	-	1	-	-	-	1	-	-	-	1		-	-	1		-	-
	R13	Beverly Beach, Freeland	1	-	+1	-		-	-	-	-	-	-	-	1		+1	-			-	-
	R14	E Sleeper Rd & Slumber Ln	9	2	+1	-	10	2	+2	-	10	3	+2	+1	10	2	+2	-	10	2	+2	-
	R15	Long Point Manor	9	2	+2	+1	9	2	+2	+1	8	2	+1	+1	9	2	+2	+1	8	2	+1	+1
	R16	Rocky Point Heights	5	1	+1	-	5	1	+1	-	5	2	+1	+1	5	1	+1	-	5	2	+1	+1
	R17	Port Townsend	2	1	+1	+1	1		-	-		-	-1	-	1	1	-	+1	1		-	-
	R18	Marrowstone Island (Nordland)	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	R19	Island Transit Offices, Coupeville	5	1	+2	-	4	1	+1	-	3	1	-	-	4	1	+1	-	4	1	+1	-
	R20	South Lopez Island (Agate Beach)	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-

Table 7-17 Recreational Speech Interference for Average Year Alternative 2

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 65 L_{max}																			
			Alt2A		Increase re No Action		Alt2B		Increase re No Action		Alt2C		Increase re No Action		Alt2D		Increase re No Action		Alt2E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
School	S01	Oak Harbor High School	9	2	+1	-	9	2	+1	-	10	2	+2	-	9	2	+1	-	10	2	+2	-
	S02	Crescent Harbor Elementary School	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	S03	Coupeville Elementary School	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	S04	Anacortes High School	1	-	-	-	1	-	-	-	1	-	-	-	1		-	-	1		-	-
	S05	Lopez Island School	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	S06	Friday Harbor Elementary School	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	S07	Sir James Douglas Elementary School	-	-	-	-	-	-	-	-	-	-	-	-			-	-			-	-
	S08	Fidalgo Elementary School	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-
	S09	La Conner Elementary School	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-
	S10	Elger Bay Elementary School	1	-	+1	-	1	-	+1	-	1	-	+1	-	1		+1	-	1		+1	-

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8 Average Year Alternative 3 Scenarios

Relative to the No Action Alternative, Alternative 3 would add two EA-18G aircraft to each CVW squadron, add nine EA-18G aircraft to the FRS, and increase the number of aircraft in each Expeditionary squadron from five to eight, as summarized in Table 2-1. Section 8.1 details the flight operations. Section 8.2 presents the runway/flight track utilization, flight profiles, and derivation of AAD flight operations. Sections 8.3 and 8.4 contain the maintenance run-ups and resultant aircraft noise exposure.

8.1 Flight Operations

From the methodology described in Chapter 2, Tables 8-1 through 8-10 show the modeled flight operations for the average year Alternatives 3 under all scenarios. Any of these five scenarios would have approximately 112,000 total annual flight operations for the complex. The EA-18G would dominate operations, with 88 percent of the complex's annual flight operations. Annual FCLP-related operations at the OLF would vary between 6,300 in Alternative 3, Scenario C, to 25,000 in Alternative 3, Scenario A. As shown in Tables 8-2, 8-4, and 8-6, approximately 15 percent and 21 percent of the overall total flight operations and OLF FCLP operations, respectively, would be conducted during the DNL nighttime period.

Relative to the average year No Action Alternative, Tables 8-1, 8-3, 8-5, 8-7, and 8-9 show that the complex's total annual flight operations would increase by approximately 36,000, with most of the increase attributable to increased FCLP operations.

The high-tempo FCLP year Alternative 3, Scenario A (Appendix A2), has approximately 115,000 total annual flight operations for the complex, with the EA-18G having 88 percent of the complex's annual flight operations.

Table 8-1 Summary of Annual Flight Operations for the Average Year Alternative 3A

		Alternative 3A (Average Year)			*Change from No Action*		
		Type of Flight Operation			*Type of Flight Operation*		
Airfield	*Aircraft Type or Category*	*FCLP [2, 3]*	*Other [4]*	*Total*	*FCLP [2, 5]*	*Other*	*Total*
Ault Field	EA-18G	5,900	67,700	73,600	-5,400	+14,700	+9,300
	Other Based	-	11,800	11,800	-	+200	+200
	Transient	-	2,300	2,300	-	-	-
	Subtotal	5,900	81,800	87,700	-5,400	+14,900	+9,500
OLF Coupeville	EA-18G	23,700	-	23,700	+17,600	-	+17,600
	Other	-	400	400	-	-	-
	Subtotal	23,700	400	24,100	+17,600	-	+17,600
TOTAL (both airfields)		**29,600**	**82,200**	**111,800**	**+12,200**	**+14,900**	**+27,100**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 2,958 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 8-2 Detailed Annual Flight Operations for the Average Year Alternative 3A

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	7,059	383	7,442	2,582	68	2,650	4,178	-	140	4,318	465	10	475	445	193	261	899	721	-	177	898						
		FRS	5,668	379	6,047	2,148	323	2,471	2,436	322	601	3,359	190	28	218	292	156	120	568	492	-	76	568						
		RES	1,148	91	1,239	419	18	437	702	-	29	731	66	4	70	6	4	2	12	11	-	2	13						
		EXP	2,482	146	2,628	913	35	948	1,445	-	66	1,511	168	1	169	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,951	95	2,046	1,390	285	1,675	-	-	-	-	307	63	370														
	H60	SAR	388	-	388	388	-	388	-	-	-	-	-	-	-									91	-	91	91	-	91
	C-40	-	394	-	394	283	-	283	-	-	-	-	111	-	111														
	JET_LRG	-	405	111	516	370	103	473	-	-	-	-	29	13	42														
Total			**19,495**	**1,205**	**20,700**	**8,493**	**832**	**9,325**	**8,761**	**322**	**836**	**9,919**	**1,336**	**119**	**1,455**	**743**	**353**	**383**	**1,479**	**1,224**	**-**	**255**	**1,479**	**91**	**-**	**91**	**91**	**-**	**91**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)							
																DL	DK	DK	Total	DL	DK	DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW														721	-	177	898	445	193	261	899						
		FRS														492	-	76	568	292	156	120	568						
		RES														11	-	2	13	6	4	2	12						
	H60	SAR																					91	-	91	91	-	91
Total																**1,224**	**-**	**255**	**1,479**	**743**	**353**	**383**	**1,479**	**91**	**-**	**91**	**91**	**-**	**91**

Table 8-2 Detailed Annual Flight Operations for the Average Year Alternative 3A

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total							DL	DK	DK	Total
Ault Field	EA18	CVW	1,646	1,105	896	3,647	3,318	690	927	4,935	2,401	90	2,491	4,383	2,706	7,089	27,198	1,988	5,658	34,844
		FRS	1,373	485	274	2,132	3,659	723	1,024	5,406	-	-	0	4,855	1,046	5,901	21,113	1,686	3,871	26,670
		RES	94	30	22	146	510	10	15	535	419	15	434	507	45	552	3,882	44	243	4,169
		EXP	-	-	-	0	896	-	55	951	773	31	804	890	48	938	7,567	-	382	7,949
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,105	-	655	4,760	-	-	-	1,750	198	1,948	9,503	-	1,296	10,799
	H60	SAR					-	-	-	-	-	-	-	-	-	-	958	-	-	958
	C-40	-					334	-	-	334	-	-	-	167	-	167	1,289	-	-	1,289
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	804	-	227	1,031
Total			**3,113**	**1,620**	**1,192**	**5,925**	**12,822**	**1,423**	**2,676**	**16,921**	**3,593**	**136**	**3,729**	**12,552**	**4,043**	**16,595**	**72,314**	**3,718**	**11,677**	**87,709**
OLF	EA18	CVW	5,984	3,489	3,110	12,583											7,150	3,682	3,548	14,380
		FRS	3,902	2,750	1,297	7,949											4,686	2,906	1,493	9,085
		RES	79	74	29	182											96	78	33	207
	H60	SAR					181	-	-	181							363	-	-	363
Total			**9,965**	**6,313**	**4,436**	**20,714**	**181**	**-**	**-**	**181**							**12,295**	**6,666**	**5,074**	**24,035**
														Grand Totals (Ault+OLF)			**84,609**	**10,384**	**16,751**	**111,744**

Total Annual EA-18G FCLP Related Ops **Ault = 5,925 (20%)** **OLF = 23,672 (80%)** **Total = 29,597**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 8-3 Summary of Annual Flight Operations for the Average Year Alternative 3B

Airfield	Aircraft Type or Category	Alternative 3B (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	14,800	66,600	81,400	+3,500	+13,600	+17,100
	Other Based	-	11,600	11,600	-	-	-
	Transient	-	2,300	2,300	-	-	-
	Subtotal	14,800	80,500	95,300	+3,500	+13,600	+17,100
OLF Coupeville	EA-18G	14,800	-	14,800	+8,700	-	+8,700
	Other	-	400	400	-	-	-
	Subtotal	14,800	400	15,200	+8,700	-	+8,700
TOTAL (both airfields)		**29,600**	**80,900**	**110,500**	**+12,200**	**+13,600**	**+25,800**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 1,850 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 8-4 Detailed Annual Flight Operations for the Average Year Alternative 3B

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,057	393	7,450	2,574	69	2,643	4,178	-	149	4,327	471	9	480	281	124	156	561	453	-	108	561						
		FRS	5,674	379	6,053	2,162	312	2,474	2,406	308	605	3,319	220	40	260	180	96	75	351	305	-	46	351						
		RES	1,154	86	1,240	405	19	424	717	-	26	743	70	3	73	6	5	2	13	11	-	2	13						
		EXP	2,493	138	2,631	899	30	929	1,456	-	62	1,518	182	2	184	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,953	93	2,046	1,411	272	1,683	-	-	-	-	307	57	364														
	H60	SAR	389	-	389	389	-	389	-	-	-	-	-	-	-									91	-	91	91	-	91
	C-40	-	395	-	395	285	-	285	-	-	-	-	110	-	110														
	JET_LRG	-	412	104	516	381	98	479	-	-	-	-	25	12	37														
Total			**19,527**	**1,193**	**20,720**	**8,506**	**800**	**9,306**	**8,757**	**308**	**842**	**9,907**	**1,385**	**123**	**1,508**	**467**	**225**	**233**	**925**	**769**	**-**	**156**	**925**	**91**	**-**	**91**	**91**	**-**	**91**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
																DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW														453	-	108	561	281	124	156	561						
		FRS														305	-	46	351	180	96	75	351						
		RES														11	-	2	13	6	5	2	13						
	H60	SAR																						91	-	91	91	-	91
Total																**769**	**-**	**156**	**925**	**467**	**225**	**233**	**925**	**91**	**-**	**91**	**91**	**-**	**91**

Table 8-4 Detailed Annual Flight Operations for the Average Year Alternative 3B

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total							DL	DK	DK	Total
Ault Field	EA18	CVW	4,100	2,584	2,350	9,034	3,318	690	927	4,935	2,401	90	2,491	4,383	2,706	7,089	29,216	3,398	6,957	39,571
		FRS	3,593	1,306	688	5,587	3,659	723	1,024	5,406	-	-	0	4,855	1,046	5,901	23,054	2,433	4,215	29,702
		RES	107	42	26	175	510	10	15	535	419	15	434	507	45	552	3,906	57	239	4,202
		EXP	-	-	-	0	896	-	55	951	773	31	804	890	48	938	7,589	-	366	7,955
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,021	-	620	4,641	-	-	-	1,736	177	1,913	9,428	-	1,219	10,647
	H60	SAR					-	-	-	-	-	-	-	-	-	-	960	-	-	960
	C-40	-					329	-	-	329	-	-	-	165	-	165	1,284	-	-	1,284
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	818	-	214	1,032
Total			**7,800**	**3,932**	**3,064**	**14,796**	**12,733**	**1,423**	**2,641**	**16,797**	**3,593**	**136**	**3,729**	**12,536**	**4,022**	**16,558**	**76,255**	**5,888**	**13,210**	**95,353**
OLF	EA18	CVW	3,777	2,176	1,905	7,858											4,511	2,300	2,169	8,980
		FRS	2,388	1,694	832	4,914											2,873	1,790	953	5,616
		RES	73	85	22	180											90	90	26	206
	H60	SAR					182	-	-	182							364	-	-	364
Total			**6,238**	**3,955**	**2,759**	**12,952**	**182**	**-**	**-**	**182**							**7,838**	**4,180**	**3,148**	**15,166**
														Grand Totals (Ault+OLF)			**84,093**	**10,068**	**16,358**	**110,519**

Total Annual EA-18G FCLP Related Ops **Ault = 14,796 (50%)** **OLF = 14,802 (50%)** **Total = 29,598**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 8-5 Summary of Annual Flight Operations for the Average Year Alternative 3C

Airfield	Aircraft Type or Category	Alternative 3C (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	23,700	65,200	88,900	+12,400	+12,200	+24,600
	Other Based	-	11,700	11,700	-	+100	+100
	Transient	-	2,300	2,300	-	-	-
	Subtotal	23,700	79,200	102,900	+12,400	+12,300	+24,700
OLF Coupeville	EA-18G	5,900	-	5,900	-200	-	-200
	Other	-	400	400	-	-	-
	Subtotal	5,900	400	6,300	-200	-	-200
TOTAL (both airfields)		**29,600**	**79,600**	**109,200**	**+12,200**	**+12,300**	**+24,500**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 740 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 8-6 Detailed Annual Flight Operations for the Average Year Alternative 3C

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)		Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
									DL	DK	DK					DL	DK	DK		DL	DK	DK							
Ault Field	EA18	CVW	7,012	378	7,390	2,584	68	2,652	4,153	-	144	4,297	434	6	440	114	46	65	225	182	-	44	226						
		FRS	5,603	400	6,003	2,171	316	2,487	2,382	298	626	3,306	183	27	210	68	41	26	135	119	-	16	135						
		RES	1,143	88	1,231	392	20	412	698	-	30	728	85	6	91	4	4	2	10	9	-	1	10						
		EXP	2,483	125	2,608	908	32	940	1,441	-	57	1,498	167	3	170	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,918	101	2,019	1,401	267	1,668	-	-	-	-	291	60	351														
	H60	SAR	385	-	385	385	-	385	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	391	-	391	286	-	286	-	-	-	-	106	-	106														
	JET_LRG	-	401	111	512	364	104	468	-	-	-	-	30	13	43														
Total			**19,336**	**1,203**	**20,539**	**8,491**	**807**	**9,298**	**8,674**	**298**	**857**	**9,829**	**1,296**	**115**	**1,411**	**186**	**91**	**93**	**370**	**310**	**-**	**61**	**371**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)	
																DL	DK	DK	Total	DL	DK	DK	Total			Total			Total
OLF	EA18	CVW														182	-	44	226	114	46	65	225						
		FRS														119	-	16	135	68	41	26	135						
		RES														9	-	1	10	4	4	2	10						
	H60	SAR																						90	-	90	90	-	90
Total																**310**	**-**	**61**	**371**	**186**	**91**	**93**	**370**	**90**	**-**	**90**	**90**	**-**	**90**

Table 8-6 Detailed Annual Flight Operations for the Average Year Alternative 3C

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	6,521	4,028	3,792	14,341	3,318	690	927	4,935	2,401	90	2,491	4,383	2,706	7,089	31,102	4,764	8,220	44,086
		FRS	5,844	2,025	1,263	9,132	3,659	723	1,024	5,406	-	-	0	4,855	1,046	5,901	24,884	3,087	4,744	32,715
		RES	116	53	30	199	510	10	15	535	419	15	434	507	45	552	3,883	67	252	4,202
		EXP	-	-	-	0	896	-	55	951	773	31	804	890	48	938	7,558	-	351	7,909
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,067	-	710	4,777	-	-	-	1,781	193	1,974	9,458	-	1,331	10,789
	H60	SAR					-	-	-	-	-	-	-	-	-	-	950	-	-	950
	C-40	-					324	-	-	324	-	-	-	163	-	163	1,270	-	-	1,270
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	795	-	228	1,023
Total			**12,481**	**6,106**	**5,085**	**23,672**	**12,774**	**1,423**	**2,731**	**16,928**	**3,593**	**136**	**3,729**	**12,579**	**4,038**	**16,617**	**79,900**	**7,918**	**15,126**	**102,944**
OLF	EA18	CVW	1,533	844	780	3,157											1,829	890	889	3,608
		FRS	912	693	287	1,892											1,099	734	329	2,162
		RES	55	63	18	136											68	67	21	156
	H60	SAR					181	-	-	181							361	-	-	361
Total			**2,500**	**1,600**	**1,085**	**5,185**	**181**	**-**	**-**	**181**							**3,357**	**1,691**	**1,239**	**6,287**
														Grand Totals (Ault+OLF)			**83,257**	**9,609**	**16,365**	**109,231**

