NOISE ANALYSIS SUMMARY – MULBERRY VILLAGE

Noise Sources:

No railroads are located within 3000 feet of the project site. Five airports are located within 15 miles of the project site. Attached airport noise worksheets for Anacortes Airport (74S), Camano Airfield (13W), and AJ Eisenberg Airfield (OKH) indicate that the noise attributed to airplanes from these locations will not extend beyond the boundaries of the airports. Airport statistics were not available for Seaplane Base but because it is a small airport like Anacortes and Camano, it is assumed that the statistics are similar.

Noise contours for noise from Ault Field at the Whidbey Island Naval Air Station (NUW) were published as part of an Environmental Impact Statement (EIS) for expansion of Ault Field in 2018. The EIS study includes analysis of noise from many different Alternative Actions, but Alternative 2A was chosen as the alternative in 2019. The noise contour map for Alternative 2A shows that the project site is located within the 55-60 dB noise contour area. The EIS models noise for specific locations in the surrounding area, including a location, R-03, located near the Mulberry Village project, but closer to the 60dB contour. Therefore, R-03 is considered a conservative proxy location for the Ault Field noise level at Mulberry Village. The EIS models DNL at R03 to be 58 dB. Since Ault Field is the only airport that is large enough to be a concern for noise, the noise level for Ault Field is taken as the noise level for all airport noise at the Mulberry Village location.

Two roadways with potential to affect noise levels were identified within 1000 feet of the project site. SR 20 is located to the southeast of the project site, and SW Swantown Avenue is located adjacent to the northeast of the project boundary.

Traffic data for SR 20 was acquired from the Washington State Department of Transportation, Traffic Counts website. Traffic counts as recent as 2024 were available for SR 20 at the intersection nearest to the project, at the intersection with SW Swantown Ave. The counts between 2022 and 2024 were used to develop a compound annual increase in traffic volume which was applied to 2024 traffic data to estimate “build year” traffic volumes for 2036. The traffic volume totals from 2021 and 2020 appear to have been affected by the Covid-19 pandemic period, and years prior to 2020 are assumed to follow a trend that might not reflect the increase of telecommuting in the post-pandemic time period.

The average daily traffic (ADT) for SW Swantown Ave was provided by the City of Oak Harbor, for the segment of road between SW Fort Nugent Ave and SR-20. The rate of increase was assumed to be the same as for SR-20.

Outdoor use areas include a lawn and path in the northwestern portion of the property; a lawn, path, and off-leash dog area in the southeastern portion of the property; a patio with a grill and seating area adjacent to the Community Building; and a playground. These were evaluated against the following criteria for noise sensitive uses (Sturdivant 2024):

- Is the area an “ancillary outdoor area”? These areas are spaces designed for a particular designated activity or use. Ancillary outdoor areas should be evaluated to determine whether the activity requires quiet.

- An ancillary outdoor area may be considered noise sensitive or requiring quiet based on the following factors:
    - Avoiding unsafe situations – verbal warnings must be heard and intelligible to preserve safety.
    - Avoiding prolonged exposure to noise – time spent in the area is expected to exceed 14 hours per week.
    - Avoiding interference with intended activities – speech communication is in integral part of the use.
    - Whether there are alternative spaces indoors for the activity.
- The four outdoor areas were evaluated as follows:
    - Lawn and path in the northwestern portion of the property: path and benches in this area are not designated for a specific activity or use. Other areas exist for congregation (patio with grill and indoor common areas). Not a noise sensitive ancillary outdoor area.
    - Lawn, path, and off-leash dog area in the southeastern portion of the property: the only designated activity in this area is off-leash dog exercise, an activity which does not require quiet. Benches and tables in this area are not designated for a specific activity or use, and other areas exist for congregation (patio with grill and indoor common areas). Not a noise sensitive ancillary outdoor area.
    - Patio with a grill and seating area: space is designed for preparing and sharing meals, activities where speech communication is an integral part of the use. Considered a noise sensitive outdoor area.
    - Playground: verbal warnings must be audible to avoid unsafe situations. Considered a noise sensitive outdoor area.

The HUD DNL Calculator was used to calculate noise levels for the playground, which is closer to SW Swantown Ave than the patio and seating area, and is therefore the loudest location for sensitive outdoor noise areas. A receiver location was modeled at the southeast corner of the playground, which has the shortest distance to both SW Swantown Ave and SR-20 (Point O). The noise level calculated at Point O is 65 dB. Because this is the most conservative, loudest location, all outdoor sensitive use areas are considered acceptable and no additional mitigation is required.

The HUD DNL Calculator was used to calculate noise levels at three indoor receiver locations: the point closest to SW Swantown Avenue (Point A – 72 dB), the point where noise levels for SW Swantown Avenue and SR 20 are assumed to overlap the most (Point B – 68 dB), and the point closest to SR-20 (Point C – 67 dB).

Because noise levels at Point A are modeled to exceed the HUD threshold of 70 dB, the HUD Sound Transmission Classification Assessment Tool (STraCAT) was used to analyze whether building materials provide sufficient mitigation. Design has not been finalized, so building materials were chosen to reflect a worst-case scenario. STraCAT calculated that a 30 combine STC was required to mitigate noise at the loudest indoor (Point A), and the worst-case scenario met this with a combined STC of 37.1.

In summary, the STC ratings of the construction design provide adequate noise reduction at all indoor locations where noise was modeled to exceed 65 dB by 2036, and noise sensitive outdoor areas are

modeled not to exceed 65dB. Therefore, noise at the project location is adequately mitigated from the surrounding noise sources.

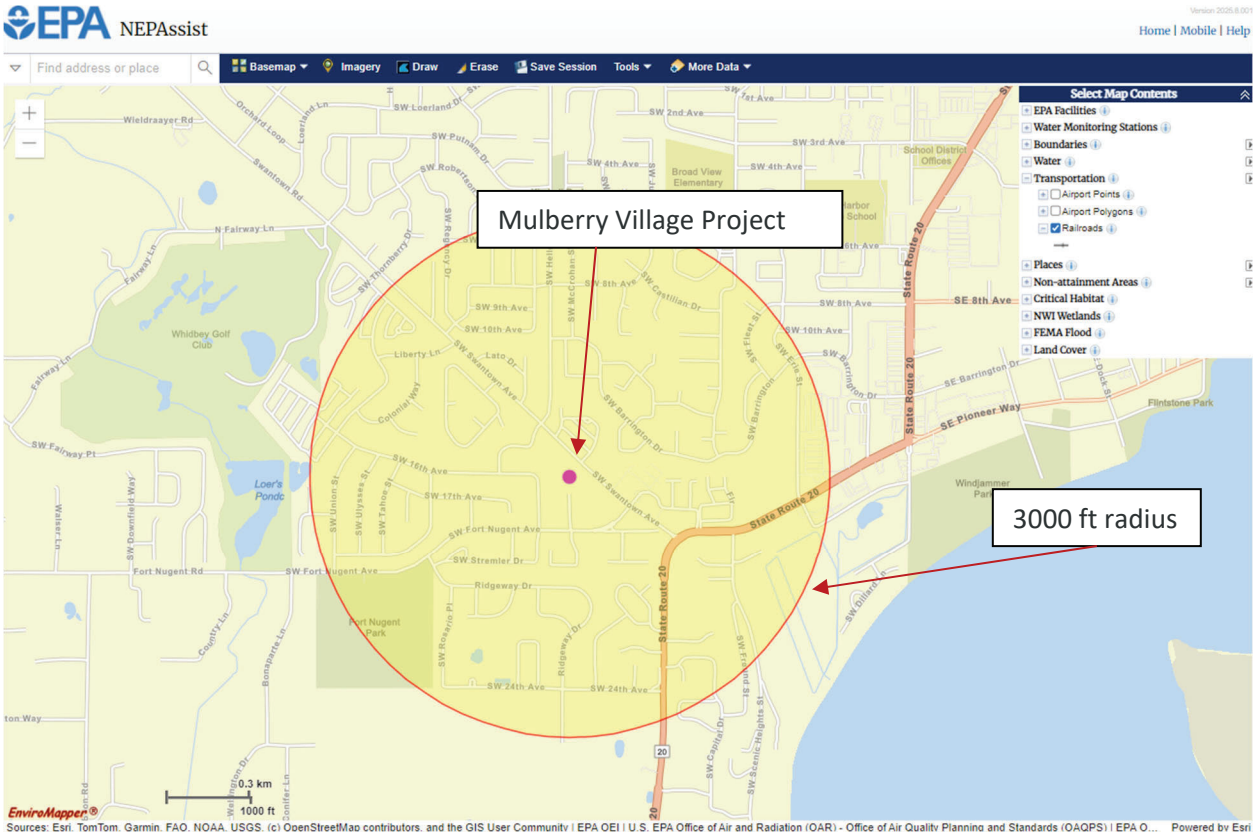
Screen shots of maps and calculations are provided in the attached backup documentation.

Sources:
NEPA Assist: https://www.epa.gov/nepa/nepassist. Accessed 1/8/2026
FAA. Operations and Performance Data, Traffic Management System Counts, Airport View. Federal Aviation Administration. https://www.aspm.faa.gov/. Accessed 1/9/2026
Google. Google Earth Pro. Accessed 1/9/2026
HUD DNL Noise Calculator: https://www.hudexchange.info/environmental-review/dnl-calculator/ . Accessed 1/27/2026.
HUD STraCAT tool: https://www.hudexchange.info/programs/environmental-review/stracat/. Accessed 1/9/2026.
Sturdivant, Brian. 2024. "RE: Traffic Noise on Shared Balcony." Regional Environmental Officer (REO), US Department of Housing and Urban Development. August 1.
WSDOT. 2026. Traffic GeoPortal Website. https://www.wsdot.wa.gov/data/tools/geoportal/?config=traffic. Washington State Department of Transportation. Accessed January 1, 2026.
U.S. Navy. 2019. "Navy Announces Record of Decision for Growler Environmental Impact Statement" Press Releases, Official Statements and Communication. U.S. Navy NEPA Projects Environmental Planning and Compliance. March 13.
U.S. Navy. 2018. Final Environmental Impact Statement for EA-18G Growler airfield Operations at the NAS Whidbey Island complex, Washington. Available at https://www.nepa.navy.mil/Completed-Projects/Aircraft-Home-Basing-Ship-Homeporting/EA-18G-Growler-Airfield-Operations-EIS-NAS-Whidbey-Island/

MULBERRY VILLAGE NOISE ANALYSIS SUPPORTING DOCUMENTATION

Railroads within 3000 feet

No Railroads are located within 3000 feet, source: NEPAssist, accessed 1/6/2026



Airports within 15 miles



Airport noise worksheets show Anacortes Airport, Camano Island Airfield, and AJ Eisenberg Airport are not noise sources. No data is available for Seaplane Base but because it is an airport small enough that no data is available, it is assumed that it is also not a noise source. The Whidbey Island Naval Air Station is analyzed below based on noise studies performed for an EIS related to the Naval Air Station expansion in 2019.

