Impacts of Four Growler FCLP Allocation Scenarios on Oak Harbor and Coupeville

Prepared by Citizens of Ebey's Reserve
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Preface

Field carrier landing practice (FCLP) operations are basically Navy jet touch-and-go operations specific to preparing pilots for landing and takeoff on an aircraft carrier. The training, however, involves cyclical low-elevation practice on land. Noise below the practice loops is extreme—loud enough to cause permanent hearing loss with just brief exposure. A practice session generally involves 2-5 jets circling the runway, one jet after another, making the noise constant throughout 45-minute sessions. And, the practice may go on for hours with multiple sessions occurring from morning to late at night. For those close to the flight path it is a living hell.

Background

The Environmental Impact Statement (EIS) for expanding the fleet of EA-18G Growler jets at Naval Air Station Whidbey Island (NASWI) listed six FCLP allocation scenarios, ranging from an 80% Ault Field : 20% OLF split to the opposite, 20% Ault : 80% OLF. Ignoring thousands of objections related to the extreme noise impacts, the Navy's 2018 Record of Decision (ROD) selected the 20:80 percent Ault:OLF split, which relocated nearly all the FCLPs from Ault Field to the OLF.

In so doing, the ROD denigrated education at Coupeville's public schools and impinged on the ability of children to study at home due to noise interrupting concentration and cognitive ability. The noise also exacerbates health risks on adults and children, magnifies catastrophic mishap risks at Coupeville schools and for residential neighborhoods, and increases the noise impacts on birds of concern.

The ROD effected an increase of jets and squadrons stationed at NASWI, which the Navy decided would require a 9% increase in total FCLP operations. For about 20 years prior to the ROD the Navy had conducted about 22,000 FCLP operations per year at Ault Field vs. about 6000 at the OLF. The ROD reversed that allocation to around 6000 operations at Ault Field and 24,000 at the OLF. The Navy inexplicably rationalized that the 9% increase in total FCLPs

somehow necessitated a disproportionate 367% decrease in Ault Field FCLPs and a nearly 300% increase at the OLF.

The Navy opined that it could not handle more than around 6000 Growler FCLP operations at Ault Field because it would create air space issues with other aircraft stationed at NASWI. In other words, the five other EIS options were apparently inconvenient, though doable.

In a subsequent National Environmental Policy Act (NEPA) challenge brought by Citizens of Ebey's Reserve (COER), the Court's decision noted that the Navy's EIS had irresponsibly ignored and dismissed harms to people and wildlife and that it had manufactured information and false arguments to try to justify its preferred option. While the Court required the Navy to re-evaluate and correct four of its EIS failings, the Court did not find any of the EIS FCLP allocation options to be infeasible, nor did the Navy make that claim.

Hence, we have to conclude all those EIS options were and are doable and that Ault Field could, in fact, handle up to 22,000 FCLP operations. In light of the health and well-being harms being done, thoughtful and deliberative consideration should be given to reallocating to Ault Field a portion of the FCLPs the ROD carelessly assigned to the OLF. While more FCLPS at Ault Field may complicate runway management, the over-the-top FCLP impacts currently impinged on residents near the OLF demand reconsideration of the allocations to reduce the lopsided harms on central Whidbey residents. And detachment training needs to be on the table as well. In the following sections we examine four mitigative options.

Four Alternative FCLP Allocation Scenarios

Here, COER examines the impacts of four novel FCLP allocation scenarios each of which, per Navy's EIS, is doable and reduces the current lopsided impacts in the OLF area.

The redistribution scenarios assess impacts via two metrics: number of overflights and number of extreme noise exposures. The *overflight impact* is simply how many times people in a given impact area experience a Growler FCLP overflight—that is, the total number of annual overflights for a given runway area. The *exposure impact* is the number of individual experiences of significant disturbance from Growler FCLPs; that is, one person experiencing 10 overflights is the same as 10 people experiencing 1 exposure; both count as 10 exposures. As such the exposure impact indexes the overall impact on the population in a particular area. It is the overflight impact weighted by population size. A similar metric was used by U.S. Fish and Wildlife Service and the Navy in their analysis of Growler noise impacts on marbled murrelets.

The four scenarios presented below inform how redistributing the FCLPs among airfields could reduce the impacts (i.e., number of overflights and noise exposures) by dispersing them geographically so that a single population does not bear the overwhelming brunt of the impact. Two of the allocation scenarios involve just Ault Field and the OLF, whereas the third and fourth include El Centro (and/or other off-Whidbey airfields).