Total Annual EA-18G FCLP Related Ops **Ault = 23,672 (80%)** **OLF = 5,926 (20%)** **Total = 29,598**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 8-7 Summary of Annual Flight Operations for the Average Year Alternative 3D

Airfield	Aircraft Type or Category	Alternative 3D (Average Year) Type of Flight Operation FCLP [2, 3]	Other [4]	Total	Change from No Action Type of Flight Operation FCLP [2, 5]	Other	Total
Ault Field	EA-18G	8,900	67,300	76,200	-2,400	+14,300	+11,900
	Other Based	-	11,800	11,800	-	+200	+200
	Transient	-	2,300	2,300	-	-	-
	Subtotal	8,900	81,400	90,300	-2,400	+14,500	+12,100
OLF Coupeville	EA-18G	20,700	-	20,700	+14,600	-	+14,600
	Other	-	400	400	-	-	-
	Subtotal	20,700	400	21,100	+14,600	-	+14,600
TOTAL (both airfields)		**29,600**	**81,800**	**111,400**	**+12,200**	**+14,500**	**+26,700**

1 Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

2 Each closed pattern is counted as two operations.

3 For Growlers at the OLF, values include 2,590 interfacility (FCLP-related) operations; not shown separately.

4 For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

5 No Action excludes 900 interfacility Growler operations (FCLP related).

Table 8-8 Detailed Annual Flight Operations for the Average Year Alternative 3D

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	7,059	383	7,442	2,582	68	2,650	4,178	-	140	4,318	465	10	475	389	169	228	786	631	-	155	786						
		FRS	5,668	379	6,047	2,148	323	2,471	2,436	322	601	3,359	190	28	218	256	137	105	498	431	-	67	498						
		RES	1,148	91	1,239	419	18	437	702	-	29	731	66	4	70	5	4	2	11	10	-	2	12						
		EXP	2,482	146	2,628	913	35	948	1,445	-	66	1,511	168	1	169	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0														
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,951	95	2,046	1,390	285	1,675	-	-	-	-	307	63	370														
	H60	SAR	388	-	388	388	-	388	-	-	-	-	-	-	-									91	-	91	91	-	91
	C-40	-	394	-	394	283	-	283	-	-	-	-	111	-	111														
	JET_LRG	-	405	111	516	370	103	473	-	-	-	-	29	13	42														
Total			**19,495**	**1,205**	**20,700**	**8,493**	**832**	**9,325**	**8,761**	**322**	**836**	**9,919**	**1,336**	**119**	**1,455**	**650**	**310**	**335**	**1,295**	**1,072**	**-**	**224**	**1,296**	**91**	**-**	**91**	**91**	**-**	**91**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200)		Night (2200-0700)		Day (700-2200)		Night (2200-0700)							
																DL	DK	DK	Total	DL	DK	DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW														631	-	155	786	389	169	228	786						
		FRS														431	-	67	498	256	137	105	498						
		RES														10	-	2	12	5	4	2	11						
	H60	SAR																						91	-	91	91	-	91
Total																**1,072**	**-**	**224**	**1,296**	**650**	**310**	**335**	**1,295**	**91**	**-**	**91**	**91**	**-**	**91**

Table 8-8 Detailed Annual Flight Operations for the Average Year Alternative 3D

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total			Total			Total	DL	DK	DK	Total
Ault Field	EA18	CVW	2,469	1,658	1,344	5,471	3,318	690	927	4,935	2,401	90	2,491	4,383	2,706	7,089	27,875	2,517	6,051	36,443
		FRS	2,060	728	411	3,199	3,659	723	1,024	5,406	-	-	0	4,855	1,046	5,901	21,703	1,910	3,984	27,597
		RES	141	45	33	219	510	10	15	535	419	15	434	507	45	552	3,927	59	254	4,240
		EXP	-	-	-	0	896	-	55	951	773	31	804	890	48	938	7,567	-	382	7,949
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,105	-	655	4,760	-	-	-	1,750	198	1,948	9,503	-	1,296	10,799
	H60	SAR					-	-	-	-	-	-	-	-	-	-	958	-	-	958
	C-40	-					334	-	-	334	-	-	-	167	-	167	1,289	-	-	1,289
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	804	-	227	1,031
Total			**4,670**	**2,431**	**1,788**	**8,889**	**12,822**	**1,423**	**2,676**	**16,921**	**3,593**	**136**	**3,729**	**12,552**	**4,043**	**16,595**	**73,626**	**4,486**	**12,194**	**90,306**
OLF	EA18	CVW	5,236	3,053	2,721	11,010											6,256	3,222	3,104	12,582
		FRS	3,414	2,406	1,135	6,955											4,101	2,543	1,307	7,951
		RES	69	65	25	159											84	69	29	182
	H60	SAR					181	-	-	181							363	-	-	363
Total			**8,719**	**5,524**	**3,881**	**18,124**	**181**	**-**	**-**	**181**							**10,804**	**5,834**	**4,440**	**21,078**
														Grand Totals (Ault+OLF)			**84,430**	**10,320**	**16,634**	**111,384**

Total Annual EA-18G FCLP Related Ops **Ault = 8,889 (30%)** **OLF = 20,715 (70%)** **Total = 29,604**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

Table 8-9 Summary of Annual Flight Operations for the Average Year Alternative 3E

Airfield	Aircraft Type or Category	Alternative 3E (Average Year) Type of Flight Operation			Change from No Action Type of Flight Operation		
		FCLP [2, 3]	Other [4]	Total	FCLP [2, 5]	Other	Total
Ault Field	EA-18G	20,700	65,600	86,300	+9,400	+12,600	+22,000
	Other Based	-	11,700	11,700	-	+100	+100
	Transient	-	2,300	2,300	-	-	-
	Subtotal	20,700	79,600	100,300	+9,400	+12,700	+22,100
OLF Coupeville	EA-18G	8,900	-	8,900	+2,800	-	+2,800
	Other	-	400	400	-	-	-
	Subtotal	8,900	400	9,300	+2,800	-	+2,800
TOTAL (both airfields)		**29,600**	**80,000**	**109,600**	**+12,200**	**+12,700**	**+24,900**

[1] Rounded to nearest 100 if greater than or equal to 100; rounded to nearest 10 if greater than or equal to 10 (and less than 100); set to 10 if between 1 and 9.

[2] Each closed pattern is counted as two operations.

[3] For Growlers at the OLF, values include 1,112 interfacility (FCLP-related) operations; not shown separately.

[4] For Ault Field, includes departures, arrivals, pattern operations, and interfacility operations; for the OLF, includes HH-60 interfacility departures, arrivals, and pattern work.

[5] No Action excludes 900 interfacility Growler operations (FCLP related).

Table 8-10 Detailed Annual Flight Operations for the Average Year Alternative 3E

Airfield	Aircraft	Squadron	Departure			Arrival										Interfacility													
						VFR SI/ Non-Break			Overhead Break				IFR			Departure to OLF				Break Arrival from OLF				Helo Departure to OLF			Helo Arrival from OLF		
			Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200) DL	Day (0700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
Ault Field	EA18	CVW	7,012	378	7,390	2,584	68	2,652	4,153	-	144	4,297	434	6	440	171	69	98	338	273	-	66	339						
		FRS	5,603	400	6,003	2,171	316	2,487	2,382	298	626	3,306	183	27	210	102	62	39	203	179	-	24	203						
		RES	1,143	88	1,231	392	20	412	698	-	30	728	85	6	91	6	6	3	15	14	-	2	16						
		EXP	2,483	125	2,608	908	32	940	1,441	-	57	1,498	167	3	170	-	-	-	0	-	-	-	0						
	EP3	All	-	-	0	-	-	0	-	-	-	0	-	-	0													
	P3	All	-	-	-	-	-	-	-	-	-	-	-	-	-														
	P8	All	1,918	101	2,019	1,401	267	1,668	-	-	-	-	291	60	351														
	H60	SAR	385	-	385	385	-	385	-	-	-	-	-	-	-									90	-	90	90	-	90
	C-40	-	391	-	391	286	-	286	-	-	-	-	106	-	106														
	JET_LRG	-	401	111	512	364	104	468	-	-	-	-	30	13	43														
Total			**19,336**	**1,203**	**20,539**	**8,491**	**807**	**9,298**	**8,674**	**298**	**857**	**9,829**	**1,296**	**115**	**1,411**	**279**	**137**	**140**	**556**	**466**	**-**	**92**	**558**	**90**	**-**	**90**	**90**	**-**	**90**

Airfield	Aircraft	Squadron														Interfacility													
																Break Arrival from Ault				Departure to Ault				Helo Arrival from Ault			Helo Departure to Ault		
																Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (700-2200) DL	Day (700-2200) DK	Night (2200-0700) DK	Total	Day (0700-2200)	Night (2200-0700)	Total	Day (0700-2200)	Night (2200-0700)	Total
OLF	EA18	CVW														273	-	66	339	171	69	98	338						
		FRS														179	-	24	203	102	62	39	203						
		RES														14	-	2	16	6	6	3	15						
	H60	SAR																						90	-	90	90	-	90
Total																**466**	**-**	**92**	**558**	**279**	**137**	**140**	**556**	**90**	**-**	**90**	**90**	**-**	**90**

Table 8-10 Detailed Annual Flight Operations for the Average Year Alternative 3E

Airfield	Aircraft	Squadron	Closed Pattern[1]														Grand Totals			
			FCLP				T&G				ReEnter			GCA/CCA						
			Day (0700-2200)		Night (2200-0700)		Day (0700-2200)		Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)	Night (2200-0700)		Day (0700-2200)		Night (2200-0700)	
			DL	DK	DK	Total	DL	DK	DK	Total							DL	DK	DK	Total
Ault Field	EA18	CVW	5,706	3,525	3,318	12,549	3,318	690	927	4,935	2,401	90	2,491	4,383	2,706	7,089	30,435	4,284	7,801	42,520
		FRS	5,114	1,772	1,105	7,991	3,659	723	1,024	5,406	-	-	0	4,855	1,046	5,901	24,248	2,855	4,607	31,710
		RES	102	46	26	174	510	10	15	535	419	15	434	507	45	552	3,876	62	250	4,188
		EXP	-	-	-	0	896	-	55	951	773	31	804	890	48	938	7,558	-	351	7,909
	EP3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P3	All					-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P8	All					4,067	-	710	4,777	-	-	-	1,781	193	1,974	9,458	-	1,331	10,789
	H60	SAR					-	-	-	-	-	-	-	-	-	-	950	-	-	950
	C-40	-					324	-	-	324	-	-	-	163	-	163	1,270	-	-	1,270
	JET_LRG	-					-	-	-	-	-	-	-	-	-	-	795	-	228	1,023
Total			**10,922**	**5,343**	**4,449**	**20,714**	**12,774**	**1,423**	**2,731**	**16,928**	**3,593**	**136**	**3,729**	**12,579**	**4,038**	**16,617**	**78,590**	**7,201**	**14,568**	**100,359**
OLF	EA18	CVW	2,300	1,266	1,170	4,736											2,744	1,335	1,334	5,413
		FRS	1,368	1,040	431	2,839											1,649	1,102	494	3,245
		RES	83	95	27	205											103	101	32	236
	H60	SAR					181	-	-	181							361	-	-	361
Total			**3,751**	**2,401**	**1,628**	**7,780**	**181**	**-**	**-**	**181**							**4,857**	**2,538**	**1,860**	**9,255**
														Grand Totals (Ault+OLF)			**83,447**	**9,739**	**16,428**	**109,614**

Total Annual EA-18G FCLP Related Ops **Ault = 20,714 (70%)** **OLF = 8,894 (30%)** **Total = 29,608**

Notes:

[1] Closed-pattern circuits consist of two operations (i.e., one departure and one arrival). Table values are closed-pattern departure and arrival operation counts.

Key:

CVW = Carrier
DK = Darkness
DL = Daylight
EXP = Expeditionary
FRS = Fleet Replacement
RES = Reserve

8.2 Other Modeling Parameters

Appendix A3 contains tables of runway utilization percentages as extracted from the NASMOD study output. Flight tracks and their utilization would be identical to the baseline scenario except for the overhead break/pattern portion of the interfacility arrival tracks to the OLF and the FCLPs at the OLF. The primary changes in these tracks are the abeam distances (shortened compared to the No Action Alternative). Modeled flight tracks are depicted in Appendix A4.

Flight profiles would be identical to the No Action Alternative except for the adjustments made to the aforementioned revised overhead break/pattern and FCLP flight track. The representative profiles for each modeled aircraft type are contained in Appendix A5.

Depending on whether Scenario A, B, C, D, or E is selected, Alternative 3 would have between approximately 184 and 205 AAD flight events at Ault Field and between approximately 11 and 39 AAD flight events at the OLF. For the high-tempo FCLP year, Alternative 3 would have between approximately 183 and 203 AAD flight events at Ault Field and between approximately 12 and 43 AAD flight events at the OLF.

8.3 Run-up Operations

Table 6-7 lists the modeled run-ups, with the locations depicted in Figure 5-1. For average year Alternative 3, numbers of annual run-up events for the EA-18G were scaled proportionally to the alternative's change in number of based aircraft compared to the average year No Action Alternative. P-8 run-ups (at their appropriate tempo) replace those for the P-3 at the same locations and headings except the P-8 would not utilize the Red Label Delta or Foxtrot locations. For the high-tempo FCLP year Alternative 3, it was assumed the run-ups would not change compared to average year Alternative 3.

8.4 Aircraft Noise Exposure

Using the data described in Sections 8.1 through 8.3, NOISEMAP was used to calculate and plot the 60 dB through 95 dB DNL contours, in 5-dB increments, for the AAD events for average year Alternative 3 under all scenarios. Figures 8-1 through 8-5 show the resulting DNL contours.

At Ault Field, the DNL contours for average year Alternative 3 under all scenarios would be within up to roughly 1,000 feet of each other on average. The 65 dB contour surrounding Ault Field would extend approximately 7 to 13 miles from the runway endpoints. These lobes would be primarily attributable to EA-18G aircraft flying on the approach portion of GCA patterns. The 65 dB DNL contour would extend approximately 2 miles past the eastern shore of the mainland across Skagit Bay, primarily due to EA-18G GCA and VFR approaches. The 80 dB DNL contour would extend approximately 4 miles to the east outside the station boundary, primarily due to EA-18G GCA and VFR approaches descending from 1,800 feet AGL, as well as the GCA patterns. The 90 dB contour would extend approximately 0.5 mile to the east beyond the station boundary.

The DNL exposure at the OLF would be attributable to the OLF's FCLP operations. The 65 dB contours would extend 2.2 to 2.8 miles north of the OLF's runway. The 65 dB contours would extend 2.5 to 3.1 miles south of the OLF's runway.

As an overview comparison map, Figure 8-6 compares the 65 dB DNL contours of average year Alternative 3 under all scenarios to the 65 dB DNL contours of the No Action Alternative. Because FCLPs comprise the majority of operations at the OLF, changes in location of FCLPs between Ault Field and OLF cause a larger difference in DNL contours at the OLF from one scenario to the next.