Whidbey Island Naval Air Station (NUW)

Noise contour maps were produced for an Environmental Impact Statement (EIS) for expansion of Ault Field in 2018. In 2019, Alternative 2A was chosen as the proposed action.

Noise Contour Map for Alternative 2A from the EIS show the project site is located within the 55-60 dB noise contour area.

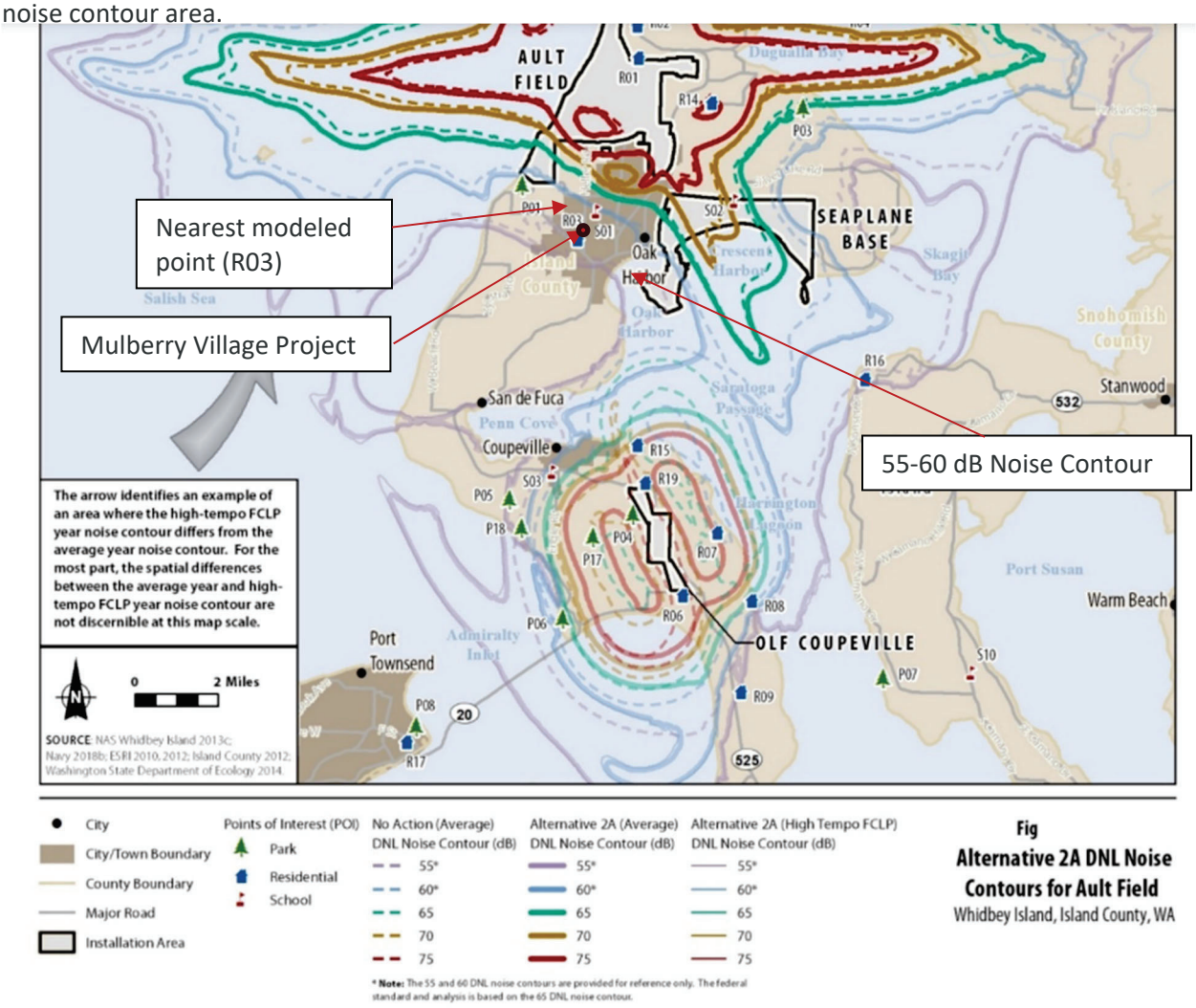


Figure 7-1 DNL Contours for AAD Aircraft Events for the Average Year Alternative 2A

Modeled point of interest R-03 is located very close to the Mulberry Village project, but closer to the 60dB contour. Therefore, R-03 can be considered a conservative proxy location for noise levels from Ault Field at Mulberry Village.

Figure 7-7 from the EIS models DNL for the R03 point of interest to be 58 dB. This is taken as the noise level for airport noise at the Mulberry Village location.

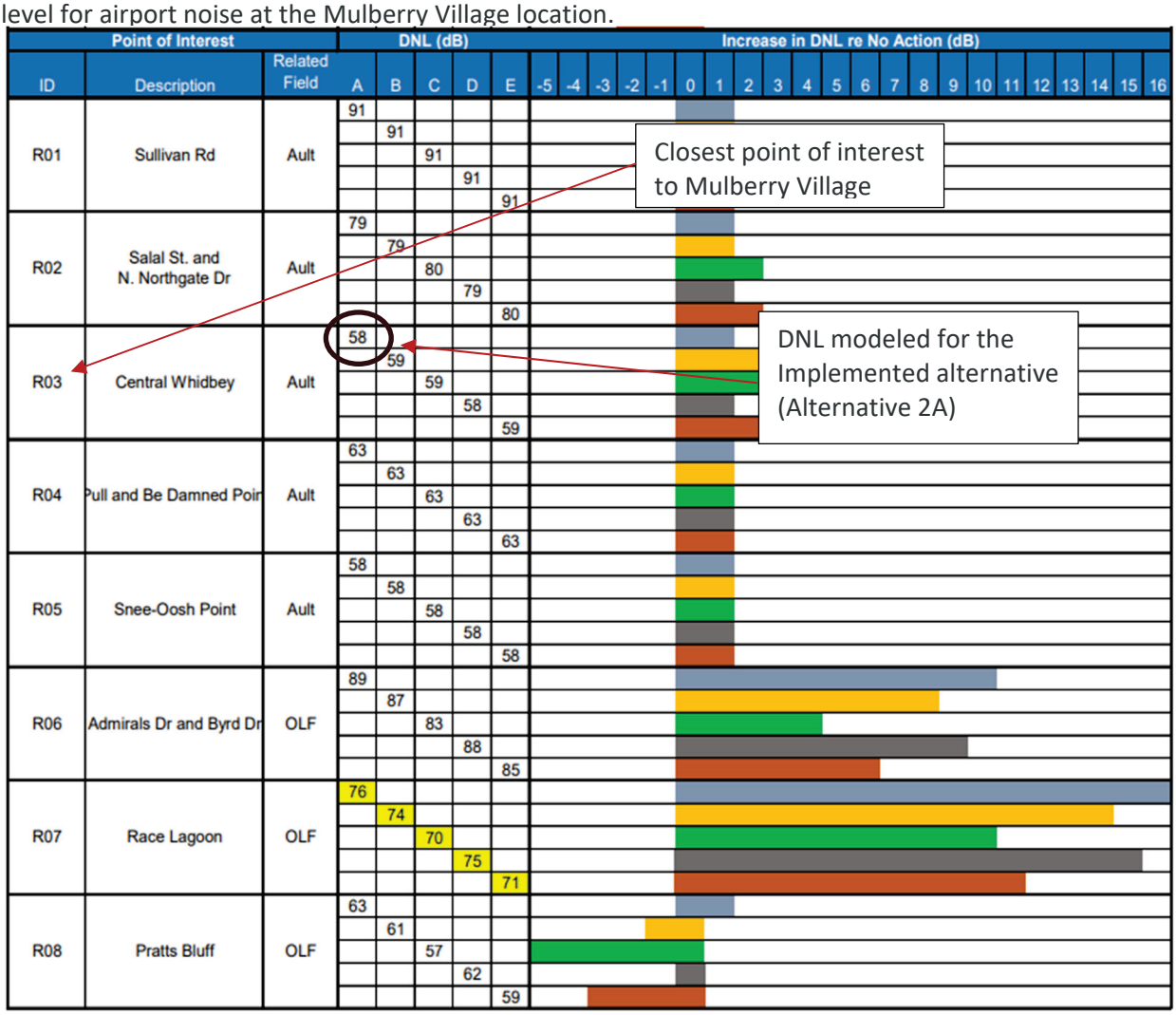


Figure 7-7 Estimated Aircraft DNL at POIs for the Average Year Alternative 2 (continued)