From abundant noise recordings data and information in the final Growler EIS [1], we first define a *significant disturbance noise area* as the area most heavily impacted by Growler FCLPs, and that is the area 1 mile on either side of the FCLP flight track. For each runway (4 at Ault Field and 2 at OLF), we then enumerated the discrete population within the 1-mile disturbance area, which we did via EJScreen, an environmental screening and mapping tool developed by the Environmental Protection Agency based on U.S. Census Bureau data.

For each scenario, we separately enumerated the impacts for each of the four runways at Ault Field and two runways at the OLF. That is because the significant disturbance areas for each runway are occupied by discrete populations with very little overlap. Because each disturbance area population is an independent data set, the four Ault Field runways cannot be meaningfully totaled to compare against a total of the two OLF runways because the weight of four against two would significantly skew that comparison. However, to compare the two airfields, averages of the runways by airfieldcan be used.

The four scenarios below are juxtaposed against the *Existing Condition*—that is, the 2018 ROD-designated split of 29,600 total FCLP operations, which was 5,900 at Ault Field and 23,700 at the OLF.

1) *Equal Exposure Scenario*. Based on the ROD's 29,600 total operations, this shows the number of overflights and the exposure impact for each runway if the number of significant disturbance exposures were equalized among the six runways.

2) *Overflights Balanced Scenario*. Based again on the ROD's 29,600 total operations, this shows the number of overflights and the exposure impact for each runway if the number of overflights were equalized among the six runways.

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[1] A Growler at a speed of 400 kn and a power setting of 84.5 flying at 200 feet AGL will measure 116 dB on the ground directly under the jet, but will be 77 dB at a mile on either side of the track, or a dissipation of 29 dB or 8-fold less loud (EIS Table 3.1-2). The same jet at 1000 feet will be 104 dB under the jet but will be 84 dB at a mile on either side, or 2-fold less loud. Because FCLPs are conducted within that elevation range, the area beyond a mile from the flight path is not extreme and continues to dissipate rapidly.

3) *One-Thirds Scenario*. Based again on the ROD's 29,600 total operations, this shows of overflights and the exposure impact if the operations were divided up as 1/3 for the OLF, 1/3 for Ault Field, and 1/3 for El Centro (or other off-Whidbey airfields). The Ault Field operations are then divided among the 4 runways according to status quo usage percentages, whereas for the OLF it is divided half for each of the two runways.

4) *Detach and Balance Scenario.* Based again on the ROD's 29,600 total operations, this shows the number of overflights and the exposure impact if 1/3 (i.e., 9900) of the FCLPs were moved off Whidbey (detachment) and the remaining 2/3 (19,700) were divided equally among the six Whidbey Island runways.

While Scenarios #1 and #2 would be an improvement over the Existing Condition, the most equitable are Scenarios #3 and #4, both of which move one-third of the FCLPs off Whidbey (e.g., El Centro). The Navy refers to this as "detachment training." Scenario #3 equalizes the remaining two-thirds between Ault Field and the OLF, whereas #4 balances the exposure impacts at the population level; that is, while the number of overflights would vary among neighborhoods, the exposure count is made equal by adjusting for the population differences.

Scenario #3 is basically the same as the Scenario #2 reduced by 1/3 of the FCLPs, which are assigned to detachment training. Similarly, Scenario #4 is the same as Scenario #1 reduced by 1/3 assigned to detachment. Scenario #4 is the fairest, most balanced for those concerned about the population-level impact (exposures). In other words, with Scenario #4 the six Whidbey neighborhoods receive the same exposure impact, because the overflights are adjusted by each unique population number to produce the same impact at the population level.

Scenarios #3 and #4 greatly reduce the impacts on people and wildlife, while providing pilots with the opportunity to practice at the best venue, El Centro, and/or other locations, which ancillarily would provide diversity in training geography and topography.

Allocation Scenarios

Existing Condition. The 2018 ROD allocates 5,900 FCLP operations to Ault Field and 23,700 to the OLF. Under this scenario, the number of noise exposures varies widely among the 6 runways (171-fold from 0.224 million to 38.215 million), each person experience the same number of exposures (2470 overflights/person). The number of times each person experiences an overflight also varies from 8295 at the OLF to just 30 at Ault Field. The average exposures at the OLF is nearly 9 times those at the OLF.