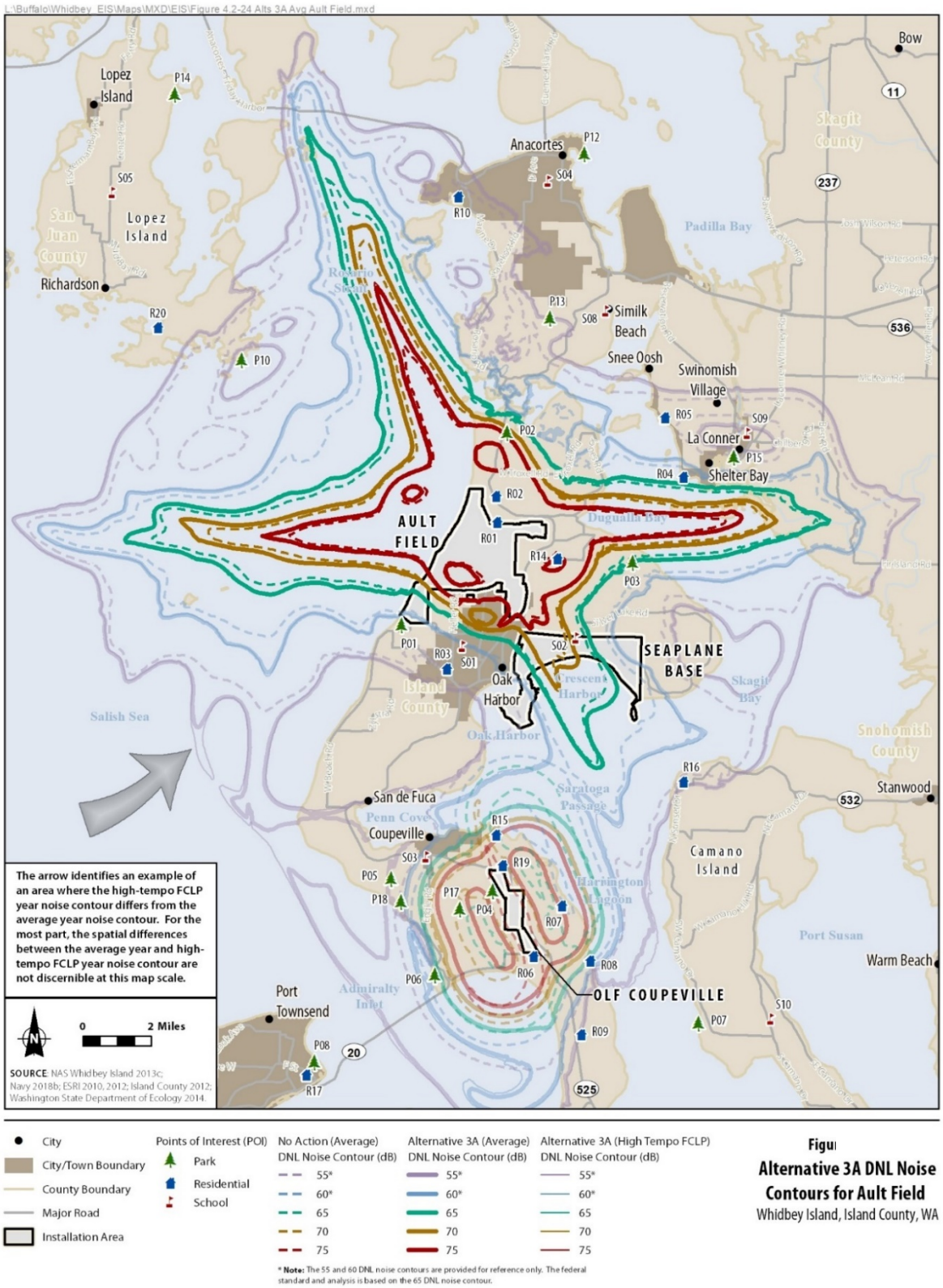

Figure 8-1 DNL Contours for AAD Aircraft Events for the Average Year Alternative 3A

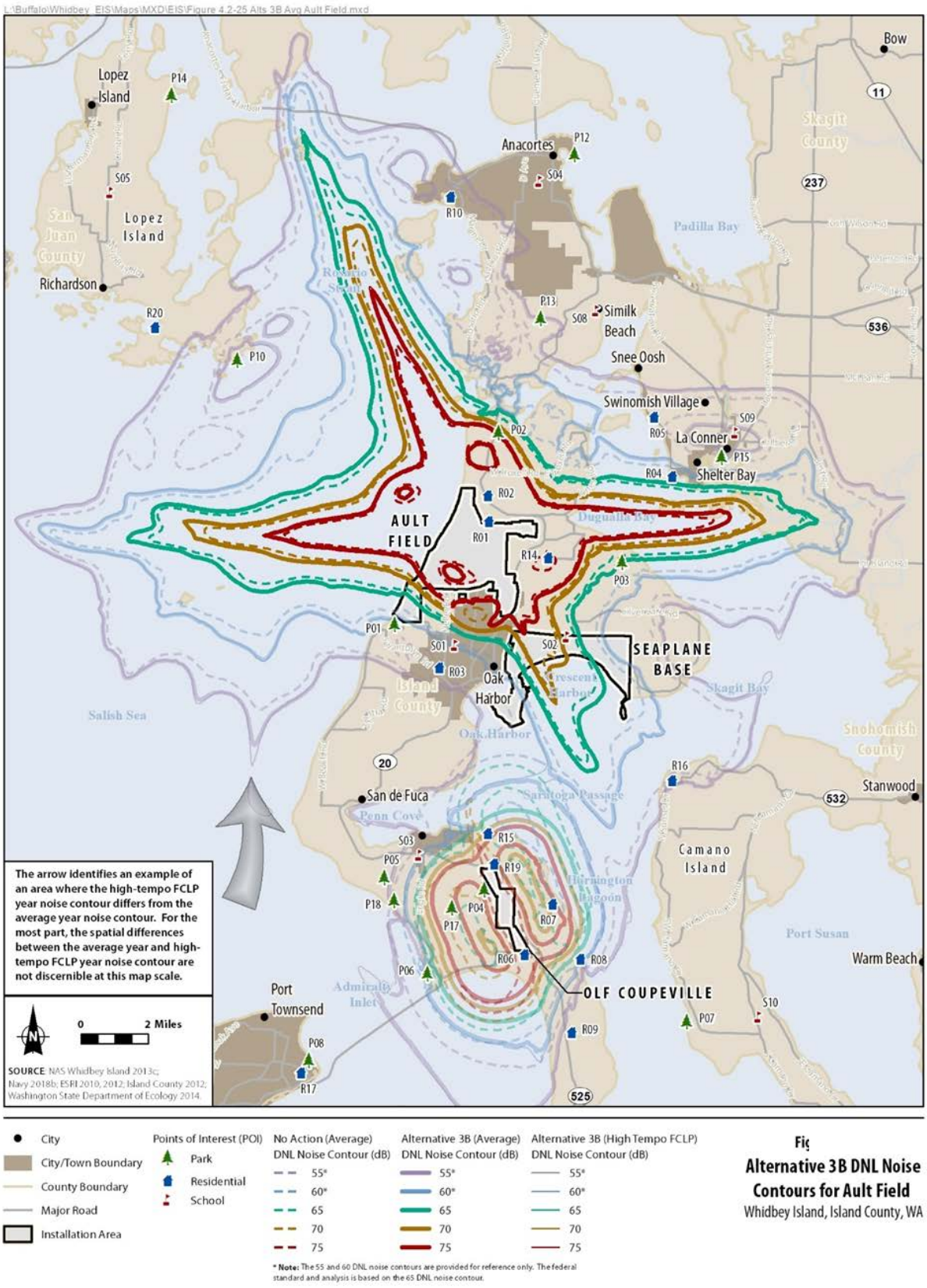

Figure 8-2 DNL Contours for AAD Aircraft Events for the Average Year Alternative 3B

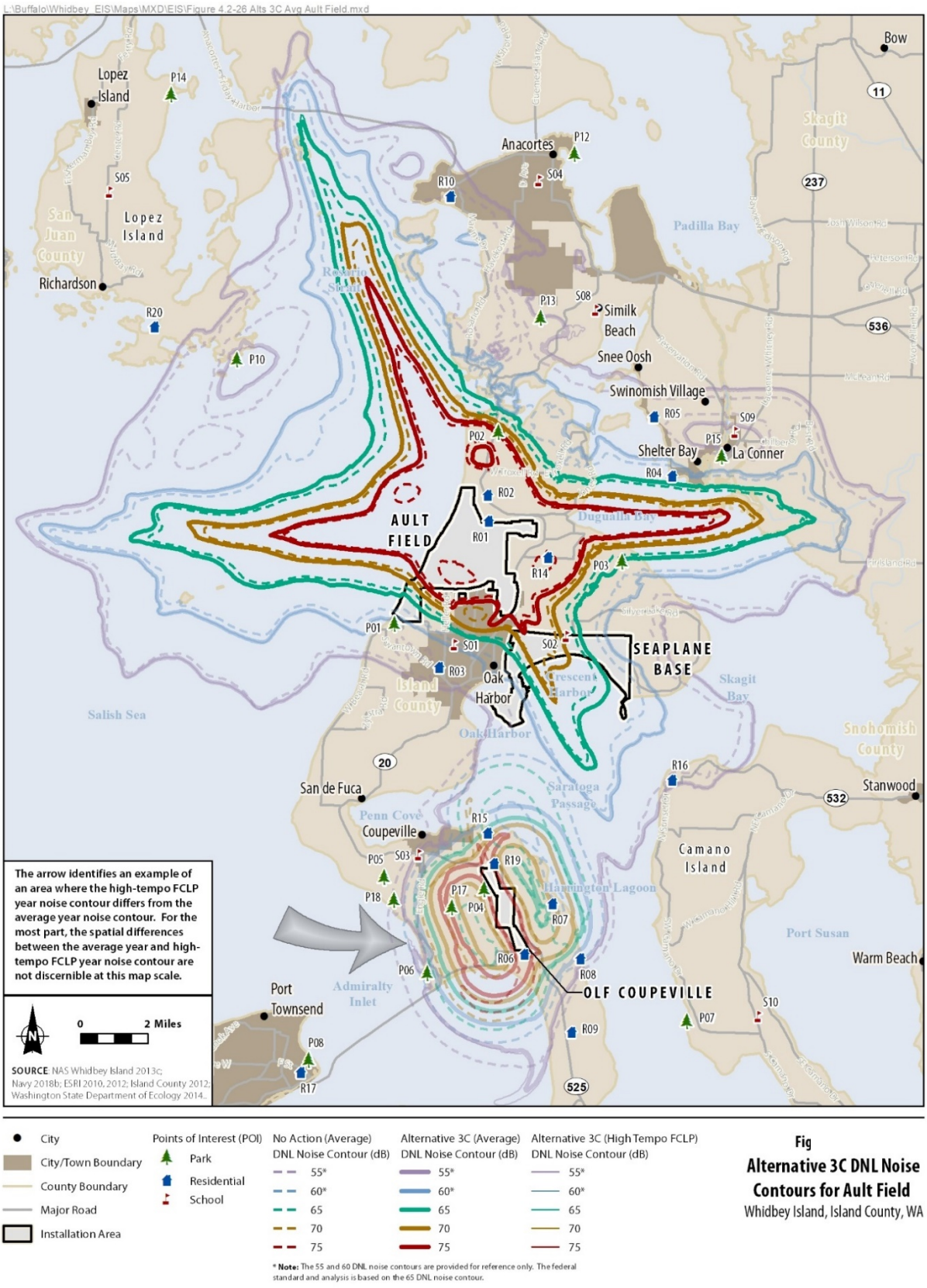

Figure 8-3 DNL Contours for AAD Aircraft Events for the Average Year Alternative 3C

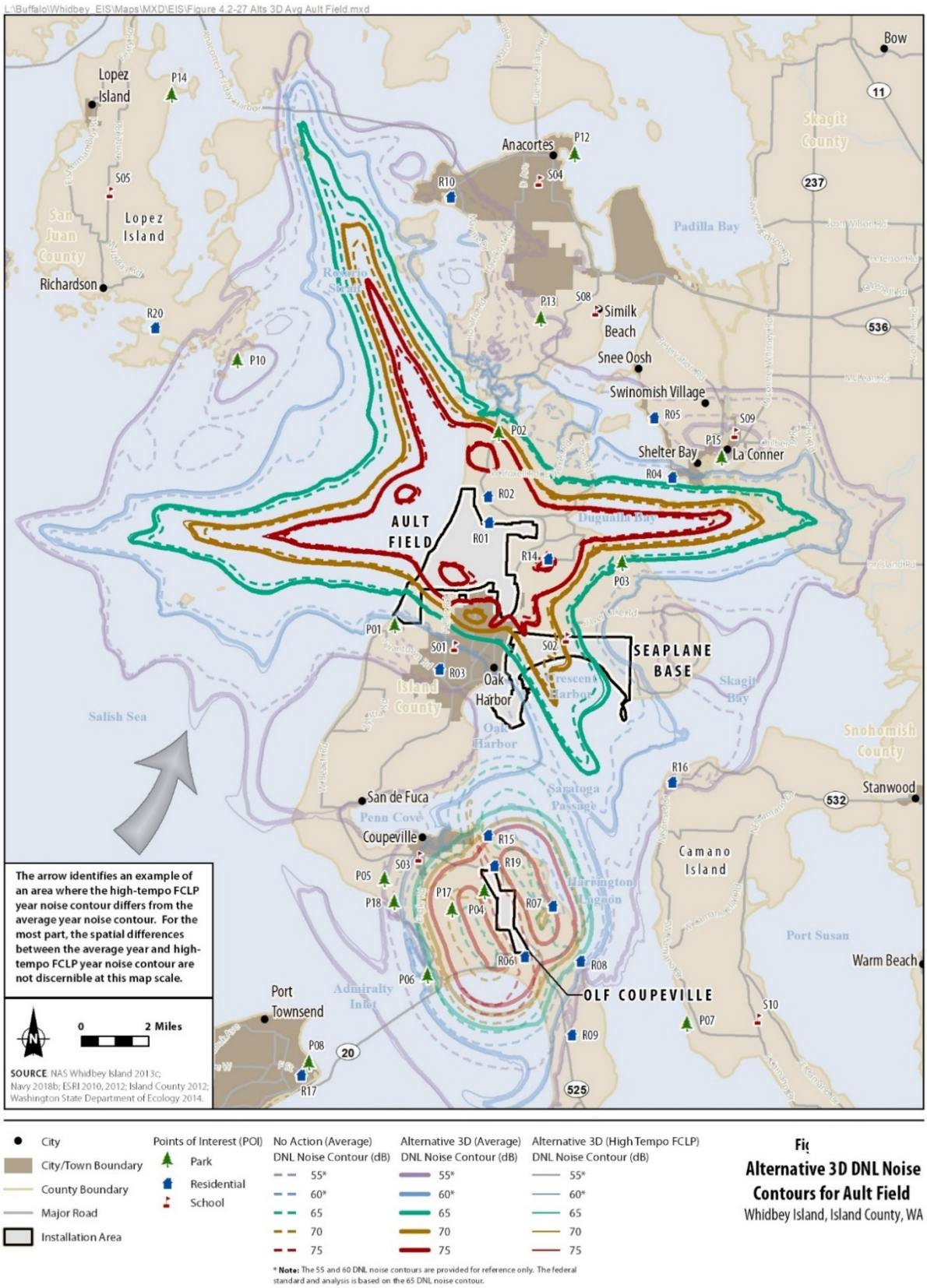

Figure 8-4 DNL Contours for AAD Aircraft Events for the Average Year Alternative 3D