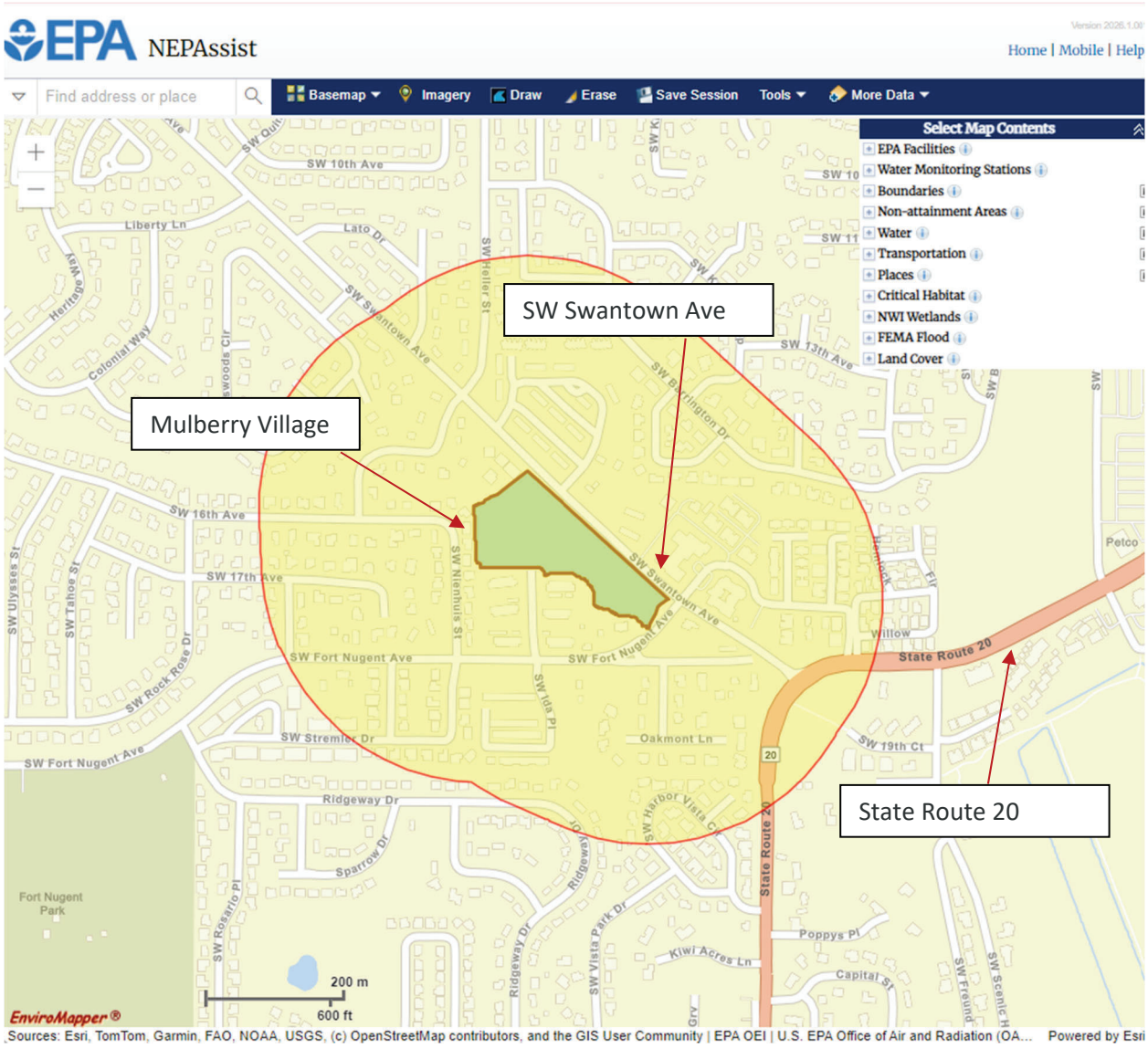
Sources:
Alternative 2A announcement: https://www.nepa.navy.mil/Media/Press-Releases/Article/1794717/navy-announces-record-of-decision-for-growler-environmental-impact-statement/

Figure 7-1 "Alternative 2A DNL Noise Contours for Ault Field" (page A-142) and Figure 7-7 "Estimated Aircraft DNL at POIs for the Average Year Alternative 2" (page A-152) from Appendix A: Aircraft Noise Study. Final Environmental Impact Statement for EA-18G "Growler" Airfield Operations at Naval Air Station Whidbey Island Complex Volume 2. Available at: https://www.nepa.navy.mil/Completed-Projects/Aircraft-Home-Basing-Ship-Homeporting/EA-18G-Growler-Airfield-Operations-EIS-NAS-Whidbey-Island/

Roadways within 1000 feet

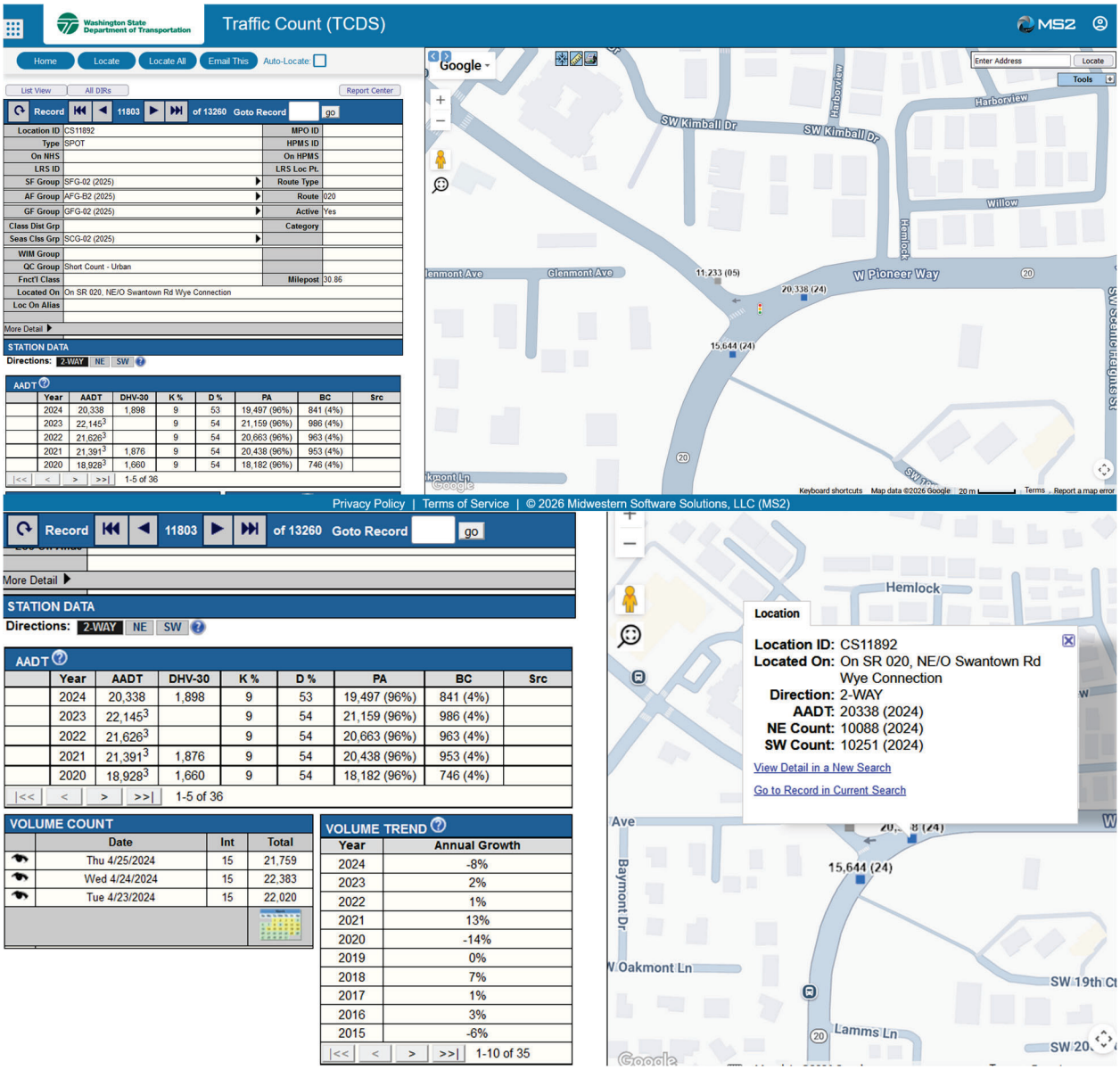
Most roads within 1,000 feet of the project are only one-lane each way, and serve residential neighborhoods. Two major roadways are located within a 1,000 foot radius of the project site:

- SR-20 / W Pioneer Way – located to the southeast of the project
- SW Swantown Ave – located adjacent to the northeast of the project boundary



SR-20 / Pioneer Road

WSDOT Traffic Counts for SR-20, using data for busier point, north of SW Swantown offramp.



Source: https://wsdot.public.ms2soft.com/tcds/tsearch.asp?loc=Wsdot&mod=TCDS

ADT for SW Swantown Avenue was provided by City of Oak Harbor by email correspondence, attached. According to the StreetLight InSight® data, the segment of Swantown Ave from Ft. Nugent Ave to SR20, had a 2025 ADT of 9,567.

Receiver Locations and Distances from Major Roads



Source: Google Earth, Image dated 5/1/2024, Accessed 1/28/2026.

Traffic Noise Calculations:

Volume Trend:

Source: WSDOT TCDS, Nearest Intersection with trend data (Location CS01310, SR 538, E/O La Venture Rd)

VOLUME TREND			
Year	Annual Growth	Ave, '22-'24*:	1.50%
2024	-8%		
2023	2%		
2022	1%		
2021	13%		
2020	-14%		
2019	0%		
2018	7%		
2017	1%		
2016	3%		
2015	-6%		

*2020 and 2021 appear to be a dip and bounce-back from the 2020 Covid-19 pandemic. Levels after 2021 are assumed to reflect current trends. Average growth rate from past 3 years was used, excluding negative growth years.

Med Trucks = single

Heavy Trucks - double + triple

"Single units consist of two- and three-axle trucks and buses. Double units consist of trucks with a trailer. Triple units consist of trucks with trailer combinations."

HUD Noise Guidebook (pg 56) - nighttime = 10pm - 7am

Project Point: SE Corner of Mulberry Village property (shortest distance)

SR-20

distance to stop sign	n/a		
road gradient %	5%		*Source: Google Earth, average elevation profile of SR-20 nearest to project location.*
average speed	30.00	mph	*Source: Speed Limit for SR 20*
night fraction	15.00%		*Source: HUD NPL Calculator, default night assumption*
Roadway class:	Urban Principal Arterial		*Source: The road is a state route but single lane in both directions*
Med truck %:	3.1		
Heavy truck %:	6.3		

	2024	2026	2036
DAILY	Total*	Total	Total
Total	20,338	20,953	24,316
Cars	18,426	18,983	22,031
Med Trucks # **	630	650	754
Heavy Trucks # **	1,281	1,320	1,532

*Total from WSDOT TCDS, Location CS11892, SR 020, NE/O Swantown Rd Wye Connection)

** Medium and Heavy Truck #s are estimated using Vehicle Volume Distributions by Classification, Washington State Transportation Center (TRAC), July 1997

Project Point: NE Boundary of Mulberry Village property (shortest distance)

SW Swantown Avenue

distance to stop sign	n/a		
road gradient %	3%		*Source: Google Earth, average elevation profile of road section nearest to project location.*
average speed	35.00	mph	*Source: Speed Limit for SW Swantown Ave*
night fraction	15.00%		*Source: HUD NPL Calculator, default night assumption*
Roadway class:	Urban Principal Arterial		*Source: This is a major road but not an interstate highway*
Med truck %:	3.1		
Heavy truck %:	6.3		

	2025	2026	2036
DAILY	Total*	Total	Total
Total	9,567	9,711	11,269
Cars	8,668	8,798	10,210
Med Trucks # **	297	301	349
Heavy Trucks # **	603	612	710

*Source: Provided through email correspondence with City of Oak Harbor, ADT for segment of Swantown Ave from Ft. Nugent Ave to SR20, based on Streetlight InSight® data.