Existing Condition Scenario				
ROD FCLP Usage% by Runway[a] (appropriate wind direction)		**(A) 2020 Census Population[b]**	**(B) Number of Overflights per Year**	**(A x B) No. of Indivdual Exposures (in Millions, x10^6)[c]**
Ault Field [Total FCLP operations from FEIS = 5900 (Table 2.3-2) or 2950 overflights]				
#07 (~E)	21%	3608	620	0.224
#14 (~N)	30%	2468	885	2.184
#25 (~W)	49%	5700	1446	8.242
#32 (~S)	1%	16,924	30	0.508
Average for 4 Ault Runways				2.790
Outlying Field [Total FCLP operations from FEIS = 23,700 (Table 2.3-2) or 11,850 overflights]				
#14 (~S)	30%	2796	3555	9.939
#32 (~N)	70%	4607	8295	38.215
Average for 2 OLF Runways				24.077

[a] These percentages, as derived from $FEIS_G$ (Tables A3-2 and A3-3, pages A3-5 and A3-6), were separate for night and day and had to be averaged into one for day/night. That totaled to over 100% so reduced to not overstate Column B; they may therefore be off a point or so, but not significant. The compass points are the wind directions appropriate for that run (i.e., landing and takeoff into the wind).

[b] Population counts by runway were derived from via EJScreen (see Appendix A).

[c] This is the theoretical number of times number of times someone experience noise, so one person experiencing 10 overflights would be 10 exposures, as would 10 people experiencing 1 exposure.

Scenario 1: Equalize Exposures. This scenario examines reallocating the total number of FCLPs in the Existing Condition (ROD = 29,600 ops) so that the exposures are the same for each runway, i.e., how the Navy could adjust FCLPs to balance the exposure impact.

Equal Exposure, Scenario 1[a]				
Proposed FCLP vs. (ROD) Usage% by Runway[b]		**(A) 2020 Census Population[b]**	**(B = C/A) Number of Overflights per Year[c]**	**(C) No. of Indivdual Exposures[c] (in Millions, x10^6)**
Ault Field [Based on 20,000 FCLP operations or 10,000 overflights]				
#07 (~E)	30.9% (21%)	3608	2616	9.439
#14 (~N)	44.2% (30%)	2468	3825	9.439
#25 (~W)	19.1% (49%)	5700	1656	9.439
#32 (~S)	2.0% (1%)	16,924	557	9.439
(A) & (B) totals: Ault		28,700	8654	
Outlying Field [Based on 9600 FCLP operations or 4800 overflights]				
#14 (~S)	62.0% (30%)	2796	3376	9.439
#32 (~N)	37.8% (70%)	4607	2049	9.439
(A) & (B) totals: OLF		7403	5425	
Grand Total: Ault + OLF			14,079[b]	

[a] Using the total number of operations (14,800 overflights) in the Existing Condition Scenario, this scenario back-calculates the number of overflights for each runway that would produce the same number of exposures (9.439 million) at each runway based on the ROD total overflights of 14,800. Under the Existing Condition there were 57.232 million exposures, which divided equally among the 6 runways equal 9.439 exposures for each runway, which divided by the population for a given runway provides the number of overflights for that runway. Then the number of overflights for that runway divided by grand total of overflights provides the percentages for each runway.

[b] Population counts by runway were derived from via EJScreen (see Appendix A).

[c] The proposed usage to equalize exposures among all 6 runways is Column B/grand total of overflights (14,079), which is a bit shy of the ROD total 14,800 due to rounding very large numbers. It could be proportionally forced to 14,800, but it would make a barely negligible difference.

[c] Based on the ROD Scenario of 57.232 milllion total exposures split evenly (divided by 6) between all 6 runway options.

Scenario 2: ***Overflights Balanced Scenario.*** This scenario balances the number of total ROD overflights to 2470 for each runway (i.e., 14,800 ROD overflights divided by 6 runways = 2467 per runway). Under this scenario, the number of noise exposures varies less among runways (7-fold from 6.096 to 41.802 million) than under the Existing Condition Scenario, and each person experiences the same number of toxic exposures (2470 overflights/person). So, from a health and livability standpoint the impact is fair and balanced in that each civilian is exposed to the same number of overflights.