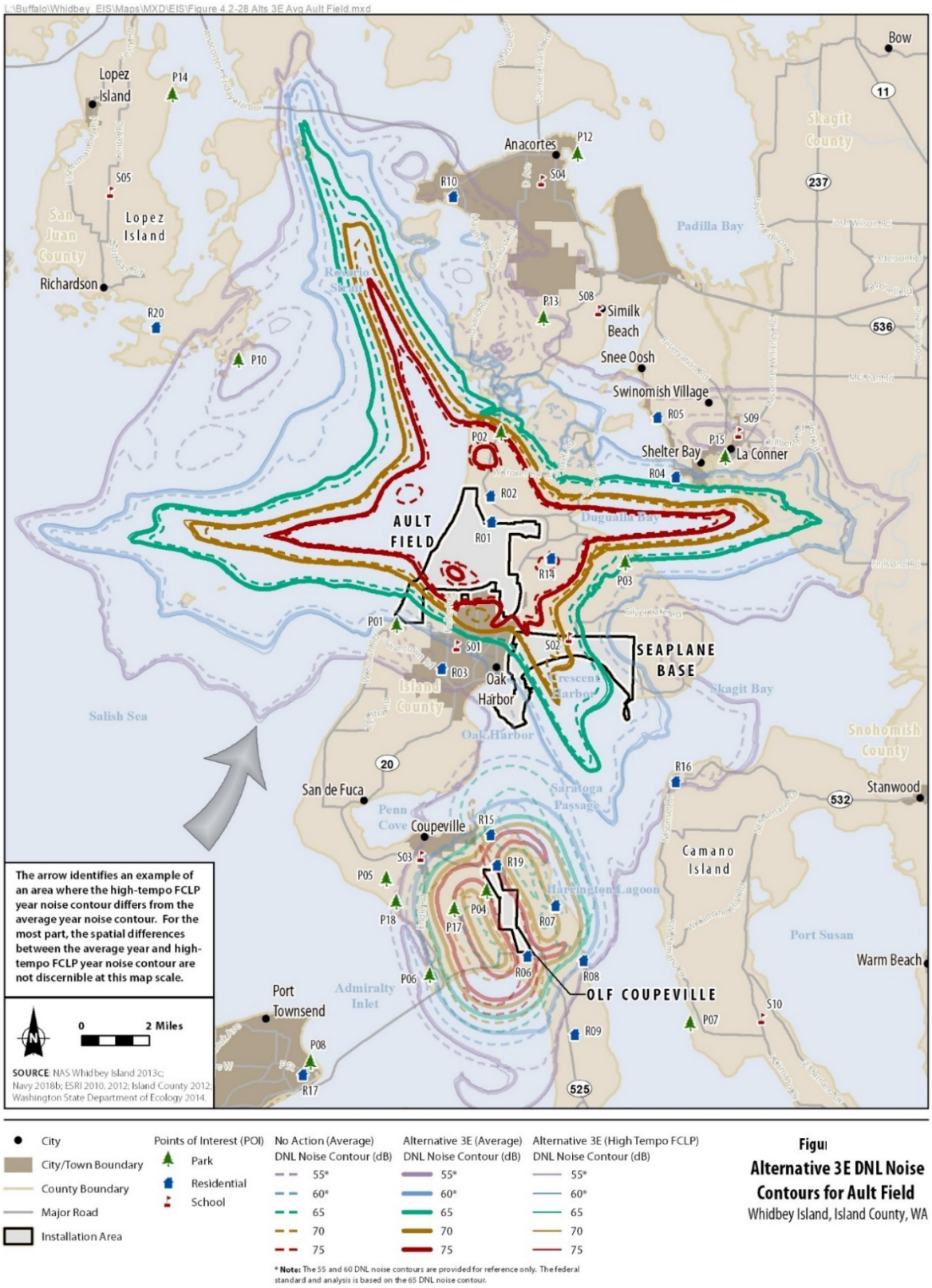

Figure 8-5 DNL Contours for AAD Aircraft Events for the Average Year Alternative 3E

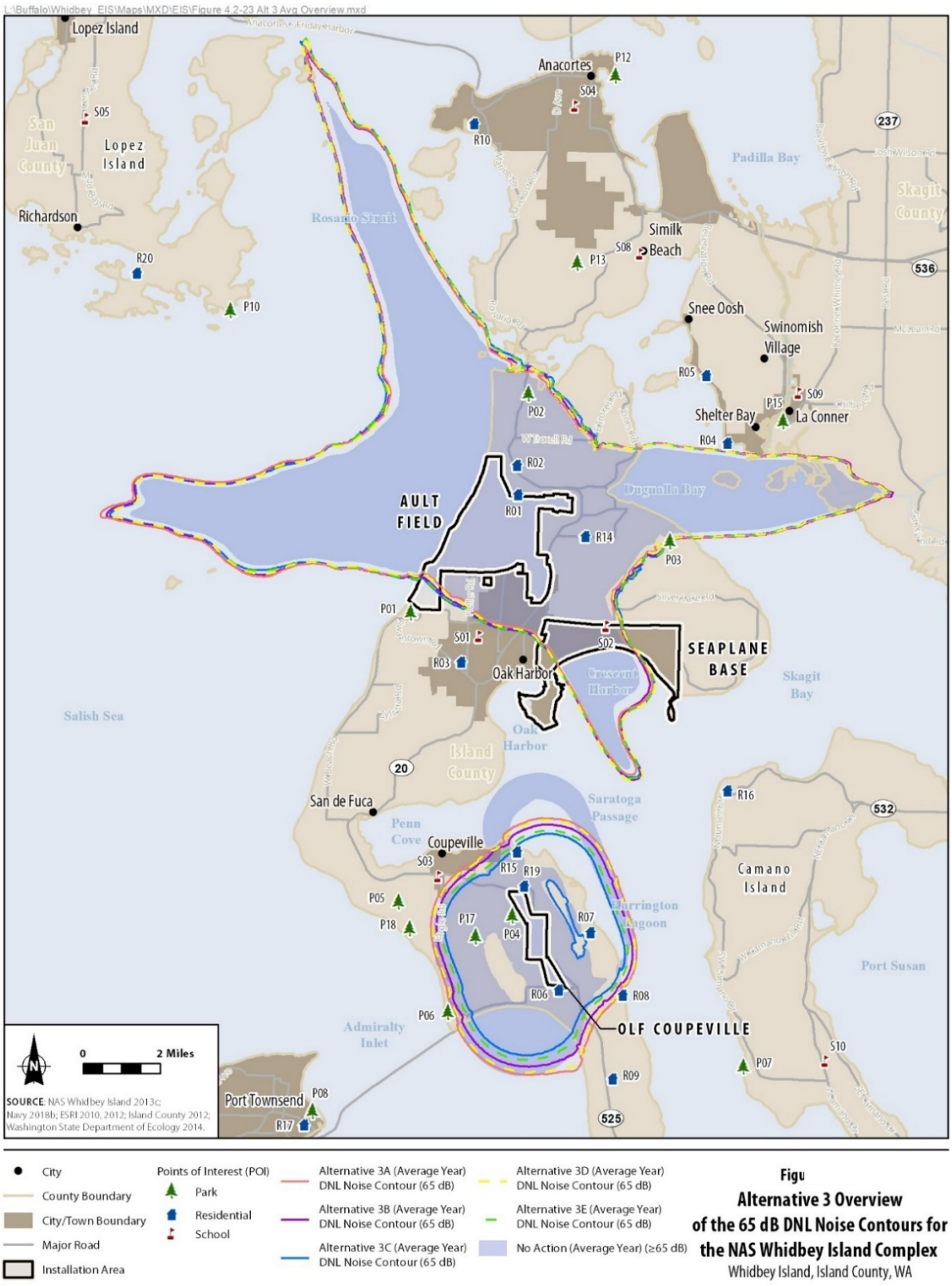

Figure 8-6 Comparison of 65 dB DNL Contours for Average Year Alternative 3 and the No Action Alternative

Table 8-11 depicts the estimated off-station population exposed to DNL greater than or equal to 65 dB and its percent change compared to the No Action Alternative. Overall, the affected population would increase by 12 to 16 percent, with the smallest increase attributable to Alternative 3, Scenario A, and the largest attributable to Alternative 3, Scenarios B and E.

Under the high-tempo FCLP year Alternative 3 (Appendix A7), the population exposed to DNL greater than or equal to 65 dB would increase by 14 percent to 18 percent, with the smallest increase occurring under high-tempo FCLP year Alternative 2, Scenario A, and the largest occurring under high-tempo FCLP year Alternative 3, Scenarios C and E. As shown in Table 8-12, the population exposed to DNL greater than or equal to 65 dB would, on average, be 2 percent higher than the average year Alternative 3.

Table 8-11 Estimated Acreage and Population within the DNL Contour Ranges[1] for the NAS Whidbey Island Complex, Alternative 3 (Average Year)[2,3]

	DNL Contour Ranges							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
	Area (acres)	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*
Ault Field								
No Action Alternative								
Average Year	3,596	3,279	3,269	2,283	5,549	3,379	12,414	8,941
Alternative 3								
Scenario A (20/80 FCLP split)	4,005 (+409)	3,690 (+411)	3,262 (-7)	1,874 (-409)	5,866 (+317)	3,486 (+107)	13,133 (+719)	9,050 (+109)
Scenario B (50/50 FCLP split)	3,907 (+311)	3,591 (+312)	3,271 (+2)	2,415 (+132)	6,357 (+808)	3,756 (+377)	13,535 (+1,121)	9,762 (+821)
Scenario C (80/20 FCLP split)	3,897 (+301)	3,698 (+419)	3,129 (-140)	2,466 (+183)	6,740 (+1,191)	3,913 (+534)	13,766 (+1,352)	10,077 (+1,136)
Scenario D (30/70 FCLP split)	3,958 (+362)	3,695 (+416)	3,233 (-36)	2,182 (-101)	6,109 (+560)	3,597 (+218)	13,300 (+886)	9,474 (+533)
Scenario E (70/30 FCLP split)	3,875 (+279)	3,661 (+382)	3,151 (-118)	2,430 (+147)	6,643 (+1,094)	3,869 (+490)	13,669 (+1,255)	9,960 (+1,019)
OLF Coupeville								
No Action Alternative								
Average Year	3,681	861	3,088	786	638	583	7,407	2,230
Alternative 3								
Scenario A (20/80 FCLP split)	1,563 (-2,118)	554 (-307)	3,323 (+235)	965 (+179)	5,246 (+4,608)	1,914 (+1,331)	10,132 (+2,725)	3,433 (+1,203)
Scenario B (50/50 FCLP split)	2,058 (-1,623)	559 (-302)	3,458 (+370)	1,059 (+273)	3,931 (+3,293)	1,500 (+917)	9,447 (+2,040)	3,118 (+888)
Scenario C (80/20 FCLP split)	3,432 (-249)	1,045 (+184)	3,168 (+80)	1,030 (+244)	1,398 (+760)	672 (+89)	7,998 (+591)	2,747 (+517)
Scenario D (30/70 FCLP split)	1,582 (-2,099)	515 (-346)	3,467 (+379)	1,023 (+237)	4,890 (+4,252)	1,805 (+1,222)	9,939 (+2,532)	3,343 (+1,113)
Scenario E (70/30 FCLP split)	3,063 (-618)	871 (+10)	3,178 (+90)	1,053 (+267)	2,518 (+1,880)	1,000 (+417)	8,759 (+1,352)	2,924 (+694)

Table 8-11 Estimated Acreage and Population within the DNL Contour Ranges[1] for the NAS Whidbey Island Complex, Alternative 3 (Average Year)[2,3]

	DNL Contour Ranges							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
	Area (acres)	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*	*Area (acres)*	*Pop[4]*
NAS Whidbey Island Complex								
No Action Alternative								
Average Year	7,277	4,140	6,357	3,069	6,187	3,962	19,821	11,171
Alternative 3								
Scenario A (20/80 FCLP split)	5,568 (-1,709)	4,244 (+104)	6,585 (+228)	2,839 (-230)	11,112 (+4,925)	5,400 (+1,438)	23,265 (+3,444)	12,483 (+1,312)
Scenario B (50/50 FCLP split)	5,965 (-1,312)	4,150 (+10)	6,729 (+372)	3,474 (+405)	10,288 (+4,101)	5,256 (+1,294)	22,982 (+3,161)	12,880 (+1,709)
Scenario C (80/20 FCLP split)	7,329 (+52)	4,743 (+603)	6,297 (-60)	3,496 (+427)	8,138 (+1,951)	4,585 (+623)	21,764 (+1,943)	12,824 (+1,653)
Scenario D (30/70 FCLP split)	5,540 (-1,737)	4,210 (+70)	6,700 (+343)	3,205 (+136)	10,999 (+4,812)	5,402 (+1,440)	23,239 (+3,418)	12,817 (+1,646)
Scenario E (70/30 FCLP split)	6,938 (-339)	4,532 (+392)	6,329 (-28)	3,483 (+414)	9,161 (+2,974)	4,869 (+907)	22,428 (+2,607)	12,884 (+1,713)

Notes:

[1] All five scenarios are outlined in Section 2.3.3, where the split represents the percent of FCLPs conducted at Ault Field and OLF Coupeville, respectively (i.e., 20/80 FCLP split = 20 percent of FCLPs at Ault Field and 80 percent of FCLPs at OLF Coupeville).

[2] Acreage presented does not include areas over water or areas over the NAS Whidbey Island complex.

[3] The difference between the No Action Alternative and Alternative 1 is noted in parentheses.

[4] Population counts of people within the DNL contour ranges were computed using 2010 Census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour range, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block, and it excludes population on military properties within the DNL contour ranges (NAS Whidbey Island [Ault Field], the Seaplane Base, and OLF Coupeville). A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

[5] Numbers have been rounded to ensure totals sum.

Key:
dB = decibel
DNL = day-night average sound level
FCLP = Field Carrier Landing Practice

Table 8-12 Percent Difference in the Estimated Acreage and Population within the Average and High-Tempo FCLP Year DNL Contour Ranges for the NAS Whidbey Island Complex, Alternative 3

	DNL Contour Ranges[1]							
	65 to <70 dB DNL		*70 to <75 dB DNL*		*Greater than or equal to 75 dB DNL*		*Total*	
DNL Contours	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*	*Area (acres)*	*Pop*
Ault Field								
Scenario A	0.5%	-0.1%	0.0%	2.5%	1.0%	0.8%	0.6%	0.8%
Scenario B	0.7%	1.1%	0.0%	1.9%	1.4%	1.0%	0.8%	1.3%
Scenario C	1.3%	1.1%	0.0%	1.3%	1.0%	0.8%	0.9%	1.0%
Scenario D	1.0%	-0.6%	0.8%	1.9%	0.9%	1.8%	0.9%	0.9%
Scenario E	1.7%	1.3%	2.1%	4.6%	0.3%	1.1%	1.1%	2.0%
OLF Coupeville								
Scenario A	0.6%	7.8%	-5.8%	-7.4%	6.6%	5.5%	1.6%	2.2%
Scenario B	-8.3%	-11.8%	0.1%	2.0%	8.0%	6.9%	1.6%	1.9%
Scenario C	0.5%	-1.4%	0.8%	1.5%	13.5%	7.8%	2.9%	1.9%
Scenario D	-2.0%	4.3%	-4.5%	-6.1%	7.1%	6.3%	1.6%	2.2%
Scenario E	-4.6%	-5.2%	1.1%	-0.5%	7.7%	7.5%	1.0%	0.8%
NAS Whidbey Island Complex								
Scenario A	0.6%	0.9%	-2.9%	-0.8%	3.6%	2.4%	1.0%	1.2%
Scenario B	-2.4%	-0.6%	0.0%	1.9%	3.9%	2.7%	1.1%	1.4%
Scenario C	0.9%	0.5%	0.4%	1.4%	3.2%	1.9%	1.6%	1.2%
Scenario D	0.1%	0.0%	-2.0%	-0.7%	3.7%	3.3%	1.2%	1.2%
Scenario E	-1.1%	0.1%	1.6%	3.1%	2.4%	2.4%	1.1%	1.8%

Key:
dB = decibel
DNL = day-night average sound level
NAS = Naval Air Station
OLF = outlying landing field

8.4.1 Points of Interest

Figure 8-7 shows the DNL for each POI and comparisons of the DNLs for this alternative's scenarios to those for the No Action Alternative. The average year Alternative 3 under all scenarios would have 12 POIs experience DNL greater than or equal to 65 dB, and five or six residential POIs would experience DNL greater than or equal to 75 dB. Three of the latter category would be near Ault Field (POIs R01, R02, and R14), and three would be near the OLF (POIs R06, R07, and R19). One of the seven schools, POI S02, would experience DNL greater than or equal to 65 dB--i.e., 69 dB.