** Medium and Heavy Truck #s are estimated using Vehicle Volume Distributions by Classification, Washington State Transportation Center (TRAC), July 1997

Source: Vehicle Volume Distributions by Classification, Washington State Transportation Center (TRAC), July 1997

Class 1 = Rural Interstate
Class 2 = Rural Principal Arterial
Class 6 = Rural Minor Arterial
Class 7 = Rural Major Collector
Class 8 = Rural Minor Collector

Class 11 = Urban Interstate
Class 12 = Urban Other Freeways and Expressways
Class 14 = Urban Principal Arterial
Class 16 = Urban Minor Arterial
Class 17 = Urban Collector

Figure 2. Functional Classes of Roadways

Table 5. Vehicle Percentage Chart for Each Functional Class

Functional Class	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
1	0.2%	63.1%	12.3%	0.3%	2.3%	0.8%	0.1%
2	0.2%	72.1%	16.0%	0.3%	2.5%	0.8%	0.1%
6	0.1%	72.3%	19.1%	0.3%	2.2%	0.7%	0.1%
7	0.0%	74.5%	18.2%	0.4%	3.7%	0.6%	0.0%
11	0.2%	75.7%	15.7%	0.2%	1.6%	0.8%	0.0%
12	0.2%	71.3%	17.4%	0.2%	2.5%	0.6%	0.3%
14	0.1%	74.2%	16.2%	0.4%	2.0%	0.7%	0.1%
16	0.0%	74.5%	19.9%	0.1%	1.9%	0.4%	0.0%

Functional Class	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13
1	1.8%	16.8%	0.3%	1.5%	0.2%	0.3%
2	1.5%	5.6%	0.4%	0.2%	0.1%	0.2%
6	1.6%	3.5%	0.1%	0.1%	0.0%	0.0%
7	0.9%	1.5%	0.0%	0.0%	0.0%	0.0%
11	1.1%	3.9%	0.2%	0.2%	0.1%	0.6%
12	1.4%	3.9%	0.6%	0.3%	0.4%	0.8%
14	1.1%	4.5%	0.2%	0.3%	0.1%	0.2%
16	1.2%	1.3%	0.3%	0.0%	0.1%	0.2%

Vehicle Classes:
Autos: Class 1 - 3
Medium Trucks: Class 4 - 6
Heavy Trucks: Class 7 - 13
https://www.fhwa.dot.gov/policyinformation/tmguide/tmg_2013/vehicle-types.cfm

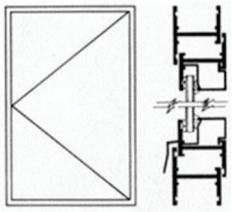
Vehicle Volume Distributions by Classification
July 1997
Washington State Transportation Center
http://www.fhwa.dot.gov/ohim/tvtw/volume.pdf

Roadway Types, Percent truck types:

	Medium	Heavy	Total	Med %	Heavy %
Urban Interstate	2.6	6.1	8.7	30%	70%
Urban Other Freeways and Expressways	3.3	7.7	11	30%	70%
Urban Principal Arterial	3.1	6.3	9.4	33%	67%
Urban Minor Arterial	2.4	3.1	5.5	44%	56%

STraCAT, window design in worst-case scenario; assumed same square footage as total windows in building design

3'x4' awning window single panel glazed double strength



A-25 3 3x4ft awning window glazed double strength when cranked shut. 24 Glass

STraCAT Ouput:

Evaluation Criteria	
Criteria	**Value**
Noise source sound level (dB):	**72**
Combined STC for wall assembly:	**37.1**
Required STC rating:	**30**
Does wall assembly meet requirements?	**YES**



① BUILDING 1 - FRONT ELEVATION

Attachments:

Airport Traffic Noise Worksheets
City of Oak Harbor ADT
HUD Correspondence re: outdoor use areas
DNL Calculator Output for all Receiver Points
STraCAT Output for Indoor Noise

Airport Noise Worksheet

Use this worksheet to identify information needed to evaluate a site's exposure to aircraft noise.

Name and Location of Project: Mulberry Village Date: January 2026

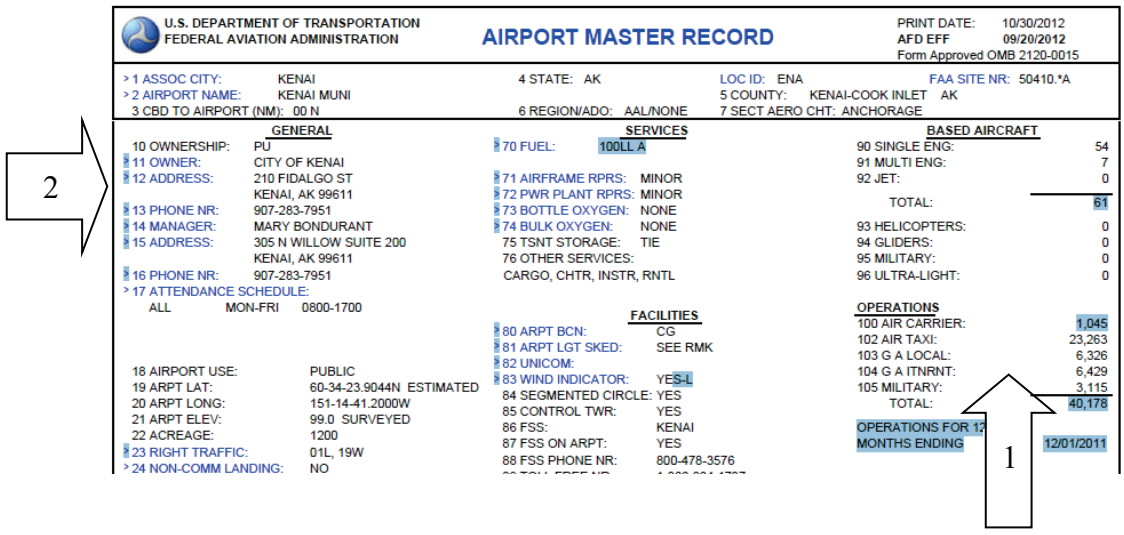
Name of Airport: Anacortes Airport Person completing worksheet: Alyssa Johnson

1. Determine if the proposed site/project is within 15 miles of a civil or military airport.

☐ No. Attach a map identifying the location of the proposed project site and the location of any airports. This worksheet is not required.

☒ Yes. Attach a map identifying the location of the proposed project site and the location of any airports. Continue

2. Determine the number of operations at the airport by:
   - Going to: http://www.gcr1.com/5010web/
   - Type in the name of the city press search
   - Find your airport.
   - Open the report under "Print 5010"
   - Complete section 3 below by using the information found in the report (see arrow #1 in the example below)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 10/30/2012
AFD EFF 09/20/2012
Form Approved OMB 2120-0015

> 1 ASSOC CITY: KENAI
> 2 AIRPORT NAME: KENAI MUNI
3 CBD TO AIRPORT (NM): 00 N
4 STATE: AK
6 REGION/ADO: AAL/NONE
LOC ID: ENA
5 COUNTY: KENAI-COOK INLET AK
FAA SITE NR: 50410.*A
7 SECT AERO CHT: ANCHORAGE

2

GENERAL
10 OWNERSHIP: PU
> 11 OWNER: CITY OF KENAI
> 12 ADDRESS: 210 FIDALGO ST
KENAI, AK 99611
> 13 PHONE NR: 907-283-7951
> 14 MANAGER: MARY BONDURANT
> 15 ADDRESS: 305 N WILLOW SUITE 200
KENAI, AK 99611
> 16 PHONE NR: 907-283-7951
> 17 ATTENDANCE SCHEDULE:
ALL MON-FRI 0800-1700

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 60-34-23.9044N ESTIMATED
20 ARPT LONG: 151-14-41.2000W
21 ARPT ELEV: 99.0 SURVEYED
22 ACREAGE: 1200
> 23 RIGHT TRAFFIC: 01L, 19W
> 24 NON-COMM LANDING: NO

SERVICES
> 70 FUEL: 100LL A
> 71 AIRFRAME RPRS: MINOR
> 72 PWR PLANT RPRS: MINOR
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
CARGO, CHTR, INSTR, RNTL

FACILITIES
> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: SEE RMK
> 82 UNICOM:
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: YES
86 FSS: KENAI
87 FSS ON ARPT: YES
88 FSS PHONE NR: 800-478-3576

BASED AIRCRAFT
90 SINGLE ENG: 54
91 MULTI ENG: 7
92 JET: 0
TOTAL: 61
93 HELICOPTERS: 0
94 GLIDERS: 0
95 MILITARY: 0
96 ULTRA-LIGHT: 0

OPERATIONS
100 AIR CARRIER: 1,045
102 AIR TAXI: 23,263
103 G A LOCAL: 6,326
104 G A ITNRNT: 6,429
105 MILITARY: 3,115
TOTAL: 40,178
OPERATIONS FOR 12 MONTHS ENDING 12/01/2011

1

3. Determine if the annual number of operations for air carriers #100, air taxis #102, military #105, and general aviation #103 plus #104 exceeds thresholds.

Annual air carrier operations	1	Is this 9000 or more	Yes ___ No x
Annual air taxi operations	0	Is this 18,000 or more	Yes___No x
Annual military operations	0	Is this 18,000 or more	Yes___No x
Annual general aviation operations	52	Is this 72000 or more	Yes___No_x

1. If you answer "No" on each of the questions above, it is assumed that the noise attributed to the airplanes will not extend beyond the boundaries of the airport. Maintain the documentation in your Environmental Review Record. You are finished with the evaluation of airport noise for this airport. If you have marked any question in #3 with "Yes," continue to 5.

2. Contact the airport manager, (see arrow #2 above) and ask them if the airport has noise contour maps. Are contour maps available?

☐ Yes. Locate your project on the noise contour map. If there are no roads or railroads that are being considered for noise, utilize the information from the contour map to determine if the site is acceptable. If roads or railroads are being considered input the information obtained from the airport noise contours, along with the road and railroad information in the HUD Noise Assessment Guidelines (NAG) or the online tool at https://www.hudexchange.info/environmental-review/dnl-calculator.