Overflight Balanced, Scenario 2				
Proposed FCLP vs. (ROD) Usage% by Runway[a]		**(A) 2020 Census Population[b]**	**(B) Number of Overflights per Year**	**(A x B) No. of Indivdual Exposures (in Millions, x10^6)[c]**
Ault Field [Based on 19,760 FCLP operations or 9880 overflights]				
#07 (~E)	16.7% (21%)	3608	2470	8.911
#14 (~N)	16.7% (30%)	2468	2470	6.096
#25 (~W)	16.7% (49%)	5700	2470	14.079
#32 (~S)	16.7% (1%)	16,924	2470	41.802
Average for 4 Ault Runways				17.722
Outlying Field [Based on 9880 FCLP operations or 4940 overflights]				
#14 (~S)	16.7% (30%)	2796	2470	6.906
#32 (~N)	16.7% (70%)	4607	2470	11.379
Average for 2 OLF Runways				9.143

[a] These percentages, as derived from $FEIS_G$ (Tables A3-2 and A3-3, pages A3-5 and A3-6), were separate for night and day and had to be averaged into one for day/night. That totaled to over 100% so reduced to not overstate Column B; they may therefore be off a point or so, but not significant. The compass points are the wind directions appropriate for that run (i.e., landing and takeoff into the wind).

[b] Population counts by runway were derived from via EJScreen (see Appendix A).

[c] This is the theoretical number of times number of times someone experience noise, so one person experiencing 10 overflights would be 10 exposures, as would 10 people experiencing 1 exposure.

Scenario 3: The Thirds Scenario. This scenario reallocates the Existing Condition (#1) operations as follows: 1/3 at the OLF, 1/3 at Ault Field, and 1/3 at El Centro or any off-Whidbey airfield.

The Thirds, Scenario 3				
ROD FCLP Usage% by Runway[a]		**(A) 2020 Census Population[b]**	**(B) Number of Overflights per Year**	**(A x B) No. of Indivdual Exposures (in Millions, x10^6)[c]**
Ault Field [ROD 29,600 operations/3 = 9867 ops or 4933 overflights]				
#07 (~E)	21%	3608	1036	3.738
#14 (~N)	30%	2468	1480	3.653
#25 (~W)	49%	5700	2417	13.777
#32 (~S)	1%	16,924	50	0.846
Average for 4 Ault Runways				
OLF [ROD 29,600 operations/3 = 9867 ops or 4933 overflights]				
#14 (~S)	50% [d]	2796	2467	6.898
#32 (~N)	50% [d]	4607	2467	11.365
Average for 2 OLF Runways				

[a] These percentages, as derived from $FEIS_G$ (Tables A3-2 and A3-3, pages A3-5 and A3-6), were separate for night and day and had to be averaged into one for day/night. That totaled to over 100% so reduced to not overstate Column B; they may therefore be off a point or so, but not significant. The compass points are the wind directions appropriate for that run (i.e., landing and takeoff into the wind).

[b] Population counts by runway were derived from via EJScreen (see Appendix A).

[c] This is the theoretical number of times number of times someone experience noise, so one person experiencing 10 overflights would be 10 exposures, as would 10 people experiencing 1 exposure.

[d] While this allocation in the ROD has been 30% on #14 and 70% on #32, in recent practice it has been closer to 50:50 and that seems to be a more realistic split to use, especially since the seasonal wind conditions are predominately southerly half the year and northerly the other half. Also, this allocation helps to keep the overflight impact on #32 more in line with all the other runways.

Scenario 4: Detach and Equalize Scenario. This scenario examines reallocating the total number of FCLP operations in the Existing Condition (ROD = 29,600 ops) by moving 1/3 (9900) off Whidbey (detachment) and reallocating the remaining 2/3 (19,700) equally among the six Whidbey Island runways. Oak Harbor would experience increases in noise, and Coupeville would experience a significant reduction bringing it down to Oak Harbor levels.

Equal Exposure, Scenario 4				
Proposed FCLP vs. (ROD) Usage% by Runway[a]		**(A) 2020 Census Population[b]**	**(B = C/A) Number of Overflights per Year**	**(C) No. of Indivdual Exposures (in Millions, x10^6)[c]**
Ault Field [ROD 29,600 operations/3 = 9867 ops or 4933 overflights]				
#07 (~E)	30% (21%)	3608	1771	6.391
#14 (~N)	44% (30%)	2468	2590	6.391
#25 (~W)	19% (49%)	5700	1121	6.391
#32 (~S)	6% (1%)	16,924	378	6.391
(A) & (B) totals: Ault		28,700	5860	
OLF [ROD 29,600 operations/3 = 9867 ops or 4933 overflights]				
#14 (~S)	62% (30%)	2796	2285	6.391
#32 (~N)	38% (70%)	4607	1387	6.391
(A) & (B) totals: OLF		7403	3672	
Grand Total: Ault + OLF			9532	

[a] These percentages, as derived from $FEIS_G$ (Tables A3-2 and A3-3, pages A3-5 and A3-6), were separate for night and day and had to be averaged into one for day/night. That totaled to over 100% so reduced to not overstate Column B; they may therefore be off a point or so, but not significant. The compass points are the wind directions appropriate for that run (i.e., landing and takeoff into the wind).