Among all scenarios for Alternative 3, the increase in DNL would be greatest for Alternative 3, Scenario A, and smallest for Alternative 3, Scenario C. Increases in DNL would range from 1 to 15 dB compared to the No Action Alternative. POIs R06, R07, and EBLA001 would experience the greatest increases in DNL of 10 to 15 dB. POI R07 would be newly impacted, with DNL of 70 to 76 dB.

See Appendix A6 for lists of the five flight profiles with the greatest SEL at each POI.

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)
ID	Description	Related Field	A	B	C	D	E	-5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
P01	Joseph Whidbey State Park	Ault	58					
				59				
					59			
						58		
							59	
P02	Deception Pass State Park	Ault	73					
				74				
					75			
						74		
							75	
P03	Dugualla State Park	Ault	66					
				66				
					66			
						66		
							66	
P04	Baseball Field (Ebey's Landing National Historical Reserve)	OLF	79					
				77				
					73			
						78		
							75	
P05	Ebey's Prairie	OLF	56					
				54				
					50			
						55		
							52	
P06	Fort Casey State Park	OLF	63					
				61				
					57			
						62		
							58	
P07	Cama Beach State Park	OLF	47					
				46				
					<45			
						47		
							<45	
P08	Port Townsend	OLF	<45					
				<45				
					<45			
						<45		
							<45	
P09	Moran State Park	Ault	<45					
				<45				
					<45			
						<45		
							<45	
P10	San Juan Islands National Monument	Ault	55					
				55				
					55			
						55		
							55	
P11	San Juan Island Visitors Center	Ault	<45					
				<45				
					<45			
						<45		
							<45	
P12	Cap Sante Park	Ault	<45					
				<45				
					<45			
						<45		
							<45	
P13	Lake Campbell	Ault	55					
				55				
					56			
						56		
							56	

Figure 8-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 3

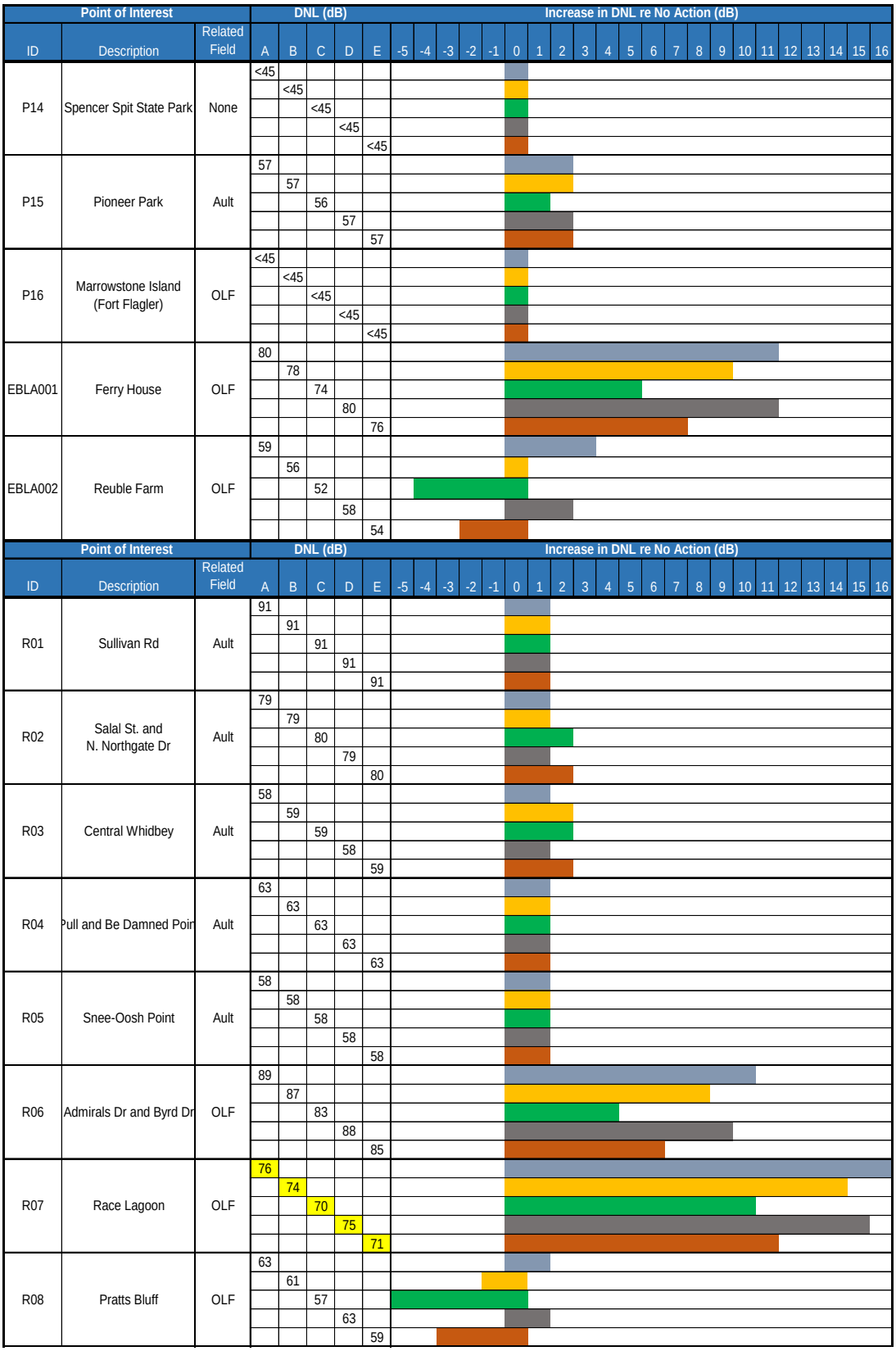

Figure 8-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 3 (continued)

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)																											
ID	Description	Related Field	A	B	C	D	E	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
R09	Cox Rd and Island Ridge Way	OLF	54																										
				52																									
					48																								
						54																							
							50																						
R10	Skyline	None	58																										
				57																									
					58																								
						58																							
							58																						
R11	Sequim	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R12	Port Angeles	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R13	Beverly Beach, Freeland	OLF	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R14	Sleeper Rd & Slumber L	Ault	75																										
				76																									
					76																								
						75																							
							76																						
R15	Long Point Manor	OLF	73																										
				71																									
					67																								
						72																							
							69																						
R16	Rocky Point Heights	OLF	56																										
				56																									
					56																								
						56																							
							56																						
R17	Port Townsend	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R18	Marrowstone Island (Nordland)	None	<45																										
				<45																									
					<45																								
						<45																							
							<45																						
R19	Island Transit Offices, Coupeville	OLF	80																										
				78																									
					74																								
						80																							
							76																						
R20	South Lopez Island (Agate Beach)	None	49																										
				48																									
					49																								
						49																							
							49																						

Figure 8-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 3 (continued)

Point of Interest			DNL (dB)					Increase in DNL re No Action (dB)
ID	Description	Related Field	A	B	C	D	E	-5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
S01	Oak Harbor High School	Ault	59					
				60				
					61			
						60		
							61	
S02	Crescent Harbor Elementary School	Ault	69					
				68				
					69			
						69		
							69	
S03	Coupeville Elementary School	OLF	62					
				59				
					56			
						61		
							57	
S04	Anacortes High School	Ault	50					
				49				
					50			
						50		
							50	
S05	Lopez Island School	None	<45					
				<45				
					<45			
						<45		
							<45	
S06	Friday Harbor Elementary School	None	<45					
				<45				
					<45			
						<45		
							<45	
S07	Sir James Douglas Elementary School	None	<45					
				<45				
					<45			
						<45		
							<45	
S08	Fidalgo Elementary School	Ault	53					
				53				
					53			
						53		
							53	
S09	La Conner Elementary School	Ault	55					
				55				
					54			
						54		
							54	
S10	Elger Bay Elementary School	OLF	<45					
				<45				
					<45			
						<45		
							<45	

Figure 8-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 3 (concluded)

Under the high-tempo FCLP year Alternative 3 under all scenarios (Appendix A7), 12 POIs would experience DNL greater than or equal to 65 dB, and five or six residential POIs would experience DNL greater than or equal to 75 dB. Three of the latter category would be near Ault Field (POIs R01, R02, and R14), and four would be near the OLF (POIs R06, R07, and R19). Crescent Harbor Elementary, with a DNL of 69 dB under Alternative 3, Scenario C, and 68 dB under Alternative 3, Scenarios A, B, D, and E, would be the only school exposed to DNL of at least 65 dB.

Among high-tempo FCLP year Alternative 3 under all scenarios, the increase in DNL would be greatest for Alternative 2, Scenario A, and smallest for Alternative 3, Scenario C. Increases in DNL would range from 1 to 15 dB compared to the high-tempo FCLP year No Action Alternative. POIs R07 and R06 would experience increases in DNL of up to 15 and 11 dB, respectively. POI R07 would be newly impacted, with DNL of 70 to 76 dB.

8.4.2 Potential Hearing Loss

Table 8-13 shows estimates of the population within 1-dB bands of $L_{eq(24h)}$ and their associated NIPTS for the average year Alternative 3. The level at which there may be a noticeable NIPTS would be at the 84 to 85 dB $L_{eq(24)}$ range and above. There is an increase in the population within the 80 dB DNL noise contour (i.e., potential at-risk population) under Alternative 3 at both Ault Field and OLF Coupeville. The largest increase in the potential at-risk population in the vicinity of Ault Field would be under Scenario C (47 additional people) and in the vicinity of OLF Coupeville would be under Scenario A (28 additional people). The range of potential NIPTS could be up to 9.5 dB at Ault Field and 6.0 dB at OLF Coupeville. The potential NIPTS values presented in Table 8-13 are only applicable in the extreme case of continuous outdoor exposure at one's residence to all aircraft events occurring over a period of 40 years. Because it is highly unlikely for any individuals to meet all those criteria, the actual potential NIPTS for individuals would be far less than the values reported here.

The USEPA guidelines provided information on the estimated NIPTS exceeded by the 10 percent of the population most sensitive to noise. Using the same 1 dB incremental data in Table 8-13 and the column identified as the 10th Percentile NIPTS, those individuals are vulnerable to noticeable NIPTS at the 77 to 78 dB $L_{eq(24)}$ range and above. Using this even more conservative estimate, the range of potential NIPTS could be up to 18.0 dB for the population most sensitive to noise around Ault Field and up to 12.0 dB for the population most sensitive to noise around OLF Coupeville.

Table 8-13 Average and 10th Percentile Noise Induced Permanent Threshold Shifts as a Function of Equivalent Sound Level under Alternative 3 at NAS Whidbey Island Complex (Average Year)

Band of $L_{eq(24)}$ (dB)[1]	Avg NIPTS (dB)[2,3]	10th Pct NIPTS (dB)[2,]	Estimated Population[4,5,6]											
			Ault Field						OLF Coupeville					
			No Action	Alt 3A	Alt 3B	Alt 3C	Alt 3D	Alt 3E	No Action	Alt 3A	Alt 3B	Alt 3C	Alt 3D	Alt 3E
75-76	1.0	4.0	0	0 (0)	0 (0)	6 (+6)	0 (0)	3 (+3)	31	143 (+112)	74 (+43)	35 (+4)	116 (+85)	46 (+15)
76-77	1.0	4.5	123	126 (+3)	308[7] (+185)	406[8] (+283)	140 (+17)	371[9] (+248)	45	164 (+119)	90 (+45)	59 (+14)	159 (+114)	63 (+18)
77-78	1.5	5.0	233	259 (+26)	337 (+104)	398 (+165)	307 (+74)	352 (+119)	47	126 (+79)	75 (+28)	87 (+40)	100 (+53)	56 (+9)
78-79	2.0	5.5	145	147 (+2)	241 (+96)	296 (+151)	173 (+28)	295 (+150)	24	92 (+68)	65 (+41)	4 (-20)	78 (+45)	61 (+37)
79-80	2.5	6.0	92	134 (+42)	162 (+70)	239 (+147)	141 (+49)	209 (+117)	7	75 (+68)	58 (+51)	0 (0)	70 (+63)	75 (+68)
80-81	3.0	7.0	73	78 (+5)	97 (+24)	129 (+56)	84 (+11)	118 (+45)	0	66 (+66)	59 (+59)	0 (0)	62 (+62)	3 (+3)
81-82	3.5	8.0	51	62 (+11)	72 (+21)	79 (+28)	67 (+16)	76 (+25)	0	58 (+58)	83 (+83)	0 (0)	55 (+55)	0 (0)
82-83	4.0	9.0	37	48 (+11)	58 (+21)	63 (+26)	48 (+11)	60 (+23)	0	58 (+58)	4 (+4)	0 (0)	64 (+64)	0 (0)
83-84	4.5	10.0	34	35 (+1)	37 (+3)	38 (+4)	35 (+1)	37 (+3)	0	69 (+69)	0 (0)	0 (0)	55 (+55)	0 (0)
84-85	5.5	11.0	11	27 (+16)	26 (+15)	29 (+18)	29 (+18)	28 (+17)	0	27 (+27)	0 (0)	0 (0)	1 (+1)	0 (0)
85-86	6.0	12.0	9	9 (0)	22 (+13)	26 (+17)	10 (+1)	24 (+15)	0	1 (+1)	0 (0)	0 (0)	0 (0)	0 (0)
86-87	7.0	13.5	6	9 (+3)	9 (+3)	10 (+4)	9 (+3)	10 (+4)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
87-88	7.5	15.0	4	6 (+2)	7 (+3)	7 (+3)	6 (+2)	7 (+3)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
88-89	8.5	16.5	2	4 (+2)	4 (+2)	5 (+3)	4 (+2)	4 (+2)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
89-90	9.5	18.0	0	1 (+1)	2 (+2)	2 (+2)	1 (+1)	2 (+2)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 8-13 Average and 10th Percentile Noise Induced Permanent Threshold Shifts as a Function of Equivalent Sound Level under Alternative 3 at NAS Whidbey Island Complex (Average Year)

Band of $L_{eq(24)}$ (dB)[1]	Avg NIPTS (dB)[2,3]	10th Pct NIPTS (dB)[2,]	Estimated Population[4,5,6]											
			Ault Field						OLF Coupeville					
			No Action	Alt 3A	Alt 3B	Alt 3C	Alt 3D	Alt 3E	No Action	Alt 3A	Alt 3B	Alt 3C	Alt 3D	Alt 3E
90-91	10.5	19.5	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Notes:

1 L_{eq} bands with no population were omitted from table.

2 NIPTS values rounded to nearest 0.5 dB.

3 NIPTS below 5 dB are generally not considered noticeable.

4 This analysis assumes the population is outdoors at one's residence and exposed to all aircraft noise events for 40 years. Given the amount of time spent indoors and the intermittent occurrence of aircraft noise events, it is highly unlikely that individuals would meet all those criteria, and the actual potential for hearing loss would be far less than the values reported here.

5 Estimated population was determined by those living within the 80 dB DNL noise contour around each airfield, including those living on base at Ault Field (there is no on-base population at OLF Coupeville).

6 Population counts of people within the DNL contours were computed using 2010 Census block-level data. The percent area of the census block covered by the DNL contour range was applied to the population of that census block to estimate the population within the DNL contour range (e.g., if 25 percent of the census block is within a DNL contour, then 25 percent of the population is included in the population count). This calculation assumes an even distribution of the population across the census block. A 7.1-percent growth factor was applied to the 2010 census statistics to account for population changes between 2010 and 2020 based on medium forecasted population projections for Island County during that period (Washington State Office of Financial Management, 2017). In addition, per guidance on potential hearing loss, on-base populations at Ault Field have been included in the analysis. These data should be used for comparative purposes only and are not considered actual numbers within the DNL contour range.