☐ No. Construct the approximate DNL contours by using the guidance on page 52 and 53 of the NAG. You will need to obtain the following information from the airport: 1). The number of nighttime jet operations (10pm to 7 am) 2). The number of daytime jet operations (7 am to 10 pm) 3). The flight paths of the major runways. 4). Any available information about expected changes in airport traffic (e.g. will the number of operations increase or decrease in the next 10 to 15 years).

Contact your HUD Representative if you need assistance

TFMSC Report (Airport)

From 01/2025 To 12/2025 | Airport=74S

#	User Class	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
1	Air Carrier	2	1	3	12	6	8	8
2	General Aviation	97	51	148	459	4	255	5
3	Other	1	0	1	4	4	0	0
Total:		**100**	**52**	**152**	**475**	**4**	**263**	**5**

Report created on Fri Jan 9 19:25:40 EST 2026

Sources: Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM)

Airport Noise Worksheet

Use this worksheet to identify information needed to evaluate a site's exposure to aircraft noise.

Name and Location of Project: Mulberry Village Date: January 2026

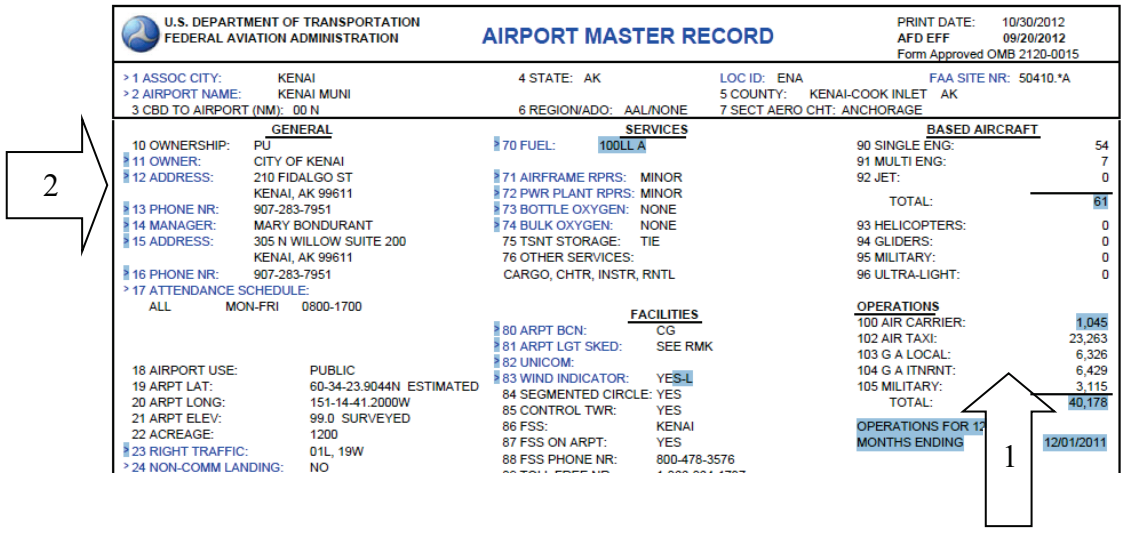
Name of Airport: Camano Airfield Person completing worksheet: Alyssa Johnson

1. Determine if the proposed site/project is within 15 miles of a civil or military airport.

☐ No. Attach a map identifying the location of the proposed project site and the location of any airports. This worksheet is not required.

☒ Yes. Attach a map identifying the location of the proposed project site and the location of any airports. Continue

2. Determine the number of operations at the airport by:
   - Going to: http://www.gcr1.com/5010web/
   - Type in the name of the city press search
   - Find your airport.
   - Open the report under "Print 5010"
   - Complete section 3 below by using the information found in the report (see arrow #1 in the example below)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 10/30/2012
AFD EFF 09/20/2012
Form Approved OMB 2120-0015

> 1 ASSOC CITY: KENAI
> 2 AIRPORT NAME: KENAI MUNI
3 CBD TO AIRPORT (NM): 00 N
4 STATE: AK
6 REGION/ADO: AAL/NONE
LOC ID: ENA
5 COUNTY: KENAI-COOK INLET AK
FAA SITE NR: 50410.*A
7 SECT AERO CHT: ANCHORAGE

2

GENERAL

10 OWNERSHIP: PU
> 11 OWNER: CITY OF KENAI
> 12 ADDRESS: 210 FIDALGO ST
KENAI, AK 99611
> 13 PHONE NR: 907-283-7951
> 14 MANAGER: MARY BONDURANT
> 15 ADDRESS: 305 N WILLOW SUITE 200
KENAI, AK 99611
> 16 PHONE NR: 907-283-7951
> 17 ATTENDANCE SCHEDULE:
ALL MON-FRI 0800-1700

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 60-34-23.9044N ESTIMATED
20 ARPT LONG: 151-14-41.2000W
21 ARPT ELEV: 99.0 SURVEYED
22 ACREAGE: 1200
> 23 RIGHT TRAFFIC: 01L, 19W
> 24 NON-COMM LANDING: NO

SERVICES

> 70 FUEL: 100LL A
> 71 AIRFRAME RPRS: MINOR
> 72 PWR PLANT RPRS: MINOR
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
CARGO, CHTR, INSTR, RNTL

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: SEE RMK
> 82 UNICOM:
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
85 CONTROL TWR: YES
86 FSS: KENAI
87 FSS ON ARPT: YES
88 FSS PHONE NR: 800-478-3576

BASED AIRCRAFT

90 SINGLE ENG:	54
91 MULTI ENG:	7
92 JET:	0
TOTAL:	61
93 HELICOPTERS:	0
94 GLIDERS:	0
95 MILITARY:	0
96 ULTRA-LIGHT:	0

OPERATIONS

100 AIR CARRIER:	1,045
102 AIR TAXI:	23,263
103 G A LOCAL:	6,326
104 G A ITNRNT:	6,429
105 MILITARY:	3,115
TOTAL:	40,178
OPERATIONS FOR 12 MONTHS ENDING	12/01/2011

1

3. Determine if the annual number of operations for air carriers #100, air taxis #102, military #105, and general aviation #103 plus #104 exceeds thresholds.

Annual air carrier operations	0	Is this 9000 or more	Yes ___ No x
Annual air taxi operations	0	Is this 18,000 or more	Yes____No x
Annual military operations	0	Is this 18,000 or more	Yes____No x
Annual general aviation operations	1	Is this 72000 or more	Yes____No_x__

1. If you answer "No" on each of the questions above, it is assumed that the noise attributed to the airplanes will not extend beyond the boundaries of the airport. Maintain the documentation in your Environmental Review Record. You are finished with the evaluation of airport noise for this airport. If you have marked any question in #3 with "Yes," continue to 5.

2. Contact the airport manager, (see arrow #2 above) and ask them if the airport has noise contour maps. Are contour maps available?

☐ Yes. Locate your project on the noise contour map. If there are no roads or railroads that are being considered for noise, utilize the information from the contour map to determine if the site is acceptable. If roads or railroads are being considered input the information obtained from the airport noise contours, along with the road and railroad information in the HUD Noise Assessment Guidelines (NAG) or the online tool at https://www.hudexchange.info/environmental-review/dnl-calculator.

☐ No. Construct the approximate DNL contours by using the guidance on page 52 and 53 of the NAG. You will need to obtain the following information from the airport: 1). The number of nighttime jet operations (10pm to 7 am) 2). The number of daytime jet operations (7 am to 10 pm) 3). The flight paths of the major runways. 4). Any available information about expected changes in airport traffic (e.g. will the number of operations increase or decrease in the next 10 to 15 years).

Contact your HUD Representative if you need assistance

TFMSC Report (Airport)

From 01/2025 To 12/2025 | Airport=13W

#	User Class	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
1	General Aviation	1	0	1	4	4	0	0
Total:		**1**	**0**	**1**	**4**	**4**	**0**	**0**

Report created on Fri Jan 9 19:26:36 EST 2026

Sources: Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM)

Airport Noise Worksheet

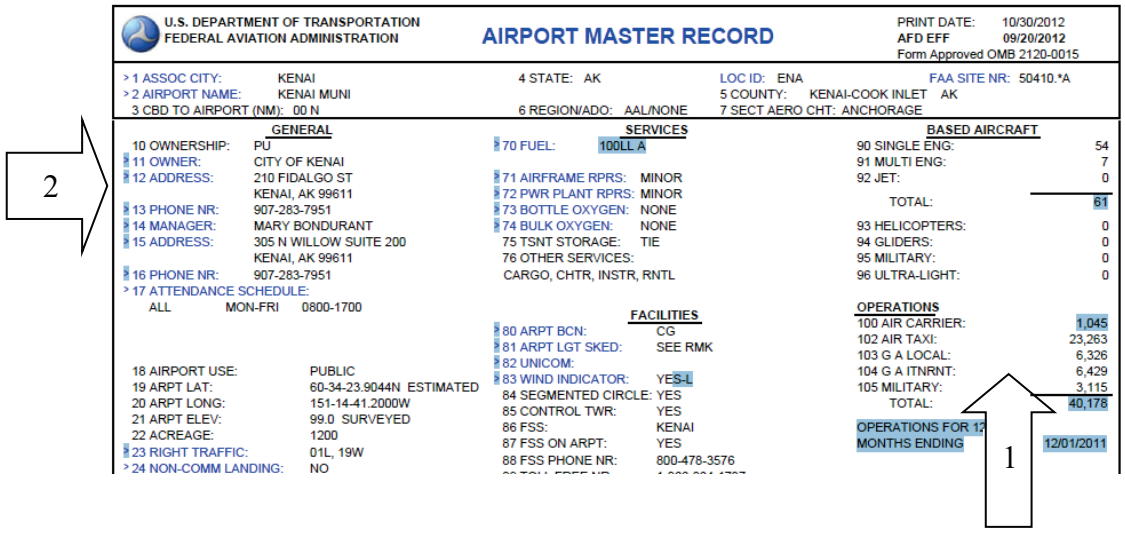
Use this worksheet to identify information needed to evaluate a site's exposure to aircraft noise.