[b] Population counts by runway were derived from via EJScreen (as depicted below).

[c] This is the theoretical number of times number of times someone experience noise, so one person experiencing 10 overflights would be 10 exposures, as would 10 people experiencing 1 exposure. Under the Existing Condition there were 57.232 million exposures; with 1/3 of the FCLPs moved off Whidbey that number would fall to 38.345 million exposures, which divided equally among the 6 runways equal 6.391 exposures for each runway, which divided by the population for a given runway provides the number of overflights for that runway. Then the number of overflights for that runway divided by grand total of overflights provides the percentages for each runway.

Summary of Scenarios 1–5. Comparison of exposure levels and overflight numbers for the five scenarios.

Exposure Comparison for All Five Scenarios

Runway (Appropriate wind direction)	No. of Annual Indivdual Exposures[b] (in Millions, x10^6) [This is a population-level index of harm, i.e., exposures produce harm]				
	Existing Condition	Scenario 1 Equalize Exposures	Scenario 2 Overflight Balanced	Scenario 3 Thirds	Scenario 4 Detach and Equalize[a]
Ault Field					
#07 (~E)	0.224	9.439	8.911	3.738	6.391
#14 (~N)	2.184	9.439	6.096	3.653	6.391
#25 (~W)	8.242	9.439	14.079	13.777	6.391
#32 (~S)	0.508	9.439	41.802	0.846	6.391
Outlying Field					
#14 (~S)	9.939	9.439	6.906	6.898	6.391
#32 (~N)	38.215	9.439	11.379	11.365	6.391

[a] If instead of moving 1/3 of the FCLPs off Whidbey Island, 1/2 were moved, then the 6.391 million exposures for all runways would drop to 4.770 million each.