7 Of this estimated population, 23 are a military service member living on base at Ault Field.

8 Of this estimated population, 68 are military personnel living on base at Ault Field.

9 Of this estimated population, 23 are military personnel living on base at Ault Field.

Key:

dB = decibel

$L_{eq(24)}$ = 24-hour Equivalent Sound Level

NIPTS = Noise Induced Permanent Threshold Shift

8.4.3 Residential Nighttime Sleep Disturbance

Table 8-14 lists the PA for applicable POIs for average daily nighttime (10:00 p.m. to 7:00 a.m.) events for average year Alternative 3 under all scenarios. Average PA would range from 8 percent to 16 percent across the listed POIs for either window condition. POIs R01 and R02 would have the greatest PA, 35 percent to 74 percent, depending upon whether windows are open or closed. At six of the POIs, there would be no change in PA compared to the No Action Alternative, but at the remaining 24 POIs, increases in PA would range from 1 percent at several POIs to 31 percent (at POI R06 under Alternative 3, Scenario A).

Under the high-tempo FCLP year Alternative 3 (Appendix A7), the statistics cited above would be 0 percent to 3 percent greater than those listed for the average year Alternative 3, except for the change statistics. At six of the POIs, there would be no change in PA compared to the No Action Alternative, but at the remaining 24 POIs, increases in PA would range from 1 percent at several POIs to 35 percent (at POI R06 under Alternative 3, Scenario A).

Table 8-14 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Alternative 3

Point of Interest				Annual Average Nightly (2200-0700) Probability of Awakening (%) [1]																			
				Alt3A		Change from No Action		Alt3B		Change from No Action		Alt3C		Change from No Action		Alt3D		Change from No Action		Alt3E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential[2]	R01	Sullivan Rd	Ault	67%	51%	9%	8%	70%	54%	12%	11%	74%	58%	16%	15%	68%	52%	10%	9%	73%	57%	15%	14%
	R02	Salal St. and N. Northgate Dr	Ault	49%	35%	8%	6%	52%	37%	11%	8%	56%	41%	15%	12%	50%	36%	9%	7%	55%	40%	14%	11%
	R03	Central Whidbey	Ault	19%	10%	3%	2%	21%	11%	5%	3%	23%	12%	7%	4%	20%	11%	4%	3%	23%	12%	7%	4%
	R04	Pull and Be Damned Point	Ault	25%	12%	6%	3%	26%	12%	7%	3%	27%	12%	8%	3%	25%	12%	6%	3%	27%	12%	8%	3%
	R05	Snee-Oosh Point	Ault	20%	7%	5%	2%	21%	7%	6%	2%	22%	7%	7%	2%	20%	7%	5%	2%	22%	7%	7%	2%
	R06	Admirals Dr and Byrd Dr	OLF	40%	28%	31%	22%	27%	18%	18%	12%	12%	8%	3%	2%	36%	25%	27%	19%	17%	11%	8%	5%
	R07	Race Lagoon	OLF	19%	8%	14%	6%	13%	6%	8%	4%	7%	2%	2%	-	17%	8%	12%	6%	9%	3%	4%	1%
	R08	Pratts Bluff	OLF	14%	9%	10%	7%	9%	6%	5%	4%	4%	2%	-	-	13%	8%	9%	6%	6%	3%	2%	1%
	R09	Cox Rd and Island Ridge Way	OLF	12%	8%	9%	6%	7%	5%	4%	3%	3%	2%	-	-	10%	7%	7%	5%	4%	3%	1%	1%
	R10	Skyline	None	7%	3%	2%	1%	8%	3%	3%	1%	9%	3%	4%	1%	8%	3%	3%	1%	9%	3%	4%	1%
	R11	Sequim	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R12	Port Angeles	None	1%	0%	1%	-	1%	0%	1%	-	1%	0%	1%	-	1%	0%	1%	-	1%	0%	1%	-
	R13	Beverly Beach, Freeland	OLF	6%	-	4%	-	4%	-	2%	-	2%	-	-	-	5%	-	3%	-	2%	-	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	43%	30%	6%	5%	47%	33%	10%	8%	51%	37%	14%	12%	44%	31%	7%	6%	50%	36%	13%	11%
	R15	Long Point Manor	OLF	23%	12%	12%	8%	18%	8%	7%	4%	14%	4%	3%	-	22%	11%	11%	7%	15%	5%	4%	1%
	R16	Rocky Point Heights	OLF	11%	4%	2%	1%	12%	4%	3%	1%	13%	4%	4%	1%	12%	4%	3%	1%	13%	4%	4%	1%
	R17	Port Townsend	None	1%	-	-	-	1%	-	-	-	0%	-	-1%	-	1%	-	-	-	1%	-	-	-
	R18	Marrowstone Island (Nordland)	None	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	0%	-	-	-
	R19	Island Transit Offices, Coupeville	OLF	32%	21%	23%	16%	23%	14%	14%	9%	12%	6%	3%	1%	30%	18%	21%	13%	16%	8%	7%	3%

Table 8-14 Average Indoor Nightly Probability of Awakening at Applicable POIs for the Average Year Alternative 3

Point of Interest				Annual Average Nightly (2200-0700) Probability of Awakening (%) [1]																			
				Alt3A		Change from No Action		Alt3B		Change from No Action		Alt3C		Change from No Action		Alt3D		Change from No Action		Alt3E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
	R20	South Lopez Island (Agate Beach)	None	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-	3%	1%	-	-
School (near residential)	S01	Oak Harbor High School	Ault	25%	14%	5%	2%	27%	16%	7%	4%	29%	18%	9%	6%	26%	15%	6%	3%	29%	17%	9%	5%
	S02	Crescent Harbor Elementary School	Ault	26%	15%	5%	3%	28%	17%	7%	5%	31%	19%	10%	7%	27%	16%	6%	4%	30%	18%	9%	6%
	S03	Coupeville Elementary School	OLF	17%	10%	12%	7%	11%	7%	6%	4%	6%	3%	1%	-	15%	9%	10%	6%	7%	4%	2%	1%
	S04	Anacortes High School	Ault	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-	3%	1%	1%	-
	S05	Lopez Island School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	9%	3%	3%	1%	9%	3%	3%	1%	10%	3%	4%	1%	9%	3%	3%	1%	10%	3%	4%	1%
	S09	La Conner Elementary School	Ault	11%	5%	3%	2%	10%	5%	2%	2%	10%	5%	2%	2%	10%	5%	2%	2%	10%	5%	2%	2%
	S10	Elger Bay Elementary School	OLF	0%	0%	-	-	0%	0%	-	-	0%	0%	-	-	0%	0%	-	-	0%	0%	-	-

[1] Assumes 15 dB and 25 dB of noise level reductions for windows open and closed, respectively.

[2] R01 and R06 include interior SELs greater than 100 dB with windows open

8.4.4 Residential Daytime Indoor Speech Interference

Table 8-15 presents the average daily indoor daytime (7:00 a.m. to 10:00 p.m.) events per hour for the applicable POIs that would experience indoor maximum sound levels of at least 50 dB with windows closed and open for average year Alternative 3. Events per hour would be less than one at 12 of the 30 POIs and would range between one and 10 for the remaining 18 POIs, regardless of the window status. Relative to the average year No Action Alternative, increases of one or two events per hour would be experienced by 16 of the POIs.

For the high-tempo FCLP year Alternative 3 (Appendix A7), the statistics cited above would be unchanged.

Table 8-15 Indoor Speech Interference for the Average Year Alternative 3

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]																	
				Alt3A		Change from No Action		Alt3B		Change from No Action		Alt3C		Change from No Action		Alt3D		Change from No Action		Alt3E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
Residential[2]	R01	Sullivan Rd	Ault	9	9	10	10	2	2	2	2	9	9	10	10	2	2	+1	+1	10	10	+2	+2
	R02	Salal St. and N. Northgate Dr	Ault	9	9	10	10	2	2	2	2	9	9	10	10	2	2	+1	+1	10	10	+2	+2
	R03	Central Whidbey	Ault	5	-	6	-	1	-	1	-	5	-	6	-	1	-	-	-	6	-	+1	-
	R04	Pull and Be Damned Point	Ault	3	1	3	2	1	1	1	-	3	1	3	1	1	-	+1	-	3	1	+1	-
	R05	Snee-Oosh Point	Ault	2	1	2	1	-	-	-	-	2	1	2	1	-	-	-	-	2	1	-	-
	R06	Admirals Dr and Byrd Dr	OLF	2	2	1	1	1	1	-	-	2	2	1	1	1	1	+2	+2	1	1	+1	+1
	R07	Race Lagoon	OLF	2	1	1	-	1	-	1	-	2	1	1	-	1	-	+2	+1	1	-	+1	-
	R08	Pratts Bluff	OLF	2	1	1	-	1	-	-	-	2	1	1	-	1	-	+2	+1	1	-	+1	-
	R09	Cox Rd and Island Ridge Way	OLF	1	-	1	-	1	-	-	-	1	-	-	-	-	-	+1	-	-	-	-	-
	R10	Skyline	None	-	-	-	-	-	-	1	-	1	-	1	-	1	-	+1	-	1	-	+1	-
	R11	Sequim	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R12	Port Angeles	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R13	Beverly Beach, Freeland	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R14	E Sleeper Rd & Slumber Ln	Ault	9	8	9	9	1	2	2	2	9	8	10	9	2	2	+1	+1	10	9	+2	+2
	R15	Long Point Manor	OLF	3	2	2	1	1	-	-	-	2	2	1	1	-	-	+1	+1	1	1	-	-
	R16	Rocky Point Heights	OLF	2	1	2	1	-	-	-	-	2	1	2	1	-	-	-	-	2	1	-	-
	R17	Port Townsend	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R18	Marrowstone Island (Nordland)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R19	Island Transit Offices, Coupeville	OLF	2	2	1	1	-	-	-	-	2	2	1	1	-	-	+1	+1	1	1	-	-

Table 8-15 Indoor Speech Interference for the Average Year Alternative 3

Point of Interest				Annual Average Daily Indoor Daytime (0700-2200) Events per Hour [1]																			
				Alt3A		Change from No Action		Alt3B		Change from No Action		Alt3C		Change from No Action		Alt3D		Change from No Action		Alt3E		Change from No Action	
Type	ID	Description	Related Field	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed	Windows Open	Windows Closed
	R20	South Lopez Island (Agate Beach)	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
School (near residential)	S01	Oak Harbor High School	Ault	6	2	7	3	1	1	1	1	7	3	7	3	1	1	+1	+1	7	3	+1	+1
	S02	Crescent Harbor Elementary School	Ault	5	2	6	2	1	-	1	1	6	2	6	3	1	1	+1	-	6	3	+1	+1
	S03	Coupeville Elementary School	OLF	2	1	1	1	-	1	-	-	2	1	1	-	-	-	+1	+1	1	-	-	-
	S04	Anacortes High School	Ault	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S05	Lopez Island School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	None	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S09	La Conner Elementary School	Ault	1	1	1	1	-	1	-	-	1	-	1	-	-	-	-	-	1	-	-	-
	S10	Elger Bay Elementary School	OLF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

[1] With an indoor maximum sound level of at least 50 dB; assumes 15 dB and 25 dB of noise level reductions for windows open and closed, respectively.

[2] The Whidbey General Hospital is located within approximately 1,000 feet of the Coupeville Elementary School; therefore, this location was not modeled individually, but a similar result for indoor speech interference for POI S03 would apply

8.4.5 Classroom Learning Interference

Table 8-16 presents the potential learning interference for classrooms under the average year Alternative 3. With an $L_{eq(8h)}$ of 69 dB (Alternative 3, Scenarios C and E), POI S02 (Crescent Harbor Elementary) would experience the greatest outdoor $L_{eq(8h)}$. No other locations would experience $L_{eq(8h)}$ greater than or equal to the screening threshold of 60 dB under any of the three alternatives. With windows open, three or four of the POIs would have more than one event per hour. With windows closed, two of the POIs would have more than one event per hour. POI S01, Oak Harbor High School, would have the most events per hour, with up to seven with windows open. POIs S01 and S02 would have the most events per hour (two or three) with windows closed.

Relative to the No Action Alternative, POIs would experience between a 1 and 6 dB increase in $L_{eq(8h)}$ and increases in events per hour of one or two.

Under the high-tempo FCLP year Alternative 3 (Appendix A7), the statistics cited above would be unchanged.

Table 8-16 Classroom Learning Interference for Average Year Alternative 3

Point of Interest				Alt 3A					Change from No Action				
				Outdoor	Indoor[1]				Outdoor	Indoor[1]			
					Windows Open		Windows Closed			Windows Open		Windows Closed	
Type	ID	Description	Related Field	$L_{eq\ (8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq\ (8h)}$ (dB)	$L_{eq(8h)}$ (dB)	Events per Hour [2]	$L_{eq(8h)}$ (dB)	Events per Hour [2]
School	R03	Central Whidbey	Ault	58	<45	5	<45	-	+1	+1	+1	+1	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2	-	-	+1	-	-
	S02	Crescent Harbor Elementary School	Ault	68	53	5	<45	2	+1	+1	+1	+1	-
	S03	Coupeville Elementary School	OLF	57	<45	2	<45	1	+6	+6	+2	+6	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**4**		**2**			**1**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**2**		**2**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**6**		**2**			**+2**		**-**

Table 8-16 Classroom Learning Interference for Average Year Alternative 3

Point of Interest				*Alt 3B*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	5	<45	-	+2	+2	+1	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	68	53	6	<45	2	+1	+1	+2	+1	-
	S03	Coupeville Elementary School	OLF	55	<45	1	<45	1	+4	+4	+1	+4	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**2**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**5**		**2**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**7**		**3**			**+2**		**-**

Table 8-16 Classroom Learning Interference for Average Year Alternative 3

Point of Interest				*Alt 3C*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	6	<45	-	+2	+2	+2	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	69	54	6	<45	3	+2	+2	+2	+2	+1
	S03	Coupeville Elementary School	OLF	51	<45	1	<45	-	-	-	+1	-	-
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**3**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**6**		**3**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**7**		**3**			**+2**		**-**

Table 8-16 Classroom Learning Interference for Average Year Alternative 3

Point of Interest				*Alt 3D*					*Change from No Action*				
School	R03	Central Whidbey	Ault	58	<45	5	<45	-	+1	+1	+1	+1	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+1	+1	-	+1	-
School	S01	Oak Harbor High School	Ault	57	<45	6	<45	2	-	-	+1	-	-
	S02	Crescent Harbor Elementary School	Ault	68	53	5	<45	2	+1	+1	+1	+1	-
	S03	Coupeville Elementary School	OLF	56	<45	2	<45	1	+5	+5	+2	+5	+1
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**4**		**2**			**1**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**5**		**2**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**6**		**2**			**+2**		**-**

Table 8-16 Classroom Learning Interference for Average Year Alternative 3

Point of Interest				*Alt 3E*					*Change from No Action*				
School	R03	Central Whidbey	Ault	59	<45	6	<45	-	+2	+2	+2	+2	-
Surrogate	R11	Sequim	None	<45	<45	-	<45	-	+2	+2	-	+2	-
School	S01	Oak Harbor High School	Ault	58	<45	7	<45	3	+1	+1	+2	+1	+1
	S02	Crescent Harbor Elementary School	Ault	69	54	6	<45	2	+2	+2	+2	+2	-
	S03	Coupeville Elementary School	OLF	53	<45	1	<45	-	+2	+2	+1	+2	-
	S04	Anacortes High School	Ault	47	<45	-	<45	-	+1	+1	-	+1	-
	S05	Lopez Island School	None	<45	<45	-	<45	-	+1	+1	-	+1	-
	S06	Friday Harbor Elementary School	None	<45	<45	-	<45	-	+1	-	-	-	-
	S07	Sir James Douglas Elementary School	None	<45	<45	-	<45	-	-	-	-	-	-
	S08	Fidalgo Elementary School	Ault	50	<45	-	<45	-	+1	+1	-	+1	-
	S09	La Conner Elementary School	Ault	52	<45	1	<45	-	+1	+1	-	+1	-
	S10	Elger Bay Elementary School	OLF	<45	<45	-	<45	-	+1	+1	-	+1	-
Number of Sites Exceeding One Intrusive Event per Hour						**3**		**2**			**3**		**-**
Minimum Number of Intrusive Events per Hour if Exceeding One						**6**		**2**			**+2**		**-**
Maximum Number of Intrusive Events per Hour if Exceeding One						**7**		**3**			**+2**		**-**

Notes:

[1] Assumes 15 dB and 25 dB of noise level reductions for windows open and closed, respectively.