Name and Location of Project: Mulberry Village Date: January 2026
Name of Airport: AJ Eisenberg Airfield Person completing worksheet: Alyssa Johnson

1. Determine if the proposed site/project is within 15 miles of a civil or military airport.

☐ No. Attach a map identifying the location of the proposed project site and the location of any airports. This worksheet is not required.
☒ Yes. Attach a map identifying the location of the proposed project site and the location of any airports. Continue

2. Determine the number of operations at the airport by:
   - Going to: http://www.gcr1.com/5010web/
   - Type in the name of the city press search
   - Find your airport.
   - Open the report under "Print 5010"
   - Complete section 3 below by using the information found in the report (see arrow #1 in the example below)



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

AIRPORT MASTER RECORD

PRINT DATE: 10/30/2012
AFD EFF 09/20/2012
Form Approved OMB 2120-0015

> 1 ASSOC CITY: KENAI
> 2 AIRPORT NAME: KENAI MUNI
3 CBD TO AIRPORT (NM): 00 N
4 STATE: AK
6 REGION/ADO: AAL/NONE
LOC ID: ENA
5 COUNTY: KENAI-COOK INLET AK
7 SECT AERO CHT: ANCHORAGE
FAA SITE NR: 50410.*A

GENERAL

10 OWNERSHIP: PU
> 11 OWNER: CITY OF KENAI
> 12 ADDRESS: 210 FIDALGO ST
KENAI, AK 99611
> 13 PHONE NR: 907-283-7951
> 14 MANAGER: MARY BONDURANT
> 15 ADDRESS: 305 N WILLOW SUITE 200
KENAI, AK 99611
> 16 PHONE NR: 907-283-7951
> 17 ATTENDANCE SCHEDULE:
ALL MON-FRI 0800-1700

18 AIRPORT USE: PUBLIC
19 ARPT LAT: 60-34-23.9044N ESTIMATED
20 ARPT LONG: 151-14-41.2000W
21 ARPT ELEV: 99.0 SURVEYED
22 ACREAGE: 1200
> 23 RIGHT TRAFFIC: 01L, 19W
> 24 NON-COMM LANDING: NO

SERVICES

> 70 FUEL: 100LL A
> 71 AIRFRAME RPRS: MINOR
> 72 PWR PLANT RPRS: MINOR
> 73 BOTTLE OXYGEN: NONE
> 74 BULK OXYGEN: NONE
75 TSNT STORAGE: TIE
76 OTHER SERVICES:
CARGO, CHTR, INSTR, RNTL

FACILITIES

> 80 ARPT BCN: CG
> 81 ARPT LGT SKED: SEE RMK
> 82 UNICOM:
> 83 WIND INDICATOR: YES-L
84 SEGMENTED CIRCLE: YES
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94 GLIDERS:	0
95 MILITARY:	0
96 ULTRA-LIGHT:	0

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100 AIR CARRIER:	1,045
102 AIR TAXI:	23,263
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105 MILITARY:	3,115
TOTAL:	40,178
OPERATIONS FOR 12 MONTHS ENDING	12/01/2011

2

1

3. Determine if the annual number of operations for air carriers #100, air taxis #102, military #105, and general aviation #103 plus #104 exceeds thresholds.

Annual air carrier operations ___4___.	Is this 9000 or more	Yes ___	No x
Annual air taxi operations 0.	Is this 18,000 or more	Yes____	No x
Annual military operations 10.	Is this 18,000 or more	Yes____	No x
Annual general aviation operations 107.	Is this 72000 or more	Yes____	No_x__

1. If you answer "No" on each of the questions above, it is assumed that the noise attributed to the airplanes will not extend beyond the boundaries of the airport. Maintain the documentation in your Environmental Review Record. You are finished with the evaluation of airport noise for this airport. If you have marked any question in #3 with "Yes," continue to 5.

2. Contact the airport manager, (see arrow #2 above) and ask them if the airport has noise contour maps. Are contour maps available?

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Contact your HUD Representative if you need assistance

TFMSC Report (Airport)

From 01/2025 To 12/2025 | Airport=OKH

#	User Class	Departures	Arrivals	Total Operations	Departure Seats	Average Departure Seats	Arrival Seats	Average Arrival Seats
1	Air Carrier	3	1	4	22	7	4	4
2	General Aviation	42	46	88	207	4	212	4
3	Military	4	6	10	0	0	0	0
4	Other	2	3	5	18	9	27	9
Total:		**51**	**56**	**107**	**247**	**4**	**243**	**4**

Report created on Thu Jan 22 15:10:41 EST 2026

Sources: Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM)

Outlook

RE: Traffic data for Oak Harbor

From Alex Warner <awarner@oakharbor.org>
Date Fri 1/9/2026 9:52 AM
To Alyssa Johnson <AJohnson@landauinc.com>
Cc Julie Nester <jnester@oakharbor.org>; Jonathan Pollock <jpollock@oakharbor.org>

Hi Alyssa,

This segment of Swantown Ave, from Ft. Nugent Ave to SR20, had a 2025 ADT of 9,567 based on our StreeLight InSight® data.

If you are working on a development in our city and have other questions, please direct them to our Engineering Technician Jonathan Pollock (cc'd).

Thank you,

Alexander K. Warner, PE
City Engineer

City of Oak Harbor | Public Works
1400 NE 16th Ave | Oak Harbor, WA 98277

360-279-4527
www.oakharbor.gov

From: Julie Nester <jnester@oakharbor.org>
Sent: Thursday, January 8, 2026 4:28 PM
To: Alex Warner <awarner@oakharbor.org>
Cc: AJohnson@landauinc.com
Subject: FW: Traffic data for Oak Harbor

Hi Alex,

Could you review and provide information to this requestor?

Thank you,
Julie

JULIE NESTER
City Clerk

City of Oak Harbor | City Hall
865 SE Barrington Drive | Oak Harbor, WA 98277

360-279-4539
jnester@oakharbor.org www.oakharbor.gov

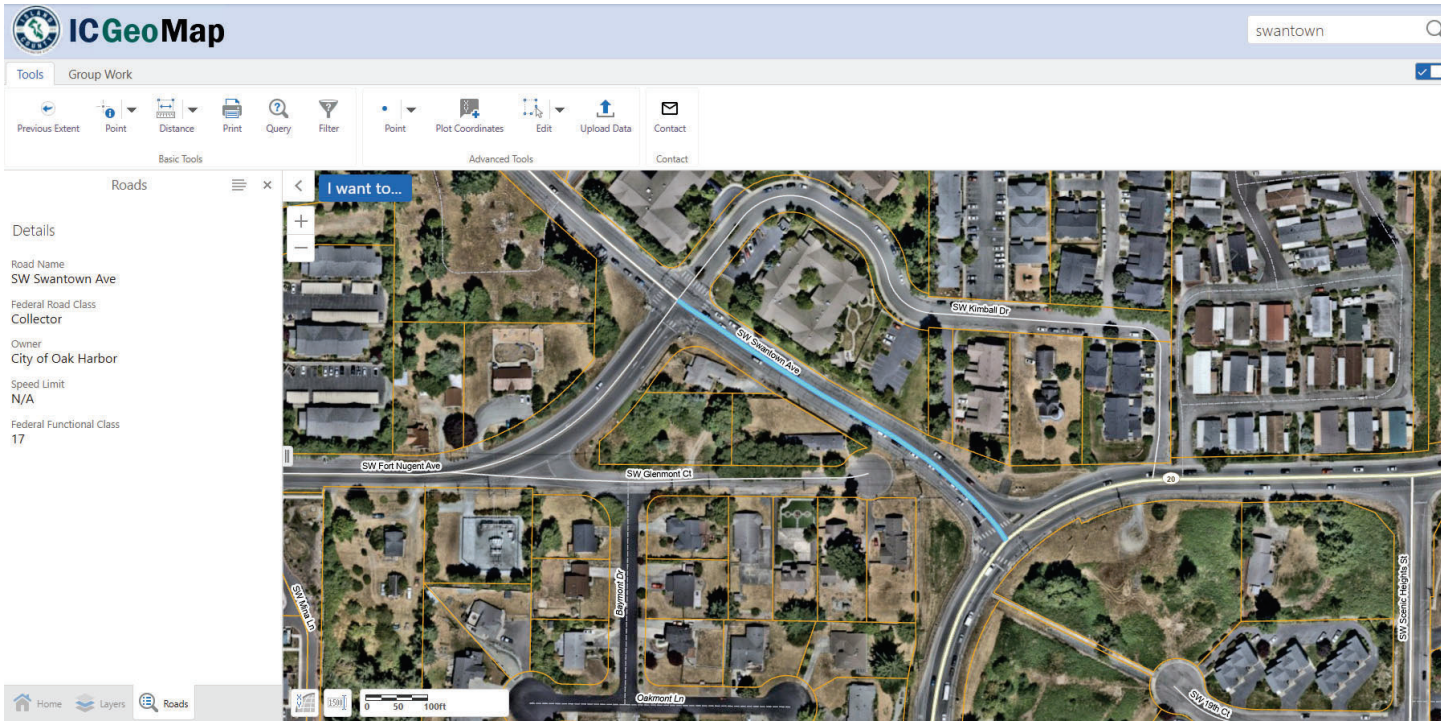
From: Alyssa Johnson <AJohnson@landauinc.com>
Sent: Thursday, January 8, 2026 2:17 PM
To: Julie Nester <jnester@oakharbor.org>
Subject: Fw: Traffic data for Oak Harbor

Hi Julie! I'm looking for traffic data, specifically ADT for a section of SW Swantown Road, as shown below. Can you help or direct me to someone who might have that data? Thanks!