Overflight Comparison for All Five Scenarios

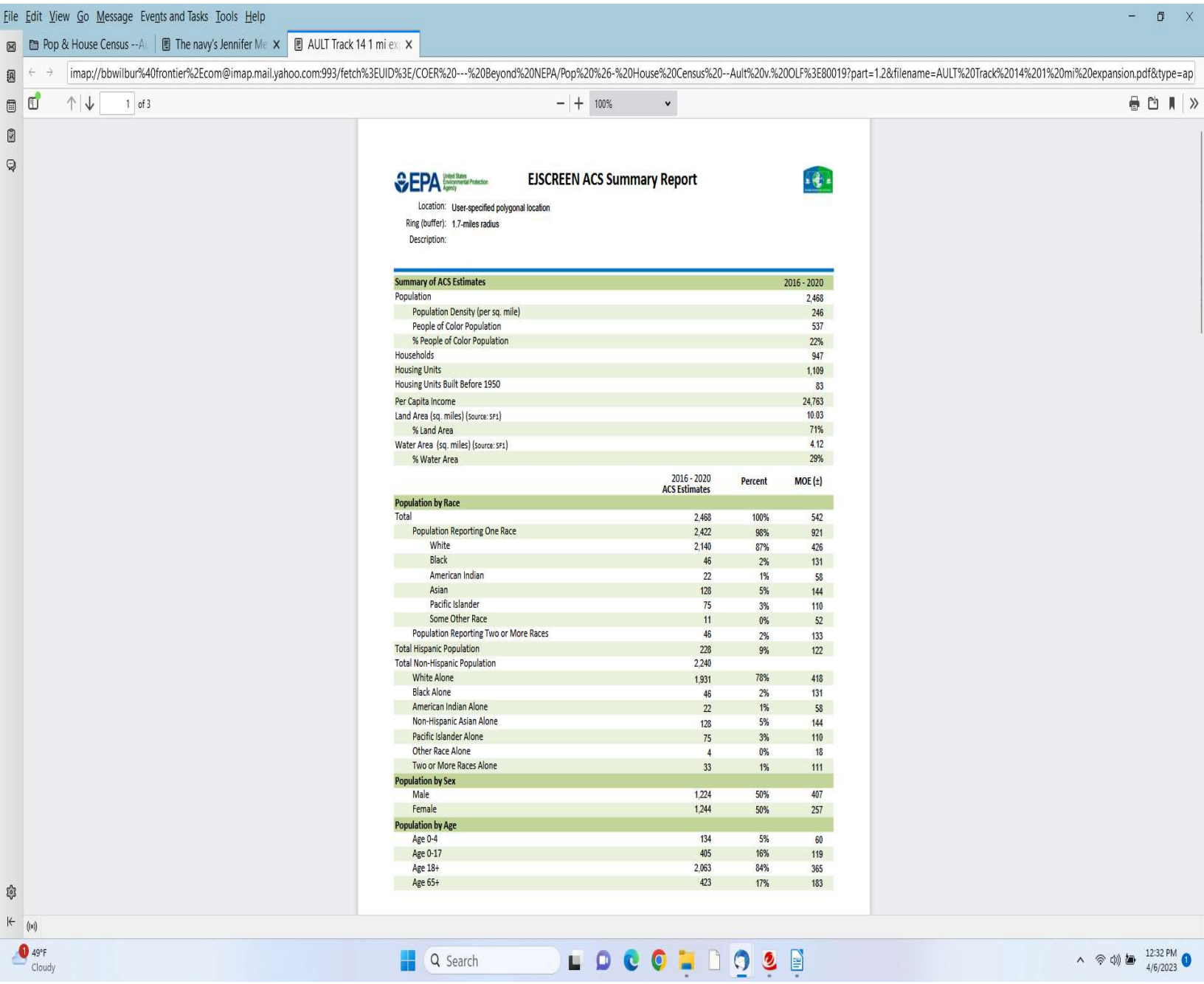
Runway (Appropriate wind direction)	No. of Annual Overflights [This ignores the population-level harm]				
	Existing Condition	Scenario 1 Equalize Exposures	Scenario 2 Overflight Balanced	Scenario 3 Thirds	Scenario 4 Detach and Equalize[a]
Ault Field					
#07 (~E)	620	2616	2470	1036	1771
#14 (~N)	885	3825	2470	1480	2590
#25 (~W)	1446	1656	2470	2417	1121
#32 (~S)	30	557	2470	50	378
Outlying Field					
#14 (~S)	3555	3376	2470	2467	2285
#32 (~N)	8295	2049	2470	2467	1387

—Appendix A—

Example of Derived Population Reports and Maps via EJScreen

EJScreen map of severe Growler noise impact area (green highlight) 0.5 miles on both sides of the field carrier landing practice loop for Runway #14 at Ault Field, Navy Air Station Whidbey Island.

EJScreen report for severe Growler noise impact area shown in map above.



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EPA United States Environmental Protection Agency

EJSCREEN ACS Summary Report

Location: User-specified polygonal location
Ring (buffer): 1.7-miles radius
Description:

Summary of ACS Estimates	2016 - 2020
Population	2,468
Population Density (per sq. mile)	246
People of Color Population	537
% People of Color Population	22%
Households	947
Housing Units	1,109
Housing Units Built Before 1950	83
Per Capita Income	24,763
Land Area (sq. miles) (Source: SF1)	10.03
% Land Area	71%
Water Area (sq. miles) (Source: SF1)	4.12
% Water Area	29%

	2016 - 2020 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	2,468	100%	542
Population Reporting One Race	2,422	98%	921
White	2,140	87%	426
Black	46	2%	131
American Indian	22	1%	58
Asian	128	5%	144
Pacific Islander	75	3%	110
Some Other Race	11	0%	52
Population Reporting Two or More Races	46	2%	133
Total Hispanic Population	228	9%	122
Total Non-Hispanic Population	2,240		
White Alone	1,931	78%	418
Black Alone	46	2%	131
American Indian Alone	22	1%	58
Non-Hispanic Asian Alone	128	5%	144
Pacific Islander Alone	75	3%	110
Other Race Alone	4	0%	18
Two or More Races Alone	33	1%	111
Population by Sex			
Male	1,224	50%	407
Female	1,244	50%	257
Population by Age			
Age 0-4	134	5%	60
Age 0-17	405	16%	119
Age 18+	2,063	84%	365
Age 65+	423	17%	183

49°F Cloudy

Search

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