[2] Number of average school-day events per hour during 8-hour school day (0800-1600) at or above an indoor maximum (single-event) sound level (L_{max}) of 50 dB.

8.4.6 Recreational Speech Interference

Table 8-17 lists the AAD daytime NA 50 L_{max} per hour for the recreational POIs. The average NA across the 11 POIs would be five events per daytime hour and one event per nighttime hour. Six POIs would be exposed to less than one event per hour. POIs P01, P02, R01, R02, R14, and S01 would have the most events per hour, at 10 under Alternative 3, Scenarios C and E. Relative to the average year No Action Alternative, increases of up to two events per hour would be experienced at all but nine of the POIs. The latter nine POIs would experience no change.

Under the high-tempo FCLP year Alternative 3 (Appendix A7), the statistics cited above would be the same.

Table 8-17 Recreational Speech Interference for Average Year Alternative 3

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 65 L_{max}																			
			Alt3A		Increase re No Action		Alt3B		Increase re No Action		Alt3C		Increase re No Action		Alt3D		Increase re No Action		Alt3E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Park	P01	Joseph Whidbey State Park	9	2	+1	-	9	2	+1	-	10	2	+2	-	9	2	+1	-	10	2	+2	-
	P02	Deception Pass State Park	9	2	+1	-	9	2	+1	-	10	2	+2	-	9	2	+1	-	10	2	+2	-
	P03	Dugualla State Park	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	P04	Baseball Field (Ebey's Landing National Historical Reserve)	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	P05	Ebey's Landing State Park	4	1	+2	+1	3	1	+1	+1	3	1	+1	+1	4	1	+2	+1	3	1	+1	+1
	P06	Fort Casey State Park	3	1	+2	+1	2	1	+1	+1	1	-	-	-	2	1	+1	+1	2	-	+1	-
	P07	Cama Beach State Park	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	5	1	+2	+1	4	1	+1	+1
	P08	Port Townsend	2	1	+1	+1	1	1	-	+1	1	-	-	-	2	1	+1	+1	1	-	-	-
	P09	Moran State Park	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P10	San Juan Islands National Monument	8	2	+1	+1	9	2	+2	+1	9	2	+2	+1	8	2	+1	+1	9	2	+2	+1
	P11	San Juan Island Visitors Center	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P12	Cap Sante Park	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	-	+1	-
	P13	Lake Campbell	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-
	P14	Spencer Spit State Park	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	P15	Pioneer Park	5	1	+1	-	4	1	-	-	4	1	-	-	5	1	+1	-	4	1	-	-
	P16	Marrowstone Island (Fort Flagler)	1	1	+1	+1	1	0	+1	-	0	-	-	-	1	1	+1	+1	1	-	+1	-
	EBLA001	Ferry House	4	1	+2	+1	3	1	+1	+1	2	0	-	-	4	1	+2	+1	3	1	+1	+1
	EBLA002	Reuble Farm	4	1	+2	+1	3	1	+1	+1	2	0	-	-	4	1	+2	+1	3	1	+1	+1

Table 8-17 Recreational Speech Interference for Average Year Alternative 3

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 65 L_{max}																			
			Alt3A		Increase re No Action		Alt3B		Increase re No Action		Alt3C		Increase re No Action		Alt3D		Increase re No Action		Alt3E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
Residential	R01	Sullivan Rd	9	2	+1	-	10	2	+2	-	10	3	+2	+1	10	2	+2	-	10	2	+2	-
	R02	Salal St. and N. Northgate Dr	9	2	+1	-	10	2	+2	-	10	3	+2	+1	10	2	+2	-	10	2	+2	-
	R03	Central Whidbey	8	2	+1	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	R04	Pull and Be Damned Point	8	2	+1	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	R05	Snee-Oosh Point	8	2	+1	+1	9	2	+2	+1	9	2	+2	+1	8	2	+1	+1	9	2	+2	+1
	R06	Admirals Dr and Byrd Dr	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2	-	+1	-
	R07	Race Lagoon	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	R08	Pratts Bluff	3	1	+2	+1	2	1	+1	+1	1	-	-	-	3	1	+2	+1	2	-	+1	-
	R09	Cox Rd and Island Ridge Way	2	1	+1	+1	1	1	-	+1	1	-	-	-	2	1	+1	+1	1	-	-	-
	R10	Skyline	4	1	-	-	4	1	-	-	5	1	+1	-	4	1	-	-	4	1	-	-
	R11	Sequim	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	-	+1	-
	R12	Port Angeles	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-
	R13	Beverly Beach, Freeland	1	-	+1	-	0	-	-	-	-	-	-	-	1	-	+1	-	-	-	-	-
	R14	E Sleeper Rd & Slumber Ln	9	2	+1	-	10	2	+2	-	10	3	+2	+1	10	2	+2	-	10	2	+2	-
	R15	Long Point Manor	9	2	+2	+1	9	2	+2	+1	8	2	+1	+1	8	2	+1	+1	8	2	+1	+1
	R16	Rocky Point Heights	5	1	+1	-	5	1	+1	-	5	2	+1	+1	5	1	+1	-	5	2	+1	+1
	R17	Port Townsend	1	1	-	+1	1	0	-	-	0	-	-1	-	1	1	-	+1	1	-	-	-
	R18	Marrowstone Island (Nordland)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	R19	Island Transit Offices, Coupeville	5	1	+2	-	4	1	+1	-	3	1	-	-	4	1	+1	-	3	1	-	-
	R20	South Lopez Island (Agate Beach)	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-

Table 8-17 Recreational Speech Interference for Average Year Alternative 3

Representative Park Receptor			Annual Average Outdoor Daily Daytime Events per Hour, NA 65 L_{max}																			
			Alt3A		Increase re No Action		Alt3B		Increase re No Action		Alt3C		Increase re No Action		Alt3D		Increase re No Action		Alt3E		Increase re No Action	
Type	ID	Description	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
School	S01	Oak Harbor High School	9	2	+1	-	9	2	+1	-	10	2	+2	-	9	2	+1	-	10	2	+2	-
	S02	Crescent Harbor Elementary School	8	2	+1	-	9	2	+2	-	9	2	+2	-	9	2	+2	-	9	2	+2	-
	S03	Coupeville Elementary School	5	1	+2	+1	4	1	+1	+1	3	1	-	+1	4	1	+1	+1	3	1	-	+1
	S04	Anacortes High School	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-	1	-	-	-
	S05	Lopez Island School	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S06	Friday Harbor Elementary School	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S07	Sir James Douglas Elementary School	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	S08	Fidalgo Elementary School	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-	5	1	+1	-
	S09	La Conner Elementary School	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-	4	1	+1	-
	S10	Elger Bay Elementary School	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	-	+1	-	1	-	+1	-

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9 Effect of Considered Hush House

The Navy may consider building and operating a noise suppression facility (also known as a "hush house") for engine maintenance. The purpose of the hush house is to substantially reduce the sound levels associated with high-power run-up operations. The hush house would be capable of conducting in-frame engine run-ups for the Growler during daytime and nighttime periods. Exact specifications of the hush house are unknown at this time, but the facility is anticipated to be similar to other hush houses currently operated by the DoD at other facilities.

The purpose of this chapter is to describe the considered hush house operations and demonstrate the effect the hush house would have on noise from high-power run-ups by the Growler in terms of single-event (L_{max}) noise level and DNL.

The location of the considered hush house in relation to other modeled run-up locations is shown in Figure 9-1. It would be located 2,200 feet northwest of the existing modeled outdoor high power run-up location (Hi-Pwr1) between Taxiways J and G. It would be oriented parallel to Taxiway J with the aircraft facing east. It is assumed the orientation of the exhaust of the considered hush house would be consistent with most hush houses, where the exhaust is pointed skyward. The nozzle of the Growler and the exhaust of the hush house, respectively, were estimated to be at elevations of 26 feet MSL (6 feet above ground level [AGL]) and 60 feet MSL (40 feet AGL).

Figure 9-1 Modeled Run-up Locations and Considered Hush House

Table 9-1 lists the run-ups examined for this chapter. The outdoor high-power run-ups are identical to those modeled for the DNL cases from Table 5-3. To demonstrate the effect of the hush house, the average year No Action Alternative and the high-tempo FCLP year Alternative 2, Scenario B, were chosen because these cases represent the least and most flight operations, respectively. Recall from Section 4.3 that it was assumed the run-up operations from the average year and the high-tempo FCLP year would be identical; however, as the flight operations tend to dominate the overall noise exposure, the cases with the least and most flight operations would show the extremes of the effect of the hush house.

Table 9-1 shows that all of the outdoor high-power run-ups would be transferred to the hush house with no change to the nighttime percentages, event durations, or numbers of engines.

NOISEMAP's database does not contain reference acoustic data for a Growler in a hush house. Therefore, for the purposes of this study, surrogate data were developed. The database contains data for an F-15A Eagle aircraft (with F100-PW-100 engines) in and out of a hush house. The difference between these two datasets was applied to the Growler (outdoor) run-up data, creating the surrogate. This methodology estimates the noise-suppressing effect of a hush house and the change in direction of the noise pattern around the facility compared to unsuppressed outdoor run-ups. In Table 9-1, this method was applied to noise data for each of the four power settings in the run-up cycle.

Figure 9-2 compares L_{max} contours of 60 to 90 dBA, in 10-dB increments, for the Growler at minimum afterburner power at the (unsuppressed) outdoor high-power location/orientation and at the considered hush house location/orientation. The unsuppressed run-up's 60 dB L_{max} contour extends as far as 3.3 miles from the NAS Whidbey Island boundary whereas the hush house's 60 dB L_{max} contour remains wholly within the station's boundary. The L_{max} contours result from the noise generated while the aircraft engine is at afterburner power, typically for 3 minutes per maintenance event. The average year analysis includes 665 annual events, which equates to 5 minutes at afterburner power per average day during Growler maintenance run-ups.

Figure 9-3 shows the maximum effect the hush house would have on cumulative noise exposure, as it compares the DNL contours of 60 to 90 dBA, in 5-dB increments, for the Growler high-power run-up cycle at the (unsuppressed) outdoor high-power location/orientation and at the considered hush house location/orientation, if each were involved with the average year No Action Alternative. As seen in the figure's inset, the hush house's effect would mostly be on station with the 85 and 90 dB DNL contours. A maximum of a 1.1 dB reduction is estimated to occur off station. The largest reductions would occur directly south of West Ault Field Road between Heller Road and North Oak Harbor Road. There would also be reductions east of the station along West Sleeper Road.

Figure 9-4 shows the (near) minimum effect the hush house would have on cumulative noise exposure, as it compares the DNL contours of 60 to 90 dBA, in 5-dB increments, for the Growler high-power run-up cycle at the (unsuppressed) outdoor high-power location/orientation and at the considered hush house location/orientation, if each were involved with the high-tempo FCLP year Alternative 2, Scenario B. As seen in the figure's inset, the hush house's effect would mostly be on station with the 85 and 90 dB DNL contours. A maximum of a 0.9 dB reduction is estimated to occur off station. The largest reductions would occur directly south of West Ault Field Road between Heller Road and North Oak Harbor Road. There would also be reductions east of the station along West Sleeper Road.

Table 9-1 EA-18G High Power Run-Ups for Hush House Analysis

Aircraft Type	Engine Type	Run-up Type	Pad ID	Magnetic Heading (degrees)	Annual Events				Percentage During		Power Setting		Duration of Each Event (Minutes)	No. of Engines Running (each event)
					Average Year No Action Alternative		High Tempo Year Alternative 2C							
					no Hush House	with Hush House	no Hush House	with Hush House	Day (0700 - 2200)	Night (2200 - 0700)	Reported	Modeled (if different)		
EA-18G	F414-GE-400	High Power	Hi-Pwr1	315	656	0	944	0	90%	10%	Ground Idle	65% NC	25	2
											80%NC	80% NC	10	2
											Mil	96% NC	3	2
											AB	A/B	3	2
EA-18G	F414-GE-400	High Power, In-frame	Proposed Hush House[1]	85	0	656	0	944	90%	10%	Same as above			

[1] EA-18G modeled with surrogate noise data from the NOISEFILE database (because reference acoustic data for "EA-18G in a hush house" do not exist in NOISEFILE)

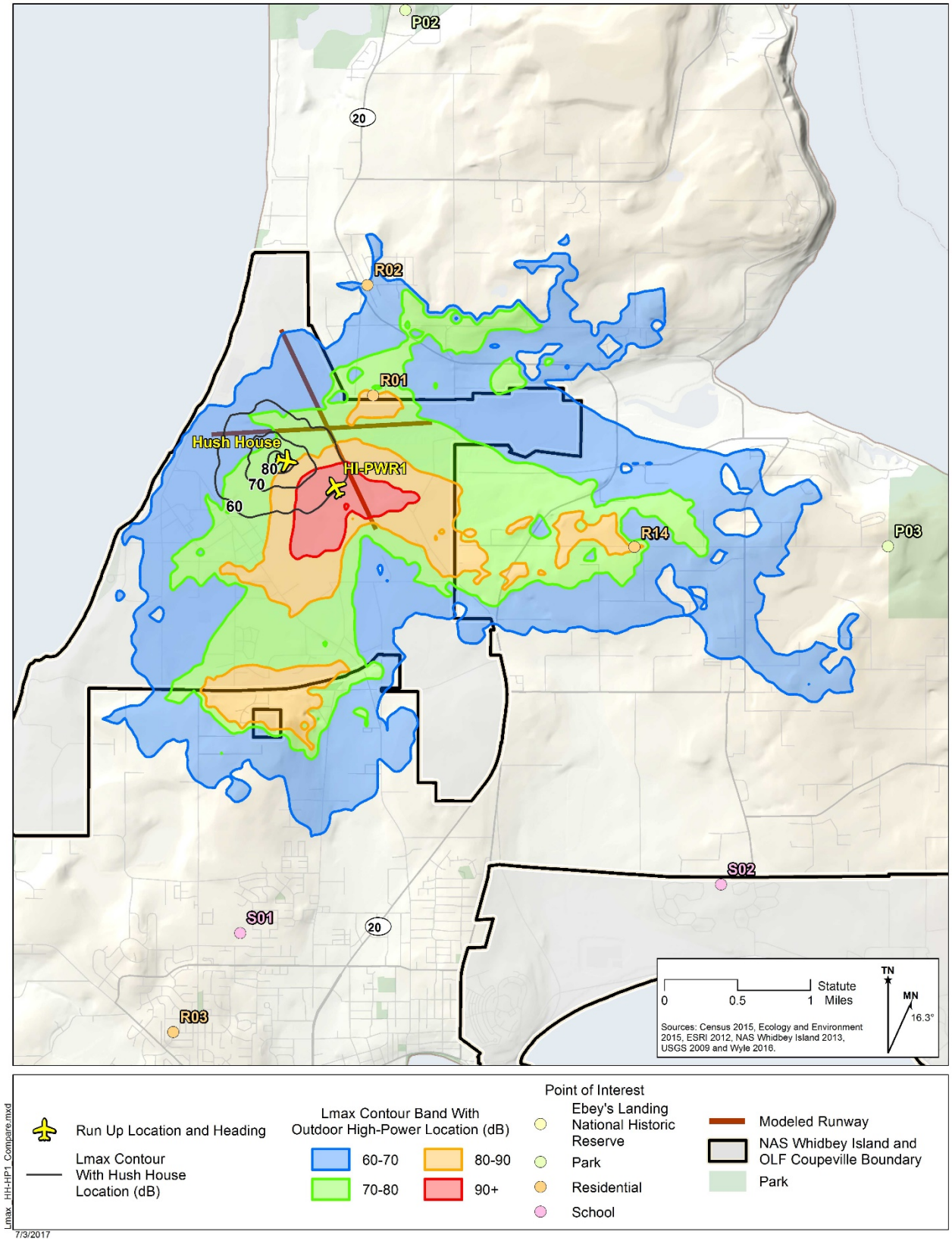

Figure 9-2 Comparison of Single-Event Maximum Sound Level Contours for the High Power and Considered Hush House Locations