Alyssa Johnson (she/her/hers)
PROJECT SCIENTIST
D: (253) 284-4876 | ajohnson@landauinc.com
Tacoma, Washington

From: Phoebe Tiv <P.Tiv@islandcountywa.gov>
Sent: Thursday, January 8, 2026 1:56 PM
To: Alyssa Johnson <AJohnson@landauinc.com>
Subject: RE: Traffic data for Oak Harbor

Thank you for your quick response. That road segment owned by City of Oak Harbor, so Island County is unable to access to their ADT database. My recommendation is contacting City of Oak Harbor for the latest ADT.
Please let me know if you have any questions,
Best regards,
Phoebe



Phoebe Tiv
Traffic Engineer
Public Works

Email: P.Tiv@islandcountywa.gov | Office: +1(360)678-7969
1 NE 7th Street, Coupeville, WA 98239

Email is subject to public disclosure requirements per RCW 42.56

From: Alyssa Johnson <AJohnson@landauinc.com>
Sent: Thursday, January 8, 2026 1:12 PM
To: Phoebe Tiv <P.Tiv@islandcountywa.gov>
Subject: Re: Traffic data for Oak Harbor

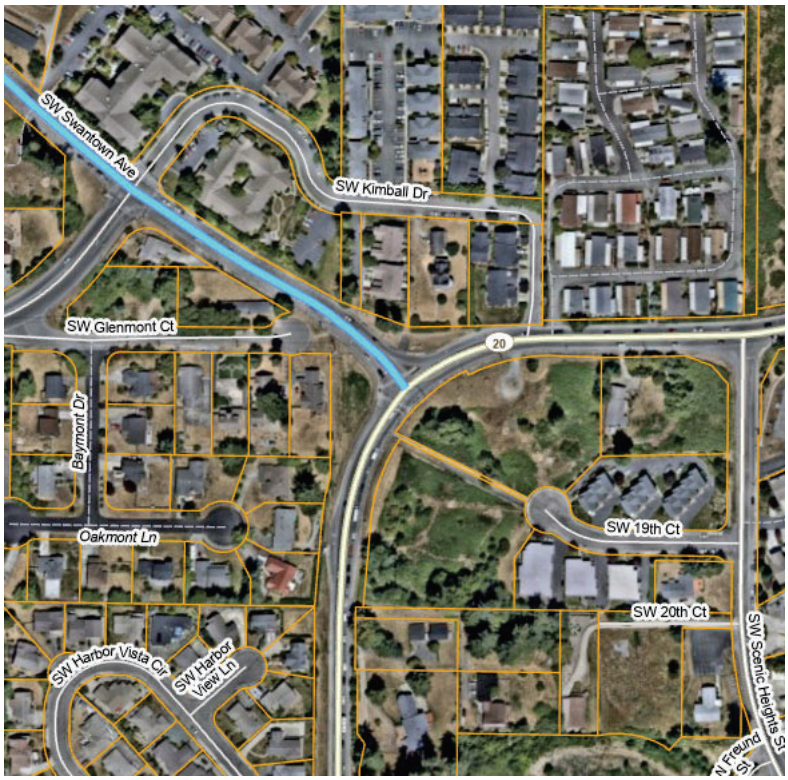
Caution: This email is from outside the Island County network. Please use caution when clicking on links, opening attachments, or replying. Contact IT with any questions.

Hi Phoebe! Yes, the highlighted section below is what I'm looking for. Thanks!

Alyssa Johnson (she/her/hers)
PROJECT SCIENTIST
D: (253) 284-4876 | ajohnson@landauinc.com
Tacoma, Washington

From: Phoebe Tiv <P.Tiv@islandcountywa.gov>
Sent: Thursday, January 8, 2026 1:10 PM
To: Alyssa Johnson <AJohnson@landauinc.com>
Subject: RE: Traffic data for Oak Harbor

Hi Alyssa,
I'm glad you found ADT data. May I ask about the specific road segment or intersection that you're looking for latest ADT? Is it the intersection between SW Swantown and SR20?



Thank you,
Best regards,
Phoebe

Phoebe Tiv
Traffic Engineer
Public Works

Email: P.Tiv@islandcountywa.gov | Office: +1(360)678-7969
1 NE 7th Street, Coupeville, WA 98239

Email is subject to public disclosure requirements per RCW 42.56

From: Alyssa Johnson <AJohnson@landauinc.com>
Sent: Thursday, January 8, 2026 12:15 PM
To: Phoebe Tiv <P.Tiv@islandcountywa.gov>
Subject: Re: Traffic data for Oak Harbor

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Thanks Pheobe! I was able to see what's available on the map layer, but from there I am only seeing ADT numbers from 1995 on the section of SW Swantown Ave nearest to the intersection with SR-20. Do you have any more recent numbers? Thanks!

Alyssa Johnson (she/her/hers)
PROJECT SCIENTIST
D: (253) 284-4876 | ajohnson@landauinc.com
Tacoma, Washington

From: Phoebe Tiv <P.Tiv@islandcountywa.gov>
Sent: Thursday, January 8, 2026 11:23 AM
To: Alyssa Johnson <AJohnson@landauinc.com>
Subject: RE: Traffic data for Oak Harbor

Good morning, Alyssa,
All Island County ADT data are available to look up at ICGeoMap (https://icgeomap.islandcountywa.gov/Html5Viewer/Index.html?viewer=ICGeoMap#). Please choose Layers → Public Works → Road Log/Mobility Data 2025 → View additional details.
However, if you can't find ADT through our database. City of Oak Harbor would be able to help.
Thank you,
Best regards,

Phoebe

Phoebe Tiv
Traffic Engineer
Public Works

Email: P.Tiv@islandcountywa.gov | Office: +1(360)678-7969
1 NE 7th Street, Coupeville, WA 98239

Email is subject to public disclosure requirements per RCW 42.56

From: Alyssa Johnson <AJohnson@landauinc.com>
Sent: Thursday, January 8, 2026 11:10 AM
To: Phoebe Tiv <P.Tiv@islandcountywa.gov>
Subject: Traffic data for Oak Harbor

Caution: This email is from outside the Island County network. Please use caution when clicking on links, opening attachments, or replying. Contact IT with any questions.

Hi Phoebe,

I'm looking for ADT for SW Swantown road north of the intersection with SR-20. Is there current traffic data for Oak Harbor/Island County online, or available through you? I wasn't able to find anything current online.

Thanks!

Alyssa Johnson (she/her/hers)
PROJECT SCIENTIST
D: (253) 284-4876 | ajohnson@landauinc.com
Tacoma, Washington

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From: Sturdivant, Brian
To: Amy Maule
Subject: RE: <External Message> Traffic Noise on Shared Balcony
Date: Thursday, August 1, 2024 1:24:08 PM
Attachments: image002.png
image003.png

HI Amy,

Outdoor areas (other than balconies off housing units) that are “public areas” see the following

Noise sensitive ancillary outdoor uses
For new construction projects, HUD’s noise standards apply both at the immediate exterior of buildings and at other locations where it is determined that quiet outdoor space is required in an area ancillary to the principal use on the site (§ 51.103(c)(1)). Ancillary outdoor areas provide residents with space for a particular designated activity or use. Once an outdoor space is designated for an activity or use requiring quiet, the noise level at that location must be evaluated and factored into the acceptability classification of the site. Not all outdoor areas are considered equally. HUD considers multiple factors tied to the primary, intended use of the outdoor area to determine if the outdoor use is noise sensitive or requires quiet. Factors include:
Avoiding unsafe situations. Areas where verbal warning must be heard and intelligible to preserve a safe environment include uses such as swimming pools and playgrounds.
Avoiding prolonged exposure to noise by considering the amount of time intended for each use. Areas where the amount of time spent is relatively limited - i.e., less than 14 hours per week (and therefore exposure to noise is limited) - and where speech communication is not required for safety nor is speech communication an integral part of the intended use, may not be classified as noise sensitive. These areas may include walking trails and car wash areas.
Avoiding interference with intended activities. Areas where speech communication is an integral part of the use, such as performance venues and certain recreational areas, may require quiet to preserve the quality of the intended activity.
Considering whether there are alternative spaces indoors for the activity. An alternative space indoors has a substantially similar purpose, size, and access to the outdoor amenity. For example, a balcony or porch is an outdoor amenity that is typically small with private access, and has reliable alternative space within the residence, such as in a dining room.

Table lists common uses for ancillary outdoor spaces and identifies whether the area is noise sensitive, and the reason. Note that HUD does not consider natural areas intended for recreation, such as trails, noise sensitive when identified as an ancillary outdoor space on a residential land use. Although speech communication may be *desirable* for these uses, it is not required for safety, nor is it an integral part of the intended use.

Noise sensitivity of ancillary outdoor spaces Ancillary use area description	**Is the area noise sensitive?**	**Justification**

Swimming pool Playground	Yes	Potential safety issues if verbal warnings are not intelligible
Enclosed/fenced dog run* or dog wash Car wash Trails	No	Speech communication not required AND average duration of activity <14 hours/week
Private gathering space associated with individual dwelling unit (balconies, patios, porches, decks, and terraces constructed integrally to a building)	No, however must comply with Balcony Memo.	See Balcony Memo
Shared or common gathering outdoor space Other types of outdoor space, performance venue, sport or play area with specific use	Case-specific	Yes, if speech communication required for safety or is an integral part of use No, if speech communication not required AND average duration of activity <14 hours/week

* A dog run or dog park amenity may be considered noise sensitive if there are safety concerns, for example if the amenity is large in size such that speech communication at a large distance is necessary for safety.

Brian Sturdivant
Regional Environmental Officer (REO)
206 220-5377
909 First Ave, Suite 340
Seattle, WA 98104-1000
Region X Environmental Review Website

From: Amy Maule <AMaule@landauinc.com>
Sent: Thursday, August 1, 2024 12:53 PM
To: Sturdivant, Brian <Brian.Sturdivant@hud.gov>

Subject: <External Message> Traffic Noise on Shared Balcony

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe. If you have concerns about the content of the email, please send it to phishing@hud.gov or click the Report Phishing Button on the Outlook ribbon or Phishing option within OWA.

Hello Brian,
Landau is working on a HUD NEPA assessment for a residential project with ground floor commercial in an urban area. The building will have several outdoor use areas – large ground-floor areas and smaller shared balconies on upper floors. We are hoping to get your feedback on whether all shared balconies are indicative of "outdoor noise sensitive activities" requiring quiet outdoor space.

In this case, interior noise levels been mitigated to below a DNL of 45 decibels, and all but one balcony have calculated noise levels at or below 65 dBA.

We've reviewed HUD's memo on balconies (Notice: CPD-16-19) and understand that it applies specifically to balconies associated with individual dwelling units, which this is not. However, the following statement from the memo applies to this balcony: "*Balconies are amenities. Balconies are not required for the full functioning of dwelling units that have reliable, alternative spaces within the structure; therefore, they are ancillary to the principal land use—housing. Because their use is optional, the negative effects of noise exposure are not an important determinant of overall project viability.*" Does HUD have similar guidance for shared balcony spaces?

We appreciate your feedback on this question, and we're happy to discuss further if you have any questions.
Amy

Amy Maule (she/her)
ASSOCIATE SCIENTIST
(425) 329-0259 | amaule@landauinc.com

LANDAU ASSOCIATES
Seattle | Tacoma | Olympia | Kingston | Spokane | Quincy | Portland | Boise | Baton Rouge

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Day/Night Noise Level (DNL) Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Mulberry Village - Point A
Record Date	01 / 27 / 2026
User's Name	Landau Associates

Road # 1 Name:	**SW Swantown Ave**

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	72	72	72
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	10210	349	710
Night Fraction of ADT	15	15	15
Road Gradient (%)			3
Vehicle DNL	62	57	71
Calculate Road #1 DNL	71	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	58
Loud Impulse Sounds?	○Yes ○No
Combined DNL for all Road and Rail sources	**71**
Combined DNL including Airport	**72**
Site DNL with Loud Impulse Sound	

Calculate | Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
    - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
    - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
    - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
    - Incorporate natural or man-made barriers.
    - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Federal Railroad Administration Railroad Operations Data Sources (https://www.hudexchange.info/resource/6027/federal-railroad-administration-railroad-operations-data-sources/)

Day/Night Noise Level (DNL) Calculator

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Guidelines

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- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Mulberry Village - Point B
Record Date	01 / 27 / 2026
User's Name	Landau Associates

Road # 1 Name:	**SW Swantown Ave**

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	143	143	143
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	10210	349	710
Night Fraction of ADT	15	15	15
Road Gradient (%)			3
Vehicle DNL	57	52	66
Calculate Road #1 DNL	67	Reset	

Road # 2 Name: **SR20**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	929	929	929
Distance to Stop Sign			
Average Speed	30	30	30
Average Daily Trips (ADT)	22031	754	1532
Night Fraction of ADT	15	15	15
Road Gradient (%)			5
Vehicle DNL	47	42	58

Add Road Source Add Rail Source	
Airport Noise Level	58
Loud Impulse Sounds?	○ **Yes** ○ **No**
Combined DNL for all Road and Rail sources	**67**
Combined DNL including Airport	**68**
Site DNL with Loud Impulse Sound	

Calculate Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers.
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

Federal Railroad Administration Railroad Operations Data Sources (https://www.hudexchange.info/resource/6027/federal-railroad-administration-railroad-operations-data-sources/)

Day/Night Noise Level (DNL) Calculator

The Day/Night Noise Level Calculator is an electronic assessment tool that calculates the Day/Night Noise Level (DNL) from roadway and railway traffic. For more information on using the DNL calculator, view the **Day/Night Noise Level Calculator Electronic Assessment Tool Overview (/programs/environmental-review/daynight-noise-level-electronic-assessment-tool/)**.

Guidelines

- To display the Road and/or Rail DNL calculator(s), click on the "Add Road Source" and/or "Add Rail Source" button(s) below.
- All Road and Rail input values must be positive non-decimal numbers.
- All Road and/or Rail DNL value(s) must be calculated separately before calculating the Site DNL.
- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Mulberry Village - Point C
Record Date	01 / 27 / 2026
User's Name	Landau Associates

Road # 1 Name:	**SW Swantown Ave**

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	136	136	136
Distance to Stop Sign			
Average Speed	54	54	54
Average Daily Trips (ADT)	10210	59G	710
Night Fraction of ADT	14	14	14
Road %radient (#)			5
Vehicle DNL	44	41	64
Calculate Road 81 DNL	64	Reset	

Road # 2 Name:	**SR20**

Road #2

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	3G1	3G1	3G1
Distance to Stop Sign			
Average Speed	50	50	50
Average Daily Trips (ADT)	22051	749	1452
Night Fraction of ADT	14	14	14
Road %radient (#)			4
Vehicle DNL	97	92	43

Add Road Source Add Rail Source	
Airport Noise Level	43
Loud Impulse Sounds?	○ **Yes** ○ **No**
Combined DNL for all Road and Rail sources	**66**
Combined DNL including Airport	**67**
Site DNL with Loud Impulse Sound	

Calculate Reset

Mitigation Options

If your site DNL is in Excess of 64 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
  - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
  - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
  - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
  - Incorporate natural or man-made barriers.
  - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

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Guidelines

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- All checkboxes that apply must be checked for vehicles and trains in the tables' headers.
- **Note #1:** Tooltips, containing field specific information, have been added in this tool and may be accessed by hovering over all the respective data fields (site identification, roadway and railway assessment, DNL calculation results, roadway and railway input variables) with the mouse.
- **Note #2:** DNL Calculator assumes roadway data is always entered.

DNL Calculator

Site ID	Mulberry Village - Point O1
Record Date	01 / 27 / 2026
User's Name	Landau Associates

Road # 1 Name:	**SW Swantown Ave**

Vehicle Type	Cars ☑	Medium Trucks ☑	Heavy Trucks ☑
Effective Distance	200	200	200
Distance to Stop Sign			
Average Speed	35	35	35
Average Daily Trips (ADT)	10210	349	710
Night Fraction of ADT	15	15	15
Road Gradient (%)			3
Vehicle DNL	55	50	64
Calculate Road #1 DNL	65	Reset	

Add Road Source | Add Rail Source

Airport Noise Level	58
Loud Impulse Sounds?	○Yes ○No
Combined DNL for all Road and Rail sources	**65**
Combined DNL including Airport	**65**
Site DNL with Loud Impulse Sound	

Calculate | Reset

Mitigation Options

If your site DNL is in Excess of 65 decibels, your options are:

- **No Action Alternative**: Cancel the project at this location
- **Other Reasonable Alternatives**: Choose an alternate site
- **Mitigation**
    - **Contact your Field or Regional Environmental Officer (/programs/environmental-review/hud-environmental-staff-contacts/)**
    - Increase mitigation in the building walls (only effective if no outdoor, noise sensitive areas)
    - Reconfigure the site plan to increase the distance between the noise source and noise-sensitive uses
    - Incorporate natural or man-made barriers.
    - Construct noise barrier. See the **Barrier Performance Module (/programs/environmental-review/bpm-calculator/)**

Tools and Guidance

Day/Night Noise Level Assessment Tool User Guide (/resource/3822/day-night-noise-level-assessment-tool-user-guide/)

Day/Night Noise Level Assessment Tool Flowcharts (/resource/3823/day-night-noise-level-assessment-tool-flowcharts/)

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Sound Transmission Classification Assessment Tool (STraCAT)

Overview

The Sound Transmission Classification Assessment Tool (STraCAT) is an electronic version of Figures 17 and 19 in The HUD Noise Guidebook. The purpose of this tool is to document sound attenuation performance of wall systems. Based on wall, window, and door Sound Transmission Classification (STC) values, the STraCAT generates a composite STC value for the wall assembly as a whole. Users can enter the calculated noise level related to a specific Noise Assessment Location in front of a building façade and STraCAT will generate a target required attenuation value for the wall assembly in STC. Based on wall materials, the tool will state whether the composite wall assembly STC meets the required attenuation value.

How to Use This Tool

Location, Noise Level and Wall Configuration to Be Analyzed
STraCAT is designed to calculate the attenuation provided by the wall assembly for one wall of one unit. If unit exterior square footage and window/door configuration is identical around the structure, a single STraCAT may be sufficient. If units vary, at least one STraCAT should be completed for each different exterior unit wall configuration to document that all will achieve the required attenuation. Additionally, if attenuation is not based on a single worst-case NAL, but there are multiple NALs which require different levels of attenuation around the structure, a STraCAT should be completed for each differing exterior wall configuration associated with each NAL.

Exterior wall configurations associated with an NAL include those with parallel (facing) or near-parallel exposure as well as those with perpendicular exposure. When a façade has parallel or perpendicular exposure to two or more NALs, you should base the required attenuation on the NAL with the highest calculated noise level. For corner units where the unit interior receives exterior noise through two facades, the STraCAT calculation should incorporate the area of wall, window and door materials pertaining to the corner unit's total exterior wall area (i.e., from both walls).

Information to Be Entered
Users first enter basic project information and the NAL noise level that will be used as the basis for required attenuation. This noise level must be entered in whole numbers. STraCAT users then enter information on wall, window and door component type and area. Again, as noted above, the wall, window and door entries are based on one unit, and one wall (except for corner units as discussed above). The tool sums total wall square footage based on the combined area of walls, doors and windows for the façade being evaluated.

Users may input STC values for materials in one of two ways. The tool includes a dropdown menu

of common construction materials with STC values prefilled. If selected construction materials are not included in this dropdown menu, the user may also enter the STC for a given component manually. Verification of the component STC must be included in the ERR. Documentation includes the architect or construction manager's project plans showing wall material specifications. For new construction or for components that will be newly installed in an existing wall, documentation also includes the manufacturer's product specification sheet (cut sheet) documenting the STC rating of selected doors and windows.

Required STC Rating and Determination of Compliance
Finally, based on project information entered the tool will indicate the required STC rating for the wall assembly being evaluated and whether or not the materials specified will produce a combined rating that meets this requirement. Note that for noise levels above 75 dB DNL, either HUD (for 24 CFR Part 50 reviews) or the Responsible Entity (for 24 CFR Part 58 reviews) must approve the level and type of attenuation, among other processing requirements. Required attenuation values generated by STraCAT for NALs above 75 dB DNL should therefore be considered tentative pending approval by HUD or the RE.

For detailed guidance, review the **STraCAT User Guide (https://www.hudexchange.info/resource/2829/sound-transmission-classification-assessment-tool/)**.

Part I - Description

Part I - Description

Project

Mulberry Village

Sponsor/Developer

Blue Ridge Cascade

Location

Oak Harbor, WA

Prepared by

Landau Associates

Noise Level

72

Date

1/28/2026

Primary Source(s)

Part II - Wall Components

Part II - Wall Components

Wall Construction Detail	Area	STC
7/8" stucco; #15 building paper and wire mesh; 2"x4" wood studs 16"O.C.; 1/2" gypsum board on resilient channels	4210	49

Add new wall

	4,210 Sq. Feet	**49**

Window Construction Detail	Quantity	Sq Ft/Unit	STC
3'x4' awning window single panel glazed double strength	9	12	24

Add new window

Door Construction Detail	Quantity	Sq Ft/Unit	STC
6'x6' sliding glass door 3/4" insulating glass (double pane 1/8" each with 1/2" air space) one door opens and one fixed	6	36	28

Add new door

Part III - Results

Part III - Results

Wall Statistics

Stat	Value
Area:	4210 ft^2
Wall STC:	49

Aperture Statistics

Aperture	Count	Area	% of wall
Windows:	9	**108 ft^2**	**2.57%**
Doors:	6	**216 ft^2**	**5.13%**

Evaluation Criteria

Criteria	Value
Noise source sound level (dB):	**72**
Combined STC for wall assembly:	**37.1**
Required STC rating:	**30**
Does wall assembly meet requirements?	**Yes**

Print

Part 4 - Tips