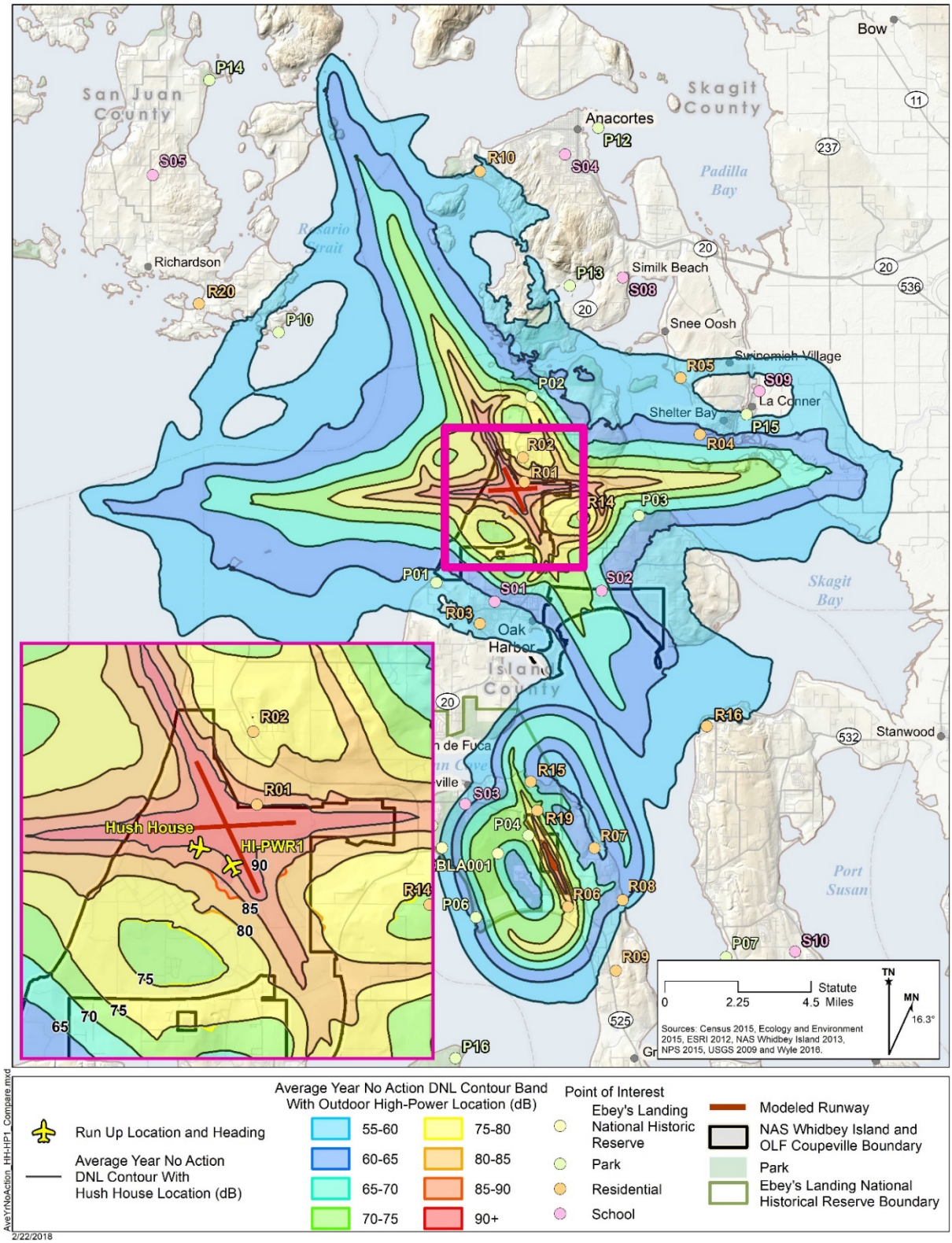

Figure 9-3 Comparison of DNL Contours for the Average Year No Action Alternative for the High Power and Considered Hush House Locations

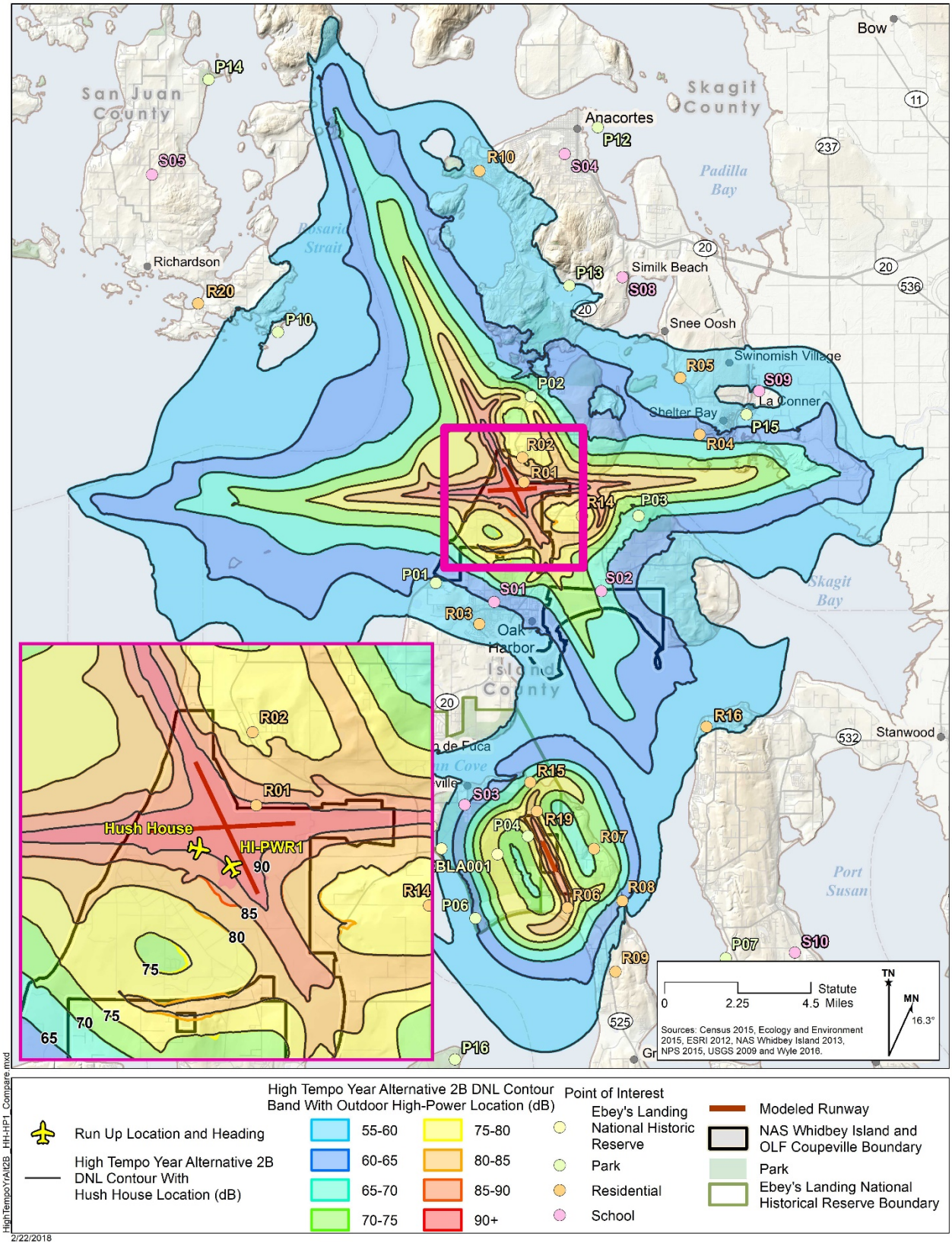

Figure 9-4 Comparison of DNL Contours for the High-Tempo FCLP Year Alternative 2B for the High Power and Considered Hush House Locations

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10 Low-Frequency Noise

Tactical military jets such as the EA-18G Growler can generate noticeable low-frequency noise compared to other aircraft types. The following paragraphs describe the low-frequency noise content of the EA-18G and compares it to that of the EA-6B Prowler, which is another aircraft residents surrounding Ault Field and OLF Coupeville have experienced. Two aspects of low-frequency noise are of concern to the public: 1) the potential for structural damage, and 2) increased annoyance. For structural damage, the components of a structure most sensitive to airborne noise are the windows and, infrequently, the plastered walls and ceilings. An evaluation of the sound pressures impinging on the structure may be used to assess the risk for damage. In general, sound levels below 130 dB (unweighted) are unlikely to pose a risk to structures. While certain frequencies (such as 30 Hertz [Hz] for window breakage) may be of more concern than others, conservatively, only sounds lasting more than 1 second above a sound level of 130 dB (unweighted) are potentially damaging to structural components (Committee on Hearing, Bioacoustics, and Biomechanics, 1977).

Noise-induced structural vibration may result from aircraft operating at low altitudes, which would occur during takeoff and landing operations. Such vibrations are likely to cause annoyance to dwelling occupants because of induced secondary vibrations or rattling of objects, such as dishes and hanging pictures, within the dwelling. Window panes may also vibrate noticeably when exposed to high levels of airborne noise. In general, such noise-induced vibrations occur at sound levels of 110 dB (unweighted) or greater.

Aside from structural concerns of low-frequency noise, the perception of low-frequency sound may differ considerably when compared with mid- or high-frequency sound. Laboratory measurements of annoyance by low-frequency noise each use different spectra and levels, making comparisons difficult, but the majority share the same conclusion that annoyance caused by low frequencies increases rapidly with level and that measurements of A-weighted sound level alone can underestimate the effects of low-frequency noises (Leventhall, 2004).

Figures 10-1 through 10-3 show comparisons of the unweighted one-third octave band (OTOB) spectra at lower frequencies from the acoustic reference database (Noisefile) for the Growler and Prowler. The comparisons are for MIL, approach, and traffic pattern engine power settings, respectively. It is important to note that the flyover database contains OTOB spectra at the maximum Perceived Noise Level (PNL) for each measured engine power setting. These spectra are normalized to a distance of 1,000 feet and acoustical standard atmospheric conditions of 59° F and 70 percent relative humidity. For MIL power, the Growler's unweighted spectral levels at 50 Hz and below are, on average, 11 dB greater than the Prowler's. For approach power, the Growler is 5 dB greater, on average, at 50 Hz and below, and for cruise power, the Growler and Prowler are similar, with an average difference of 2 dB. Even with its increased low-frequency content, the Growler's takeoff noise events do not appear to approach the 110 dB threshold for noise-induced vibration for receiver distances 1,000 feet and greater.

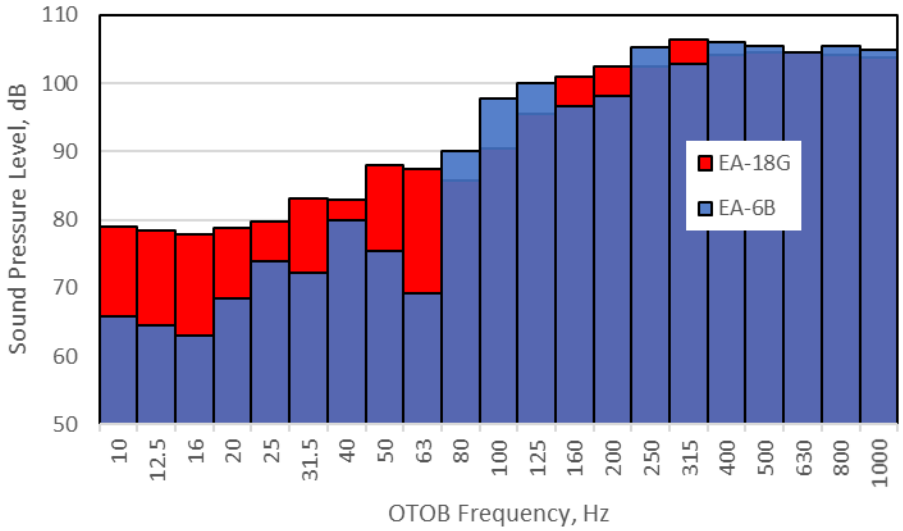

Figure 10-1 Low Frequency One-Third Octave Band Spectral Comparison for the EA-18G and EA-6B for MIL Engine Power

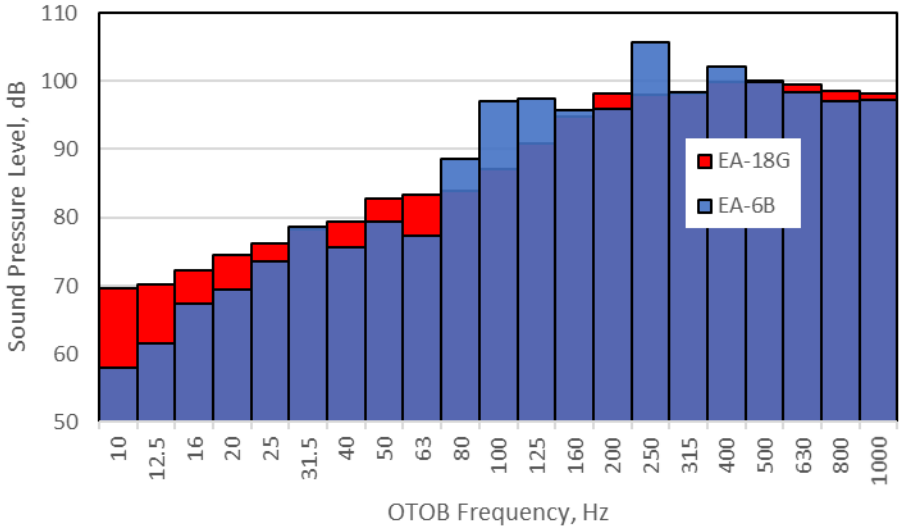

Figure 10-2 Low Frequency One-Third Octave Band Spectral Comparison for the EA-18G and EA-6B for Approach Engine Power

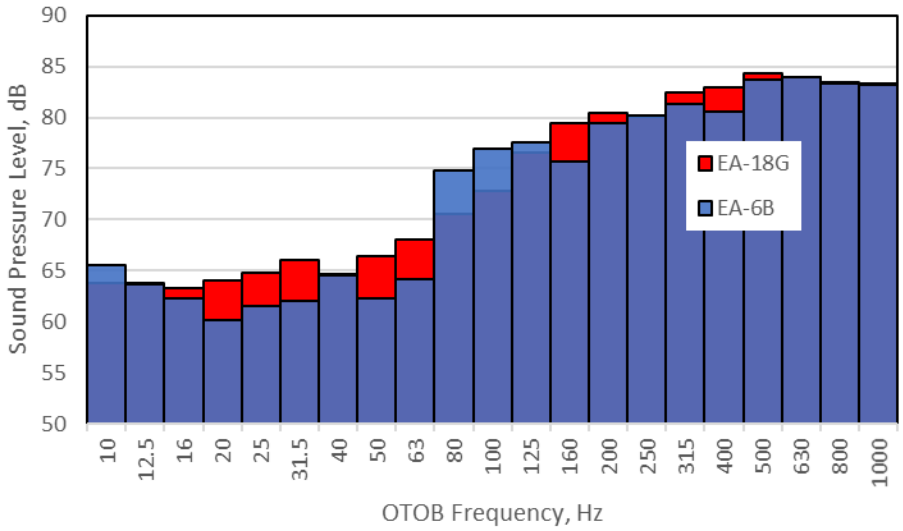

Figure 10-3 Low Frequency One-Third Octave Band Spectral Comparison for the EA-18G and EA-6B for Traffic Pattern Engine Power

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